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July 18, 2022

Ms. Mary Alice Evans, Director
Office of Planning and Sustainable Development
Environmental Review Program
235 South Beretania Street, Suite 702
Honolulu, Hawai'i 96813

Dear Ms. Evans:

**SUBJECT: Publication of the Final Environmental Assessment (FEA)
Finding of No Significant Impact (FONSI) for the Arts and Sciences Center
(ASC) Campus Expansion**

Applicant: Arts and Sciences Center

TMK: (3) 1-5-006:003 & (3) 1-5-006:012 & (3) 1-5-006:026, Puna, Hawai'i

With this letter, the Hawai'i County Planning Department (Accepting Authority) hereby transmits electronically the Final Environmental Assessment and Finding of No Significant Impact (FEA-FONSI) for the proposed Arts and Sciences Center Campus project located on the subject parcel (TMK: (3) 1-5-006:003 & (3) 1-5-006:012 & (3) 1-5-006:026) in Puna on the Island of Hawai'i, for publication in the next available edition of the Environmental Notice.

ASC is proposing to expand the existing campus to include a Community Learning Center (CLC), which will operate separately from the established Hawai'i Academy of Arts and Sciences Public Charter School that operates at the site presently. The purpose of the proposed expansion is to provide easily accessible skills training, facilities, and resources to the public to support Puna's economy and help diversify the workforce.

The Draft Environmental Assessment and Anticipated Finding of No Significant Impact (DEA-AFONSI) was published in the OPSD's May 8, 2022 issue of the Environmental Notice. The FEA includes copies of comments received and the corresponding responses from the applicant that were received during the 30-day public comment period on the DEA-AFONSI.

Based on the findings from Part 4 of the FEA, the Planning Department has determined that this project will not have a "significant effect" or "significant impact" on the quality of the environment and have therefore issued a FONSI. **This FONSI does not constitute approval of the project or any project components or proposed uses.**

Mary Alice Evans, Director
Office of Planning and Sustainable Development
July 18, 2022
Page 2

If there are questions regarding this letter, please contact Natasha Soriano of this office at (808) 961-8712 or via email at natasha.soriano@hawaiicounty.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read 'ZENDO KERN', with a long horizontal flourish extending to the right.

ZENDO KERN
Planning Director

NS:cc

\\coh01\planning\public\wpwin60\CH343\2022\ASC_DEA\7.18.2022_PD_to_OPSD_ASC_FEA_letter_Evans.doc

Cc (via e-mail): Land Planning Hawai'i, LLC

From: webmaster@hawaii.gov
To: [DBEDT OPSD Environmental Review Program](#)
Subject: New online submission for The Environmental Notice
Date: Monday, July 18, 2022 3:17:32 PM

Action Name

Proposed Campus Expansion for the Arts and Sciences Center (ASC)

Type of Document/Determination

Final environmental assessment and finding of no significant impact (FEA-FONSI)

HRS §343-5(a) Trigger(s)

- (1) Propose the use of state or county lands or the use of state or county funds

Judicial district

Puna, Hawai'i

Tax Map Key(s) (TMK(s))

(3) 1-5-006:002; (3) 1-5-006:012; (3) 1-5-006:026

Action type

Agency

Other required permits and approvals

Building Code/Structural Permits, Grubbing/Grading Permits, Electrical Review, Mechanical/Plumbing Review, Septic System Review, Fire Review, Engineering Review, Sanitation Review, Potential Noise Permit, Special Use Permit, Wastewater System Approval and a National Pollutant Discharge Elimination System (NPDES) Permit.

Proposing/determining agency

Hawai'i County Planning Department

Agency contact name

Natasha Soriano

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Natasha.soriano@hawaiicounty.gov

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[Map It](#)

Was this submittal prepared by a consultant?

Yes

Consultant

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[Map It](#)

Action summary

The proposed action involves the construction of six (6) buildings over four (4) phases and include a gateway/community workforce development/technology center, an industrial and skilled trades development center, an agricultural center, an event/auditorium and atrium, a vocational school, and a maintenance/repair shop. The grounds will also be designed for community focused agriculture, aquaponics and aquaculture, outdoor workshop and learning areas, stream ecology, ethnobotanical gardens, an amphitheater, community athletic and outdoor activity fields, walking paths, a greenhouse, composting and green waste areas, parking lots and drop off locations. Access alternatives may involve improvements to the Kea'au-Pāhoa Bypass Road and will be determined in consultation with the Hawai'i Department of Transportation.

Reasons supporting determination

Refer to Part 4: Determination, Findings and Reasons in the Final EA

Attached documents (signed agency letter & EA/EIS)

- [ASC_FINAL-ENVIRONMENTAL-ASSESSMENT.pdf](#)
- [7.18.2022_PD_to_OPSD_ASC_FEA_letter_Evans.pdf](#)

Shapefile

- The location map for this Final EA is the same as the location map for the associated Draft EA.

Action location map

- [ASC-KML.zip](#)

Authorized individual

Natasha Soriano

Authorization

- The above named authorized individual hereby certifies that he/she has the authority to make this submission.

FINAL ENVIRONMENTAL ASSESSMENT

Arts and Sciences Center (ASC) Campus Expansion

July 2022

TMK: (3) 1-5-006: 002 & (3) 1-5-006: 012 & (3) 1-5-006: 026
Pāhoa, Puna, County of Hawai'i, State of Hawai'i

APPLICANT: Arts & Sciences Center
PO Box 2091
Pāhoa, HI 96778

DETERMINING
AGENCY: County of Hawai'i
Planning Department
101 Pauahi Street Suite 3
Hilo, Hawai'i 96720

CONSULTANT:
Land Planning Hawai'i LLC
194 Wiwo'ole Street
Hilo, Hawai'i 96720

This document is prepared pursuant to:
The Hawai'i Environmental Policy Act,
Chapter 343, Hawai'i Revised Statutes (HRS), and
Title 11, Chapter 200.1, Hawai'i Department of Health Administrative Rules (HAR)

Table of Contents

SUMMARY7

PART 1: PROJECT DESCRIPTION AND EA PROCESS 13

1.1 Project Description and Location..... 13

 1.2 Purpose and Need 45

 1.3 Cost and Schedule..... 45

 1.4 Environmental Assessment Process..... 46

 1.5 Public Involvement and Agency Coordination..... 47

PART 2: ALTERNATIVES..... 48

2.1 Proposed Project, Alternative Sites, and Alternative Uses 48

 2.1.1 Full Buildout 48

 2.1.2 Partial Buildout 49

 2.1.3 Access Alternatives..... 54

2.2 No Action..... 56

PART 3: ENVIRONMENTAL SETTING, IMPACTS AND MITIGATION 56

3.1 Physical Environment 56

 3.1.1 Geology, Soils, Geologic Hazards, and Climate..... 56

 3.1.2 Flood Zones and Shoreline Setting 64

 3.1.3 Water Quality 68

 3.1.4 Flora and Fauna..... 70

 3.1.5 Air Quality, Noise and Scenic Resources 74

 3.1.6 Hazardous Substances, Toxic Waste and Hazardous Conditions 76

3.2 Socioeconomic and Cultural 78

 3.2.1 Land Use, Socioeconomic Characteristics and Recreation..... 78

 3.2.2 Cultural and Historic Resources 79

3.3 Public Roads, Services and Utilities 82

 3.3.1 Roads and Access 82

 3.3.2 Public Utilities and Services 105

3.4 Secondary and Cumulative Impacts..... 107

3.5 Required Permits and Approvals 109

3.6 Consistency with Government Plans and Policies 109

 3.6.1 Hawai'i County General Plan 109

 3.6.2 Hawai'i County Zoning and Special Management Area 120

 3.6.3 Conservation District 120

PART 4: DETERMINATION, FINDINGS AND REASONS 120

4.1 Determination 120

 4.2 Findings and Supporting Reasons..... 121

REFERENCES..... 126

Tables

Table 1: Total Construction Cost Breakdown for the Proposed Community Learning Center	45
Table 2: Building Cost Breakdown for the Proposed Community Learning Center Expansion ..	46
Table 3: Plant Species Detected on the Arts and Science Center Properties.....	71
Table 4: Level of Service Summary for Existing Conditions.....	85
Table 5: Future Year 2031 Project Trip Generation.....	87
Table 6: Level of Service Summary for Existing Conditions and Base Year 2026.....	88
Table 7: LOS Summary Base Year 2026, 2031 and 2041.....	89
Table 8: LOS Summary of Traffic Conditions in Base Year and Future Year 2026 under Alternative 1 and 2.....	98
Table 9: LOS Summary of Traffic Conditions in Base Year and Future Year 2031 under Alternative 1 and 2.....	99
Table 10: LOS Summary of Traffic Conditions in Base Year and Future Year 2041 under Alternative 1 and 2.....	100

Figures

Figure 1: Location Map.....	9
Figure 2: View of the Properties Looking Northeast.....	10
Figure 3: View of the North Corner of the Properties.....	10
Figure 4: View of the Properties Looking East.....	11
Figure 5: View of the Southeast Corner of the Properties.....	11
Figure 6: Aerial Photo of the Proposed Location of the Full Access Driveway.....	12
Figure 7: View of the Properties to Looking North.....	12
Figure 8: Site Master Plan.....	17
Figure 9: Cross Section A-A.....	18
Figure 10: Cross Section B-B.....	19
Figure 11: Gateway, Workforce Development and Technology Center Site Plan.....	20
Figure 12: Industrial and Skilled Trades Center Site Plan.....	21
Figure 13: Agricultural Center Site Plan.....	22
Figure 14: Event Center, Auditorium and Atrium Site Plan.....	23
Figure 15: Conceptual Design of the Main Entry Road.....	24
Figure 16: Conceptual Design of the Gateway, View North.....	25
Figure 17: Conceptual Design of the Gateway, View East.....	26
Figure 18: Conceptual Design of the Amphitheater.....	27
Figure 19: Conceptual Design of Community Parking, View to Gateway/Technology Center... ..	28
Figure 20: Conceptual Design of the Gateway Administration Area.....	29
Figure 21: Conceptual Design of the Auditorium.....	30
Figure 22: Conceptual Design of the Event Center/Auditorium/Atrium.....	31
Figure 23: Conceptual Design of the Gateway Mezzanine.....	32
Figure 24: Conceptual Design of the Photo Studio.....	33
Figure 25: Conceptual Design of the Art Lab.....	34
Figure 26: Conceptual Design of the Guest Accommodations.....	35
Figure 27: Conceptual Design of the Agricultural Center/Outdoor Flex Areas and Gardens.....	36
Figure 28: Conceptual Design of the Industrial and Skilled Trades Building/Outdoor Flex and	

Presentation Areas	37
Figure 29: Conceptual Design of the Industrial and Skilled Trades Building Wood Shops and Outdoor Space.....	38
Figure 30: Conceptual Design of Terrace Leading to Community Gardens, Gateway, and Agricultural Building	39
Figure 31: Conceptual Design of Terraced Agriculture and Education Areas	40
Figure 32: Conceptual Design of Water Treatment Ponds	41
Figure 33: Conceptual Design of Water Features and Management	42
Figure 34: Phased Master Plan	43
Figure 35: Infrastructure Diagram	44
Figure 36: Master Plan Reduced Footprints	50
Figure 37: Gateway Building Reduced Footprint.....	51
Figure 38: Agricultural Building Reduced Footprint.....	52
Figure 39: Industrial Building Reduced Footprint.....	53
Figure 40: Kīlauea Hazard Zones in Relation to the Subject Properties	57
Figure 41: 2014 Kīlauea Lava Flow Threatens Pāhoa Town, Puna, Hawai‘i.....	58
Figure 42: Map of the 2014 Lava Flow in Relation to the Subject Properties	58
Figure 43: 2018 Kīlauea Eruption in Relation to the Subject Properties.....	59
Figure 44: 2021 USGS Model of Earthquake Probability for the Hawaiian Islands.....	60
Figure 45: Extent of the 2021 Wildfire in Hawai‘i County	63
Figure 46: Flood Hazard Assessment Report for Parcel 002.....	65
Figure 47: Flood Hazard Assessment Report for Parcel 012.....	66
Figure 48: Flood Hazard Assessment Report for Parcel 026.....	67
Figure 49: Tsunami Evacuation Zone in Relation to the Subject Properties.....	68
Figure 50: Extent of Sugar Cane Cultivation on the Island of Hawai‘i in the 1920’s and 1930’s	82
Figure 51: Existing Lane Configuration, Volumes and Movements at the Three (3) Study Intersections	86
Figure 52: 2026 Base Year Lane Configuration, Volumes and Movement LOS.....	90
Figure 53: 2031 Base Year Lane Configuration, Volumes and Movement LOS	91
Figure 54: 2041 Base Year Lane Configuration, Volumes and Movement LOS	92
Figure 55: Project-Generated Trips under Alternative 1	94
Figure 56: Project-Generated Trips under Alternative 2	95
Figure 57: Future Year Land Configuration, Volumes and Movement LOS under Alternative 1.....	101
Figure 58: Future Year Land Configuration, Volumes and Movement LOS under Alternative 2	102
Figure 59: TIAR Future Turn Lane Lengths Alternative 1.....	104
Figure 60: TIAR Future Turn Lane Lengths Alternative 2.....	104
Figure 61: Water Options.....	106
Figure 62: Proposed Developments within Vicinity of the Project Area	108

Exhibits

Exhibit A: Department of Water Supply Water Calculations for the ASC Properties

Exhibit B: 2009 State Historic Preservation Department No Effect Letter

Appendices

Appendix A: Traffic Impact Analysis Report (TIAR)

Appendix B: Comments in Response to Early Consultation

Appendix C: Comments in Response to the Draft Environmental Assessment

Abbreviations

AASHTO	American Association of State Highway and Transportation Officials
AMFAC	American Factors
ASC	Arts and Science Center
BMP	Best Management Practices
CAA	Clean Air Act
CLC	Community Learning Center
COVID-19	Coronavirus Disease 2019
CTE	Career and Technical Education
DEA	Draft Environmental Assessment
DLNR	Department of Land and Natural Resources
DOFAW	Division of Forestry and Wildlife
DOH	Department of Health
DWS	Department of Water Supply
EA	Environmental Assessment
EIS	Environmental Impact Statement
ERZ	East Rift Zone
FEA	Final Environmental Assessment
FEMA	Federal Emergency Management Agency
FHAT	Flood Hazard Assessment Report
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
FPL	Federal Poverty Level
GP	General Plan
HAAS	Hawai‘i Academy of Arts and Sciences
HAR	Hawai‘i Administrative Rules
HCC	Hawai‘i County Code
HCM	Highway Capacity Manual
HDOT	Hawai‘i Department of Transportation
HELCO	Hawai‘i Electric Light Company Inc
HELCO	Hawai‘i Electric Light Company
HISGN	Hawai‘i Island School Garden Network
HRS	Hawai‘i Revised Statutes

HWMO	Hawai'i Wildlife Management Organization
IPCC	Intergovernmental Panel on Climate Change
IWS	Individual Wastewater System
LEED	Leadership in Energy and Environmental Design
LERZ	Lower East Rift Zone
LOS	Level of Service
LUPAG	Land Use Allocation Guide
MSDS	Material Safety Data Sheets
NASA	National Aeronautics and Space Administration
NPDES	National Pollutant Discharge Elimination System
PCDP	Puna Community Development Plan
PCS	Public Charter School
PD	Planning Department
PFE	Pacific Fire Exchange
PPE	Personal Protective Equipment
PPM	Parts Per Million
ROD	Rapid 'Ōhi'a Death
SHPD	State Historic Preservation Division
SMA	Special Management Area
SP	Special Permit
SUP	Special Use Permit
SWPPP	Storm Water Pollution Prevention Plan
TDFM	Travel Demand Forecasting Model
TIAR	Traffic Impact Analysis Report
TRB	Transportation Research Board
USDA	United States Department of Agriculture

SUMMARY OF PROJECT, ENVIRONMENTAL IMPACTS, AND MITIGATION MEASURES

The Arts and Science Center (ASC) of Pāhoa is a private, non-profit organization that supports community development and access to education in Puna. ASC was established in 2003 and has a mission to “Providing outstanding support and infrastructure for community-based learning, rooted in Puna, Hawai‘i.” ASC believes in the advancement of intellectual and creative freedom and fosters a cultural and organizational structure that values and supports access to education, diversity, and cultural infusion; stewardship of the natural and constructed environmental, community partnerships and economic impact.

In 2011, the Windward Planning Commission approved the ASC Special Permit No. 2011-000115 to establish the Hawai‘i Academy of Arts and Sciences’ (HAAS) Public Charter School (PCS). HAAS PCS currently supports 735 students. Prior to the COVID-19 pandemic, 350 of the 735 students opted in distance learning, resulting in roughly 385 students attending the Main Campus. During the 2019-2020 school year, 260 students were enrolled in the high school program. The high school program is separated into three learning programs: Main Campus (159 students), InDigital (92 students), and Workplace Readiness (9 students). The Main Campus allows students to attend classes in person each day, while the InDigital program offers a blended learning opportunity where students can work at home or on campus. The Workplace Readiness program is designed to serve students with moderate to severe disabilities and teaches skills for independent living.

ASC is proposing to expand the existing campus to include a Community Learning Center (CLC), which will operate separately from the HAAS PCS. The purpose of the proposed expansion is to provide easily accessible skills training, facilities, and resources to the public to support Puna’s economy and help diversify the workforce.

ASC is located at 15-1397 Homestead Road in Pāhoa. The Main Campus sits on the northeast corner of the State Highway 130 (Kea‘au-Pāhoa Bypass Road)/Homestead Road and Post Office Road intersection (**Figure 1**). The proposed expansion would further develop the three (3) parcels, which make up ASC identified as TMK: (3) 1-5-006: 002, 012, & 026. Parcels 012 and 026 were consolidated in 2015, however, this change has not yet been reflected in the County Real Property Tax records. The subject Parcels combined consist of 24.285-acres of land zoned *Agricultural 5-acres (A-5a)* (hereinafter referred to as “Properties” or “Parcels”) (**Figures 2-7**).

The proposed expansion includes the construction of six (6) main buildings:

1. **Building A:** Gateway/Community Workforce Development/Technology Center
2. **Building B:** Industrial and Skilled Trades Development Center
3. **Building C:** Agricultural Center
4. **Building D:** Event Center/Auditorium and Atrium
5. **Building E:** Vocational School/Auditorium
6. **Building F:** Maintenance/Repair Shop

In addition to these buildings, the grounds will also be designed for community focused agriculture, aquaponics and aquaculture, outdoor workshop spaces, outdoor learning areas, treatment ponds and water storage, stream ecology, ethnobotanical gardens, an amphitheater, community athletic and outdoor activity fields, walking paths, a greenhouse, composting and green waste areas, parking lots and drop off locations. The proposed multi-functioning gathering spaces will be designed to act as shelter during times of natural disasters.

Off-site infrastructure improvements will be required to support traffic for the proposed expansion. A Traffic Impact Analysis Report (TIAR) was completed by Austin, Tsutsumi & Associates, Inc. in December 2021. The TIAR will be summarized in Section 3.3.1 and the full report can be found in **Appendix A**. Access alternatives will be discussed in Section 2.1.3. All traffic improvements will be completed in consultation with the Hawai‘i Department of Transportation (HDOT).

On-site infrastructure is expected in the form of driveways, parking, electrical, water supply, storm water management, and wastewater disposal facilities. ASC currently has an agreement for Department of Water Supply (DWS) service from a private 2-inch line with the master meter on a neighboring property. A DWS line will need to be extended to the site from either Kahakai Boulevard across State and privately-owned parcels (Option A) or Pāhoa Village Road along Post Office Road (Option B) to accommodate water needs. Wastewater will be handled either through Individual Wastewater Systems (IWS) adhering to County and State regulations, or an alternative wastewater system in the form of constructed wastewater wetlands meeting the approval of the Department of Health (DOH). These options will be discussed in Section 3.1.3. Construction activities would occur over 24.285 acres. Minor, short-term construction phase impacts to noise, air and water quality are mitigable by strictly following Best Management Practices (BMPs) associated with County Special Permits, Department of Health regulations, Grubbing and Grading and National Pollutant Discharge Elimination System (NPDES) permitting.

Total project construction costs are roughly \$60 million, with the first phase valued at approximately \$20 million. Construction is planned to commence upon completion of permitting and design, with full buildout estimated by 2031.

Surveys have determined that no historic resources, cultural sites or threatened or endangered flora or fauna species are present on the property. In the unlikely event that undocumented archaeological resources, including shell, bones, midden deposits, lava tubes, or similar finds, are encountered during construction, work in the immediate area of the discovery will be halted, and the State Historic Preservation Division (SHPD) will be contacted to determine the appropriate actions.

The proposed action does not conflict with the Hawai‘i County General Plan (GP) or the Puna Community Development Plan (PCDP). A Special Use Permit (SUP) will be submitted to the Hawai‘i County Planning Department in conjunction with this EA to justify unusual and reasonable use according to State Land Use Regulations. As the Special Permit petition area exceeds 15 acres in land area, authority to grant the request will lie with the Land Use Commission. Establishment of the proposed use will not be contrary to the objectives sought to be accomplished by State Land Use Laws and Regulations.



Figure 2: View of the Properties Looking Northeast



Figure 3: View of the North Corner of the Properties



Figure 4: View of the Properties Looking East



Figure 5: View of the Southeast Corner of the Properties



Figure 6: Aerial Photo of the Proposed Location of the Full Access Driveway



Figure 7: View of the Properties Looking North

PART 1: PROJECT DESCRIPTION AND EA PROCESS

1.1 Project Description and Location

The Properties are located on the northeast corner of the Kea‘au-Pāhoa Bypass/Post Office/Homestead Road intersection in Pāhoa. The proposed expansion would include six (6) main buildings and eighteen (18) supporting features/resources. A breakdown of each proposed building, square footage, and features are below.

Building A: Gateway/Community Workforce Development/Technology Center

Level 1: (6,800 square feet)

- Community Work and Shared Space
- Community Restrooms
- Covered Auditorium
- Administrative Offices
- Community Welcome Point

Level 2: (10,470 square feet)

- Mezzanine at Covered Auditorium
- Covered Terraces (flex use)
- Four (4) Guest Accommodations
- Walkway/Gallery Bridge
- Music Labs/Recording Studio
- Photo/Video Studio

Building B: Industrial and Skilled Trades Development Center (25,620 square feet)

- Wood Shop
- Metal Shop Lab
- Maker Space
- Computer Labs
- Sewing Studio
- Ceramics Labs
- Restrooms and Showers
- Outdoor Flex Space and Outdoor Classrooms

Building C: Agricultural Center (24,300 square feet)

- Two (2) Agricultural Labs
- Outdoor Processing/Flex Areas
- Processing/Fermentation Lab/Community Cafeteria
- Commercial Kitchen
- Bulk Refrigeration/Freezer/Dry Storage
- Loading Zone

Building D: Event Center/Auditorium (23,070 square feet) and Atrium (6,570 square feet)

- Event/activity/Shelter Space (10,000 square feet)
- Commercial Kitchen
- Vending/Cafeteria
- Locker Rooms>Showers
- Staff Offices
- Storage

Building E: Vocational School/Auditorium (19,300 square feet)

Building F: Maintenance/Repair Shop (7,080 square feet)

Additional Resources:

- Community Agriculture and Aquaponics Area
 - Terraced agriculture system [for *Kalo* (taro) cultivation]
 - Open spaces for mixed agriculture use
- Learning Terraces/Outdoor Workshop Space
- Outdoor Work/Learn Areas
- Parking (permeable (gravel) and paved surfaces)
- Drop Off Locations
- Treatment Ponds & Water Storage
- Ethnobotanical Gardens
- Amphitheater
- Community Athletic/Outdoor Activity Fields
- Gravel Track/Walking Path/Fire Lane
- Campus Roads
- Greenhouse
- Composting & Green Waste Drop Off Sites

Site plans and conceptual designs can be found in **Figures 8-33**. The proposed buildout includes four (4) construction phases which have been outlined on the masterplan (**Figure 34**) and are listed below. Phase 1 includes essential on-site and off-site improvements, which will be the foundational infrastructure to support the proposed expansion.

Phase 1

- Event Center/Auditorium
- Atrium
- Main Campus Road
 - Water main extension
 - Intersection improvements
 - Water and Electrical Infrastructure (on-site)
 - Wastewater Systems
- Parking and Drop Off Locations

Phase 2

- Industrial and Skilled Trades Development Center
- Maintenance/Repair Shop
- Community Focused Agriculture and Aquaponics
- Terraced Agriculture
- Learning Terraces/Outdoor Workshop Spaces
- Parking
- Stream Ecology
- Ethnobotanical Gardens
- Gardens
- Walking Paths

Phase 3

- Gateway/Workforce Development/Technology Center
- Agricultural Center
- Covered Walkway Structure
- Parking
- Aquaculture and Mixed Agriculture
- Treatment Ponds and Water Storage
- Stream Ecology
- Community Athletic and Outdoor Activity Fields
- Walking Paths
- Greenhouse

Phase 4

- Vocational School and Covered Auditorium
- Agriculture
- Ethnobotanical Gardens
- Amphitheater

ASC currently has an agreement for Department of Water Supply (DWS) service from a private 2-inch line with the master meter on a neighboring property. Water needs for the proposed expansion have been calculated in consultation with DWS (**Exhibit A**). Thirty-seven (37) water units will accommodate all employees, staff and students for potable use such as drinking water fountains, kitchen, and cafeteria use. The existing three (3) 10,000-gallon catchment tanks will be used for non-potable use including agricultural needs, aquaculture, and landscape irrigation. Off-site improvements will include the extension of a 12-inch ductile iron water pipe to the project site from existing County utility lines either roughly 2,700 feet from the Properties along Kahakai Road (Option A) or 2,500 feet from the Properties along Post Office Road (Option B). Section 3.2.2 will discuss access to water in detail.

Access to the site is currently provided via two (2) driveways along Homestead Road. The TIAR analyzed two (2) proposed access alternatives to forecast and mitigate traffic impacts from the proposed project. The first alternative is to provide access via one (1) existing driveway along Homestead Road and one (1) new full access driveway along Kea'au-Pāhoa Bypass Road.

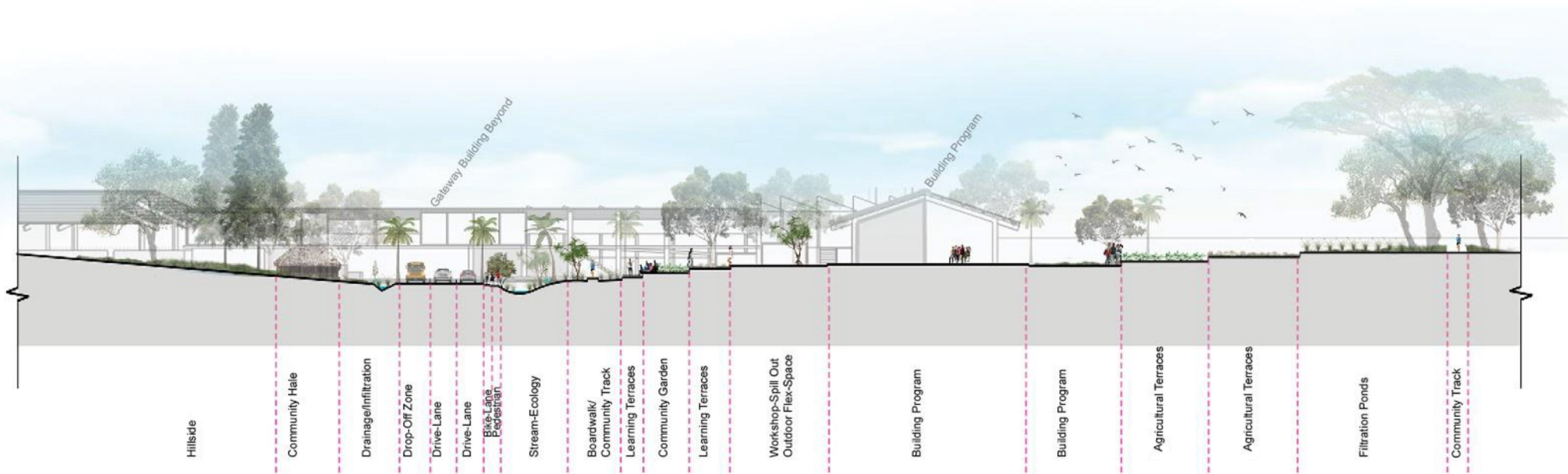
Alternative 2 would only provide access from the two (2) existing driveways along Homestead Road. Alternative 1 is being proposed so that the new full access driveway could serve the Community Learning Center, while the existing driveway along Homestead Road could continue to serve the HAAS PCS. The new access driveway would also keep the school-related traffic and community program traffic separate with the option of providing a gate at the Homestead Road access to be closed during school hours.

The TIAR found that traffic conditions under Alternative 1 are expected to operate similar to projected traffic conditions without the proposed project in 2026, 2031 and 2041 at all study intersections during AM and PM peak traffic hours. Specifically, Alternative 1 is expected to produce better Levels of Service (LOS) and volume to capacity (v/c) ratios for eastbound traffic at the Kea‘au-Pāhoa Bypass and Homestead Road/Post Office Road intersection in Future Years 2026, 2031 and 2041 compared to Alternative 2. Alternative 2 is expected to reach overcapacity conditions for eastbound traffic at this intersection for all Future Years (with v/c ratio of 1.00 in 2026, 1.28 in 2031 and 1.51 in 2041) and is also expected to reduce LOS for westbound traffic at this intersection by Future Year 2041. Further justification and mitigating measures for the alternatives can be found in Sections 2.1.3 and 3.3.1. The off-site improvements will be determined in consultation with the HDOT and according to recommendations outlined in the TIAR.

There are currently two Individual Wastewater Systems (IWS) located on site. As previously discussed, wastewater will be properly handled either through additional IWS or constructed wastewater wetlands meeting the approval of the DOH. Portions of the site require retaining walls and terracing to increase their usability. Approximately 3,466 linear feet of retaining walls are planned on the site in four main areas. **Figure 35** shows the proposed on-site infrastructure.

A biotic survey of the Properties found no endangered or threatened species. Many decades of agricultural use have allowed non-native trees, shrubs, and grasses to grow on the Properties. Four native and/or endemic species, which were planted in landscape areas include Hapu‘u (*Cibotium menziesii*), Hoawa (*Pittosporum hosmeri*), Akolea (*Athyrium microphyllum*), and Kokio Keokeo (*Hibiscus arnottianus*). A fully functioning Macadamia Nut (*Macadamia integrifolia*) orchard and Polynesian garden are currently present on the property for teaching purposes. Many fruit trees are also scattered throughout the grounds.

It is unlikely any archaeological sites, cultural features or historic resources are present on the Properties due to previous development and extensive agricultural use. However, in the event any undiscovered resources are found, all construction work will cease and SHPD will be contacted immediately for appropriate action before work resumes.



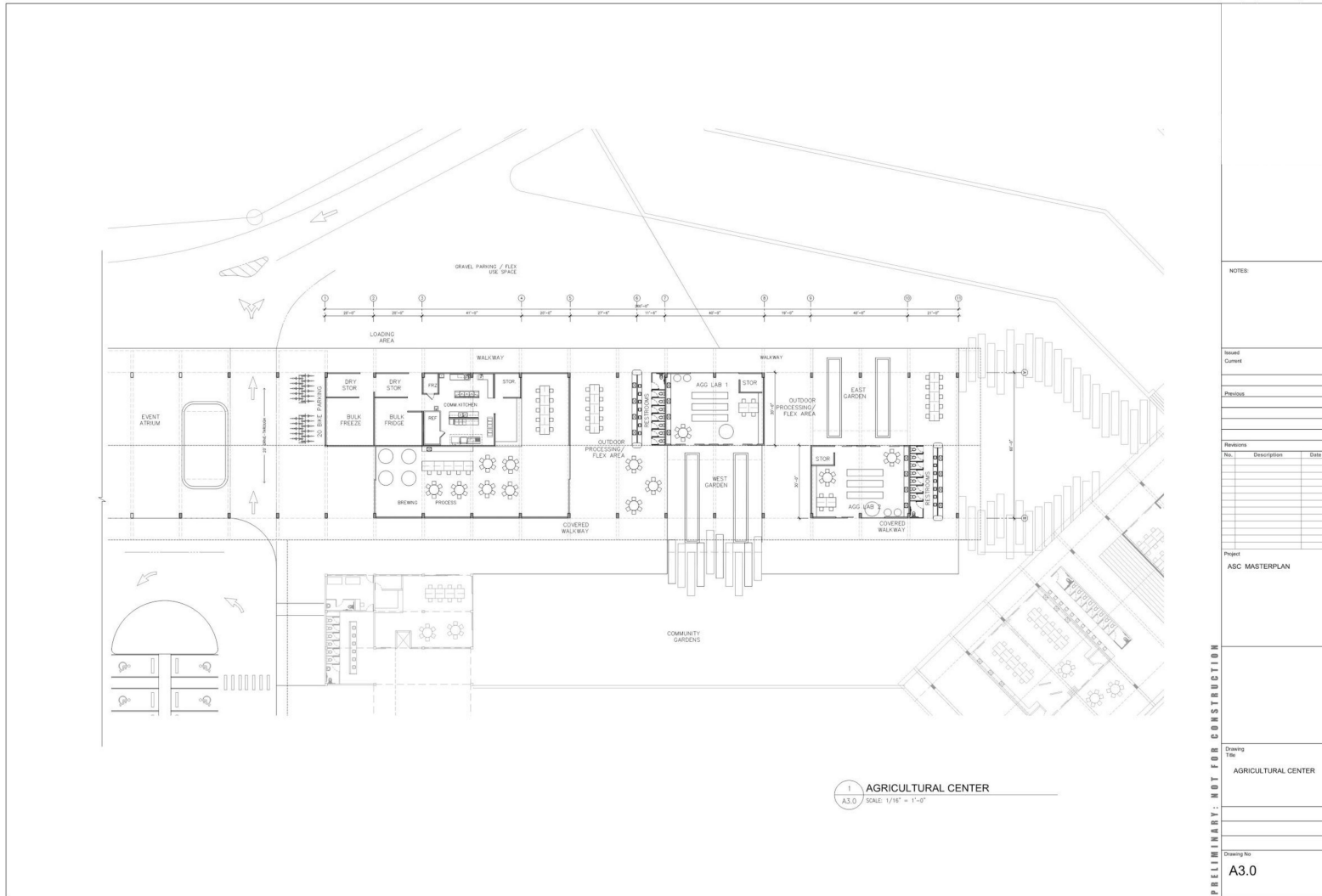
Site Cross Section A-A

Figure 9



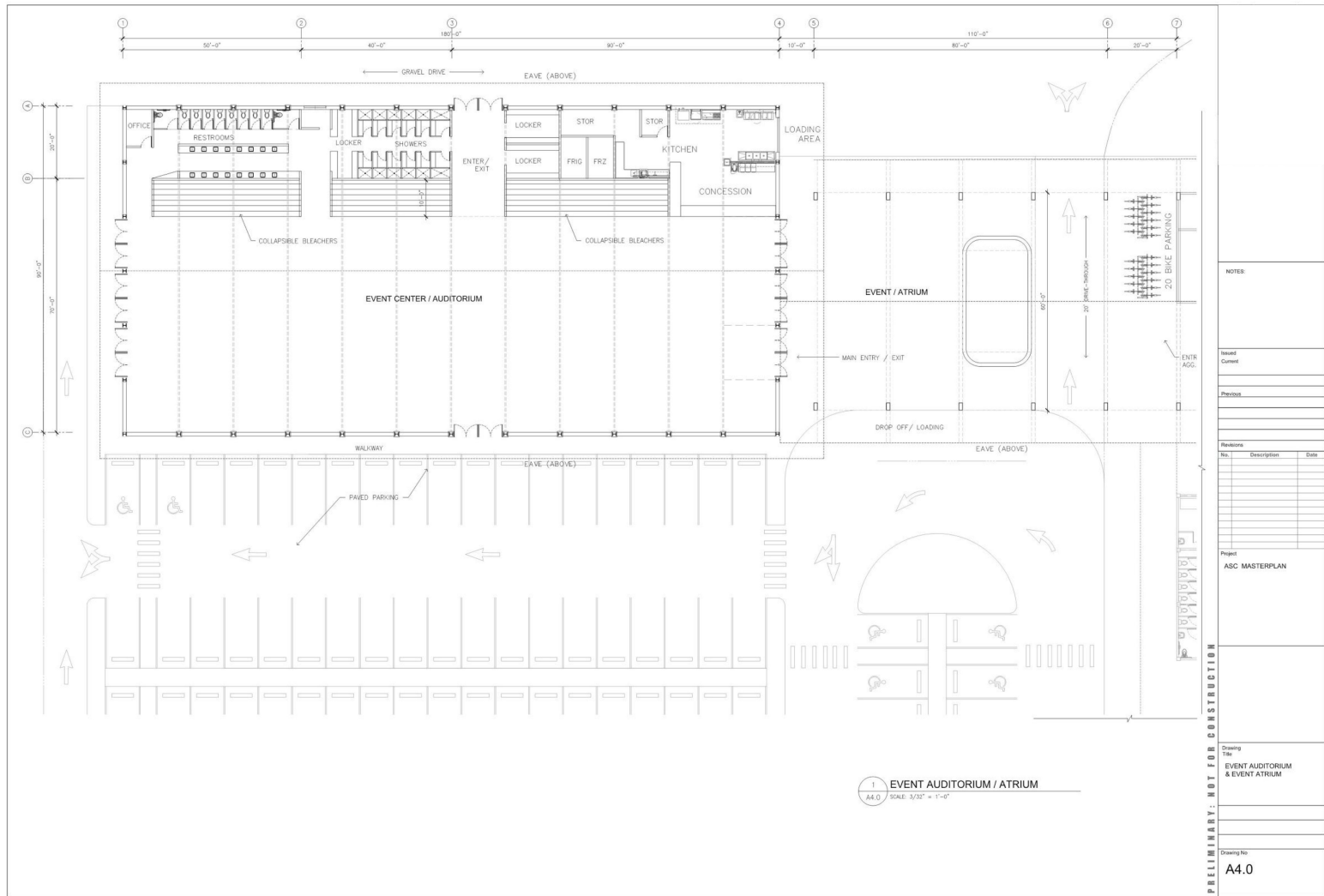
Site Cross Section B-B

Figure 10



Agricultural Center Site Plan

Figure 13



Event Center, Auditorium and Atrium Site Plan

Figure 14



Conceptual Design of the Main Entry Road

Figure 15



Conceptual Design of the Gateway, View North

Figure 16



Conceptual Design of the Gateway, View East

Figure 17



Conceptual Design of the Amphiteater

Figure 18



Conceptual Design of Community Parking, View to Gateway/Technology Center

Figure 19



Conceptual Design of the Gateway Administration Area

Figure 20



Conceptual Design of the Auditorium

Figure 21



Conceptual Design of the Event Center/Auditorium/Atrium

Figure 22



Conceptual Design of the Gateway Mezzanine

Figure 23



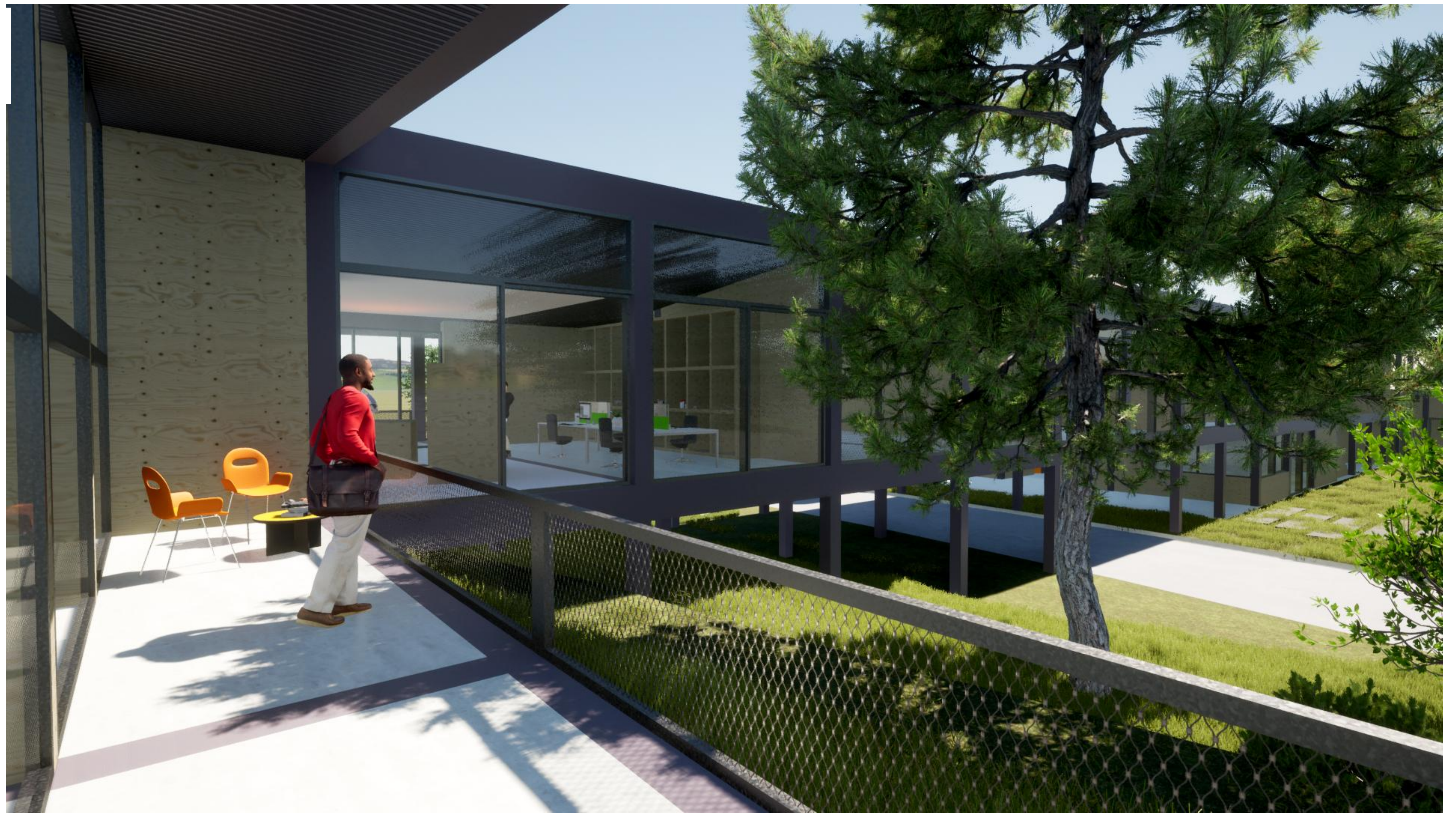
Conceptual Design of the Photo Studio

Figure 24



Conceptual Design of the Art Lab

Figure 25



Conceptual Design of the Guest Accommodations

Figure 26



Conceptual Design of the Agricultural Center/Outdoor Flex Areas and Gardens

Figure 27



Conceptual Design of the Industrial and Skilled Trades Building/Outdoor Flex and Presentation Areas Figure 28



Conceptual Design of the Industrial and Skilled Trades Building Wood Shops and Outdoor Space

Figure 29



Conceptual Design of Terrace Leading to Community Gardens, Gateway and Agricultural Building

Figure 30



Conceptual Design of Terraced Agriculture and Education Areas

Figure 31



Conceptual Design of Water Treatment Ponds

Figure 32



Conceptual Design of Water Features and Management

Figure 33



Infrastructure Diagram

Figure 35

1.2 Purpose and Need

There is currently a shortage of community workforce development resources in the Puna District. The proposed expansion was conceptualized by ASC following the 2018 Kīlauea volcanic eruption to address the educational and economic disparities in the district.

The 2010 census data for Puna showed a population increase of 44.6% in the past 10 years. However, according to Affonzo et al (2010), “Puna communities rank among the poorest in health status and highest in health disparity rates in the State and County for socioeconomic status, poverty, unemployment, household financial aid and low birth weight rates.” Further, the US Census Bureau (2017) stated, “In 2013-2017, 28.6% of people [in the Pāhoa area] were in poverty. An estimated 68.5% of children under 18 were below the poverty level.” The United Way’s ALICE (Asset Limited, Income Constrained, Employed) Program states that 77% of the Puna population is below the poverty threshold. This means that families either live in poverty or “have income above the Federal Poverty Level (FPL), but not high enough to afford a basic household budget that includes housing, childcare, food, transportation, and healthcare.”

The ongoing coronavirus pandemic beginning in 2020 has led to further economic and educational disparities requiring additional resources and facilities in the Puna District. ASC’s expansion is necessary to aid in job creation and retention, to diversify local industry, and expand resources to a highly populated and growing district. The proposed project would have significant economic and social impacts by providing both short-term and long-term employment, access to education, and community development, which there is a notable lack of in the area.

1.3 Cost and Schedule

Under the proposed action total construction costs are estimated to be approximately \$49,500,000. Of this total, \$45,463,594 is devoted to building costs. See **Table 1 and 2** below for the proposed total construction cost break down and building cost breakdown.

Table 1: Total Construction Cost Breakdown for the Proposed Community Learning Center

Construction Costs Summary	Subtotal
Buildings	\$45,463,594
Parking, Loading & Driveways	\$1,263,296
Water Main Extension	\$560,000
Intersection Improvements	\$1,000,000
Water & Electrical Infrastructure (on-site)	\$1,000,000
Wastewater Systems	\$500,000
Retaining Walls	\$119,400
Construction Subtotal	\$49,906,290

Table 2: Building Cost Breakdown for the Proposed Community Learning Center Expansion

Building	Area (ft²)	Price/SF	Total
A. Gateway	17,270	\$398.54	\$6,882,707
A. Technology Center	25,620	\$398.49	\$10,209,357
B. Agriculture Center	24,300	\$398.54	\$9,684,411
D. Event Center/Shelter	16,500	\$443.21	\$7,312,940
D. Atrium	6,570	\$131.02	\$860,815
C. Vocational School/Auditorium	19,300	\$398.54	\$7,691,734
F. Maintenance/Repair	7,080	\$398.54	\$2,821,631

Construction is planned to commence upon completion of permitting and design, with full buildout estimated by 2031. The cost and schedule may differ under project alternatives discussed in Part 2.

1.4 Environmental Assessment Process

In 1974 the Hawai‘i State Legislature enacted the Hawai‘i Environmental Policy Act, which requires State and County agencies to conduct an environmental impact analysis prior to making decisions on actions that may impact the environment.

This Environmental Assessment (EA) is being conducted in accordance with Chapter 343 of the Hawai‘i Revised Statutes (HRS), along with the implementing regulations, Title 11, Chapter 200.1, of the Hawai‘i Administrative Rules (HAR). This law is the basis for the environmental impact assessment process in the State of Hawai‘i. An EA is necessary for the proposed action since intersection and waterline improvements may occur within the State and County right-of-way.

According to Chapter 343, an EA is prepared to determine impacts associated with a proposed action, develop mitigation measures for any discovered adverse impacts, and determine whether the impacts are significant (according to the thirteen specific criteria). If a study concludes that no significant impacts would occur from implementation of the proposed action, a Finding of No Significant Impact (FONSI) is prepared. If a study finds that significant impacts are expected to occur because of a proposed action, then an Environmental Impact Statement (EIS) is prepared to allow deeper investigation of impacts and allow more extensive public involvement.

The following EA discusses alternatives to the proposed action, existing environment and impacts associated with the project, the anticipated determination and the findings made by the applicant in consultation with the County of Hawai‘i Planning Department.

1.5 Public Involvement and Agency Coordination

As part of the environmental assessment process, agency coordination and public involvement are crucial components to understand full impacts caused by the proposed project. The agencies, organizations, and individuals below have been consulted as part of the environmental assessment process. Copies of correspondence during the early consultation period can be found in **Appendix B**. The Draft EA was published in the May 8, 2022, Environmental Notice. **Appendix C** contains written comments on the Draft EA and the responses to these comments. This EA has been modified to reflect input received, which is denoted by double underlines.

State:

Department of Land and Natural Resources, Land Division
Department of Land and Natural Resources, Division of Aquatic Resources
Department of Land and Natural Resources, Division of Forestry and Wildlife
Department of Land and Natural Resources, Office of Conservation & Coastal Lands
Department of Land and Natural Resources, Engineering
Department of Land and Natural Resources, Historic Preservation
Hawai'i Department of Transportation
Office of Hawaiian Affairs

County:

Planning Department
Fire Department
Police Department
Department of Environmental Management
Department of Public Works
Department of Water Supply
Civil Defense

Private:

Surrounding Property Owners within 500 feet of the Properties

Community Meetings:

1. Faculty Presentation July 2020
2. ASC Expansion: EDA Presentation August 2020
3. Waterline Easement Neighbor Consult July 2021
4. ASC Master Plan Progress Update to Village Makery Team January 2021

PART 2: ALTERNATIVES

2.1 Proposed Project, Alternative Sites, and Alternative Uses

ASC acquired the subject Properties with the intention of creating valuable community facilities in the Puna district that promote community-based learning and development, providing workforce development and skills training, supporting the weakened local economy, and diversifying industry in the area. The site plans reflect the proposed layout and placements of the main buildings, accessory buildings, parking, and agricultural activities. This preliminary plan utilizes optimal site access and operation associated with intended use and required Department of Water Supply line extension and potential modifications at the intersection of the Kea‘au-Pāhoa Bypass Road. No alternative site option is logical since the proposed action is to expand and complement the existing facilities already present on site.

It is important to address alternatives to the proposed action. A full buildout alternative would coincide with the proposed site plans outlined in **Figures 8-14** above and construction over four (4) phases (**Figure 34**). Another alternative is a partial buildout, which would involve a reduction in the square-footage and footprint of each proposed building, or similarly construction of a portion of the full phases of buildout. There are also two (2) main access options. The first access alternative would utilize one (1) existing driveway on Homestead Road and would add one (1) new full access driveway on the Kea‘au-Pāhoa Bypass Road. The second access alternative would solely utilize the two (2) existing driveways on Homestead Road. A “no action” alternative would result in the project not coming to fruition and the ASC Campus would sustain its current use and capacity. The potential for increased economic development and positive community collaboration would largely be lost.

2.1.1 Full Buildout

Under a full buildout alternative, the Community Learning Center would be comprised of six (6) buildings and eighteen (18) supporting resources. Construction would occur in four (4) preliminary phases to mitigate impacts to scenic views, noise, air, and water quality. Short-term and temporary impacts to these resources may be experienced during each construction phase but will be mitigated by following Hawai‘i County Code guidelines, permit conditions, and Best Management Practices (BMPs), which will be discussed in detail in the appropriate sections throughout this EA.

The proposed masterplan utilizes the natural topography of the Properties, which will largely mitigate any long-term visual impacts from the Kea‘au-Pāhoa Bypass Road (please refer to **Figure 9 and 10** above). Landscaping will also be incorporated along the highway to provide additional long-term screening to scenic views and provide a buffer from road noise. The proposed buildings will be aesthetically pleasing with sustainable design adhering to Leadership in Energy and Environmental Design (LEED). The grounds are planned to incorporate storm water runoff management into naturally inspired and attractive landscape features and will include agriculture, aquaculture, outdoor spaces for learning, gardens, walkways, and open/outdoor community gathering spaces. Noise associated with a typical school will occur during workday hours, which is

not expected to cause significant impact to the surrounding area due to the rural setting of the subject site. In the event the Campus is used outside of normal operating hours, ASC will adhere to Department of Health noise guidelines, which state noise will not exceed 10:00 p.m. Potential noise impacts will not change appreciably under any alternative.

Potential long-term impacts to air quality would mainly be through vehicular traffic emissions. The TIAR estimates an increase of 100 peak hour vehicle trips to the subject site under a full buildout alternative. The report found in **Appendix A** analyzes two (2) access alternatives and outlines recommendations to mitigate impacts to the Kea'au-Pāhoa Bypass Road. With mitigating measures, no significant adverse impacts are expected to traffic. Electric vehicle charging stations and drop off zones and planned roadway infrastructure for steady traffic flow are all incorporated into the masterplan design. Therefore, there should be negligible long-term impacts to air quality from vehicular emissions.

There are no expected long-term impacts to water quality. Individual Wastewater Systems or a wastewater treatment alternative such as constructed wetlands will be utilized meeting the approval of the Department of Health. The site landscaping is designed to treat storm water runoff as a natural feature, incorporating landscaped drainageways and infiltration areas while satisfying drainage requirements. All buildings would be designed according to County building codes to withstand anticipated natural hazards including seismic activity and wind resistance. The full buildout alternative is not expected to have significant impacts to natural resources such as flora and fauna, recreational, cultural, archaeological, or historical resources. The Properties are in Flood Zone X and are approximately 5.6 miles from the coast and potential coastal hazards. A full buildout alternative would improve community access to education, training, recreational activities, and events.

2.1.2 Partial Buildout

A partial buildout alternative would involve reducing the square-footage of each building to decrease the footprint of the proposed project on the subject site. Construction would still occur in phases to reduce the impacts to scenic views, noise, air, and water quality.

Anticipated environmental impacts are not expected to be significant and would be similar to the full buildout alternative but slightly less due to the reduced land area to be disturbed, less wastewater and traffic generated. All buildings would still be designed according to LEED design principles and County building codes to withstand anticipated natural hazards under this alternative. Potential short- and long-term impacts to natural resources, scenic views, noise, air, and water quality will not change appreciably under this alternative. Mitigating measures and BMPs will be followed under any alternative to prevent all potential impacts to resources.

The cost and timeline of the project would also be less than the full buildout alternative. **Figures 36-39** show reduced footprints for the four (4) main Community Learning Center buildings.



LEGEND:

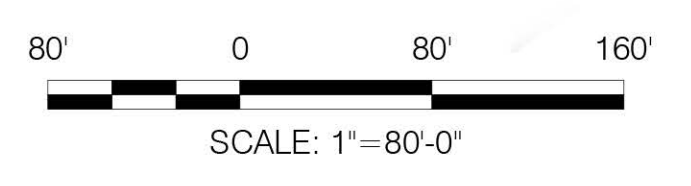
- 1 Community Focused Agriculture and Aquaponics
 - 2 Terraced Agg (Kalo Loi)
 - 3 Learning Terraces/Outdoor Workshop Space
 - 4 Outdoor Work/ Learn Areas
 - 5 Parking (Various Sizes: 426 stalls + 65 overflow- labeled in plan)
 - 6 Drop Off Locations
 - 7 Agriculture (Various)
 - 8 Aquaculture & Mixed Agg.
 - 9 Treatment Ponds & Water Storage
 - 10 Stream Ecology
 - 11 EthnoBotanical Gardens
 - 12 Gardens
 - 13 Amphitheatre
 - 14 Community Athletic / Outdoor Activity Fields
 - 15 Gravel Track/Walking Path / Fire Lane
 - 16 Main Campus Road
 - 17 Greenhouse
 - 18 Composting & Green Waste Drop Off
- A Gateway / Workforce Development/ Technology Center
 - B Industrial and Skilled Trades Development Center
 - C Agricultural Center
 - D Event Center/ Auditorium + Atrium
 - E Vocational School & Covered Auditorium
 - F PHASE 2
 - H Maintenance/Repair
 - I Covered Walkway Structure

MAIN BUILDING BREAKDOWN:

- A Gateway / Community Workforce Development / Technology Center
LEVEL 1_5,800 SQ FT
Community work and shared space:
Community Restrooms
Covered Auditorium
Admin/Nurse Office
Community Welcome Point
- LEVEL 2_10,470 SQ FT
Mezzanine at Covered Auditorium
Covered Terrace (Flex Use)
4 Guest Accommodations
Walkway/Gallery Bridge
Music Labs /Recording Studio
Photo/Video Studio
- B Industrial and Skilled Trades Development Center _25,620 SQ FT
Wood Shop Lab
Metal Shop Lab
Maker Space
Computer Labs
Sewing Studio
Ceramics Labs
Restrooms & Showers
Outdoor Flex Spaces & Outdoor Classrooms
- C Agricultural Center _24,300 SQ FT
(2) Agricultural Labs
Outdoor Processing / Flex Areas
Processing / Fermentation Lab / Community Cafeteria
Commercial Kitchen
Bulk Refrigeration / Freezer / Dry Storage
Loading
- D Event Center/ Auditorium _ 16,500 SQ FT + Atrium 6,570 SQ FT
10k SQ FT Event/ Activity Space
Commercial Kitchen
Vending / Cafeteria
Locker Rooms / Showers
Staff Offices
Storage

Red outlines indicate reduced footprints

1 SITE PLAN
50.0 SCALE: 1"=80'-0"



NOTES:		
Issued		
Current		
Previous		
Revisions		
No.	Description	Date
Project		
Drawing Title	ASC Masterplan	
Drawing No	S 1.0	

PRELIMINARY: NOT FOR CONSTRUCTION

Master Plan Reduced Footprints

Figure 36 S 1.0

2.1.3 Access Alternatives

The Traffic Impact Analysis Report (TIAR) looked at traffic conditions without the project (referred to as Base Year conditions) and with the project (Future Year conditions) in 2026, 2031 and 2041 at three (3) study intersections:

1. Pāhoa Bypass Road/Kahakai Boulevard
2. Pāhoa Bypass Road/Homestead Road/Post Office Road
3. Pāhoa Bypass Road/Pāhoa Village Road/Kapoho Road

Access to the site is currently provided via two (2) driveways along Homestead Road. As previously stated, two (2) main access alternatives were analyzed:

1. Access to the project site would be provided via one (1) existing driveway along Homestead Road and one (1) new full access driveway along Pāhoa Bypass Road.
2. Access to the project site would only be provided via the two (2) existing driveways along Homestead Road.

Findings outlined in the report show that Base Year conditions (conditions without the project) are expected to operate at or above LOS D at all intersections except the Kea‘au-Pāhoa Bypass Road and Homestead Road/Post Office Road intersection. This intersection is expected to operate at LOS E during AM peak traffic hours and F during PM peak traffic in Base Year 2026, LOS F (AM) and F (PM) in Base Year 2031 and LOS F (AM) and Overcapacity (PM) in Base Year 2041.

Alternative 1 is expected to operate similar to Base Year traffic conditions in 2026, 2031 and 2041 at all study intersections during AM and PM peak traffic hours. Furthermore, Alternative 1 is expected to produce better Levels of Service (LOS) and volume to capacity (v/c) ratios for eastbound traffic at the Kea‘au-Pāhoa Bypass and Homestead Road/Post Office Road intersection in Future Years 2026, 2031 and 2041 compared to Alternative 2. Alternative 2 is expected to reach overcapacity conditions for eastbound traffic at this intersection during PM peak hours for all Future Years (with v/c ratio of 1.00 in 2026, 1.28 in 2031 and 1.51 in 2041) and is also expected to reduce LOS for westbound traffic at this intersection by Future Year 2041.

Mitigating measures can improve traffic conditions under each alternative. The following recommendations under Alternative 1 and 2 were provided in the TIAR.

Alternative 1:

Pāhoa Bypass Road/Homestead Road/Post Office Road:

- Provide a 350-foot northbound right-turn lane
- Provide a 475-foot southbound left-turn lane

- Provide a 240-foot eastbound left-turn lane, when appropriate
- Continue to restrict the westbound left-turn and through movements during the AM and PM school peak hours of traffic
- Provide a gate at the HAAS PCS driveways along Homestead Road, which would be closed during school hours (i.e. only open during drop-off and pick-up times)

Pahoa Bypass Road/New Project Driveway:

- Provide a 475-foot southbound left-turn lane
- Provide a 350-foot northbound right-turn lane
- Provide a 100-foot westbound left-turn lane
- Provide a 405-foot westbound right-turn acceleration lane
- Provide a 440-foot westbound left-turn acceleration lane

Alternative 2:

Pahoa Bypass Road/Homestead Road/Post Office Road:

- Provide a 350-foot northbound right-turn lane
- Provide a 600-foot southbound left-turn lane
- Provide a 240-foot eastbound left-turn lane, when appropriate
- Provide a 150-foot westbound left-turn/through lane
- Provide a 440-foot westbound left-turn acceleration lane
- Monitor the intersection and when appropriate install a traffic signal

According to the TIAR, a new project access would help to reduce the impact at the Kea'au-Pāhoā Bypass Road/Homestead Road/Post Office Road intersection. A new access would also keep the HAAS PCS traffic and the Community Learning Center traffic separate with the option of providing a gate at the Homestead Road access to be closed during school hours. The access alternative and any required off-site roadway improvements will meet the approval of the Hawai'i Department of Transportation. Visual impacts will not change appreciably under either access option, nor will any potential short or long-term impacts to natural resources, noise, air, or water quality, cultural, archaeological, or historic resources.

It is evident that the proposed project would have a significant and positive impact to the area's social and physical infrastructure. No detrimental impacts are anticipated with the proposed expansion, however, mitigative measures will be strictly followed under any alternative to safeguard environmental and cultural resources.

2.2 No Action

Under a No Action Alternative, the proposed expansion of the Hawai‘i Academy of Arts and Sciences Campus would not be completed. The buildings currently serving the Arts and Science Center would continue to operate as a small education institution. The potential for economic development and positive community collaboration would largely be lost. This EA considers the No Action Alternative as the baseline for this project and all environmental effects will be based off this alternative.

PART 3: ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION

3.1 Physical Environment

ASC is located at 15-1397 Homestead Road. The Properties total 24.285-acres, which are relatively flat land. The land is roughly 580 feet in elevation at the north end, which gently rises to 610 feet above sea level, with a 3% slope. A biotic survey found no threatened or endangered species on the Properties. The proposed action will not impact any listed scenic resource in the Hawai‘i County General Plan. Since the Properties are roughly 600 feet above sea level there will be no impacts to beaches or shorelines.

3.1.1 Geology, Soils and Geological Hazards and Climate

Environmental Setting: Volcanic Activity

ASC sits on the flank of Kīlauea volcano, a highly active volcano. Many flows have covered this area historically. The subject site is located on lava flows from the Puna Basalt series, which erupted 200 to 750 years ago.

The United States Department of Agriculture (USDA) Natural Resources Conservation Service, Soils Survey Report classifies the soil in this area as Olaa Series (OID) cobbly hydrous loam (2kllk). This series is well-drained silty clay loams that formed in volcanic ash. Permeability is rapid, runoff is slow, and the erosion hazard is slight. The Land Study Bureau classifies the soils for this property as “D,” or poor for agricultural productivity.

Geological hazards are frequent island wide, but particularly so in the Puna area. According to the Puna Community Development Plan (PCDP), all of Puna lies within the three most hazardous geological risk zones, Lava Zone 1, 2 and 3, on a scale ranging from 9 to 1, ranking least hazardous to most. The Properties are in proximity to the East Rift Zone (ERZ) of Kīlauea volcano, which is susceptible to both lava flows and earthquakes. Pāhoa Village and the Properties are defined as Lava Zone 2. Lava Zone 2 is less hazardous than Zone 1, which historically speaking is where most, or all erupted lava first emerges from the ground (**Figure 40**).

Since 1800, 15-25% of Zone 2 has been covered by lava. This percentage has increased over time, with roughly 25-75% coverage over the past 750 years. The most recent eruptions to threaten this area occurred in 2014 and 2018. The 2014 eruption was the first activity seen in Pāhoa for 170 years. It occurred during the Pu‘u ‘Ō‘ō Eruption, which lasted from 1983 to 2018.

This eruption was the longest and most voluminous outpouring of lava from Kīlauea ERZ in more than 500 years. On June 27, 2014, new fissures erupted on the east flank of Pu‘u ‘Ō‘ō, which started a new lava flow that rapidly advanced to the east toward Pāhoā. One branch of this flow stopped just before Highway 130, roughly 0.8 miles from the ASC Properties. **Figures 41 and 42** shows the Properties within proximity to the halted lava flow. This flow also threatened the Pāhoā Marketplace and Transfer Station, which was partially damaged (HVO, 2016).

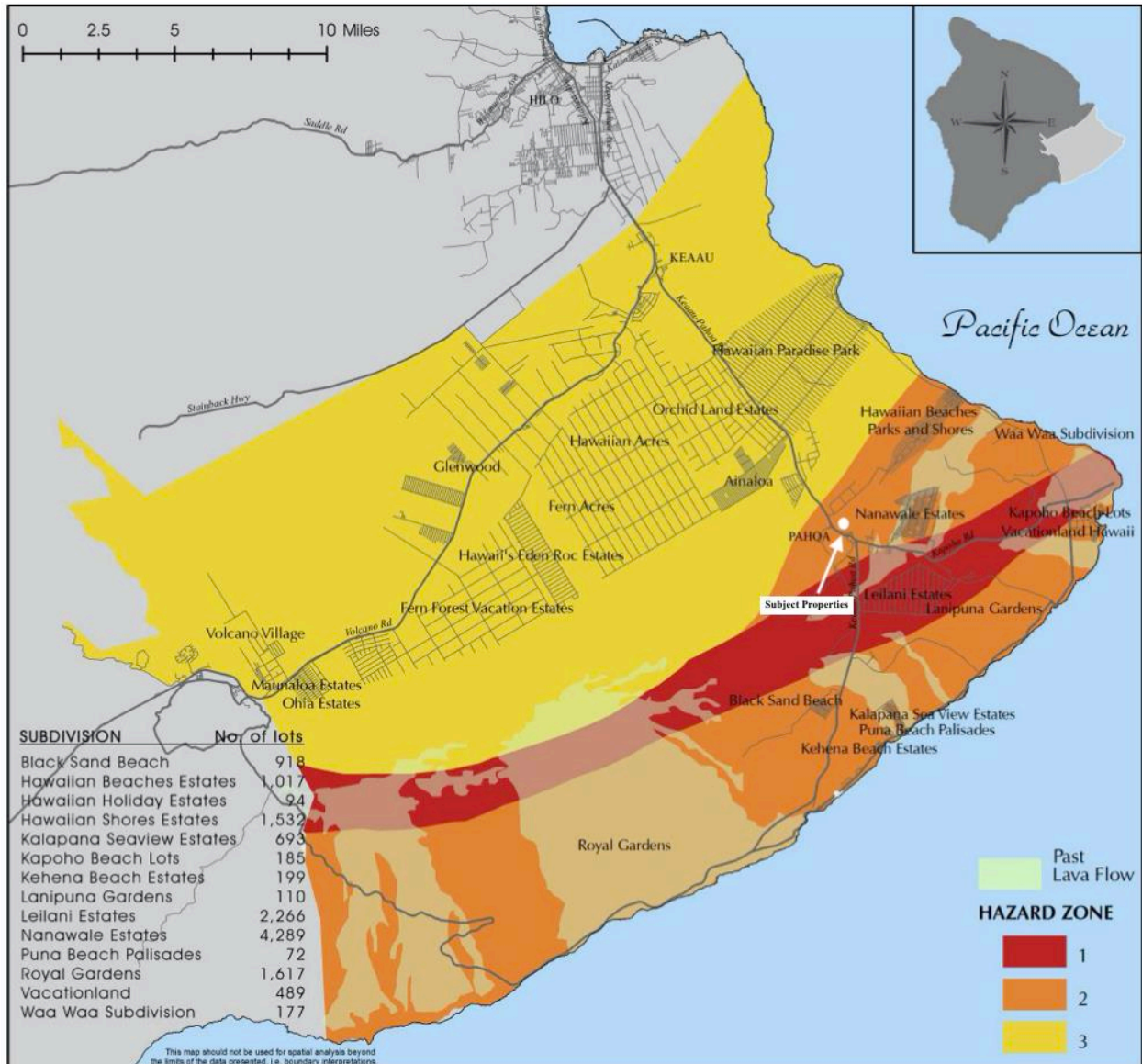


Figure 40: Kīlauea Hazard Zones in Relation to the Subject Properties

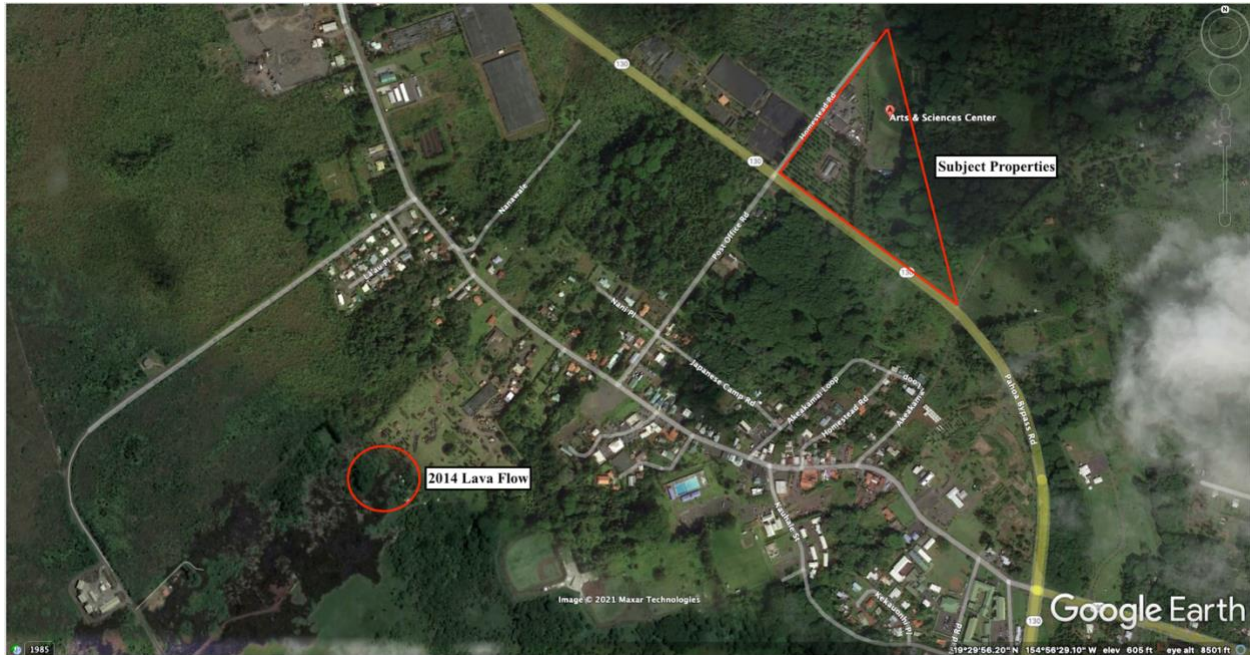


Figure 41: 2014 Kilauea Lava Flow Threatens Pāhoā Town, Puna, Hawai‘i

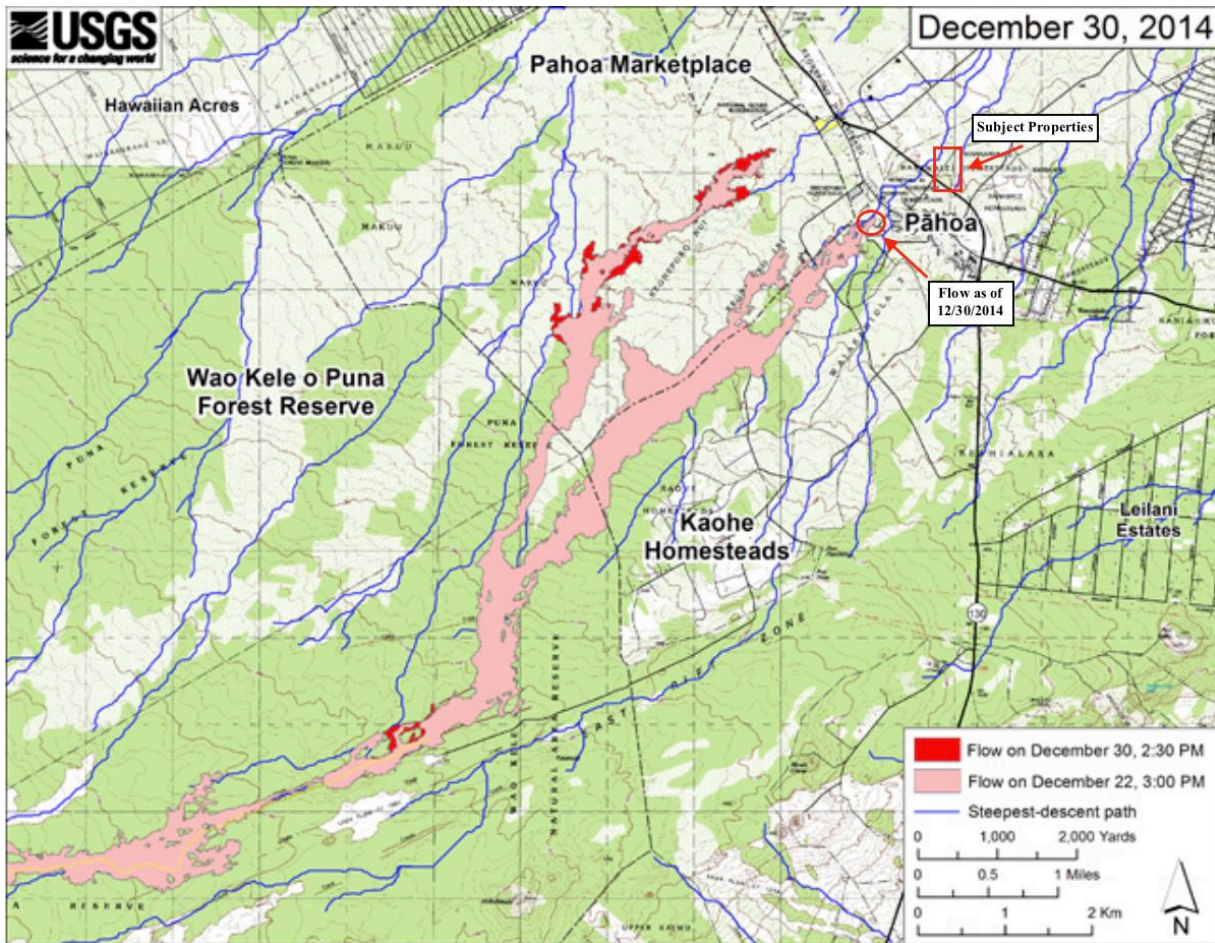


Figure 42: Map of the 2014 Lava Flow in Relation to the Subject Properties

In 2018, after the collapse of the Pu‘u ‘Ō‘ō vent on April 30, magma began to propagate down rift. On May 3, eruptive fissures opened in the Lower East Rift Zone (LERZ) in the populated subdivision of Leilani Estates. On May 4, a 6.9 magnitude earthquake triggered significant fault slip and subsequent lava eruptions. By May 27, a total of 24 fissures had erupted lava between Leilani Estates and Noni Farms Road in the Puna District. Roughly two thousand residents were evacuated, and seven hundred homes were destroyed or made uninhabitable. Many businesses were either destroyed, suffered significant losses, or could not continue to operate, such as vacation rentals, farms and ranches and tour companies. Long sections of three major County roads, the Kua O Ka La Public Charter School, Ahalanui Beach Park, a portion of Isaac Hale Beach Park and the Wai‘ōpae Marine Life Conservation District were also lost during the eruption. In addition, the Puna Geothermal Venture, which provided a substantial portion of the County’s electricity, also had to be temporarily shut down due to loss of access and damage. When the eruption stopped in August 2018, a total of 13.7 square miles had been covered by lava, and 845 acres of land had been created (USGS, 2018). This eruption was roughly 3 miles from ASC (outlined in red in **Figure 43**).

After the 2018 eruption, all Kīlauea’s activity ceased until December 2020 when an eruption sent lava fountains nearly 165 feet in the air from a fissure on the eastern side of Halema‘uma‘u crater. Flowing lava replaced the water that was in the basin of Halema‘uma‘u crater, and a new lava lake formed. At the time of writing, activity has paused and resumed a few times, but surface activity remains inside the crater.

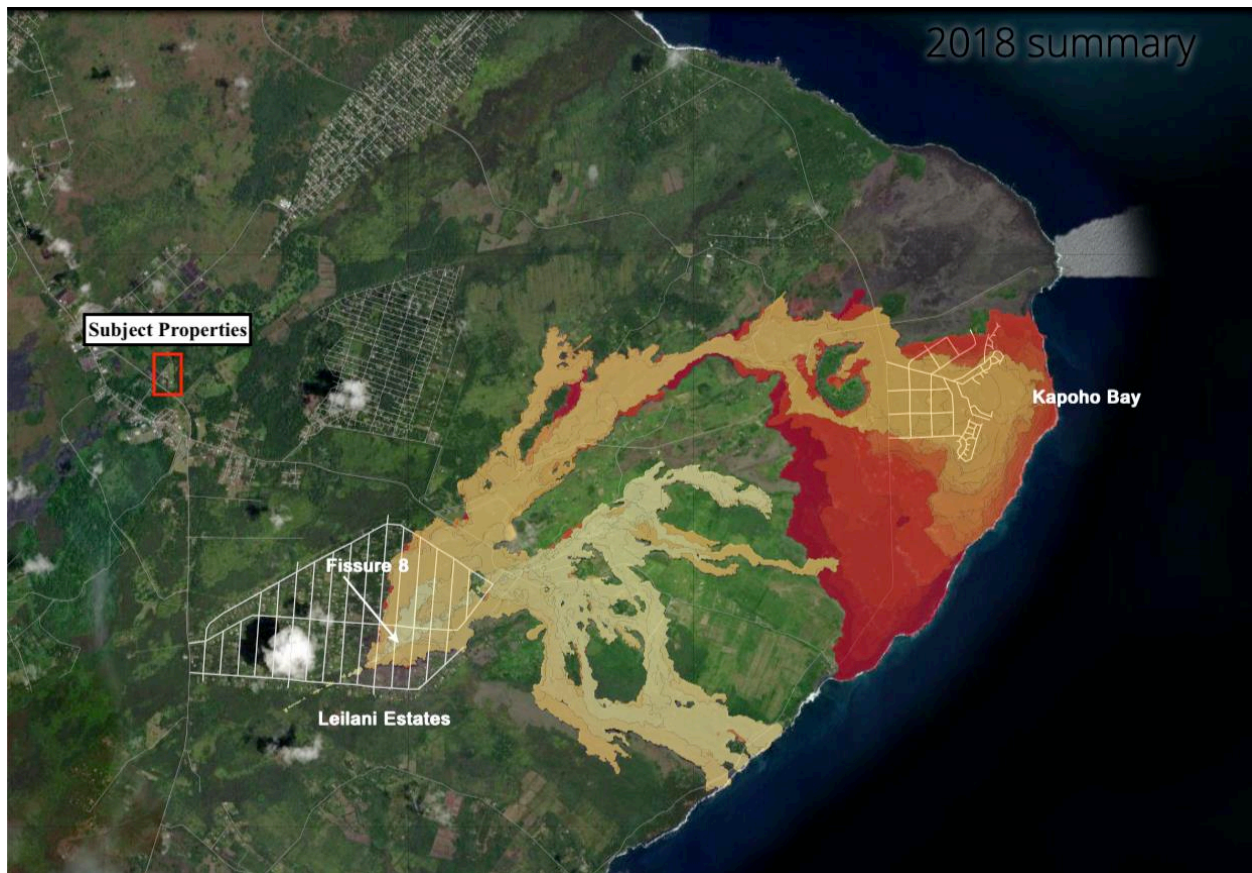


Figure 43: 2018 Kīlauea Eruption in Relation to the Subject Properties (USGS, 2018)

Environmental Setting: Earthquake Activity

Aside from lava, the Island of Hawai‘i is also susceptible to earthquakes. Kīlauea’s south flank has generated many earthquakes in the past. Fletcher et al. (2002) ranks all Hawai‘i Island a 4 for seismic hazard intensity, which means “frequent” seismic activity. However, the USGS recently came out with a new model, which better estimates earthquake hazard probability for the Hawaiian Islands. The updated ground shaking model indicates there is a 90% chance of experiencing slight or greater damaging levels of shaking during the next 100 years on Hawai‘i Island (**Figure 44**) (USGS, 2021). This probability estimate is island wide. It is much more difficult to predict earthquake probability in a localized area.

The most recent and notable earthquakes in the area occurred in May 2018. Magnitude-5.4 and 6.9 earthquakes were heavily felt in Pāhoa. Historically, in 1954, 1975 and 1989, earthquakes of magnitudes 6.5, 7.2 and 6.1 occurred respectively and were likely also felt in the vicinity of the Properties.

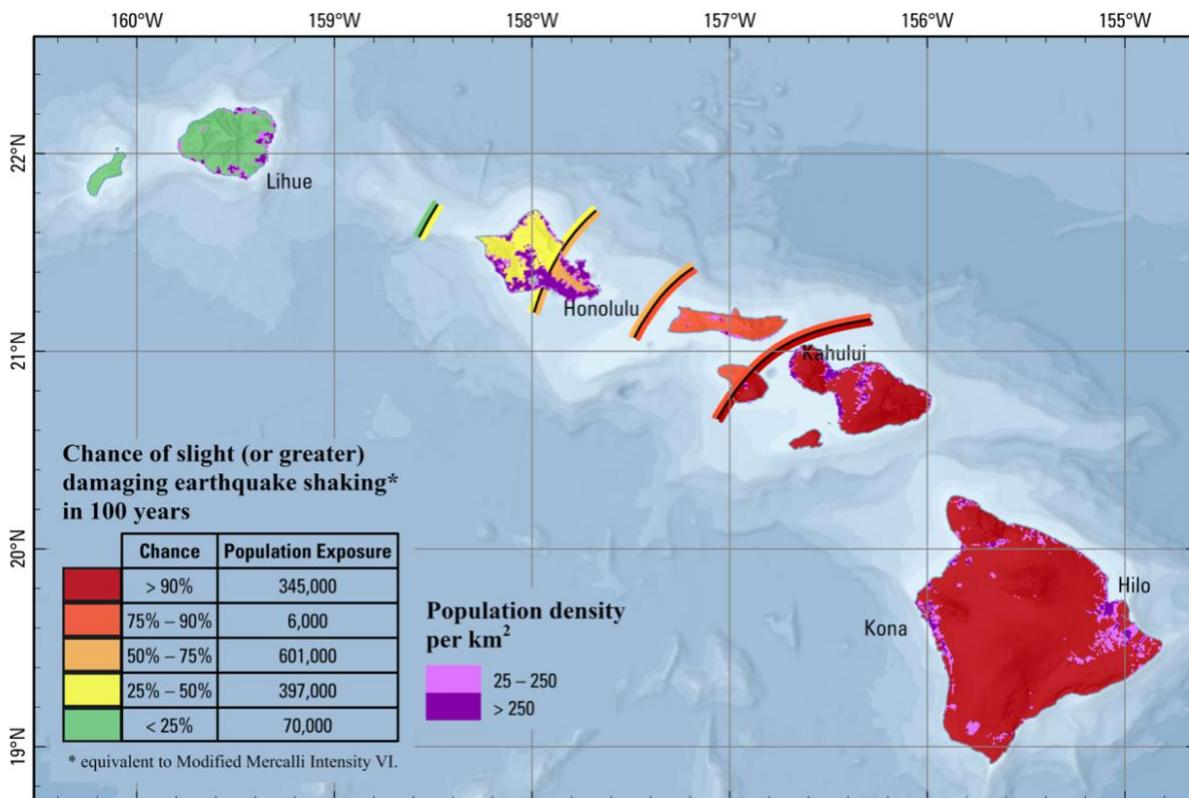


Figure 44: 2021 USGS Model of Earthquake Probability for the Hawaiian Islands

Environmental Setting: Climate

The climate of the Pāhoa region is generally warm and humid. Daily temperatures in the summer range from 72 to 87 degrees Fahrenheit and 68 to 80 degrees Fahrenheit in the winter. Average rainfall is roughly 140 inches per year, the majority of which occurs in the winter months.

The Hawai‘i Revised Statutes §226-109 and Hawai‘i Administrative Rules §11-200.1 strongly encourages the environmental review process to analyze the impacts climate change may have

on the proposed action. This includes identifying short and long-term effects, levels of resilience, and mitigation measures including potentially beneficial alternatives.

Climate change is a fundamental environmental issue that is particularly complex and far reaching. The National Aeronautics and Space Administration (NASA) measured carbon dioxide levels in the atmosphere before the industrial revolution began in the late 1700's. Approximately 280 parts per million (ppm) was present in the atmosphere. In 2013 carbon dioxide levels surpassed 400 ppm for the first time in recorded history (Tetra Tech, 2020). According to the United Nations' Intergovernmental Panel on Climate Change (IPCC), "Human influence on the climate system is clear, and recent anthropogenic emissions of green- house gases are the highest in history. Recent climate changes have had widespread impacts on human and natural systems" (IPCC, 2014).

Global mean air temperatures are projected to increase by 2.7 degrees Fahrenheit (°F) by the end of the century. Increases in air temperatures will subsequently lead to increased ocean temperatures, which are expected to be the highest in tropical and subtropical areas of the Northern Hemisphere. The University of Hawai'i Sea Grant College Program confirms that Hawai'i is getting warmer. Data shows an increase in air temperature over the last 30 years of roughly 0.3 °F per decade. For Hawai'i this not only means rising sea levels, but also more contrast in the wet and dry season, which may lead to more frequent and intense precipitation and flooding (Tetra Tech, 2020).

In general, rainfall in Hawai'i has been variable in the recent past with some drier years and some wetter years on average. El Niño provides periodic variation in winds and sea surface temperatures in the Pacific contributing to warming phases, while La Niña contributes to cooling phases. Increases in air temperature related to climate change will lead to more evaporation and more moisture in the air, which will contribute to variability in El Niño and La Niña events.

According to Collins et al., 2019, as outlined in an IPCC Special Report on the Ocean and Cryosphere in a Changing Climate, climate change will also likely increase the intensity and frequency of storms.

"The average intensity of tropical cyclones, the proportion of Category 4 and 5 tropical cyclones and the associated average precipitation rates are projected to increase for a 2°C global temperature rise above any baseline period (*medium confidence*). Rising mean sea levels will contribute to higher extreme sea levels associated with tropical cyclones (*very high confidence*). Coastal hazards will be exacerbated by an increase in the average intensity, magnitude of storm surge and precipitation rates of tropical cyclones."

Historically the Island of Hawai'i has been viewed as largely protected from experiencing storms of this magnitude due to the presence of Mauna Loa and Mauna Kea. However, recent years have shown that storms such as Iselle (2014) and Lane (2018) can have very damaging effects to the island.

On August 8, 2014, Hurricane Iselle made landfall in the Puna District of Hawai'i County as a moderate tropical storm with sustained wind speeds of 70mph. Significant damage was felt in the southeastern portions of the Big Island, especially in the Wai'ōpae area, which is a coastal

stretch dotted with anchialine ponds and tidepools, known as the Kapoho Tide Pools. Many homes were heavily damaged in this area. This was the most heavily damaged area, which is less than 10 miles northeast from the subject Parcels. Most of the southeastern portion of the Big Island experienced high winds, heavy rain, downed trees, and powerlines, cutting thousands of people off from electricity, water, and transportation for several days (Kimberlain et al., 2018).

Hurricane Lane occurred in late August 2018 and brought significant damage to the Hawaiian Islands from flash flooding and mudslides. Over a four-day period, Hawai‘i Island received an average of 17 inches of rain. Up to 159 structures were damaged, making it the wettest tropical storm to impact the Island. Although most of the flooding impacts were concentrated to Hilo, much of the southern windward side, including southern Puna, experienced impacts (Beven, 2019).

Wildfires are becoming more frequent and intense due to rising temperatures, change in rainfall patterns and the growth of non-native, fire prone grasses and shrubs. According to the Pacific Fire Exchange (PFE) (2021), “Fire risk is closely tied to wet and dry cycles where grasslands and savannas grow and then dry out.” Up to 25% of land in Hawai‘i is at fire-prone risk. According to the Hawai‘i Wildfire Management Organization (HWMO), about 0.5% of Hawai‘i’s total land area burns every year. Although many wildfires are started by people, climate change is beginning to play a very serious role in the frequency and intensity of fires seen across the state. “Human ignitions coupled with an increasing amount of non-native, fire-prone grasses and shrubs and a warming, drying climate have greatly increased the wildfire problem” (HWMO, 2018). Further, expanding non-native, fire-prone grasses are less likely to recover from wildfires. Wildfires were once limited to active volcanic eruptions and infrequent lightning strikes. The increase in wildfire prevalence poses threats to safety, agricultural production, natural and cultural resources (PFE, 2014).

In early August 2021, a vegetation fire ignited near Mana Road and traveled throughout Waimea and South Kohala. Approximately 40,000 acres were burned according to estimates from fire officials. It was the largest wildfire ever recorded in Hawai‘i County. Thousands of people were forced to evacuate from Waiki‘i Ranch and Pu‘u Kapu Hawaiian Homesteads where two homes were destroyed. Governor David Ige declared a state of emergency on August 4, 2021, to protect the health, safety, and welfare of Hawai‘i (West Hawai‘i Today, 2014). **Figure 45** shows the extent of the fire in red.

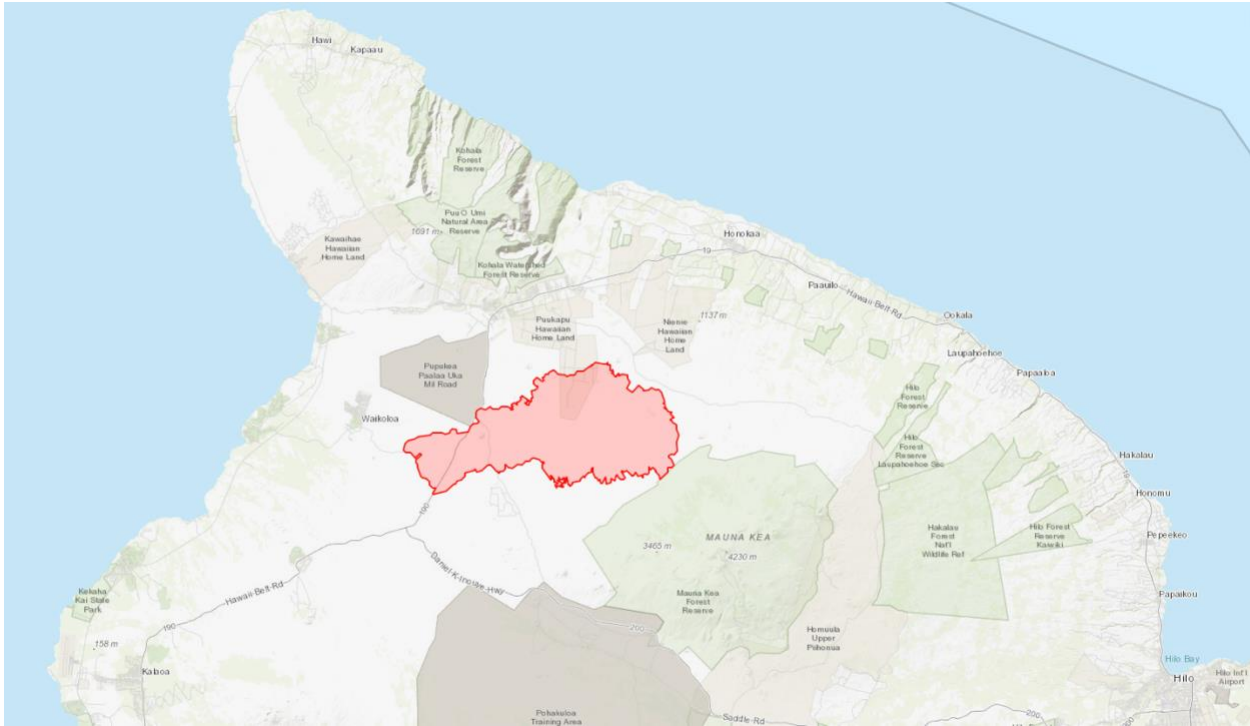


Figure 45: Extent of the 2021 Wildfire in Hawai'i County (West Hawai'i Today, 2014)

Impacts and Mitigating Measures

It is crucial that the development of any school considers and implements appropriate safety measures and protocols associated with adverse climate events and geological hazards. All proposed buildings will be designed and engineered to withstand seismic and wind hazards according to the Hawai'i County Building Code. The ASC Campus expansion is proposed to be located adjacent to the Kea'au-Pāhoā Bypass Road (Highway 130), which is the main highway leading in and out of the Puna District. This positioning will aid in swift and efficient evacuation in the unlikely event it is required due to a wildfire or volcanic eruption. Furthermore, the Pāhoā police and fire stations are only located 1 mile north of the subject Properties.

Geological hazards do not pose undue risk for the proposed expansion. Much of the Puna District faces similar seismic risk and volcanic hazards yet remains to be the fastest growing region in the state. The 2014 eruption is the most notable lava flow to threaten the ASC Properties in recent history. Based on historical data, it is unlikely for a Kīlauea eruption to flow in the exact same area within the next few centuries. Current activity is confined to Halema'uma'u crater roughly 22 miles to the west and poses no threat to the subject site. Although scientists believe climate change can increase the frequency and intensity of storms for the Hawaiian Islands, ASC is in a relatively protected area inland (5.6 miles from the coast), where the brunt force of potential impacts from storms may be felt. In addition, the proposed action will not have any measurable adverse impacts to natural hazards.

Wildfire risk in the Pāhoā area is fairly low. Although the Puna District is heavily vegetated in certain areas, the consistent level of rainfall has continued to help suppress fire risk and the ability for large areas to burn (Hawai'i Wildfire Management Organization, 2013).

3.1.2. Flood Zones and Shoreline Setting

Environmental Setting

According to the Federal Emergency Management Agency (FEMA), the Arts and Science Center Parcels are located within Flood Zone X, which is outside the 500-year floodplain. As previously stated, Parcels 012 and 026 were consolidated in 2015 however, this change has not yet been reflected in County records. For continuity, the Flood Hazard Assessment Report (FHAT) for all three Parcels (002 and previously separated 012 and 026) have been provided below in **Figures 46-48**.

The ASC Campus expansion is roughly 5.6 miles from the coast and is not within the County designated Special Management Area (SMA) or the County of Hawai'i tsunami evacuation zone (**Figure 49**). The proposed project will not be impacted by any coastal hazards or affect erosion, coastal ecosystems, or marine resources. There are no naturally occurring wetlands, ponds, or lakes in the area. There is also no risk of stream flooding as there are no streams within the vicinity of the Properties.

The Properties are adjacent to the Kea'au-Pāhoa Bypass Road (Highway 130), which can experience significant runoff from high precipitation events at times. Storm drainage infrastructure will not be adversely impacted by the proposed development. Proposed highway improvements will be developed in consultation with the Hawai'i Department of Transportation (HDOT), which will ensure compliance according to Federal standards.

Impacts and Mitigating Measures

All existing and proposed structures on the property will remain in Flood Zone X. As discussed in the section above, rainfall in this area can be high during the winter months. ASC has proposed treatment ponds, constructed streams, and water storage areas to prevent the build-up of precipitation and damage to natural and man-made resources. These water resources will help with stormwater drainage and provide a vital resource for agricultural and educational learning purposes. The proposed action would comply with all required codes and regulations regarding drainage and runoff mitigation. These protections will prevent any adverse impacts relating to flooding potential due to the proposed action. Further, as these protective regulations apply equally to each alternative, there are no appreciable differences in potential impacts relating to flooding or shoreline resources between project alternatives.

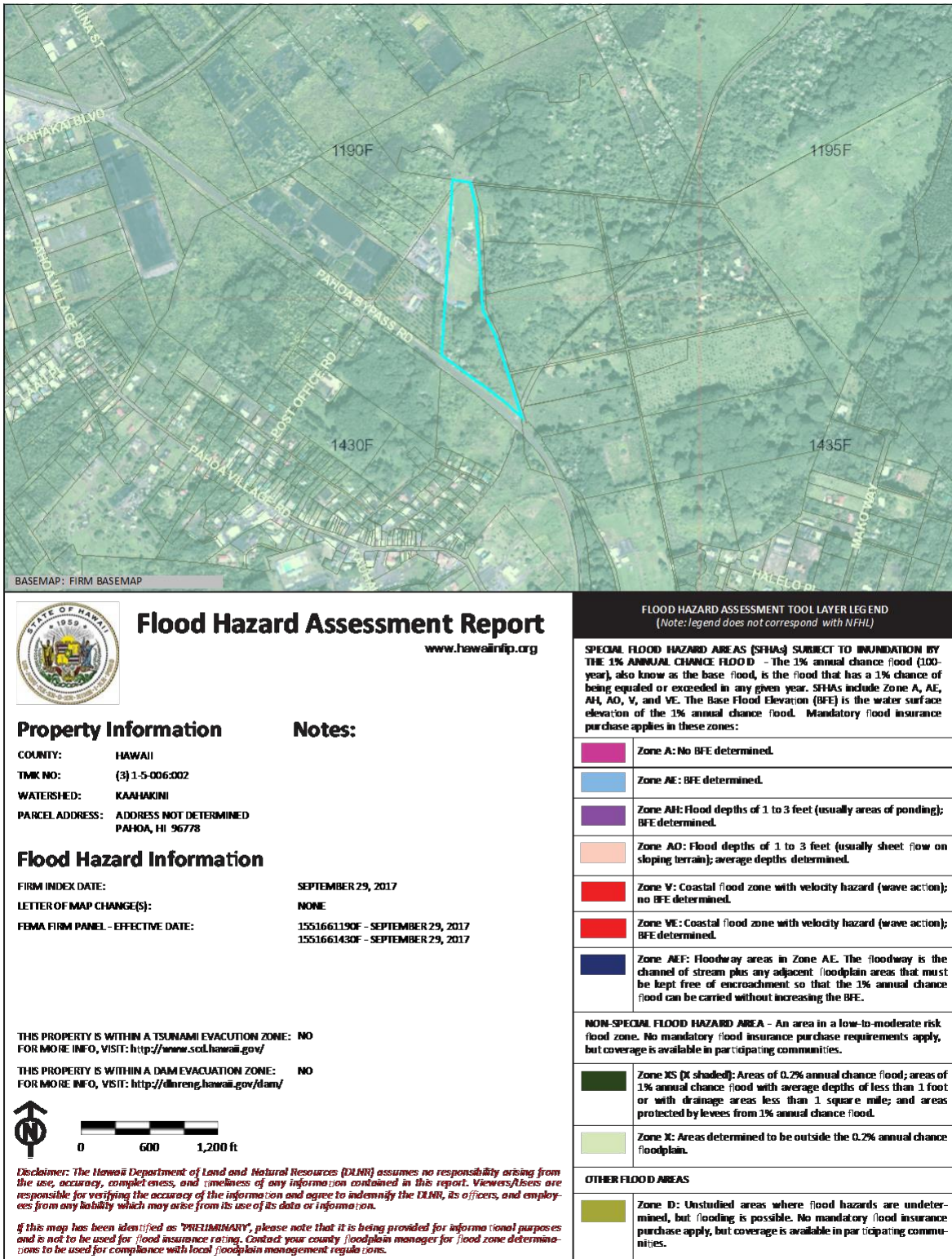


Figure 46: Flood Hazard Assessment Report for Parcel 002

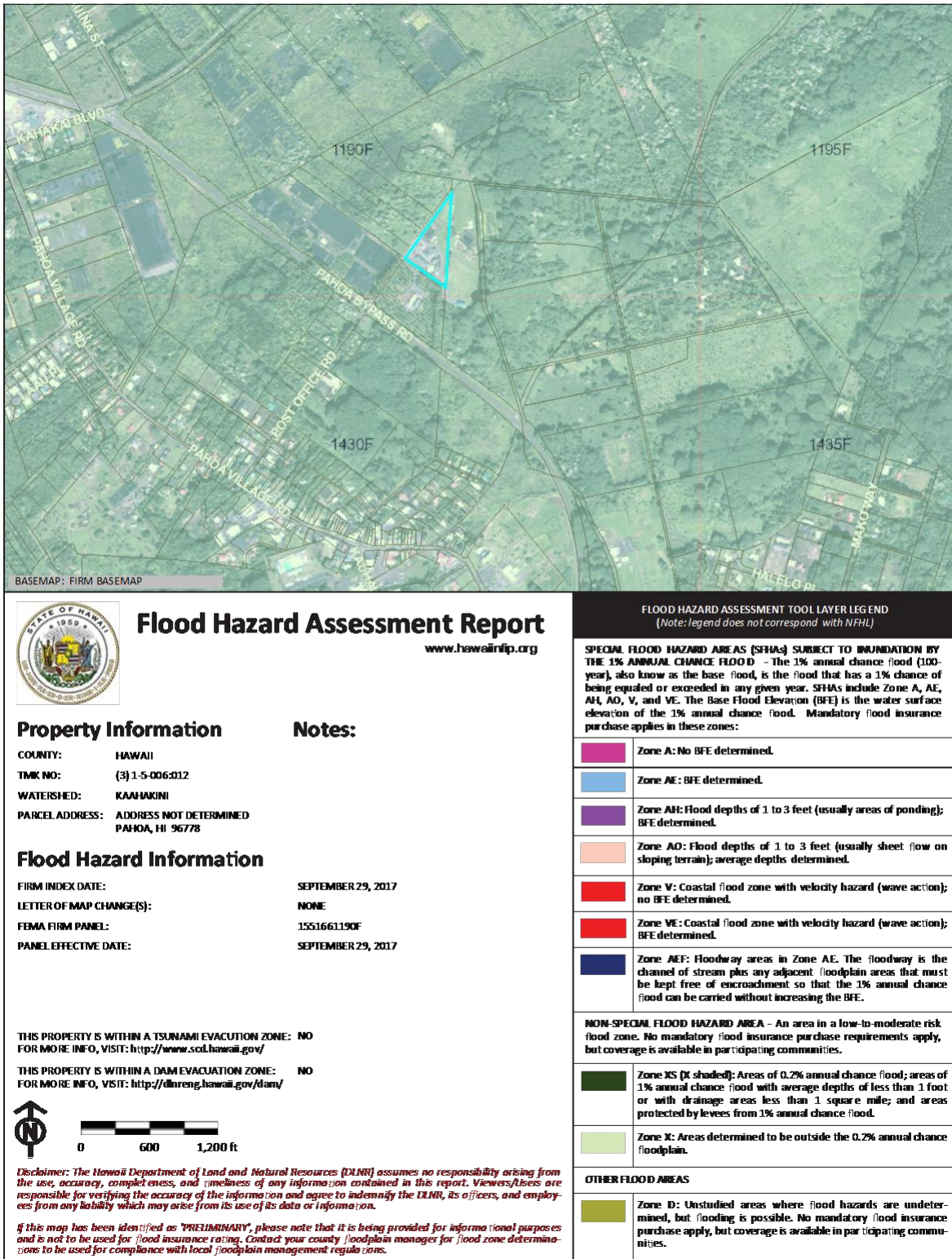


Figure 47: Flood Hazard Assessment Report for Parcel 012

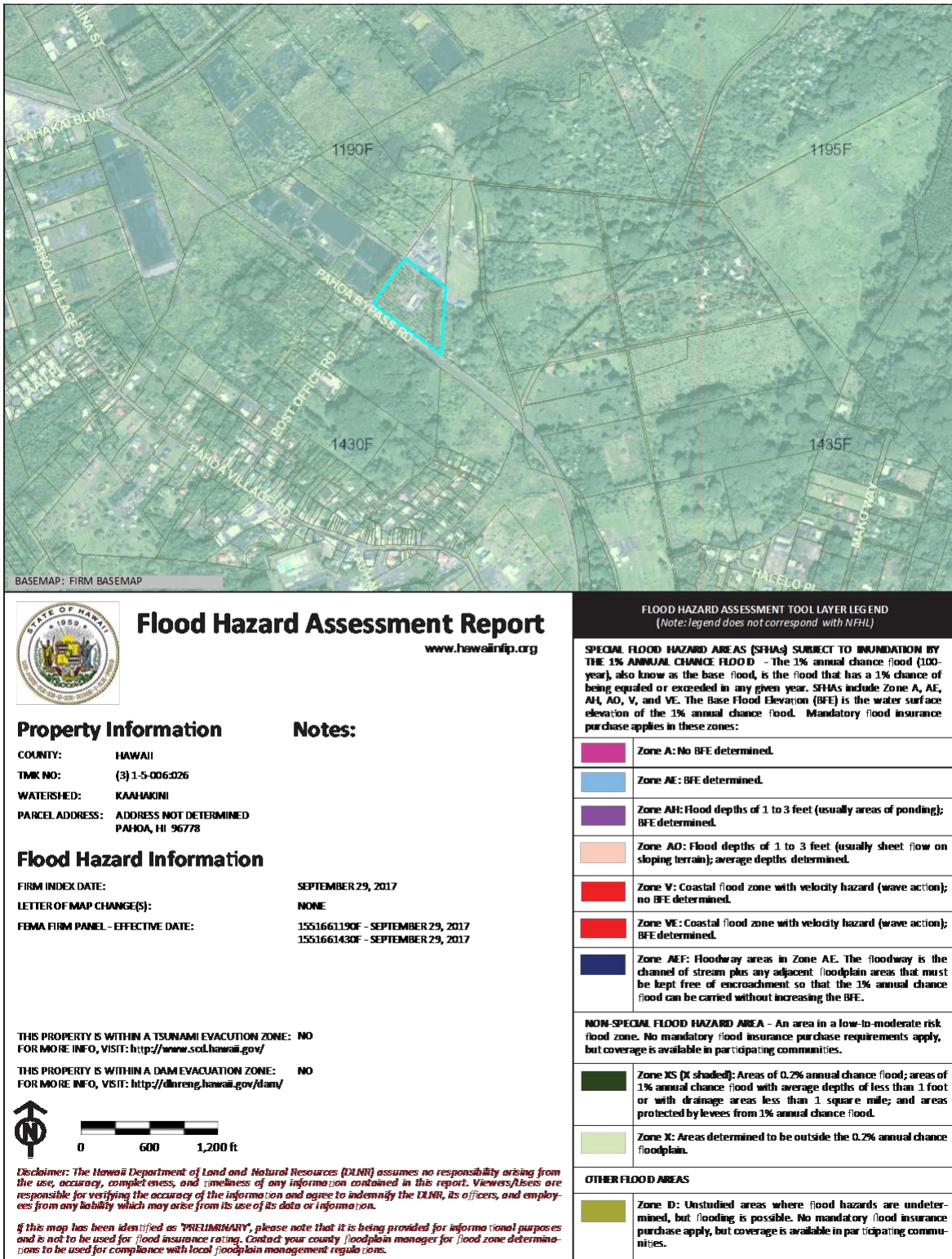


Figure 48: Flood Hazard Assessment Report for Parcel 026

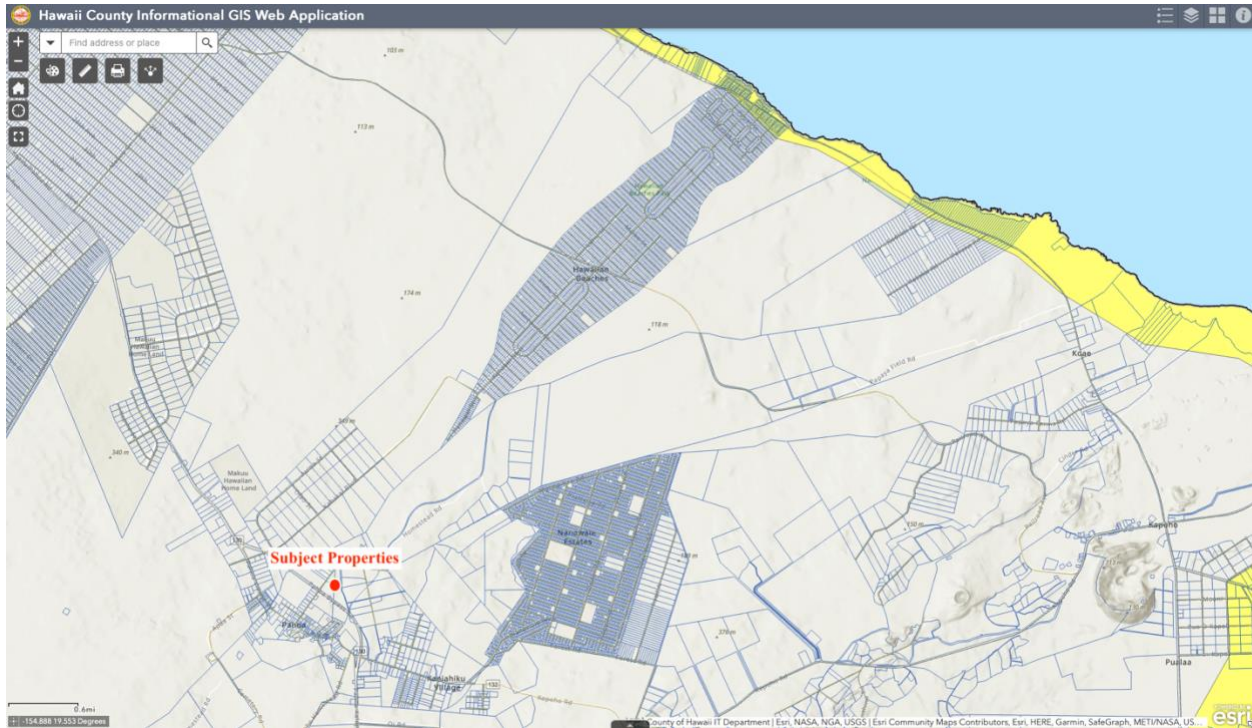


Figure 49: Tsunami Evacuation Zone in Relation to the Subject Properties

3.1.3 Water Quality

Environmental Setting

The proposed action will not take place near any naturally occurring body of water. The rapid permeability of young lava flows along with the geologic youth of the landscape makes surface streams rare on Kīlauea. Water is typically conveyed from *mauka* areas underground either through lava tubes or more permeable layers and fractures in the underlying basalt. During periods of intense and prolonged rainfall these subsurface groundwater flows will occasionally reach the surface in low-lying areas. Surface sheet flow of storm water is also possible during intense rainfall. Areas that experience shallow ponding during storms have been identified on the project site and these areas are planned to be utilized as terraced gardens and landscaped waterways and terminating in constructed wetlands and ponds at the *makai* corner of the site. The primary activities with potential to affect storm water are grading and grubbing. Grading plans will be developed with the mitigating measures and BMPs discussed below. On-site improvements would include the placement of underground utility lines connecting to the Department of Water Supply (DWS) line, septic systems, and telecommunication lines. Trenching will also be required for the proposed constructed wetland, aquaponics, and water treatment ponds, located in the north section of the property.

Impacts and Mitigating Measures

The expansion of the ASC Campus does not pose any risk to aquatic or marine habitats. ASC will ensure all earthwork and grading will be conducted in compliance with:

- (a) “Storm Drainage Standards,” County of Hawai‘i, 1970 and as revised

- (b) “Flood Control,” Chapter 27 of the Hawai‘i County Code
- (c) Standards and regulations of the Federal Emergency Agency (FEMA)
- (d) “Erosion and Sedimentation Control,” Chapter 10 of the Hawai‘i County Code
- (e) Conditions of an NPDES permit, if required, and any additional Best Management Practices required by the Department of Health Clean Water Branch

A County grading permit will be required. Construction activities would occur in an area greater than one acre and thus will require a National Pollutant Discharge Elimination System (NPDES) permit to ensure that erosion and sedimentation impacts will be minimized. This permit requires the completion of a Storm Water Pollution Prevention Plan (SWPPP). A list of Best Management Practices (BMPs) will be established to properly manage storm water runoff. These BMPs may include, but are not limited to:

- Minimizing soil loss and erosion by revegetating and stabilizing slopes and disturbed areas of soil
- Minimizing sediment loss by placing structural controls including silt fences, gravel bags, sediment ponds, check dams, and other barriers
- Applying sediment wattles and protective covers to soil and material stockpiles
- Gravel check dams in gutters
- Constructing and using a stabilized construction vehicle entrance, with a designated vehicle wash area that discharges to a sediment pond
- Washing of all vehicles in the designated wash area before leaving the project site
- Use of drip pans beneath vehicles to trap vehicle fluid
- Performing routine inspection and maintenance of structural BMPs by trained personnel
- Properly cleaning significant leaks or spills and disposing at an approved site

Wastewater will be handled either through Individual Wastewater Systems (IWS) adhering to County and State regulations, or an alternative wastewater system in the form of constructed wastewater wetlands meeting the approval of the Department of Health (DOH).

The proposed action will create impermeable surfaces on the property, which can increase the volume and rate of stormwater runoff. However, as per Hawai‘i County Code, Chapter 27, the volume of stormwater leaving the site will not increase. This will be accomplished through a man-made stream system, which transports water between aquaponic ponds, a constructed wetland, and a wastewater treatment pond. Wastewater from the project’s facilities may alternatively be treated using individual wastewater treatment systems, permitted by the State of Hawai‘i Department of Health.

ASC will use the Best Management Practices created by the University of Hawai‘i-Manoa, College of Tropical Agriculture and Human Resource’s *Best Management Practices to Manage Non-Point Pollution in Agriculture* (Abbas and Fares, 2009). These BMPs include short- and long-term methods to control erosion and sedimentation, soil management through cultivation, minimizing tillage, adding organic material to soils and establish ground covers. When trees are planted, holes will be dug rather than grading or tilling the area for cultivation. Since the precipitation is high in the area, little to no watering should be required, other than hand watering of new plantings and during times of relative drought. Nutrient management will be carefully

considered and selected by using the appropriate organic manure, which can help stabilize soils and reduce the need for chemical nutrients. Pests will be managed through integrated pest management practices, biological control, and pesticides only when necessary. Proper handling, storage and application of pesticides will always be enforced.

3.1.4 Flora and Fauna

Environmental Setting: Flora

Historically this area has been used heavily for sugar cane production and commercial agriculture. Extensive clearing and tilling have drastically altered the habitat to allow non-native species to dominate this area.

A biotic survey of ASC conducted on November 16, 2020, found no endangered or threatened species on the property. Many decades of extensive agriculture have resulted in non-native trees, shrubs, and grasses. These include Ironwood (*Casuarina equisetifolia*), Albizia (*Falcataria moluccana*), Strawberry Guava (*Psidium cattleianum*), Bingabing (*Macaranga mappia*), Trumpet Tree (*Cecropia obtusifolia*), Autograph Tree (*Clusia rosea*), Cook Pine (*Araucaria columnaris*), Malabar Melastome (*Melastoma malabathricum*), Sugar Cane (*Saccharum officinarum*), Honohono Grass (*Commelina diffusa*), Koster's Curse (*Clidemia hirta*), Smooth Rattlebox (*Crotalaria pallida*), Sensitive Grass (*Mimosa pudica*) and Partridge Pea (*Chamaecrista fasciculata*).

Four native and/or endemic species present on the property include Hapu'u (*Cibotium menziesii*), Hoawa (*Pittosporum hosmeri*), Akolea (*Athyrium microphyllum*), and Kokio Keokeo (*Hibiscus arnottianus*). These were planted in landscaped areas and were not naturally occurring.

A fully functioning Macadamia Nut (*Macadamia integrifolia*) orchard is currently present on the corner of Homestead Road and the Kea'au-Pahoa Bypass Road. This orchard was used historically with the production of sugar cane but has since been properly restored by ASC. Polynesian Introduced plants that are deeply rooted in the Hawaiian culture have been established in a garden for education purposes. Species present in this garden include Kava (*Piper methysticum*), Taro (*Colocasia esculenta*), Giant Taro (*Alocasia macrorrhizos*), Sweet Potato (*Ipomea batatas*) and Popolo (*Solanum nigrum*). Several fruit trees, shrubs, and vines are also scattered throughout the Properties, such as Avocado (*Persea americana*), Orange (*Citrus sinensis*), Mulberry (*Morus alba*), Pineapple (*Ananas comosus*), Banana (*Musa*), Breadfruit (*Artocarpus altilis*), Lilikoi (*Passiflora edulis*), Starfruit (*Averrhoa carambola*) and Mango (*Mangifera indica*).

Ornamental palm trees border most of the current buildings including Alexander Palm (*Archontophoenix alexandrae*), Butterfly Palm (*Dypsis lutescens*), Bottle Palm (*Hyophorbe lagenicaulis*), Triangle Palm (*Dypsis decaryi*), Betel Nut Palm (*Areca catechu*), Chinese Fan Palm (*Livistona chinensis*) and Coconut Palm (*Cocos nucifera*). Other such ornamentals include Gardenia (*Gardenia augusta*), Plumeria (*Plumeria sp*) and Aloe (*Aloe arborescens*). **Table 1** has a complete list of each plant detected on the Properties during the survey. Each species is consistent with the area, island, and surrounding areas.

Table 3: Plant Species Detected on the Arts and Science Center Properties

Latin name	Common name	Family	Status
<i>Ageratum conyzoides</i>	Billy Goat Weed	Asteraceae	A
<i>Aleurites moluccana</i>	Kukui Nut Tree	Euphorbiaceae	PI
<i>Alocasia macrorrhizos</i>	Giant Taro	Araceae	PI
<i>Aloe arborescens</i>	Aloe	Xanthorrhoeaceae	A
<i>Ananas comosus</i>	Pineapple	Bromeliaceae	A
<i>Araucaria columnaris</i>	Cook Pine	Araucariaceae	A
<i>Archontophoenix alexandrae</i>	Alexander Palm	Arecaceae	A
<i>Areca catechu</i>	Betel Nut Palm	Arecaceae	A
<i>Artocarpus altilis</i>	Breadfruit	Moraceae	A
<i>Arundina graminifolia</i>	Bamboo Orchid	Orchidaceae	A
<i>Arundo donax</i>	Giant Reed	Poaceae	A
<i>Athyrium microphyllum</i>	Akolea	Woodsiaceae	E
<i>Averrhoa carambola</i>	Starfruit	Oxalidaceae	A
<i>Axonopus compressus</i>	Wide Leaved Carpet Grass	Poaceae	A
<i>Axonopus fissifolius</i>	Narrow Leaved Carpet Grass	Poaceae	A
<i>Brachiara mutica</i>	California Grass	Poaceae	A
<i>Casuarina equisetifolia</i>	Ironwood	Casuarinaceae	A
<i>Cecropia obtusifolia</i>	Trumpet Tree	Moraceae	A
<i>Chamaecrista fasciculata</i>	Partridge Pea	Fabaceae	A
<i>Cibotium menziesii</i>	Hapu'u	Cibotiaceae	E
<i>Citrus sinensis</i>	Orange	Rutaceae	A
<i>Clidemia hirta</i>	Koster's Curse	Melastomataceae	A
<i>Clusia rosea</i>	Autograph Tree	Clusiaceae	A
<i>Cocos nucifera</i>	Coconut Palm	Arecaceae	PI
<i>Colocasia esculenta</i>	Taro	Araceae	PI
<i>Commelina diffusa</i>	Honohono Grass	Commelinaceae	A
<i>Cordyline fruticosa</i>	Ti	Liliaceae	PI
<i>Crotalaria pallida</i>	Smooth Rattlebox	Fabaceae	A
<i>Cyperus rotundus</i>	Nutgrass	Cyperaceae	A
<i>Dracaena marginata</i>	Money Tree	Agavaceae	A
<i>Dracaena reflexa</i>	Song of India	Asparagaceae	A
<i>Dyopsis decary</i>	Triangle palm	Arecaceae	A
<i>Dyopsis lutescens</i>	Butterfly Palm	Arecaceae	A
<i>Euphorbia hirta</i>	Hairy Spurge	Euphorbiaceae	A

Arts & Sciences Center Campus Expansion Final Environmental Assessment

<i>Falcataria moluccana</i>	Albizia	Fabaceae	A
<i>Gardenia augusta</i>	Gardenia	Rubiaceae	A
<i>Hibiscus kokio</i>	Red Hibiscus	Malvaceae	E
<i>Hibiscus sabdariffa</i>	Roselle Hibiscus	Malvaceae	A
<i>Hibiscus waimeae</i>	Kokio Keokeo	Malvaceae	A
<i>Hyophorbe lagenicaulis</i>	Bottle Palm	Arecaceae	A
<i>Hyptis pectinata</i>	Comb Hyptis	Lamiaceae	A
<i>Ipomea batatas</i>	Sweet Potato	Convolvulaceae	PI
<i>Livistona chinensis</i>	Chinese Fan Palm	Arecaceae	A
<i>Macadamia integrifolia</i>	Macadamia Nut	Proteaceae	A
<i>Macaranga mappa</i>	Bingabing	Euphorbiaceae	A
<i>Mangifera indica</i>	Mango	Anacardiaceae	A
<i>Megathyrsus maximus</i>	Guinea Grass	Poaceae	A
<i>Melastoma malabathricum</i>	Malabar Melastome	Melastomataceae	A
<i>Melochia umbellata</i>	Melochia	Malvaceae	A
<i>Mimosa pudica</i>	Sensitive Grass	Fabaceae	A
<i>Momordica charantia</i>	Bitter Melon	Cucurbitaceae	A
<i>Morus alba</i>	Mullberry	Moraceae	A
<i>Musa</i>	Banana	Musaceae	A
<i>Nymphaeaceae sp.</i>	Water Lilies	Nymphaeaceae	A
<i>Paederia foetida</i>	Maile Pilau	Rubiaceae	A
<i>Paspalum conjugatum</i>	Hilo Grass	Poaceae	A
<i>Passiflora edulis</i>	Lilikoi	Passifloraceae	A
<i>Persea americana</i>	Avocado	Lauraceae	A
<i>Phymatosorus grossus or Microsorium scolopendria</i>	Laua'e	Polypodiaceae	A
<i>Piper methysticum</i>	Kava	Piperaceae	PI
<i>Pittosporum hosmeri</i>	Hoawa	Pittosporaceae	E
<i>Plumeria sp,</i>	Plumeria	Apocynaceae	A
<i>Polystichum munitum</i>	Sword Fern	Dryopteridaceae	A
<i>Psidium cattleianum</i>	Strawberry Guava	Myrtaceae	A
<i>Psidium guajava</i>	Common Guava	Myrtaceae	A
<i>Saccharum officinarum</i>	Sugar Cane	Poaceae	A
<i>Senna spectabilis</i>	Spectacular Cassia	Fabaceae	A
<i>Setaria palmifolia</i>	Palm Grass	Poaceae	A
<i>Solanum nigrum</i>	Popolo	Solanaceae	PI
<i>Strelitzia sp.</i>	Bird of Paradise	Strelitziaceae	A
<i>Thymophylla tenuiloba</i>	Dog Weed	Asteraceae	A

<i>Trema orientalis</i>	Gunpowder Tree	Cannabaceae	A
<i>Trifolium sp.</i>	Clover	Fabaceae	A

A: Alien

PI: Polynesian Introduced

E: Endemic

Environmental Setting: Fauna

Several common birds were also detected during the survey, including Common Myna (*Acridotheres tristis*), Spotted Dove (*Streptopelia chinensis*), House Finch (*Carpodacus mexicanus*), House Sparrow (*Passer Domesticus*), Saffron Finch (*Sicalis flaveola*), Pacific Golden Plover (*Pluvialis fulva*), Monarch Butterfly (*Danaus plexippus*) and Wandering Tattler (*Tringa incana*). Although not spotted, it is very likely that the Japanese White-Eye (*Zosterops japonicus*) and Northern Cardinals (*Cardinalis cardinalis*) are also in the area.

Nēnē habitat ranges from sea level to 7,000 feet. Flocks move between high elevation feeding habitats and lowland nesting areas. The subject Properties lack dense vegetation and are distant from water sources, which make them unsuitable Nēnē habitat. However, surrounding parcels on the *makai* side of Highway 130 are much more vegetated. Although unlikely, it is possible for Nēnē to utilize these areas.

It is also possible for the endangered Hawaiian Hoary Bat (*Lasiurus cinereus semotus*), and the formerly endangered Hawaiian Hawk (*Buteo solitarius*) to fly over, roost or utilize resource near the Properties.

Aside from birds, pig (*Sus scrofa*) tracks were seen in the north section of the property, and although not detected, it is likely Indian mongoose (*Herpestes a. auropunctatus*), feral cat (*Felis catus*) and chicken (*Gallus gallus domesticus*) may also be present at times. In addition, it is safe to assume the highly invasive coqui frog (*Eleutherodactylus coqui*) is active during nighttime hours in this area, which is consistent with much of lowland Puna.

Impacts and Mitigation Measures

No threatened or endangered species are present on the property. Only five native species were detected, most of which were planted intentionally by ASC and do not naturally occur on the subject Properties. Construction will have little impact to native biological communities.

The potential presence of native endangered birds in the area means the applicant will commit to mitigating measures. The State listed Hawaiian Hoary Bat or ‘Ōpe‘ape‘a (*Lasiurus cinereus semotus*) has the potential to occur in the vicinity of the project area and may roost in nearby trees. Hoary Bats may be sensitive to disturbance between June 1st and September 15th, throughout which no shrubs or trees taller than 15 feet may be disturbed or removed. If this cannot be avoided, woody plants greater than 15 feet (4.6 meters) tall should not be disturbed, removed, or trimmed without consulting the DLNR Division of Forestry and Wildlife (DOFAW). The State listed Hawaiian Hawk, or ‘Io (*Buteo solitarius*) is also known to occur in the project vicinity. If any tree cutting occurs between March and September, DOFAW must be consulted first. A pre-construction hawk nest search by a qualified ornithologist using standard methods must be conducted. If nests are found, no land clearing is permissible until October.

Under the proposed action the Macadamia Nut orchard would be cleared. Macadamia Nut trees are not known to be utilized by any native endangered birds in the area.

According to DOFAW, artificial lighting can adversely impact seabirds that may pass through the area at night by causing disorientation. The disorientation can result in collision with manmade artifacts or grounding of birds. For nighttime lighting that might be required, DOFAW recommends that all lights be fully shielded to minimize impacts. Nighttime work that requires outdoor lighting should be avoided during the seabird fledging season from September 15th through December 15th. This is the period when young seabirds take their maiden voyage to the open area.

The movement of plant or soil material between worksites, such as fill, must be minimized. Soil and plant material may contain invasive fungal pathogens such as Rapid 'Ōhi'a Death (ROD), vertebrate and invertebrate pests such as Little Fire Ants (*Wasmannia auropunctata*), or invasive plant parts that could harm native species and ecosystems. All equipment, materials, and personnel should be cleaned of excess soil. Gear that may contain soil, such as work boots and vehicles, should be thoroughly cleaned, and sprayed with 70% alcohol solution to prevent the spread of ROD and other harmful fungal pathogens. If any material removed from the site is moved to areas without fire ants or ROD, the material will be inspected and treated if necessary. No 'Ōhi'a trees are present on the properties; therefore, none will be cut down during construction.

3.1.5 Air Quality, Noise and Scenic Resources

Environmental Setting

Air quality in this area is currently very good. In the past, volcanic emissions such as sulfur dioxide from the Kīlauea volcano, have resulted in “vog,” which can impact air quality in the Puna District at times. Vog is created when sulfur dioxide reacts chemically with sunlight, oxygen, dust particles and water in the air. During eruptions, the trade winds generally keep the Pāhoā area free from severe vog, however, weak winds particularly in the winter may result in worse conditions. In the future, during episodes of volcanic eruptions, ASC would have no worse air quality conditions than the rest of the Puna District.

Vehicles are another source of minor air pollution, which is minimal on Hawai'i Island. Vehicle emissions in the area would mainly come from the Kea'au-Pāhoā Bypass Road, which is adjacent to the subject site. All Hawai'i Island meets the standards set by the Clean Air Act (CAA) and HRS §342B.

Noise on the project site varies from low to moderate, with the main source being from motor vehicles on the Kea'au-Pāhoā Bypass Road. Noise levels are expected to increase with higher levels of traffic to and from the proposed campus, as well as more occupants and users from the community. The proposed action includes the construction of an amphitheater, and other event venues, which may emit noise at times.

Impacts and Mitigating Measures

Air pollutants during construction will be limited and temporary. The main sources of short-term air pollutants are construction equipment exhaust and dust. The State of Hawai‘i Air Pollution Control Regulations outlined in HAR §11-60 on Fugitive Dust prohibit visible emissions of dust from construction activities at the Property boundary. A dust control plan for each construction phase will be necessary due to the proximity of the proposed project to the Kea‘au-Pāhoa Bypass Road. Reasonable measures to control airborne, visible fugitive dust from road areas are outlined in the Department of Health’s Clean Air Branch Standard Comments for Land Use Reviews. These measures include, but are not limited to:

- Planning the different phases of construction, focusing on minimizing the amount of airborne, visible fugitive dust-generating materials and activities, centralizing on-site vehicular traffic routes, and locating potential dust-generating equipment in areas of the least impact.
- Providing adequate water source at the site prior to start-up of construction activities; Landscaping and providing rapid covering of bare areas, including slopes, starting from the initial grading phase.
- Minimizing airborne, visible fugitive dust from shoulders and access roads.
- Providing reasonable dust control measures during weekends, after hours, and prior to daily start-up of construction activities.
- Controlling airborne, visible fugitive dust from debris being hauled away from the project site.

These mitigating measures will be used during all phases of construction to prevent significant impacts to the Kea‘au-Pāhoa Bypass Road and surrounding areas.

During operation, the TIAR estimates 100 peak hour vehicular trips, which is not expected to measurably affect air quality. In addition, the proposed project does not anticipate being subject to air quality impacts. The proposed project and land uses will not emit harmful emissions and will utilize solar power and electricity from HELCO for power sources.

Short-term noise impacts may occur during construction from excavation, grading, vehicle and equipment operation, and the construction of new infrastructure. These impacts will all be temporary and mitigated through construction phase system, which will provide times of no noise impacts. Mitigating measures will be implemented to avoid and minimize any potential impacts. It is possible that a noise permit may need to be sought if there is ever a potential for construction noise to exceed the Department of Health’s maximum permissible noise levels.

Operationally, all noise will be limited to typical workday hours. When the campus is operation, select community events may increase noise in the area. In the event the site is used outside of normal operating hours, ASC will adhere to the Department of Heath noise guidelines, which state events will not run past 10:00 p.m.

The County of Hawai‘i General Plan outlines regulations to preserve areas of natural scenic beauty. The grounds and buildings of the proposed campus will be aesthetically pleasing, although sight lines into the project area from Highway 130 may be obscured by bordered vegetation. Minimal light pollution is another important aspect of maintaining scenic resources and visibility of the night sky. ASC proposes to adhere to the following steps as outlined by the University of Hawai‘i Institute of Astronomy (IfA):

1. Any outdoor lighting must conform to the standards established by the Hawai‘i County Outdoor Lighting Ordinance (Hawai‘i County Code Chapter 14, Article 9: “Outdoor Lighting”.
2. The minimum possible amount of outdoor/exterior lighting should be used and should be turned off when not needed. Motion sensor activated lighting will be used wherever feasible.
3. All exterior lighting should be fully shielded. This means that all lighting fixtures must emit zero light above the horizontal plane.
4. Conformity to the Outdoor Lighting Ordinance also requires the use of blue-deficient exterior lighting. This means that exterior LED lighting must emit less than 2% of its total energy at wavelengths less than 500 nm. The best choices for this are either filtered LED lights, or amber LED lights.
5. White light should be avoided because the blue component of white light is very damaging to astronomy. Any white light used should have a Correlated Color Temperature of 2700 K or below.

3.1.6 Hazardous Substances, Toxic Waste and Hazardous Conditions

Environmental Setting

No hazardous substances or toxic waste is expected to be generated or treated by the project during construction or operation. Petroleum products may be used for landscaping equipment such as lawnmowers, weedwhackers, and other machinery for general maintenance.

The quantity of solid waste that the proposed expansion will produce is unknown, as ASC has not yet operated a Community Learning Center campus at the proposed capacity. However, ASC does not anticipate any hazardous waste by any of its users, despite the increase in participants using the Properties.

ASC will provide various sites for solid waste management disposal areas and adhere to solid waste management best practices to mitigate any negative impacts. Services to dispose of waste will be contracted through local waste management companies. ASC has also planned for recycling stations throughout the facility, including a green waste and composting site. An extensive solid waste management plan will be developed by ASC prior to completion and operation of the project.

Impacts and Mitigating Measures

Following the guidelines of State and County requirements, to minimize the possibility for spills and hazardous materials during construction, the applicant proposes the following:

- Unused materials and excess fill (if any) will be properly disposed of at an authorized waste disposal site.
- During construction, emergency spill treatment, storage, and disposal of all hazardous materials, will be explicitly required to meet all State and County requirements, and the contractor will adhere to “Good Housekeeping” for all appropriate substances, with the following instructions:
 - Onsite storage to minimum practical quantity of hazardous materials necessary to complete the job;
 - Fuel storage and use will be conducted to prevent leaks, spills or fires;
 - Products will be kept in their original containers unless non-resealable, and original labels and safety data will be retained
 - Disposal of surplus will follow manufacturer’s recommendation and all regulations;
 - Manufacturers’ instructions for proper use and disposal will be strictly followed;
 - Regular inspection by contractor to ensure proper use and disposal;
 - Onsite vehicles and machinery will be monitored for leaks and receive regular maintenance;
 - Construction materials, petroleum products, wastes, debris, and landscaping substances (herbicides, pesticides, and fertilizers) will be prevented from blowing, falling, flowing, washing or leaching into the ocean; and
 - All spills will be cleaned up and properly disposed of immediately after discovery.

During operation, petroleum products may be used for landscape maintenance. Petroleum products can be considered hazardous if not handled or stored properly. All petroleum and chemical products will be stored in the proposed maintenance building, which will be managed by qualified personnel and can be locked when necessary. Personnel who have completed the proper education and training will be the only qualified individuals to handle hazardous products. Any such products will only be used according to the original label on the container. Material Safety Data Sheets (MSDS) must be made readily available and visible within the maintenance building. Personal Protective Equipment (PPE) will be used at all times and checked regularly, while using potentially hazardous products.

As discussed, wastewater will be handled by Individual Wastewater Systems or constructed wetlands. Design of potential constructed wetlands will be made in consultation with qualified engineers and meet the standards of the Department of Health.

If at any time, hazardous substances or waste are discovered on the Properties during construction, construction work will cease, and appropriate authorities will be contacted. A remediation specialist can be contacted to supervise the appropriate disposal and management of

substances. ASC will require all users and occupants of the facilities to follow all government regulations pertaining to hazardous and toxic substances.

3.2 Socioeconomic and Cultural

3.2.1 Land Use, Socioeconomic Characteristics, and Recreation

Environmental Setting

The Puna District has been Hawai‘i Island’s fastest-growing district over the last thirty years. The population measured in the 2010 U.S. Census was 45,326, a 66 percent increase over the 2000 count of 27,232. The 2020 Census counts are expected to follow this increasing trend.

Puna is desirable for its relatively inexpensive land, which typically ranges in size from 1 to 3 acres. Residents from the U.S. mainland and other parts of the State of Hawai‘i continue to seek these affordable properties. The basis of the economy of Puna has evolved from cattle ranching and sugar to diversified agriculture and tourism stimulated by Kīlauea volcano. The Puna District is a significant socioeconomic area for Hawai‘i County. It is the leader in the agriculture industry on the Island of Hawai‘i. Some Puna subdivisions between Pāhoa and Hilo (including Hawaiian Paradise Park, Hawaiian Beaches, and Hawaiian Shores), are now partially bedroom communities for Hilo’s workforce.

The subject Parcels are zoned A-5a, which is consistent with much of the surrounding properties. This area has been used extensively for agriculture in the past, which was formerly used to cultivate sugar cane and macadamia nuts. Pāhoa Village is less than 0.5 miles to the southeast and is made up of CV-10 (*Commercial Village District minimum 10,000 square feet*), RS-10 (*Residential minimum 10,000 square feet*) and RS-15 (*Residential minimum 15,000 square feet*) lots.

Impacts and Mitigation Measures

The proposed action will have no significant adverse impact to land use, socioeconomic resources, or recreation. The construction of a Community Learning Center would have very positive impacts to the socioeconomic resources of the area. The ongoing coronavirus pandemic beginning in 2020 has led to further economic and educational disparities requiring additional resources and facilities in the Puna District. ASC’s expansion is necessary to aid in job creation and retention, to diversify local industry, and expand resources to a highly populated and growing district. The proposed project would have significant economic and social impacts by providing both short-term and long-term employment, access to education, and community development, which there is a notable lack of in the area. There are no recreational resources on the Properties therefore none will be impacted by the proposed action.

3.2.2 Cultural and Historic Resources

Historical and Cultural Background

Hawai‘i is believed to be first inhabited by voyagers from the Marquesas around 1,000 A.D, however, recent studies have shown that initial Polynesian colonization of Hawai‘i Island occurred between 1220 and 1261 A.D (Rieth et al. 2011). It is believed that Hilo is likely one of the first settlements on Hawai‘i Island. Hilo is known to have rich marine resources accessed at Hilo Bay and additional abundant resources from the forests that descend from Mauna Loa and Mauna Kea. Fresh water was available from Wailoa and Wailuku Rivers and Waiākea, Waiolama, Pukihāe and ‘Alenaio Streams. The project area is approximately seventeen (17) miles southeast of Hilo.

Early Hawaiian settlements incorporated new strategies and structures to adapt to their new environment. Traditional Polynesian philosophies and ideals were used to form new societal standards and structures including the principle of genealogical seniority, observance of gods, such as *Kane, Ku and Lono*, the *kapu* system of law and order, *ahupua‘a* land systems, and various beliefs and values that determined day-to-day protocol and lifestyle such as *mana* and the *‘aumakua* (Fornander, 1969).

The earliest documentation of Hilo is found in ‘Umi-a-Liloa’s conquest of Hawai‘i Island in the sixteenth century, which established Hilo as a royal center for the island. In the account, ‘Umi-a-Liloa began his conquest of the Island of Hawai‘i by defeating chief Kulukulu‘ā, who lived in Waiākea, and the other chiefs of Hilo. ‘Umi-a-Liloa’s son Keawe-nui-a-‘Umi ruled Hāmākua, Hilo and Puna. After the death of Keawe-nui-a-‘Umi, the ruling kingdom was divided into three parts and was established under warring chiefs (Kamakau, 1992).

In 1738 Kamehameha I was born. Chief Kalani‘opu‘u was the high chief during Cook’s arrival in 1779. After the chief’s death in 1782, his son Kiwala‘o, and his nephew, Kamehameha I began to compete for control of the west side of Hawai‘i Island. Kamehameha won the battle of Moku‘ohai against Kiwala‘o in Kona, officially controlling the western half of the island. In 1791, Kamehameha, having gained control of Hilo, fought, and won a battle against his cousin Keoua at Kawaihāe for control of the entire Island of Hawai‘i. In 1795, Kamehameha conquered Maui, Moloka‘i, Lana‘i and O‘ahu. He also received Kaua‘i by cession in 1810 (Kamakau, 1992). Kamehameha’s son Liholiho was born in Hilo in November 1797. Waiākea was inherited by Liholiho after Kamehameha’s death. The *‘ili kūpono* of Pi‘opi‘o and its royal fishpond were given to his favorite wife, Ka‘ahumanu.

The Puna District was originally one of six chiefdoms or *moku* of the island of Hawai‘i. Puna was not a district that produced any great and powerful chiefs; the area was often controlled by chiefs and rulers from the Hilo District to the north, or the Ka‘u District to the south (Cordy, 2000). Puna is historically known for its rich soils, high rainfall, and frequent volcanic activity. Many parts of the district have been covered in lava over the past 1,000 years. The coastal areas are characterized by thin soil and steep volcanic cliffs, which are met by rough and wind-blown ocean. Historic settlement patterns reflected favorable agricultural activities, which were found inland from the coast. Villages were often spread out across large areas and abundant in population (Kelly et al. 1981).

The Puna District is known for its valuable products, such as hogs, gray *kapa* cloth (*'eleuli*), tapas made of *mamaki* bark, fine mats made of young pandanus blossoms (*'ahuhinalo*), mats made of young pandanus (*Hala*) leaves (*'ahuao*), and feathers of the *'o'o* and *mamo* birds. Puna was also famous for its abundant *ulu* (breadfruit) (Ellis, 1963). Neighboring villages in the *'Ola'a* Ahupua'a were known for their hand made products. These two Ahupua'a were important sources of forest and agricultural products for the ruling elite in Hilo.

In 1839, King Kamehameha III signed the Bill of Rights, which sought to ensure that the people's land would not be taken from them. In 1840, the first Constitution of Hawai'i was enacted. In 1845, the Land Commission was created by Kamehameha III to award land claims, although this could not be done under the current feudal system of land tenure as individuals did not hold title to the land. In 1848 The Great Māhele (Land Division) established a system of private land ownership, which divided all Hawai'i's land into three classifications: Crown Lands, Government Lands and Konohiki Lands. Crown, Government and Konohiki lands remained subject to the rights of the *kanaka* who were in possession and cultivated the lands. As land sales between the Crown, Government and Konohiki continued, the rights of the *kanaka* became an issue. In 1850, the Land Commission moved to award title of land to *kanaka* who remained in physical possession, cultivated, or improved any portion of Konohiki Lands. These became Kuleana Lands. Very few Kuleana Land claims were made during the Māhele for Puna (McGregor, 1999). Only 19 Land Commission awards were granted in the entire Puna District. Of these, 16 awards were made in large tracts to 10 chiefs who lived outside of Puna. In 1893, the Hawaiian Monarchy was over-thrown, and Queen Lili'uokalani was imprisoned. The remaining Crown Lands were confiscated by the government and made a part of the public domain (Chinen, 1961).

Between 1845 and 1900 Hilo began to significantly change through the increased presence of foreign vessels, expansion and growth of tourism, the establishment of missions, private land ownership legalization, the presence of the whaling, cattle, and sugar industries, and the construction of Government roads and railroad lines (Kelly et al. 1981). The changes that occurred in the Hilo district began to dictate and impact surrounding districts such as the Puna district to the south. Changes and patterns of residential locations and growth of towns and villages in the Puna district were driven by the demand for agricultural products, thus prompting settlement near land suited to commercial crops and near newly constructed roads and transportation networks.

The Old Puna Trail and Puna Trail (Ala Hele Puna)/Old Government Road are historic trails that connected the Hilo district to and throughout the Puna district. The Old Puna Trail began at the modern-day Lili'uokalani Gardens in Hilo and ended at Ha'ena. It ran along the eastern coast of the island and ran through various coastal villages. An additional trail called the Puna Trail (Ala Hele Puna), also known as Old Government Road, continued from the south end of the Old Puna Trail, and continued south towards the district of Ka'u. Lass (1997) also refers to the entire route from Hilo to Ka'u as the Puna-Ka'u Trail. These trails were first mapped by the Wilkes Expedition of 1804-41 (Escott and Dols, 2020). The Surveyor General of the Hawaiian Government Survey provided a general description of the area between Old Government Road and the newer upper road from Hilo to Kea'au to Pāhoa in 1889. The description suggested a depopulation along most of the Puna coastal area when compared to descriptions documented by William Ellis just sixty-six years earlier. Both accounts described people living somewhat inland

between the coast and inland gardens. In 1889, people were cultivating *kalo*, *'awa*, coffee and sweet potato. By 1889, it appeared that very few people lived along the Old Government Road (Maly, 1999). Traditional settlements that were near coastal areas began to move inland near newer roads and transportation routes. Additionally, more people began to move inland due to the decaying condition of the coastal trails and to find paid work and to produce cash crops such as sugarcane in more fertile, inland areas.

In 1899 the Ola'a Sugar Company was founded in response to the rising sugar cane industry. The company leased roughly 4,000 acres of land and expanded to become the most predominant operation in the area. Plantation fields extended for 10 miles between Kea'au and Mountain View, as well as in Pāhoa and Kapoho (Cutler et al., 2013). **Figure 50** shows the extent of sugarcane plantation fields in the 1920's and 1930's. The Ola'a Sugar Company was eventually sold to American Factors (AMFAC) in 1969, who expanded production to include a bagasse and trash burning power plant that produced 12.5KW of power for Hawai'i Electric Light Company (HELCO). By 1982, AMFAC closed Puna Sugar Company and sold it to Fiji Sugar Corporation in 1988.

Subdivisions including Hawaiian Paradise Park, Hawaiian Beaches and Leilani Estates began to develop in 1959. The Puna population increased steadily as a result. Today Pāhoa remains a significant historical and cultural area, which is why preservation is a key aspect of the Puna Community Development Plan (PCDP). This historical town has experienced plenty of hardship in recent times, including the significant Kīlauea lava flow between May and August 2018 during which Pāhoa suffered substantial economic disparity.

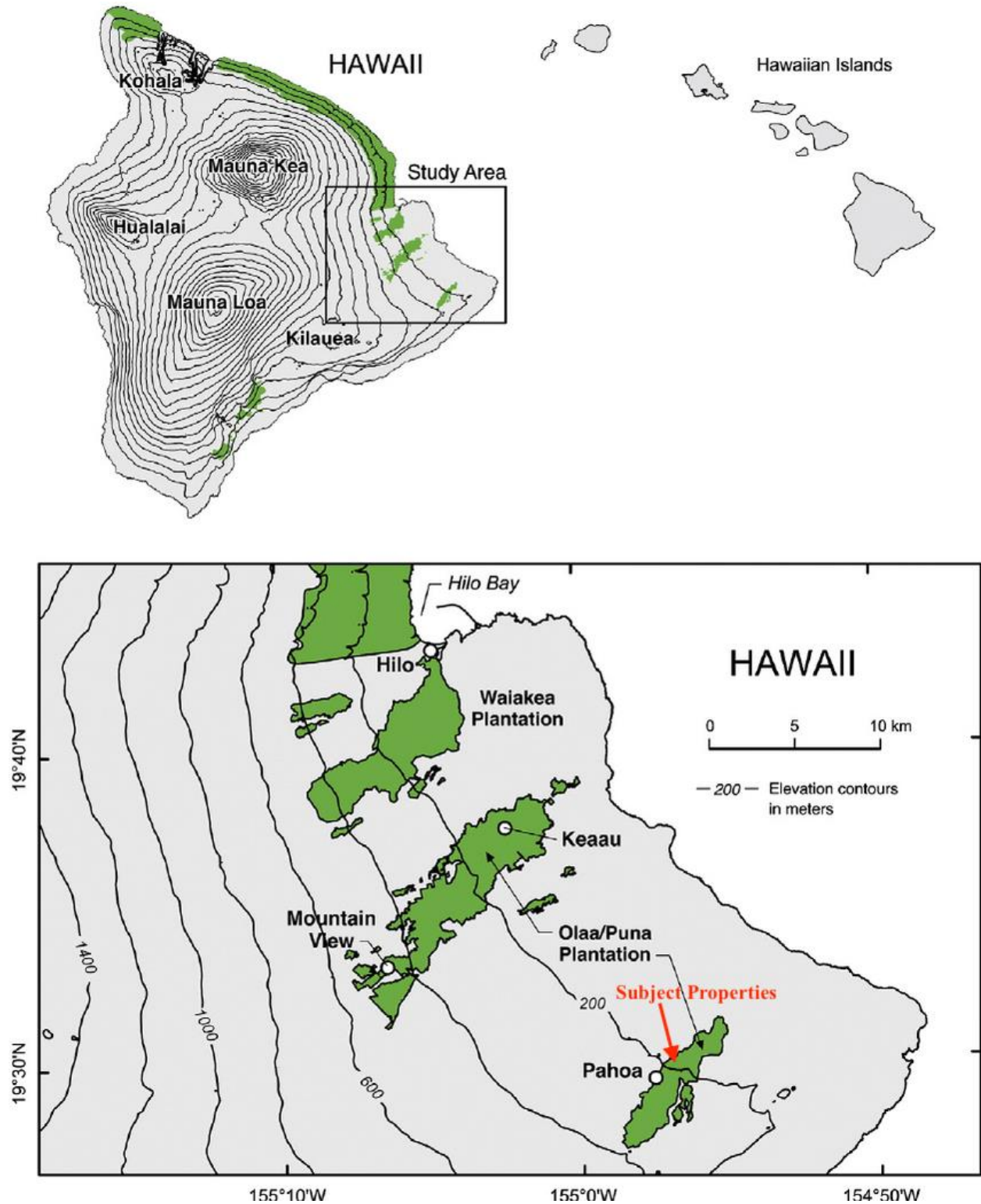


Figure 50: Extent of Sugar Cane Cultivation on the Island of Hawai'i in the 1920's and 1930's

Impacts and Mitigation Measures

The Hawai'i State Supreme Court's PASH and Ka Pa'akai O Ka 'Aina decisions require decision-makers to consider a project's impact to native Hawaiian practices and resources. Specifically, prior to making a decision, State and County agencies must identify the cultural, historical, and natural resources and associated traditional and customary practices of the subject site, the impacts of the proposed project to those resources and practices, and the feasible action (i.e. mitigating measures), if any, to protect such resources and practices.

ASC consulted with the State Historic Preservation Division (SHPD) in 2009 to obtain Special Permit No. 2011-000115 for the existing HAAS campus. At this time, SHPD reported that no historic resources were known to be present on the Properties nor would any likely to be discovered and impacted due to the intensive cultivation and alteration of the land (residential development and urbanization, and previous grubbing/grading) (**Exhibit B**).

No commissioned archaeological survey of the site was made. As construction will be limited to areas that have been previously cleared and cultivated, archaeological resources are not expected to be encountered. However, if needed, an archaeological monitoring plan can be prepared and implemented in conjunction with further land clearing activity. It is not known whether the subject Properties or immediate surrounding area have ever been used for the gathering of plants by native Hawaiians. However, it would appear very unlikely that the site would serve such purpose today and/or in the recent past due to historic land use. Therefore, it does not appear that the project would have any potential adverse impact relating to cultural practices in the area.

In the event any inadvertent discoveries of historic, archaeological, or cultural resources are made during any activities related to the proposed project, work will cease, and the applicant will immediately notify the Planning Department and the State DLNR and secure their clearances before proceeding further.

3.3 Public Roads, Services, and Utilities

3.3.1 Roads and Access

Environmental Setting

A Traffic Impact Analysis Report (TIAR) was prepared to evaluate potential traffic impacts from the proposed project. An initial TIAR was conducted and completed on October 24, 2010, by Austin, Tsutsumi & Associates. This TIAR was updated and finalized in December 2021 by the same firm.

As previously discussed, access to the site is currently provided via two (2) driveways along Homestead Road. There are two (2) traffic alternatives, which were evaluated in the report:

1. Access to the project site would be provided via one (1) existing driveway along Homestead Road and one (1) new full access driveway along Pāhoa Bypass Road
2. Access to the project site would only be provided via the two (2) existing driveways along Homestead Road

The study looks at five (5) main characteristics to evaluate the potential traffic impacts of the two (2) alternatives outlined above. These include:

- Existing operating conditions during the weekday AM (7:15 and 8:15 AM) and PM (1:45 and 2:45 PM) peak hours of traffic within the study area
- Traffic projections for Base Year 2026, 2031, and 2041 without the project
- Estimated vehicular trips that will be generated by the project
- Traffic projections for Future Year 2026, 2031, and 2041 with the project
- Recommendations for roadway improvements or other mitigative measures, as appropriate, to reduce or eliminate the adverse impacts resulting from traffic generated by the project

The study uses the Highway Capacity Manual (HCM), 6th Edition for calculating Levels of Service (LOS), volume-to-capacity (v/c) ratios and delays using the traffic analysis software “Synchro”. According to the report, “Levels of Service (LOS) is a qualitative measure used to describe the conditions of traffic flow at intersections, with values ranging from free-flow conditions at LOS A, to congested conditions at LOS F”.

Most recent available traffic volume data from the Hawai‘i Department of Transportation (HDOT) and previous traffic studies were used to estimate the 2021 traffic volumes at three (3) study intersections:

1. Pāhoa Bypass Road/Kahakai Boulevard
2. Pāhoa Bypass Road/Homestead Road/Post Office Road
3. Pāhoa Bypass Road/Pāhoa Village Road/Kapoho Road

The existing 2021 traffic volumes are based on 2019 HDOT traffic volume data and the following previous traffic studies:

1. Pāhoa Bypass Road/Kahakai Boulevard
 - a. Based on 2006 traffic count data collected for the Kea‘au-Pāhoa Road Improvements Technical Report, dated January 2011
2. Pāhoa Bypass Road/Homestead Road/Post Office Road
 - a. Based on 2010 traffic data collected for the HAAS PCS Draft TIAR, dated October 24, 2010
3. Pāhoa Bypass Road/Pāhoa Village Road/Kapoho Road
 - a. Based on 2006 traffic count data collected for the Kea‘au-Pāhoa Road Improvements Technical Report

Existing Intersection Analysis

It is important to note that westbound through and left-turn movements are prohibited at the Pāhoa Bypass Road/Homestead Road/Post Office Road intersection during the AM and PM peak hours.

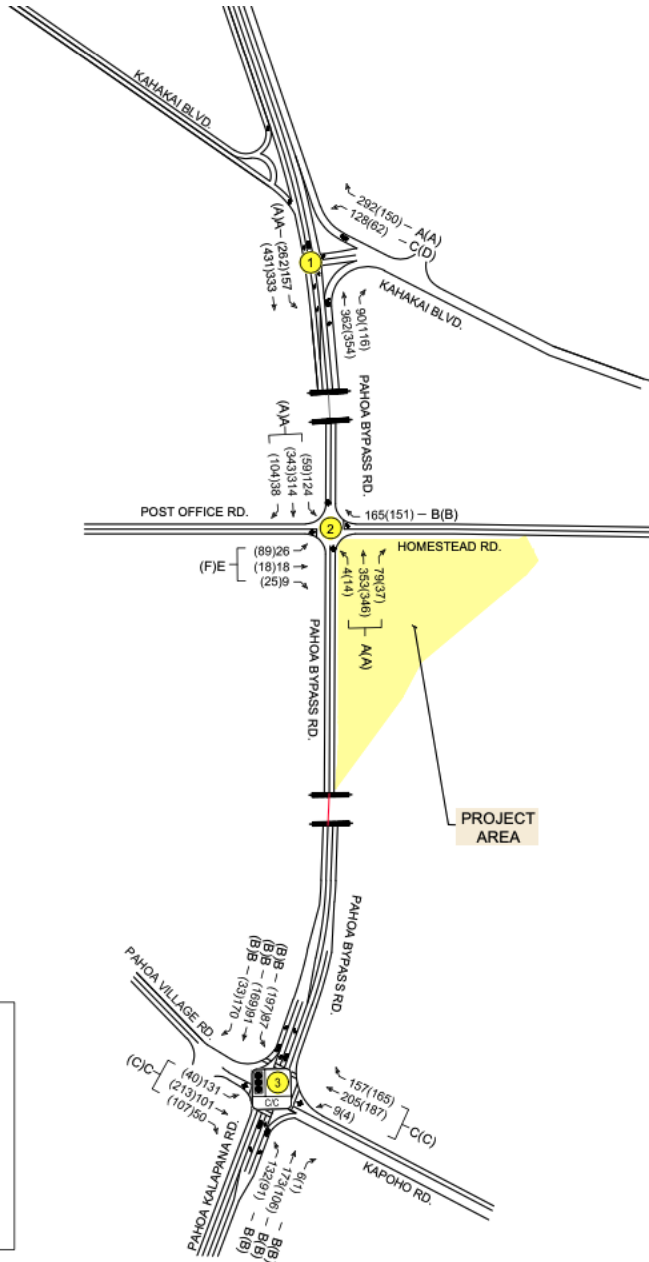
All movements at the three (3) study intersections operate at LOS D or better during both AM and PM peak hours of traffic, except for the eastbound approach at the Pāhoa Bypass Road/Homestead Road/Post Office Road intersection, which is expected to operate at LOS E during AM hours and LOS F during PM hours (Table 4 and Figure 51).

Table 4: Level of Service Summary for Existing Conditions

Intersection	Existing Conditions					
	AM			PM		
	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS
1. Pahoia Bypass Road & Kahakai Boulevard						
WB LT	24.6	0.44	C	30.2	0.32	D
WB RT	0.0	-	A	0.0	-	A
SB LT	8.6	0.15	A	9.1	0.24	A
Overall	4.2	-	-	3.5	-	-
2. Pahoia Bypass Road & Homestead Road/Post Office Road						
NB LT/TH/RT	8.1	0.00	A	8.4	0.01	A
EB LT/TH/RT	43.6	0.39	E	83.5	0.83	F
WB RT	13.0	0.29	B	12.4	0.25	B
SB LT/TH/RT	8.8	0.12	A	8.3	0.06	A
Overall	5.0	-	-	11.4	-	-
3. Pahoia Bypass Road & Pahoia Village Road/Kapoho Road						
EB LT/TH/RT	34.6	0.77	C	30.3	0.78	C
WB LT/TH/RT	27.2	0.67	C	29.1	0.75	C
NB LT	12.0	0.23	B	9.7	0.15	B
NB TH	15.5	0.24	B	13.9	0.15	B
NB RT	13.4	0.01	B	12.7	0.00	B
SB LT	11.7	0.15	B	10.3	0.29	B
SB TH	15.1	0.13	B	13.0	0.22	B
SB RT	16.9	0.28	B	11.6	0.05	B
Overall	22.5	-	C	21.5	-	C



NOTE:
THIS DRAWING IS FOR
ILLUSTRATIVE PURPOSES ONLY.
DO NOT USE FOR CONSTRUCTION.



LEGEND	
##(##)	- AM(PM) VEHICLE VOLUMES
(X)	- UNSIGNALIZED INTERSECTION X
(Y)	- SIGNALIZED INTERSECTION Y, OVERALL AM/PM LOS
X(X)	- AM(PM) LOS

Figure 51: Existing Lane Configuration, Volumes and Movements at the Three (3) Study Intersections

Trip Generation

The Community Learning Center (CLC) will be mainly used for after-school programs and potential weekend use. The CLC is expected to generate up to 100 additional trips during the PM peak hour. Any students who attend CLC programs after-school will likely remain on-campus and will therefore not likely generate a “new trip.” However, to remain conservative, the TIAR included an additional 100 trips generated during the AM peak hours as well. Further, although the on-campus attendance for the existing HAAS PCS is not expected to increase from the proposed project, an additional 50 students were accounted for in the TIAR as a conservative

estimate for increase in enrollment. Therefore, the project is expected to generate 151 new external trips during the AM peak traffic hours and 135 during PM peak traffic hours. See **Table 5** below for the estimate of the 2031 Project Trip Generation.

Table 5: Future Year 2031 Project Trip Generation

Land Use	Student/Visitor Increase	AM			PM		
		Enter	Exit	Total	Enter	Exit	Total
Community Learning Center	100	81	19	100	56	44	100
HAAS PCS	50	29	22	51	15	20	35
Total	150	110	41	151	71	64	135

According to the Hawai‘i County Code, Section 25-2-46, a TIAR must include projections for future growth in traffic, for a minimum of five (5), ten (10), and twenty (20) years. The years 2026, 2031 and 2041 were analyzed in accordance with these requirements.

Traffic growth in the study area was determined based on the HDOT Island of Hawai‘i 2035 Travel Demand Forecasting Model (TDFM), which uses population forecasts from the Hawai‘i County General Plan. The TDFM and previous traffic studies determined an annual ambient growth rate of 1% to the through movements along Pāhoā Bypass Road to determine Base Year conditions without the Project.

2026, 2031, and 2041 Traffic Analysis Without Project (Base Years)

The “Base Years” are considered the traffic conditions in 2026, 2031, and 2041 if the proposed project is not constructed. Without the project, it is expected that traffic will increase exponentially over existing conditions in 2026, 2031 and 2041 due to general population growth in the Puna District. The following are expected changes in traffic movements at the study intersections without the project for each projection year:

- A. In 2026 all movements at the study intersections are expected to continue operating at existing conditions during the AM and PM peak traffic hours (**Table 6 and 7**)
- B. In 2031, the eastbound approach at the Pāhoā Bypass Road/Homestead Road/Post Office Road is expected to operate at LOS F during AM peak hours (**Table 7**)
- C. In 2041, the westbound left-turn at the Pāhoā/Kahakai intersection is expected to operate at LOS E during the PM peak hours, and the eastbound approach at the Pāhoā Bypass Road/Homestead Road/Post Office Road is expected to operate at over capacity conditions during the PM peak hours (**Table 7**)

Table 6: Level of Service Summary for Existing Conditions and Base Year 2026

Intersection	Existing Conditions						Base Year 2026					
	AM			PM			AM			PM		
	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS
1. Pahoa Bypass Road & Kahakai Boulevard												
WB LT	24.6	0.44	C	30.2	0.32	D	26.1	0.45	D	32.1	0.34	D
WB RT	0.0	-	A	0.0	-	A	0.0	-	A	0.0	-	A
SB LT	8.6	0.15	A	9.1	0.24	A	8.7	0.15	A	9.2	0.25	A
Overall	4.2	-	-	3.5	-	-	4.2	-	-	3.4	-	-
2. Pahoa Bypass Road & Homestead Road/Post Office Road												
NB LT/TH/RT	8.1	0.00	A	8.4	0.01	A	8.1	0.00	A	8.5	0.01	A
EB LT/TH/RT	43.6	0.39	E	83.5	0.83	F	49.6	0.42	E	107.6	0.91	F
WB RT	13.0	0.29	B	12.4	0.25	B	13.5	0.30	B	12.7	0.26	B
SB LT/TH/RT	8.8	0.12	A	8.3	0.06	A	8.9	0.13	A	8.4	0.06	A
Overall	5.0	-	-	11.4	-	-	5.1	-	-	13.5	-	-
3. Pahoa Bypass Road & Pahoa Village Road/Kapoho Road												
EB LT/TH/RT	34.6	0.77	C	30.3	0.78	C	34.6	0.77	C	33.5	0.82	C
WB LT/TH/RT	27.2	0.67	C	29.1	0.75	C	27.2	0.67	C	29.8	0.75	C
NB LT	12.0	0.23	B	9.7	0.15	B	12.0	0.23	B	10.9	0.19	B
NB TH	15.5	0.24	B	13.9	0.15	B	15.7	0.25	B	15.6	0.18	B
NB RT	13.4	0.01	B	12.7	0.00	B	13.4	0.01	B	14.1	0.00	B
SB LT	11.7	0.15	B	10.3	0.29	B	11.8	0.16	B	11.5	0.30	B
SB TH	15.1	0.13	B	13.0	0.22	B	15.3	0.15	B	14.7	0.24	B
SB RT	16.9	0.28	B	11.6	0.05	B	16.9	0.28	B	12.9	0.05	B
Overall	22.5	-	C	21.5	-	C	22.4	-	C	23.3	-	C

Table 7: LOS Summary Base Year 2026, 2031 and 2041

Intersection	Base Year 2026						Base Year 2031						Base Year 2041					
	AM			PM			AM			PM			AM			PM		
	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS
1. Pahoa Bypass Road & Kahakai Boulevard																		
WB LT	26.1	0.45	D	32.1	0.34	D	27.4	0.47	D	33.8	0.35	D	30.3	0.50	D	37.3	0.38	E
WB RT	0.0	-	A	0.0	-	A	0.0	-	A	0.0	-	A	0.0	-	A	0.0	-	A
SB LT	8.7	0.15	A	9.2	0.25	A	8.8	0.15	A	9.3	0.25	A	9.0	0.16	A	9.5	0.26	A
Overall	4.2	-	-	3.4	-	-	4.2	-	-	3.4	-	-	4.3	-	-	3.4	-	-
2. Pahoa Bypass Road & Homestead Road/Post Office Road																		
NB LT/TH/RT	8.1	0.00	A	8.5	0.01	A	8.2	0.00	A	8.5	0.02	A	8.3	0.00	A	8.7	0.02	A
EB LT/TH/RT	49.6	0.42	E	107.6	0.91	F	55.6	0.46	F	130.3	0.98	F	71.3	0.53	F	193.5	1.15	F*
WB RT	13.5	0.30	B	12.7	0.26	B	13.8	0.31	B	13.0	0.27	B	14.6	0.32	B	13.6	0.28	B
SB LT/TH/RT	8.9	0.13	A	8.4	0.06	A	9.0	0.13	A	8.5	0.06	A	9.1	0.13	A	8.6	0.06	A
Overall	5.1	-	-	13.5	-	-	5.3	-	-	15.5	-	-	5.7	-	-	20.9	-	-
3. Pahoa Bypass Road & Pahoa Village Road/Kapoho Road																		
EB LT/TH/RT	34.6	0.77	C	33.5	0.82	C	34.6	0.77	C	33.5	0.82	C	34.6	0.77	C	33.5	0.82	C
WB LT/TH/RT	27.2	0.67	C	29.8	0.75	C	27.2	0.67	C	29.8	0.75	C	27.2	0.67	C	29.8	0.75	C
NB LT	12.0	0.23	B	10.9	0.19	B	12.0	0.23	B	11.0	0.19	B	12.0	0.24	B	11.0	0.20	B
NB TH	15.7	0.25	B	15.6	0.18	B	15.8	0.26	B	15.7	0.18	B	16.1	0.29	B	15.9	0.20	B
NB RT	13.4	0.01	B	14.1	0.00	B	13.4	0.01	B	14.1	0.00	B	13.4	0.01	B	14.1	0.00	B
SB LT	11.8	0.16	B	11.5	0.30	B	11.8	0.16	B	11.6	0.31	B	11.9	0.16	B	11.6	0.31	B
SB TH	15.3	0.15	B	14.7	0.24	B	15.3	0.16	B	14.8	0.26	B	15.5	0.17	B	15.1	0.28	B
SB RT	16.9	0.28	B	12.9	0.05	B	16.9	0.28	B	12.9	0.05	B	16.9	0.28	B	12.9	0.05	B
Overall	22.4	-	C	23.3	-	C	22.3	-	C	23.4	-	C	22.2	-	C	23.3	-	C

*Denotes overcapacity conditions, v/c >1.0

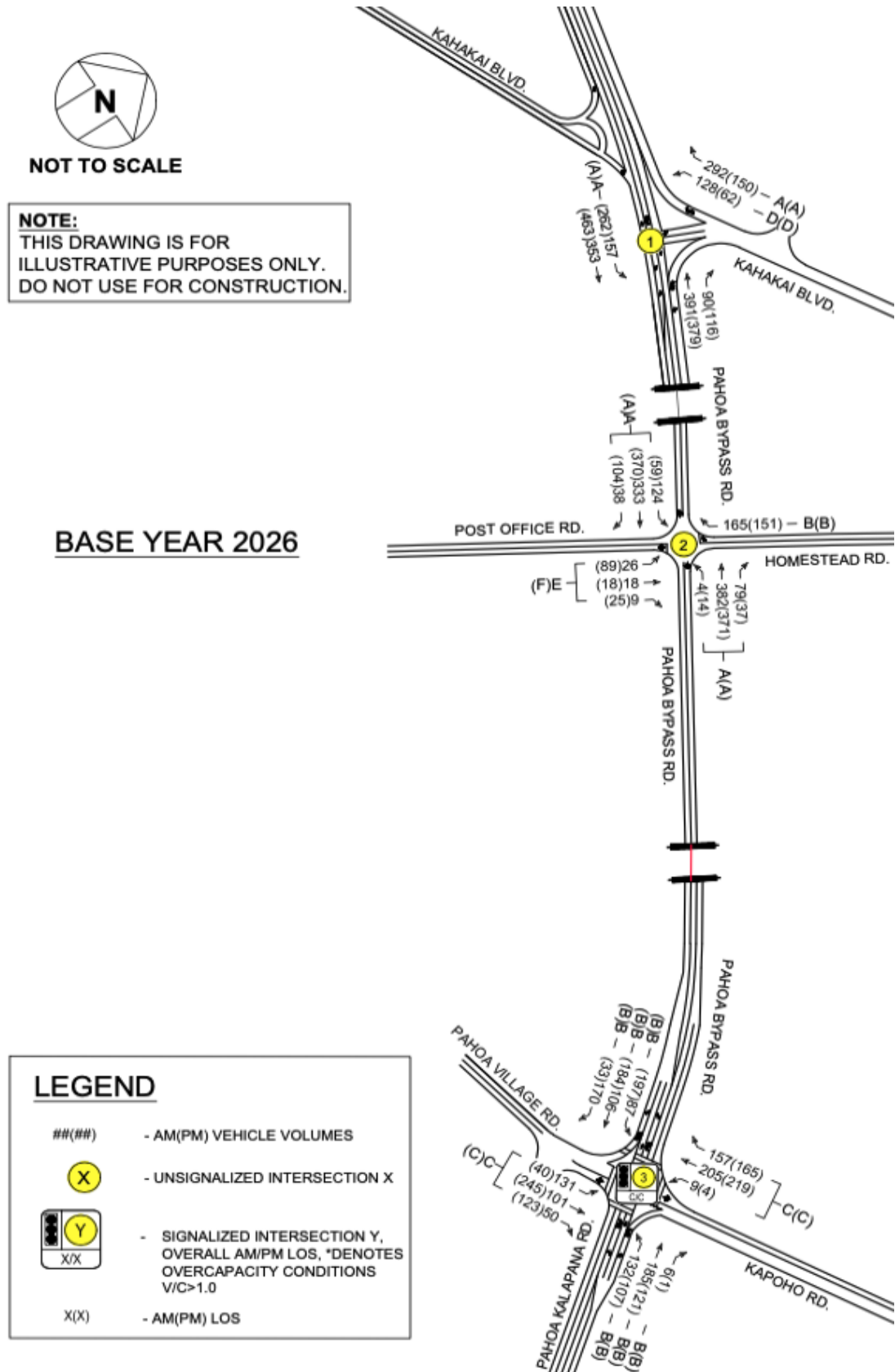


Figure 52: 2026 Base Year Lane Configuration, Volumes and Movement LOS

BASE YEAR 2031

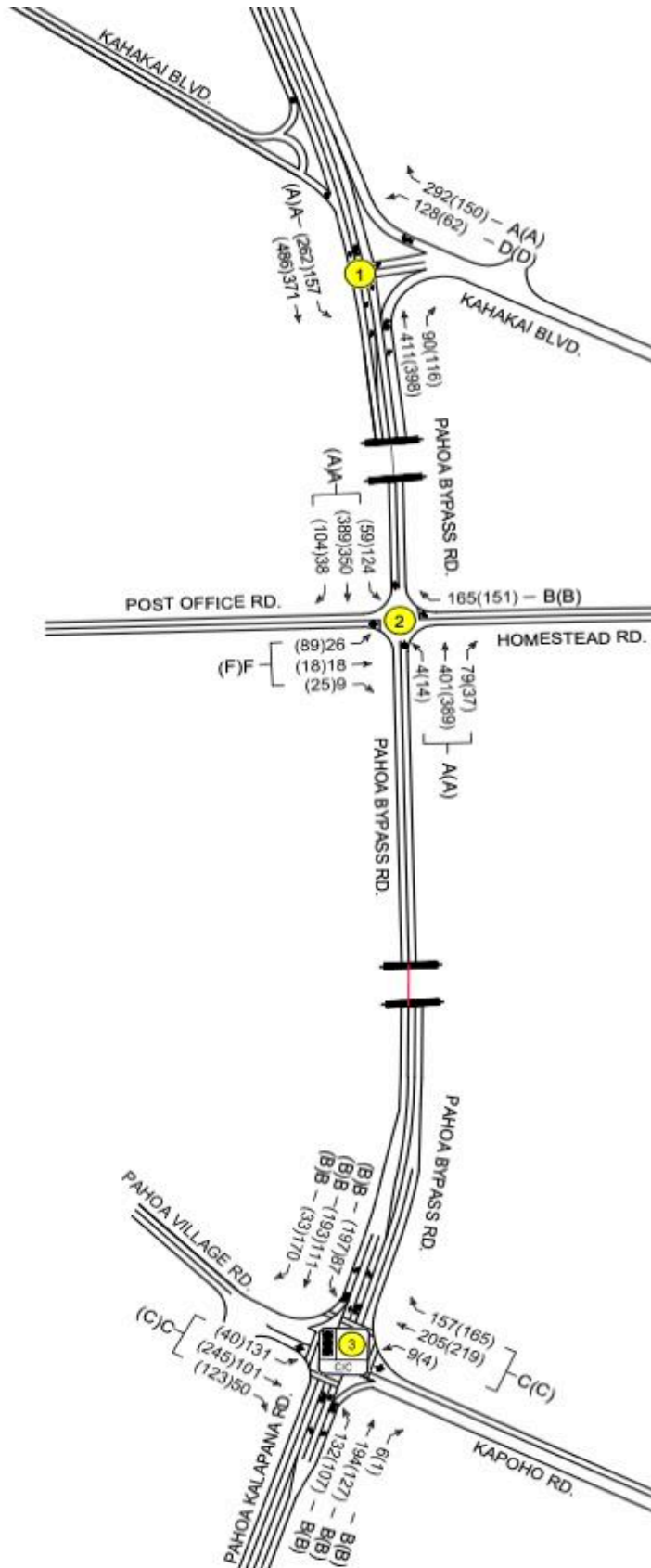


Figure 53: 2031 Base Year Lane Configuration, Volumes and Movement LOS



Figure 54: 2041 Base Year Lane Configuration, Volumes and Movement LOS

Required Roadway Improvements

Several road improvement conditions were outlined in ASC's previous 2011 Special Permit (SP 11-000115). It is expected that these conditions will carry over to the new 2022 Special Permit Application. The following are the six (6) conditions:

1. Pave Post Office Road to a width of twenty (20) feet from the Pāhoa Bypass to the easternmost campus access (**COMPLETED**).
2. Provide a westbound right-turn and westbound shared left-turn/through lane on Post Office Road for vehicles entering onto Pāhoa Bypass Road. To date this mitigation has been unnecessary as a left turn restriction has been posted for westbound traffic entering onto Pāhoa Bypass Road.
3. Construct a southbound left-turn lane on Pāhoa Bypass Road for vehicles entering onto Post Office Road.
4. Construct a westbound left-turn acceleration lane on Pāhoa Bypass Road for vehicles turning left out of Post Office Road heading towards Kalapana. To date this mitigation has been unnecessary as a left turn restriction has been posted for westbound traffic entering onto Pāhoa Bypass Road.
5. Construct a northbound right-turn deceleration lane on the Pāhoa Bypass Road for Kea'au bound vehicles exiting the bypass turning right onto Post Office Road.
6. Provide a traffic signal at the Pāhoa Bypass/Homestead Road/Post Office Road intersection if required by HDOT.

Alternative 1

The following improvements would be made under Alternative 1:

- A. Construct a new full-access driveway along Pāhoa Bypass Road
- B. Pāhoa Bypass Road/Homestead Road/Post Office Road Intersection
 - Construct a southbound left-turn lane
 - Construct a northbound right-turn lane

There are several reasons why this alternative is the recommended choice. A new full access driveway along Pāhoa Bypass Road would help to reduce the impact at the Pāhoa Bypass Road/Homestead Road/Post Office Road intersection. The new access driveway would also keep the school-related traffic and community program traffic separate with the option of providing a gate at the Homestead Road access to be closed during school hours. In addition, the acceleration and deceleration lanes at both the Pāhoa Bypass/Homestead Road/Post Office Road and Pāhoa Bypass/New Project Driveway intersections can help to separate traffic by slowing down to enter the project site and provide space for vehicles to merge with the Pāhoa Bypass traffic. The westbound left-turn acceleration lane provides drivers the opportunity to complete a two-stage left-turn, which allows drivers to focus on one conflicting direction of traffic at a time. Further, Alternative 2 described below would generate greater impacts to the Post Office Road intersection including bringing the intersection to capacity and decreasing LOS during AM peak hours in 2026 conditions, and overcapacity during PM peak hours in 2041 conditions.

Since the westbound through and left-turn movements are prohibited at the Pāhoā Bypass Road/Homestead Road/Post Office Road intersection during the AM and PM peak hours, it may not be necessary to provide a westbound right-turn lane, westbound left-turn/through lane, or a westbound left-turn acceleration lane. **Figure 55** shows the project-generated trips under Alternative 1.

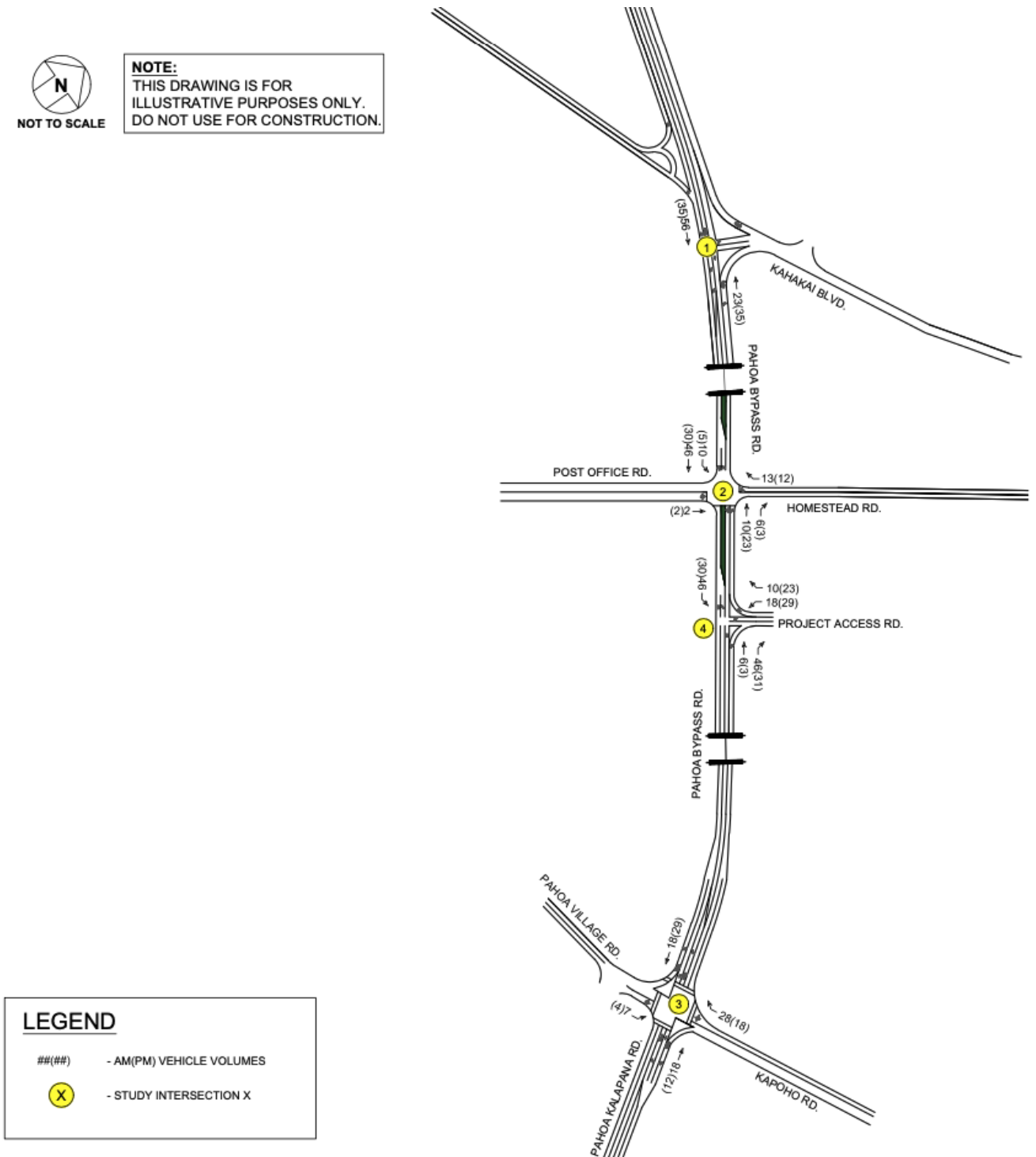


Figure 55: Project-Generated Trips under Alternative 1

Alternative 2

The following improvements would be made under Alternative 2:

- A. Pāhoā Bypass Road/Homestead Road/Post Office Road
 - Provide a westbound right-turn and westbound shared left-turn/through lane
 - Construct a southbound left-turn lane
 - Construct a westbound left-turn acceleration lane
 - Construct a northbound right-turn lane

Since a second full access driveway will not be provided under Alternative 2, it is assumed that the existing westbound through and left-turn movement restrictions would need to be lifted to serve the project traffic. **Figure 56** shows the project-generated trips under Alternative 2.

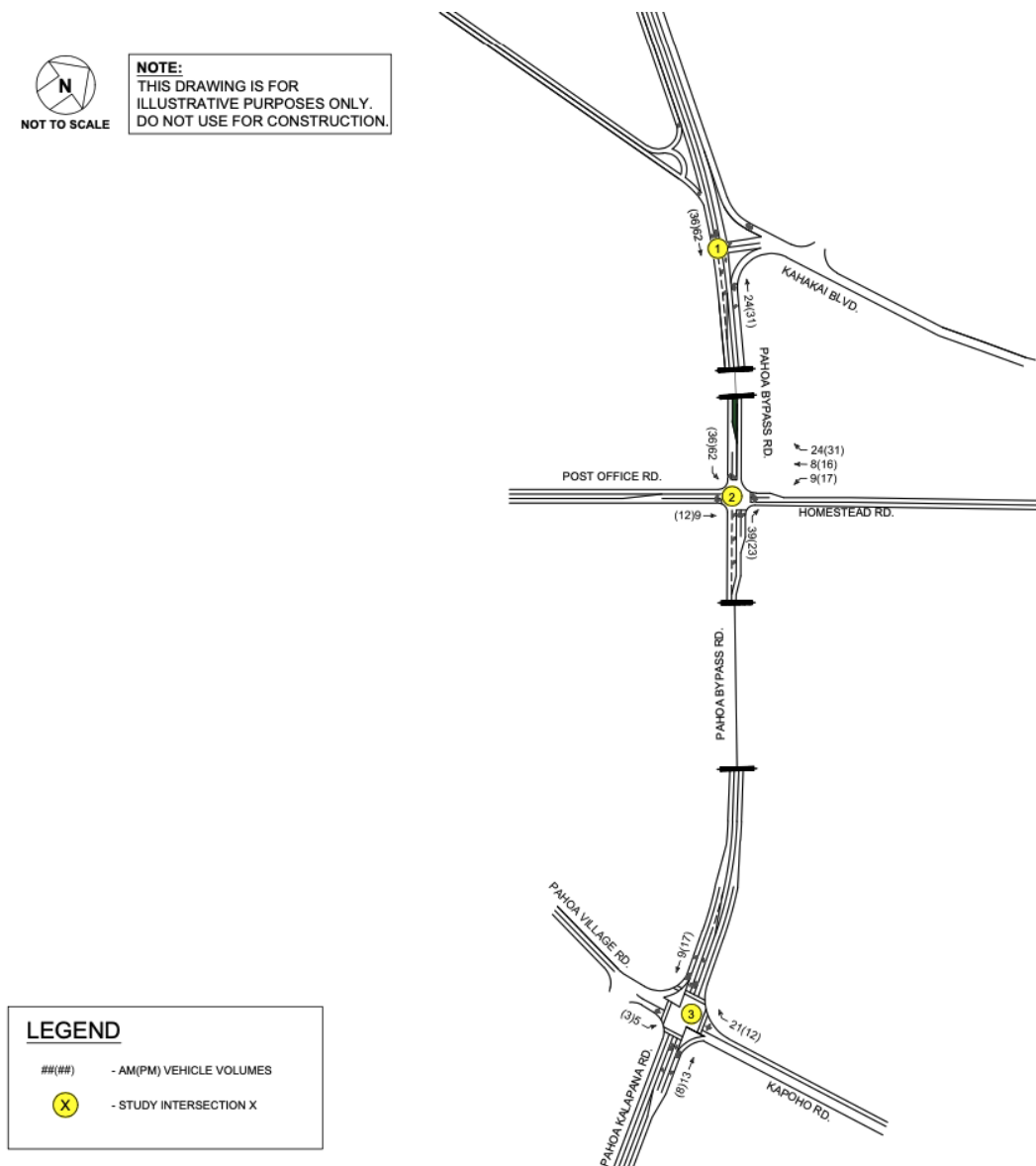


Figure 56: Project-Generated Trips under Alternative 2

2026, 2031 and 2041 Traffic Analysis with Project

2026 Conditions under Alternative 1:

All movements at the study intersections are expected to continue operating similar to Base Year 2026 conditions during the AM and PM peak hours of traffic. The eastbound approach at the Pāhoā Bypass Road/Homestead Road/Post Office Road intersection is still expected to operate at LOS E and F, but under capacity during the AM and PM hours of traffic.

2026 Conditions under Alternative 2:

All movements at the study intersections are expected to continue operating similar to Base Year 2026 conditions during AM and PM peak hours except for:

1. The eastbound approach is expected to operate at LOS F during the AM peak hour of traffic
2. The eastbound approach is expected to **operate at capacity** conditions during the PM peak hour of traffic

According to the TIAR, a preliminary signal warrant analysis was conducted, and a traffic signal is not expected to be warranted at the Pāhoā Bypass Road/Homestead Road/Post Office Road intersection under the Future Year 2026 Alternative 2 conditions.

Table 8 shows the LOS summary for 2026 traffic conditions without the project (base year) and with the project (future years) under Alternative 1 and 2.

2031 Conditions under Alternative 1:

All movements at the study intersections are expected to continue operating similar to Base Year 2031 conditions during AM and PM peak hours.

2031 Conditions under Alternative 2:

All movements at the study intersections are expected to continue operating similar to Base Year 2026 conditions during AM and PM peak hours except for:

1. The eastbound approach is expected to **operate at overcapacity** conditions during the PM peak hour of traffic

The preliminary signal warrant analysis concluded that a traffic signal may be warranted at the Pāhoā Bypass Road/Homestead Road/Post Office Road intersection under Future Year 2031 conditions.

Table 9 shows the LOS summary for 2031 traffic conditions without the project (base year) and with the project (future years) under Alternative 1 and 2.

2041 Conditions under Alternative 1:

All movements at the study intersections are expected to continue operating similar to Base Year 2041 conditions during AM and PM peak hours. The eastbound approach at the Pāhoa Bypass Road/Homestead Road/Post Office Road intersection is still expected to operate at LOS F and/or at **over capacity** during the AM and PM peak hours of traffic.

2041 Conditions Alternative 2:

All movements at the study intersections are expected to continue operating similar to Base Year 2041 conditions during AM and PM peak hours of traffic. The eastbound approach is expected to **operate at overcapacity** conditions during the PM peak hour. However, the vehicle delay is expected to increase by over two (2) minutes under the Future Year 2041 conditions. To help mitigate the impacts of the project, possible improvements could include constructing an eastbound left-turn lane or traffic signal at the Kea‘au-Pāhoa Bypass/Homestead Road/Post Office Road intersection.

Table 10 shows the LOS summary for 2041 traffic conditions without the project (base year) and with the project (future years) under Alternative 1 and 2. Refer to **Appendix A** for further mitigated analysis.

Figures 57 and 58 show the Future Year lane configurations, volumes, and movement LOS under Alternative 1 and 2, respectively.

Table 8: LOS Summary of Traffic Conditions in Base Year and Future Year 2026 under Alternative 1 and 2

Intersection	Base Year 2026						Future Year 2026 Alternative 1						Future Year 2026 Alternative 2					
	AM			PM			AM			PM			AM			PM		
	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS
1. Pahoa Bypass Road & Kahakai Boulevard																		
WB LT	26.1	0.45	D	32.1	0.34	D	25.7	0.45	D	31.5	0.33	D	27.6	0.47	D	33.3	0.35	D
WB RT	0.0	-	A	0.0	-	A	0.0	-	A	0.0	-	A	0.0	-	A	0.0	-	A
SB LT	8.7	0.15	A	9.2	0.25	A	8.5	0.14	A	8.9	0.24	A	8.8	0.15	A	9.3	0.25	A
Overall	4.2	-	-	3.4	-	-	4.2	-	-	3.4	-	-	4.2	-	-	3.4	-	-
2. Pahoa Bypass Road & Homestead Road/Post Office Road																		
NB LT/TH/RT	8.1	0.00	A	8.5	0.01	A	-	-	-	-	-	-	-	-	-	-	-	-
NB LT/TH	-	-	-	-	-	-	8.4	0.03	A	8.8	0.05	A	8.1	0.00	A	8.5	0.01	A
EB LT/TH/RT	49.6	0.42	E	107.6	0.91	F	41.7	0.38	E	91.4	0.86	F	58.5	0.50	F	132.9	1.00	F*
WB LT/TH	-	-	-	-	-	-	-	-	-	-	-	-	26.2	0.33	D	24.8	0.36	C
WB RT	13.5	0.30	B	12.7	0.26	B	11.8	0.12	B	11.5	0.09	B	12.0	0.19	B	11.6	0.15	B
SB LT/TH/RT	8.9	0.13	A	8.4	0.06	A	-	-	-	-	-	-	-	-	-	-	-	-
SB LT	-	-	-	-	-	-	8.7	0.08	A	8.4	0.04	A	9.1	0.16	A	8.5	0.08	A
Overall	5.1	-	-	13.5	-	-	3.4	-	-	11.1	-	-	6.5	-	-	17.2	-	-
3. Pahoa Bypass Road & Pahoa Village Road/Kapoho Road																		
EB LT/TH/RT	34.6	0.77	C	33.5	0.82	C	36.9	0.78	D	34.1	0.82	C	36.4	0.78	D	34.1	0.82	C
WB LT/TH/RT	27.2	0.67	C	29.8	0.75	C	27.5	0.67	C	30.4	0.76	C	27.4	0.67	C	30.2	0.75	C
NB LT	12.0	0.23	B	10.9	0.19	B	12.7	0.25	B	11.3	0.21	B	12.5	0.24	B	11.2	0.19	B
NB TH	15.7	0.25	B	15.6	0.18	B	16.5	0.27	B	16.0	0.19	B	16.4	0.27	B	16.0	0.18	B
NB RT	13.4	0.01	B	14.1	0.00	B	14.0	0.01	B	14.3	0.00	B	13.9	0.01	B	14.3	0.00	B
SB LT	11.8	0.16	B	11.5	0.30	B	12.4	0.16	B	11.8	0.31	B	12.3	0.16	B	11.8	0.31	B
SB TH	15.3	0.15	B	14.7	0.24	B	16.7	0.22	B	15.8	0.32	B	15.9	0.16	B	15.0	0.26	B
SB RT	16.9	0.28	B	12.9	0.05	B	17.7	0.29	B	13.1	0.05	B	17.5	0.29	B	13.1	0.05	B
Overall	22.4	-	C	23.3	-	C	23.2	-	C	23.7	-	C	23.1	-	C	23.8	-	C
4. Pahoa Bypass Road & New Project Driveway																		
WB LT/RT	-	-	-	-	-	-	16.1	0.14	C	14.6	0.14	B	-	-	-	-	-	-
SB LT	-	-	-	-	-	-	8.6	0.07	A	8.1	0.04	A	-	-	-	-	-	-
Overall	-	-	-	-	-	-	1.4	-	-	1.3	-	-	-	-	-	-	-	-

*Denotes overcapacity conditions, v/c >1.0

Table 9: LOS Summary of Traffic Conditions in Base Year and Future Year 2031 under Alternative 1 and 2

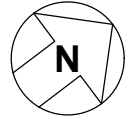
Intersection	Base Year 2031						Future Year 2031 Alternative 1						Future Year 2031 Alternative 2					
	AM			PM			AM			PM			AM			PM		
	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS
1. Pahoa Bypass Road & Kahakai Boulevard																		
WB LT	27.4	0.47	D	33.8	0.35	D	28.5	0.48	D	34.2	0.36	D	30.8	0.51	D	36.5	0.37	E
WB RT	0.0	-	A	0.0	-	A	0.0	-	A	0.0	-	A	0.0	-	A	0.0	-	A
SB LT	8.8	0.15	A	9.3	0.25	A	8.6	0.15	A	9.1	0.24	A	8.9	0.16	A	9.4	0.26	A
Overall	4.2	-	-	3.4	-	-	4.3	-	-	3.4	-	-	4.3	-	-	3.4	-	-
2. Pahoa Bypass Road & Homestead Road/Post Office Road																		
NB LT/TH/RT	8.2	0.00	A	8.5	0.02	A	-	-	-	-	-	-	-	-	-	-	-	-
NB LT/TH	-	-	-	-	-	-	8.6	0.03	A	8.9	0.06	A	8.2	0.00	A	8.5	0.02	A
EB LT/TH/RT	55.6	0.46	F	130.3	0.98	F	51.9	0.45	F	131.9	0.99	F	99.2	0.69	F	243.4	1.28	F*
WB LT/TH	-	-	-	-	-	-	-	-	-	-	-	-	34.0	0.43	D	31.4	0.47	D
WB RT	13.8	0.31	B	13.0	0.27	B	12.2	0.14	B	11.9	0.10	B	12.4	0.21	B	12.0	0.18	B
SB LT/TH/RT	9.0	0.13	A	8.5	0.06	A	-	-	-	-	-	-	-	-	-	-	-	-
SB LT	-	-	-	-	-	-	8.9	0.09	A	8.5	0.04	A	9.5	0.20	A	8.7	0.10	A
Overall	5.3	-	-	15.5	-	-	3.8	-	-	14.8	-	-	9.0	-	-	28.9	-	-
3. Pahoa Bypass Road & Pahoa Village Road/Kapoho Road																		
EB LT/TH/RT	34.6	0.77	C	33.5	0.82	C	41.2	0.82	D	34.7	0.82	C	38.5	0.80	D	34.3	0.82	C
WB LT/TH/RT	27.2	0.67	C	29.8	0.75	C	28.4	0.70	C	31.0	0.77	C	27.9	0.69	C	30.5	0.76	C
NB LT	12.0	0.23	B	11.0	0.19	B	12.7	0.26	B	11.6	0.21	B	12.6	0.24	B	11.3	0.20	B
NB TH	15.8	0.26	B	15.7	0.18	B	16.8	0.29	B	16.4	0.20	B	16.7	0.29	B	16.2	0.20	B
NB RT	13.4	0.01	B	14.1	0.00	B	14.0	0.01	B	14.5	0.00	B	14.0	0.01	B	14.4	0.00	B
SB LT	11.8	0.16	B	11.6	0.31	B	12.4	0.17	B	12.0	0.31	B	12.4	0.17	B	11.9	0.31	B
SB TH	15.3	0.16	B	14.8	0.26	B	16.9	0.24	B	16.4	0.35	B	16.2	0.17	B	15.4	0.28	B
SB RT	16.9	0.28	B	12.9	0.05	B	17.7	0.29	B	13.3	0.05	B	17.7	0.29	B	13.2	0.05	B
Overall	22.3	-	C	23.4	-	C	24.2	-	C	24.1	-	C	23.7	-	C	23.9	-	C
4. Pahoa Bypass Road & New Project Driveway																		
WB LT/RT	-	-	-	-	-	-	17.7	0.18	C	15.9	0.19	C	-	-	-	-	-	-
SB LT	-	-	-	-	-	-	8.7	0.10	A	8.1	0.05	A	-	-	-	-	-	-
Overall	-	-	-	-	-	-	1.7	-	-	1.7	-	-	-	-	-	-	-	-

*Denotes overcapacity conditions, v/c >1.0

Table 10: LOS Summary of Traffic Conditions in Base Year and Future Year 2041 under Alternatie 1 and 2

Intersection	Base Year 2041						Future Year 2041 Alternative 1						Future Year 2041 Alternative 2					
	AM			PM			AM			PM			AM			PM		
	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS
1. Pahoa Bypass Road & Kahakai Boulevard																		
WB LT	30.3	0.50	D	37.3	0.38	E	31.5	0.51	D	38.2	0.39	E	34.4	0.54	D	40.8	0.41	E
WB RT	0.0	-	A	0.0	-	A	0.0	-	A	0.0	-	A	0.0	-	A	0.0	-	A
SB LT	9.0	0.16	A	9.5	0.26	A	8.8	0.15	A	9.3	0.25	A	9.1	0.16	A	9.7	0.27	A
Overall	4.3	-	-	3.4	-	-	4.3	-	-	3.4	-	-	4.4	-	-	3.4	-	-
2. Pahoa Bypass Road & Homestead Road/Post Office Road																		
NB LT/TH/RT	8.3	0.00	A	8.7	0.02	A	-	-	-	-	-	-	-	-	-	-	-	-
NB LT/TH	-	-	-	-	-	-	8.7	0.04	A	9.0	0.06	A	8.3	0.00	A	8.7	0.02	A
EB LT/TH/RT	71.3	0.53	F	193.5	1.15	F*	64.2	0.51	F	191.8	1.15	F*	132.2	0.79	F	343.9	1.51	F*
WB LT/TH	-	-	-	-	-	-	-	-	-	-	-	-	37.9	0.46	E	35.2	0.51	E
WB RT	14.6	0.32	B	13.6	0.28	B	12.7	0.14	B	12.3	0.11	B	12.9	0.23	B	12.5	0.19	B
SB LT/TH/RT	9.1	0.13	A	8.6	0.06	A	-	-	-	-	-	-	-	-	-	-	-	-
SB LT	-	-	-	-	-	-	9.0	0.09	A	8.7	0.04	A	9.7	0.21	A	8.9	0.10	A
Overall	5.7	-	-	20.9	-	-	4.2	-	-	19.8	-	-	10.3	-	-	37.3	-	-
3. Pahoa Bypass Road & Pahoa Village Road/Kapoho Road																		
EB LT/TH/RT	34.6	0.77	C	33.5	0.82	C	41.2	0.82	D	34.7	0.82	C	38.5	0.80	D	34.3	0.82	C
WB LT/TH/RT	27.2	0.67	C	29.8	0.75	C	28.4	0.70	C	31.0	0.77	C	27.9	0.69	C	30.5	0.76	C
NB LT	12.0	0.24	B	11.0	0.20	B	12.8	0.26	B	11.7	0.22	B	12.6	0.24	B	11.4	0.20	B
NB TH	16.1	0.29	B	15.9	0.20	B	17.2	0.32	B	16.6	0.22	B	17.1	0.31	B	16.4	0.22	B
NB RT	13.4	0.01	B	14.1	0.00	B	14.0	0.01	B	14.5	0.00	B	14.0	0.01	B	14.4	0.00	B
SB LT	11.9	0.16	B	11.6	0.31	B	12.5	0.17	B	12.0	0.32	B	12.5	0.17	B	11.9	0.32	B
SB TH	15.5	0.17	B	15.1	0.28	B	17.1	0.25	B	16.7	0.38	B	16.3	0.19	B	15.7	0.31	B
SB RT	16.9	0.28	B	12.9	0.05	B	17.7	0.29	B	13.3	0.05	B	17.7	0.29	B	13.2	0.05	B
Overall	22.2	-	C	23.3	-	C	24.2	-	C	24.0	-	C	23.6	-	C	23.8	-	C
4. Pahoa Bypass Road & New Project Driveway																		
WB LT/RT	-	-	-	-	-	-	18.4	0.19	C	16.5	0.20	C	-	-	-	-	-	-
SB LT	-	-	-	-	-	-	8.8	0.10	A	8.2	0.05	A	-	-	-	-	-	-
Overall	-	-	-	-	-	-	1.7	-	-	1.7	-	-	-	-	-	-	-	-

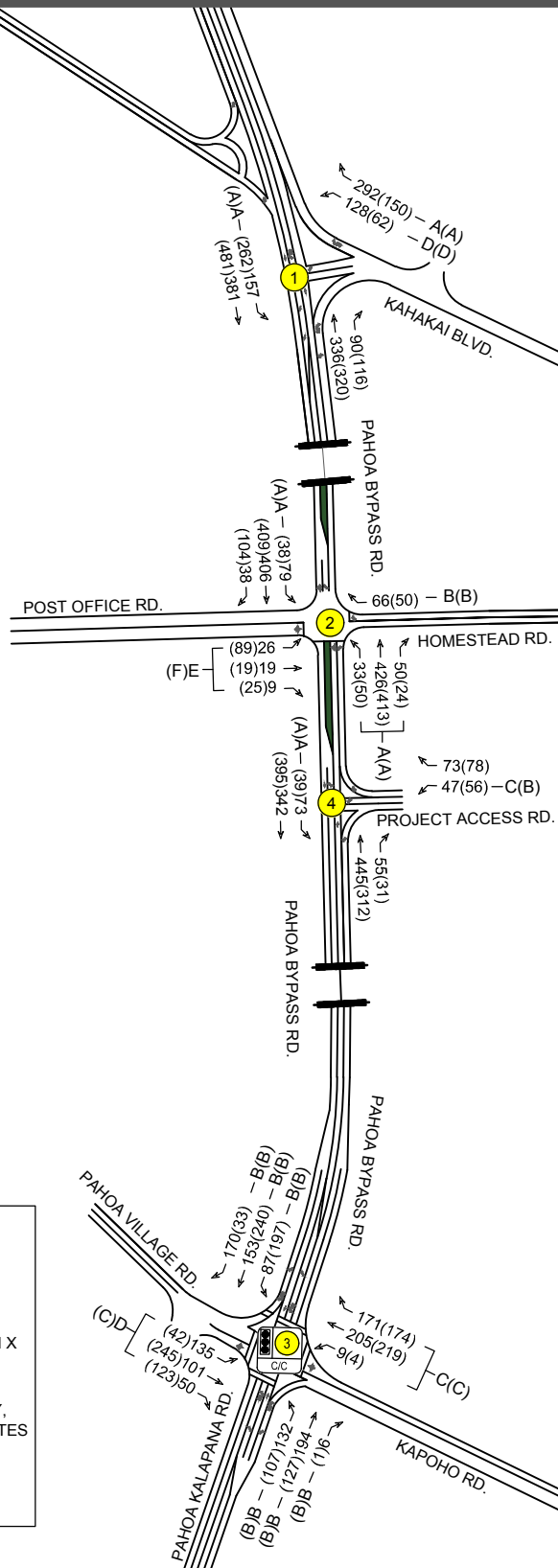
*Denotes overcapacity conditions, v/c >1.0



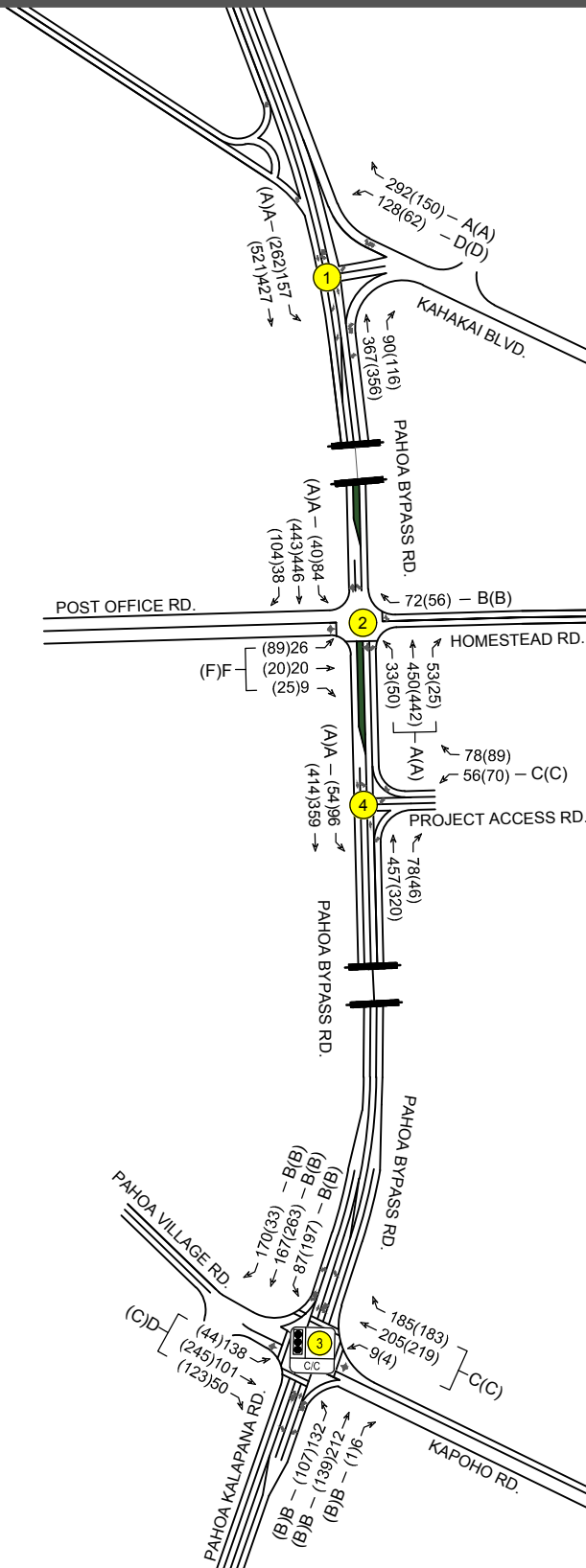
NOT TO SCALE

NOTE:
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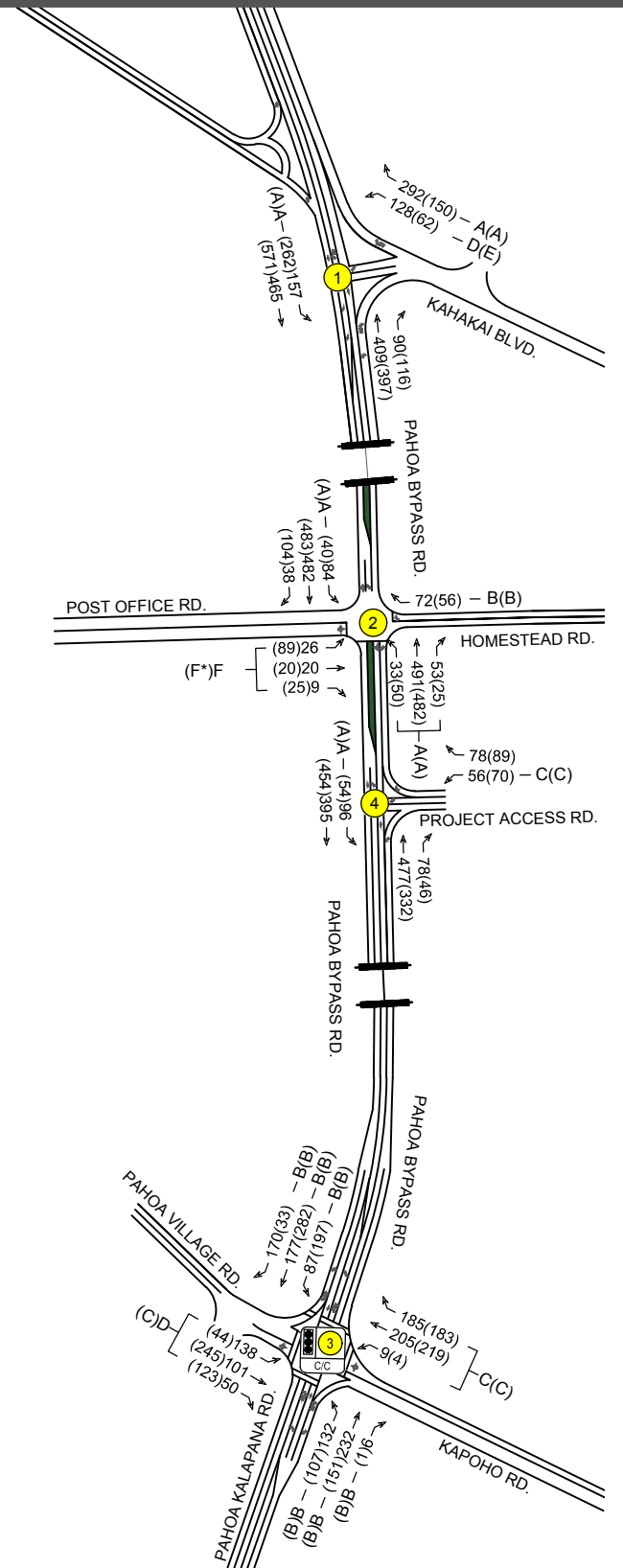
FUTURE YEAR 2026



FUTURE YEAR 2031



FUTURE YEAR 2041

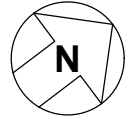


LEGEND

- ##(##) - AM(PM) VEHICLE VOLUMES
- X - UNSIGNALIZED INTERSECTION X
- Y - SIGNALIZED INTERSECTION Y, OVERALL AM/PM LOS. *DENOTES OVERCAPACITY CONDITIONS V/C > 1.0
- X(X) - AM(PM) LOS

Future Year Lane Configuration, Volumes, and Movement LOS under Alternative 1

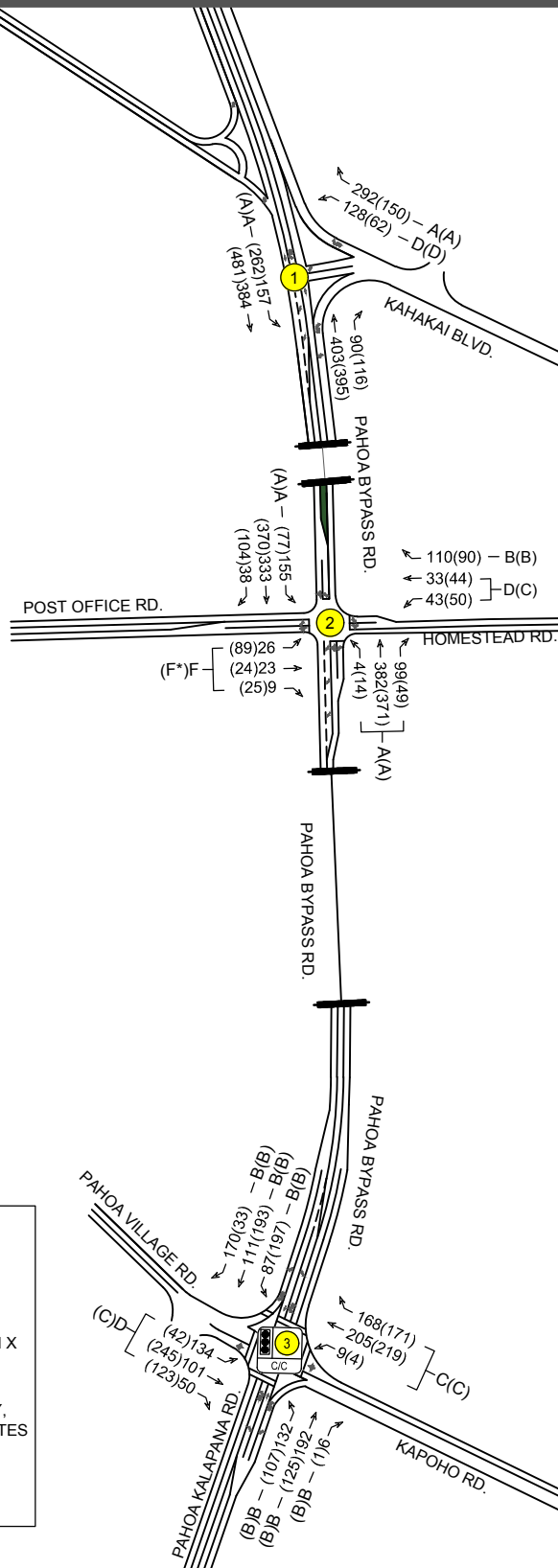
Figure 57



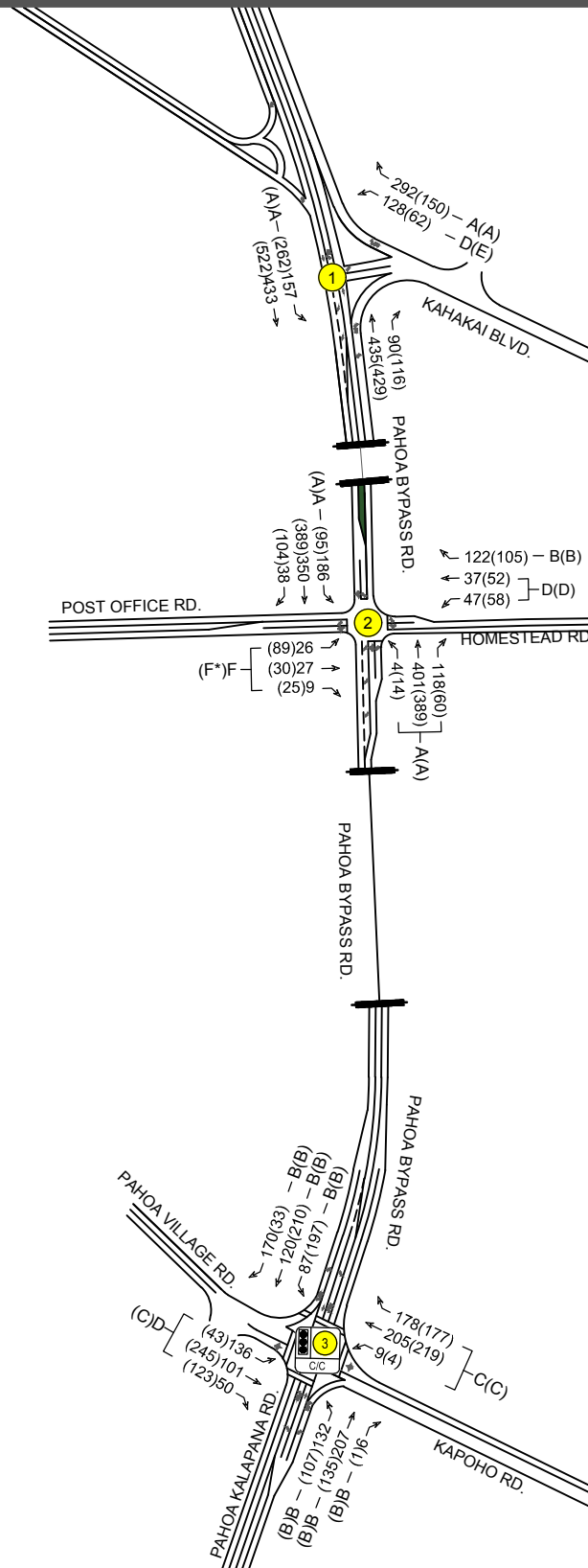
NOT TO SCALE

NOTE:
THIS DRAWING IS FOR ILLUSTRATIVE PURPOSES ONLY. DO NOT USE FOR CONSTRUCTION.

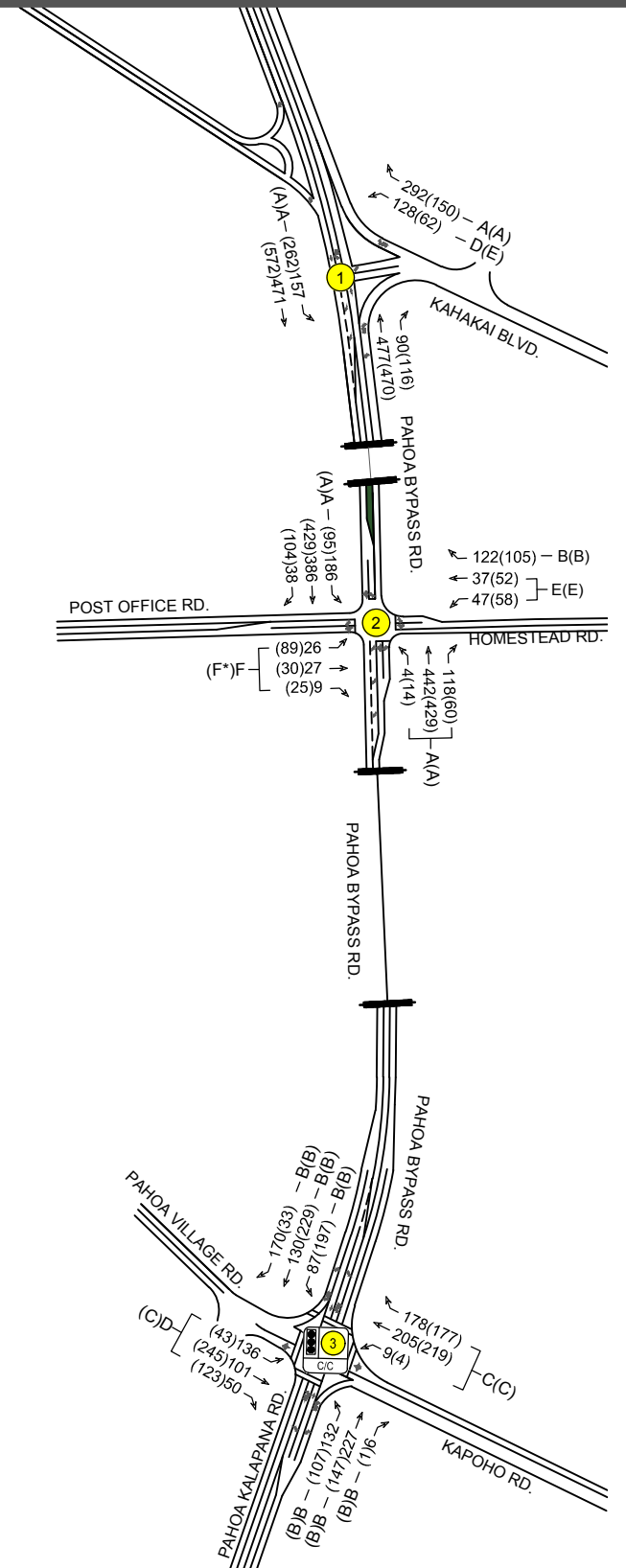
FUTURE YEAR 2026



FUTURE YEAR 2031



FUTURE YEAR 2041



LEGEND

- ##(##) - AM(PM) VEHICLE VOLUMES
- X - UNSIGNALIZED INTERSECTION X
- Y - SIGNALIZED INTERSECTION Y, OVERALL AM/PM LOS. *DENOTES OVERCAPACITY CONDITIONS V/C > 1.0
- X(X) - AM(PM) LOS

Future Year Lane Configuration, Volumes and Movement LOS under Alternative 2

Figure 58

Impacts, and Mitigation Measures

Traffic recommendations outlined in the TIAR were made in consultation with the American Association of State Highway and Transportation Officials (AASHTO) 2011 Green Book and the Transportation Research Board's (TRB) 2014 Access Management Manual for acceleration and deceleration lane lengths. The following are recommendations for mitigating measures for both Alternative 1 and 2.

Alternative 1:

Pāhoa Bypass Road/Homestead Road/Post Office Road:

- Provide a 350-foot northbound right-turn lane
- Provide a 475-foot southbound left-turn lane
- Provide a 240-foot eastbound left-turn lane, when appropriate
- Continue to restrict the westbound left-turn and through movements during the AM and PM school peak hours of traffic
- Provide a gate at the HAAS PCS driveways along Homestead Road, which would be closed during school hours (i.e. only open during drop-off and pick-up times)

Pahoa Bypass Road/New Project Driveway:

- Provide a 475-foot southbound left-turn lane
- Provide a 350-foot northbound right-turn lane
- Provide a 100-foot westbound left-turn lane
- Provide a 405-foot westbound right-turn acceleration lane
- Provide a 440-foot westbound left-turn acceleration lane

Alternative 2:

Pahoa Bypass Road/Homestead Road/Post Office Road:

- Provide a 350-foot northbound right-turn lane
- Provide a 600-foot southbound left-turn lane
- Provide a 240-foot eastbound left-turn lane, when appropriate
- Provide a 150-foot westbound left-turn/through lane
- Provide a 440-foot westbound left-turn acceleration lane
- Monitor the intersection and when appropriate install a traffic signal

Figures 59 and 60 show turn lane lengths under Alternative 1 and 2.



Figure 59: TIAR Future Turn Lane Lengths Alternative 1

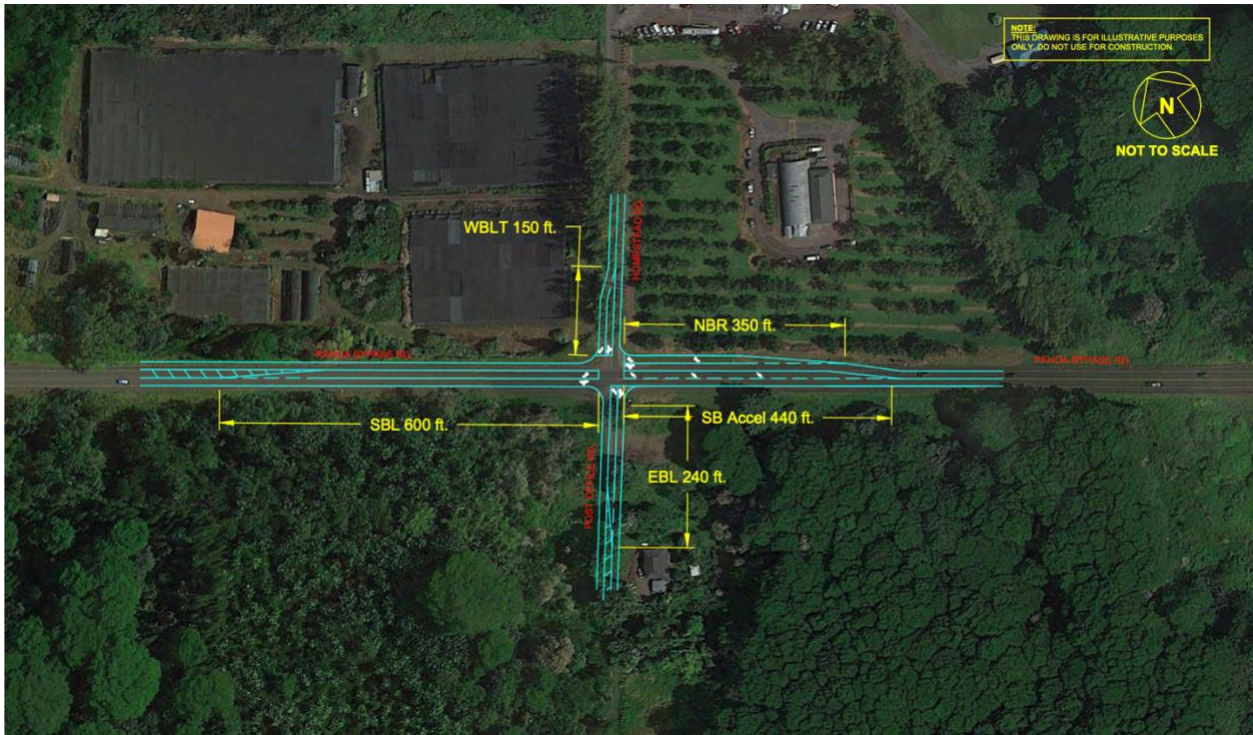


Figure 60: TIAR Future Turn Lane Lengths Alternative 2

3.3.2 Public Utilities and Services

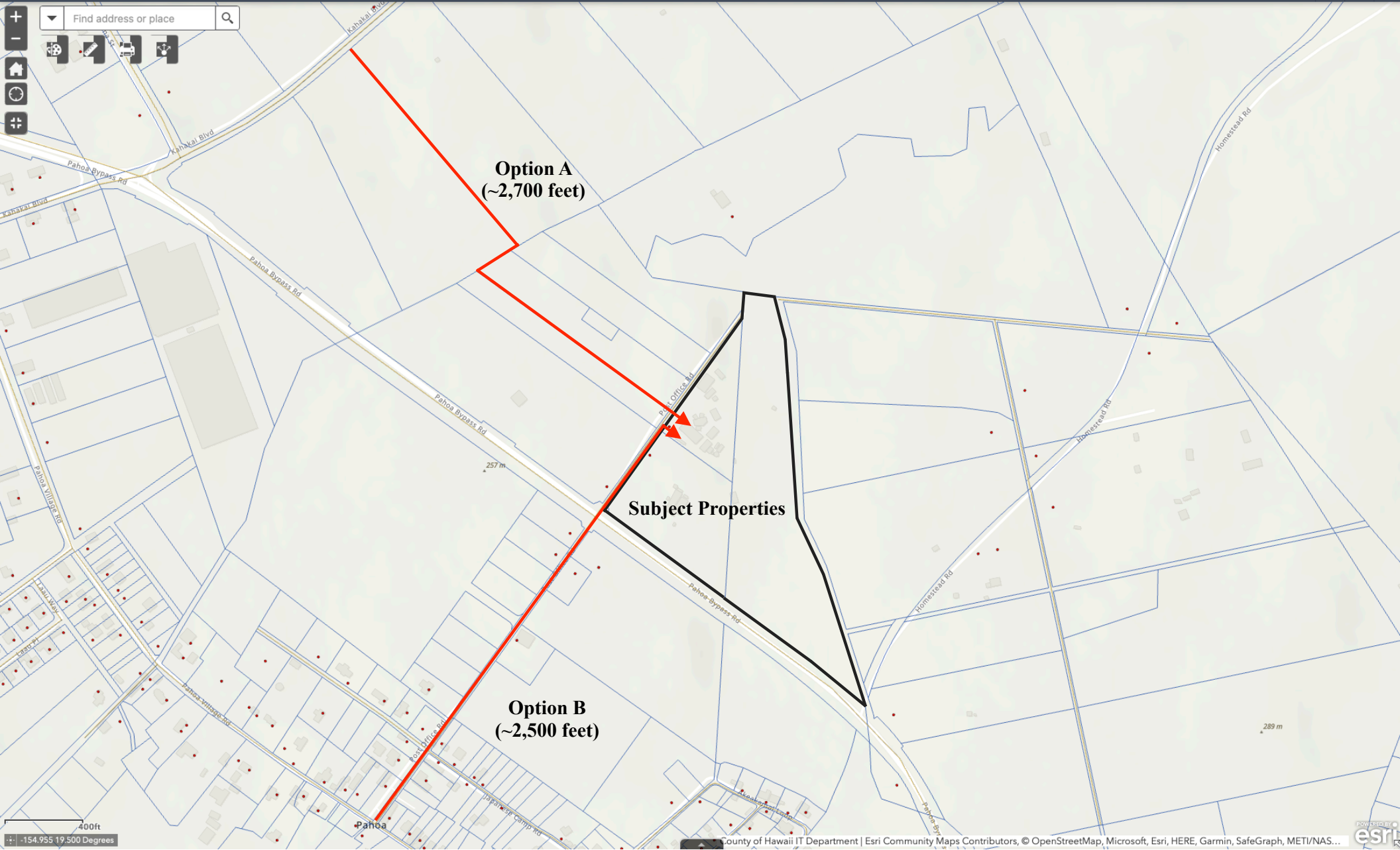
Environmental Setting

The ASC Campus currently operates with (2) 10,000-gallon catchment tanks on TMK: (3) 1-5-006: 012. An additional 10,000-gallon tank is located on TMK: (3) 1-5-6: 026. All of these holding tanks are filled by rainwater catchment, which is acceptable according to the County of Hawai'i Fire Department. The anticipated Fire Department requirement is that each property need one 10,000 gallon holding tank that is used exclusively for fire protection. ASC currently has an agreement for Department of Water Supply (DWS) service from a private 2-inch line with the master meter on a neighboring property. Water calculations have been determined in consultation with the Department of Water Supply and the Department of Health. A total of 20 gallons per day per person was used to calculate potable water needs. Total estimated daily water usage is 14,460 gallons per day (GPD) or thirty-seven (37) water units. Peak hour flow was also estimated for each proposed building. **Exhibit A** shows the estimated potable water usage calculations prepared by Island Engineering, LLC. A DWS line will need to be extended to the site from either Kahakai Boulevard across State and privately-owned parcels by roughly 2,700 feet (Option A) or Pāhoa Village Road along Post Office Road roughly 2,500 feet (Option B) to accommodate water needs. These options can be found in **Figure 61** below.

Wastewater will be handled by Individual Wastewater Systems or constructed wetlands. Constructed wetlands are engineered systems, which utilize the natural processes involving wetland vegetation, soils, and the associated microbial assemblages to assist in treating wastewaters. There are two main types of constructed wetlands including subsurface flow and surface flow. Design of potential constructed wetlands will be made in consultation with qualified engineers and meet the standards of the Department of Health. Electrical power is currently accessed through Hawaiian Electric Light Company (HELCO) and existing poles and lines. The proposed expansion will continue to get electrical power through HELCO and will also incorporate solar panels. Schools in the area include Pāhoa Elementary School, Pāhoa High and Intermediate School and Kamehameha School. Pāhoa Police and Fire Station is located 1 mile to the north of the property. The Hilo hospital is located roughly 18 miles north.

Impacts and Mitigation Measures

There are no anticipated impacts to any public utilities or services. No adverse effect to medical, government, social service, or recreational services would occur. The Properties are located within proximity to the Pāhoa town center and nearby public services and utilities. The proposed expansion would require the extension and upgrade of existing facilities but would not have any substantial impact on existing utilities or public services. This will not change appreciably under any alternative. Directional drilling methods will be utilized for any waterline improvements to prevent adverse impacts to Kea'au-Pāhoa Bypass Road (Highway 130). Water saving methods are an integral part of project design. Such methods include utilizing energy efficient appliances such as fridges, dishwashers and washing machines, low flow systems in bathrooms for toilets, sinks and shower heads with timed shut off for appropriate devices, natural vegetation that requires minimal watering, water collection systems such as catchment tanks and manmade river systems, composting to improve soil conditions and water retention, sustainable food initiatives and food waste reduction programs.



Water Options

Figure 61

3.4 Secondary and Cumulative Impacts

The proposed development is to construct six (6) buildings and eighteen (18) supporting features to provide essential educational and skills training programs to the people of Puna. The proposed action will not produce any major secondary impacts, such as population changes or produce any significant impacts to geological processes, water quality, flora and fauna, historic and cultural resources, or public facilities. The development will help provide essential infrastructure and facilities to the rapidly growing population in the Pāhoa area.

Cumulative impacts occur when the implementation of several projects, which have individually limited impacts, combine to produce more severe impacts. Three (3) main developments are proposed in the vicinity of the Properties:

A. Pāhoa Park Phase 2 Expansion

Pāhoa Park is located south of Pāhoa Village Road with access via Kauhale Street. The Phase 2 Expansion proposes to provide additional recreational uses including a youth baseball field, multi-use field, maintenance yard, potential archery range, community center, covered playground, amphitheater with a covered stage, and additional parking areas. Traffic access to Phase 2 will continue to be provided via Kauhale Street.

B. Pāhoa Affordable Housing

A 30-unit affordable housing project is being planned south of Pāhoa Bypass Road near the Milk and Honey Road. Access to this project is desired via Pāhoa Bypass Road, however, it is believed that HDOT may prefer access via Pāhoa Village Road.

C. Kupuna Housing

Hawai‘i Hope Services is a non-profit organization that helps combat homelessness in Hawai‘i County. Hope Services plans to construct Kupuna Housing units south of Pāhoa Bypass Road near the Milk and Honey Road as part of the recovery efforts from the 2018 Kīlauea eruption.

The proposed project is not expected to result in cumulative impacts to the area. The TIAR found no evidence that significant impacts should occur as a result of each of these potential developments. As discussed, noise on the Properties will operate at permissible levels during normal work hours and will be buffered with vegetation. There are no other anticipated cumulative impacts to the surrounding area.

Figure 62 shows the location of each project listed above in reference to the subject Properties.



Figure 62: Proposed Developments within Vicinity of the Project Area

3.5 Required Permits and Approvals

County of Hawai‘i:

- Building Code/Structural Permits
- Grubbing/Grading Permits
- Electrical Review
- Mechanical/Plumbing Review
- Septic System Review
- Fire Review
- Engineering Review
- Sanitation Review
- Potential Noise Permit

State of Hawai‘i:

- Special Use Permit
- Wastewater System Approval
- National Pollutant Discharge Elimination System (NPDES) Permit

3.6 Consistency with Government Plans and Policies

3.6.1 Hawai‘i County General Plan

The Hawai‘i County General Plan serves as a guiding document for decision-making and the implementation of goals for Hawai‘i Island. The plan was adopted in 1989 by ordinance and was most recently revised in 2005. The General Plan uses the Land Use Allocation Guide Map (LUPAG) to designate land on Hawai‘i Island for future developments in a coordinated and reasonable manner. The designation for the subject property is Extensive Agriculture. Due to the importance of the General Plan in determining the suitability of land-use projects and developments, the following goals, policies, and standards that align with the proposed development are discussed below:

ECONOMIC GOALS

- a. Provide residents with opportunities to improve their quality of life through economic development that enhances the County’s natural and social environments.
- b. Economic development and improvement shall be in balance with the physical, social, and cultural environments of the island of Hawai‘i.
- c. Strive for diversity and stability in the economic system.
- d. Provide an economic environment that allows new, expanded, or improved economic opportunities that are compatible with the County’s cultural, natural, and social environment.
- e. Strive for an economic climate that provides its residents an opportunity for choice of occupation.
- f. Strive for diversification of the economy by strengthening existing industries and attracting new endeavors.

- g. Strive for full employment.
- h. Promote and develop the island of Hawai‘i into a unique scientific and cultural model, where economic gains are in balance with social and physical amenities. Development should be reviewed on the basis of total impact on the residents of the County, not only in terms of immediate short run economic benefits.
- i. Continue to encourage the research, development and implementation of advanced technologies and processes.
- j. Support the development of high technology industries.
- t. Assist in the promotion of the agriculture industry whose products are recognized as being produced on the island of Hawai‘i.

ECONOMIC POLICIES

- a. Assist in the expansion of the agricultural industry through the protection of important agricultural lands, development of marketing plans and programs, capital improvements and continued cooperation with appropriate State and Federal agencies.
- b. Encourage the expansion of the research and development industry by working with and supporting the University of Hawai‘i at Hilo and West Hawai‘i, the Natural Energy Laboratory at Hawai‘i Authority and other agencies' programs that support sustainable economic development in the County of Hawai‘i.
- e. Encourage the sustainable development of the fishing industry, various forms of aquaculture, and other fresh and sea water-based activities.
- f. Support all levels of educational, employment and training opportunities and institutions.

Discussion: In addition to providing diverse avenues of employment for the local community, ASC plans to highlight and incorporate workforce training programs. These will include career & technical education courses in various skills and trades to produce higher skilled individuals. This project would act as a “feeder” for local entrepreneurs and businesses to find and train future employees of the area. ASC plans to host training courses, workshops, and workforce development classes in the following fields:

- Agriculture
- Natural Resource Management
- Arts, Media, & Entertainment
- Building and Construction Trades
- Education, Child Development, and Family Services
- Energy, Environment, and Utilities
- Machining and Fabrication

The proposed ASC expansion project will also be equipped to accommodate and support various agricultural and aquacultural pursuits from breeding and growing to processing. ASC aims to expand agriculture production in the Puna district by providing a space for plant and crop cultivation, a hub for local farmers and entrepreneurs to value-add process, package and sell product, and workshops and training opportunities to educate the public in various agricultural techniques. Currently, ASC and the HAAS PCS are partnered with the United States Department of Agriculture (USDA), Kohala Center, and Hawai‘i Island School Garden Network (HISGN)

Farm-to-table project to incorporate sustainable agricultural practices and training into their curriculum.

The proposed ASC expansion project will host maker spaces and technical skills development workshops in the proposed Industrial and Skilled Trades Development Center. The proposed makerspaces are based on an open and flexible concept, providing necessary facilities for community members and businesses. Classes and workshops will focus on hands-on experiential learning and practical skills development for Hawai‘i’s established and emerging technology industries.

With ASC’s proposed project, the Puna district will have access to training and resources that can spark innovation resulting in new economic ideas and pathways. Workforce training and Career and Technical Education (CTE) courses have been proven to help low socioeconomic communities’ access affordable employment resources and eventual employment.

ASC’s expansion project would provide the resources and space for the Puna community to expand workforce training and accelerated learning programs, and provide local businesses with more qualified workers, thus resulting in job creation and retention. Education and training will promote sustainable practices in balance with social, physical, and cultural environments of Hawai‘i Island.

ENVIRONMENTAL QUALITY GOALS

- a. Define the most desirable use of land within the County that achieves an ecological balance providing residents and visitors the quality of life and an environment in which the natural resources of the island are viable and sustainable.
- b. Maintain and, if feasible, improve the existing environmental quality of the island.
- c. Control pollution.

ENVIRONMENTAL QUALITY POLICIES

- a. Take positive action to further maintain the quality of the environment.
- c. Encourage the concept of recycling agricultural, industrial, and municipal waste material.

ENVIRONMENTAL QUALITY STANDARDS

- a. Pollution shall be prevented, abated, and controlled at levels that will protect and preserve the public health and well-being, through the enforcement of appropriate Federal, State and County standards.
- b. Incorporate environmental quality controls either as standards in appropriate ordinances or as conditions of approval.
- c. Federal and State environmental regulations shall be adhered to.

Discussion: ASC will protect and promote the significant environmental resources of Hawai‘i through educating students and the public on sustainable resource management and agricultural practices. ASC will emphasize culturally appropriate agriculture such as aquaponics,

aquaculture, and ethnobotanical gardens. Curriculum will focus on sustainability in all sectors and facilities by incorporating features such as green waste and composting facilities and utilizing renewable energy. Native and Polynesian Introduced plants will be used in landscaping to promote the growth of natural and culturally appropriate species. The transmission of pollutants will be mitigated by following the rules and regulations associated with grubbing/grading permits and strictly following all appropriate ordinances according to Federal, State and County standards.

ASC's project would provide critical infrastructure for the Puna community through the construction of multipurpose buildings for public use and disaster recovery. These spaces will protect and preserve the public health and well-being of the community and local businesses.

FLOOD CONTROL AND DRAINAGE GOALS

- a. Protect human life.
- b. Prevent damage to man-made improvements.
- c. Control pollution.
- d. Prevent damage from inundation.
- e. Reduce surface water and sediment runoff.
- f. Maximize soil and water conservation.

FLOOD CONTROL AND DRAINAGE POLICIES

- a. Enact restrictive land use and building structure regulations in areas vulnerable to severe damage due to the impact of wave action. Only uses that cannot be located elsewhere due to public necessity and character, such as maritime activities and the necessary public facilities and utilities, shall be allowed in these areas.
- g. Development-generated runoff shall be disposed of in a manner acceptable to the Department of Public Works and in compliance with all State and Federal laws.
- l. Continue to promote public education programs on tsunamis, hurricane, storm surge, and flood hazards.

FLOOD CONTROL AND DRAINAGE STANDARDS

- a. "Storm Drainage Standards," County of Hawai'i, October, 1970, and as revised.
- b. Applicable standards and regulations of Chapter 27, "Flood Control," of the Hawai'i County Code.
- c. Applicable standards and regulations of the Federal Emergency Management Agency (FEMA).
- d. Applicable standards and regulations of Chapter 10, "Erosion and Sedimentation Control," of the Hawai'i County Code.
- e. Applicable standards and regulations of the Natural Resources Conservation Service and the Soil and Water Conservation Districts.

Discussion: The Flood Insurance Rate Map (FIRM) designates the area of the proposed development to be in Zone X (areas outside of 500-year flood). There are no identified drainage ways, naturally occurring wetlands, ponds, lakes, or rivers on the parcel. Accordingly, the site

has not been and should not be subject to flooding, coastal hazards, or erosion. As part of the proposed project, treatment ponds, constructed streams, and water storage areas are planned. These water resources will help with groundwater drainage and provide a vital resource for agricultural and learning purposes.

HISTORIC SITES GOALS

- a. Protect, restore, and enhance the sites, buildings, and objects of significant historical and cultural importance to Hawai‘i.
- b. Appropriate access to significant historic sites, buildings, and objects of public interest should be made available.

HISTORIC SITES POLICIES

- a. Agencies and organizations, either public or private, pursuing knowledge about historic sites should keep the public apprised of projects.
- b. Amend appropriate ordinances to incorporate the stewardship and protection of historic sites, buildings, and objects.
- c. Require both public and private developers of land to provide historical and archaeological surveys and cultural assessments, where appropriate, prior to the clearing or development of land when there are indications that the land under consideration has historical significance.
- d. Public access to significant historic sites and objects shall be acquired, where appropriate.

Discussion: ASC consulted with the State Historic Preservation Division (SHPD) in 2009 to obtain Special Permit No. 2011-000115 for the existing HAAS campus. At this time, SHPD reported that no historic resources were known to be present on the Properties nor would any likely to be discovered and impacted due to the intensive cultivation and alteration of the land (residential development and urbanization, and previous grubbing/grading) (**Exhibit B**). There are also no known archaeological or cultural resources on the Properties. In the event any inadvertent historical, archaeological, or cultural discoveries are made, work will cease, and the applicant will immediately notify the Planning Department and the State DLNR and secure their clearances before proceeding further.

NATURAL BEAUTY GOALS

- a. Protect, preserve, and enhance the quality of areas endowed with natural beauty, including the quality of coastal scenic resources.
- b. Protect scenic vistas and view planes from becoming obstructed.
- c. Maximize opportunities for present and future generations to appreciate and enjoy natural and scenic beauty.

NATURAL BEAUTY POLICIES

- a. Increase public pedestrian access opportunities to scenic places and vistas.

- b. Develop and establish view plane regulations to preserve and enhance views of scenic or prominent landscapes from specific locations, and coastal aesthetic values.
- h. Protect the views of areas endowed with natural beauty by carefully considering the effects of proposed construction during all land use reviews.
- i. Do not allow incompatible construction in areas of natural beauty.

Discussion: ASC will incorporate many multi-use facilities and shared spaces for public use and shelter during times of natural disasters. Activity fields and walkways designed to maintain the natural beauty of the area will provide substantial recreational resources for all ages and will incorporate considerations for the handicapped, the elderly and young children. The proposed expansion will be aesthetically pleasing and will not significantly impact the natural beauty of the area. The master plan utilizes the natural topography of the site, which will limit visual impacts from the Kea‘au-Pāhoa Bypass Road. Landscaping will be incorporated along the highway to further screen the Properties.

NATURAL RESOURCES AND SHORELINES GOALS

- a. Protect and conserve the natural resources from undue exploitation, encroachment, and damage.
- b. Provide opportunities for recreational, economic, and educational needs without despoiling or endangering natural resources.
- c. Protect and promote the prudent use of Hawai‘i’s unique, fragile, and significant environmental and natural resources.
- d. Protect rare or endangered species and habitats native to Hawai‘i.
- e. Protect and effectively manage Hawai‘i’s open space, watersheds, shoreline, and natural areas.
- f. Ensure that alterations to existing landforms, vegetation, and construction of structures cause minimum adverse effect to water resources, and scenic and recreational amenities and minimum danger of floods, landslides, erosion, siltation, or failure in the event of an earthquake.

NATURAL RESOURCES AND SHORELINES POLICIES

- a. Require users of natural resources to conduct their activities in a manner that avoids or minimizes adverse effects on the environment.
- c. Maintain the shoreline for recreational, cultural, educational, and/or scientific uses in a manner that is protective of resources and is of the maximum benefit to the general public.
- d. Protect the shoreline from the encroachment of man-made improvements and structures.
- e. Coordinate programs to protect natural resources with other government agencies.
- h. Encourage public and private agencies to manage the natural resources in a manner that avoids or minimizes adverse effects on the environment and depletion of energy and natural resources to the fullest extent.
- i. Encourage an overall conservation ethic in the use of Hawai‘i’s resources by protecting, preserving, and conserving the critical and significant natural resources of the County of Hawai‘i.
- p. Encourage the use of native plants for screening and landscaping.

- r. Ensure public access is provided to the shoreline, public trails and hunting areas, including free public parking where appropriate.
- t. Preserve and protect significant lava tube caves.
- u. Ensure that activities authorized or funded by the County do not damage important natural resources.

Discussion: The site is not adjacent to the ocean and sits at an elevation of approximately 580 to 610 feet above sea level. As such, the proposed project should not have any adverse impacts on the area's coastal zones or shoreline resources.

PUBLIC FACILITIES GOALS

- e. Encourage the provision of public facilities that effectively service community and visitor needs and seek ways of improving public service through better and more functional facilities in keeping with the environmental and aesthetic concerns of the community.

PUBLIC FACILITIES POLICIES

- a. Continue to seek ways of improving public service through the coordination of service and maximizing the use of personnel and facilities.
- b. Coordinate with appropriate State agencies for the provision of public facilities to serve the needs of the community.

Discussion: The proposed expansion will allow community members to attend after-school programs to further advance their education and training. The campus will be aesthetically pleasing and will be accessible for much of the Puna District.

EDUCATION POLICIES

Educational policies relate to the provision of facilities rather than programs, which are the province of the State. It is nevertheless recognized that the facilities and programs are the tools necessary to improve total educational service.

- a. Encourage continuous joint pre-planning of schools with the Department of Education and the University of Hawai'i to ensure coordination with roads, water, and other support facilities and considerations such as traffic and safety, and access for vehicle, bicycle, and pedestrian. Encourage master planning of present and proposed public and private institutions.
- b. Encourage combining schoolyards with county parks and allow school facilities for afterschool use by the community for recreational, cultural, and other compatible uses.
- c. Encourage joint community-school library facilities, where a separate community library may not be feasible, in proximity to other community facilities, affording both pedestrian and vehicular access.
- d. Encourage implementation of the Department of Education's 'Educational Specifications and Standards for Facilities.

- e. Encourage the Hawai‘i State Library System to seek alternate sites for public libraries located on the campuses of public schools.

EDUCATION STANDARDS

- a. In proposed communities, sufficient acreage shall be reserved for school facilities. Sites shall be free from flooding and drainage problems, excessive slope and shall incorporate appropriate street and driveway design and location to minimize traffic interference, pedestrian hazard, and enable safe and easy access for vehicles, bicycles, and pedestrians.

PUNA DISTRICT EDUCATION COURSES OF ACTION

- a. Improve existing school complexes to meet the standards established by the State Department of Education.
- b. School facilities should be made available to the community for recreation and other compatible uses during after school hours.
- c. Encourage the Department of Education to plan and develop school facilities as the need arises.
- d. Encourage improvements to pedestrian access between the village of Pāhoa and the school and library facilities.

Discussion: The proposed expansion will provide much needed school facilities and community gathering space for the Puna District. Classes will be available online and on campus to accommodate the needs of all community members.

LAND USE GOALS

- a. Designate and allocate land uses in appropriate proportions and mix and in keeping with the social, cultural, and physical environments of the County.

LAND USE POLICIES

- f. Encourage the development and maintenance of communities meeting the needs of its residents in balance with the physical and social environment.

Discussion: The Pāhoa area is growing rapidly and requires educational and training facilities to support its growth. The proposed expansion would help the development and maintenance of the community and meet the of its residents through enhanced social and economic welfare.

AGRICULTURAL GOALS

- b. Preserve the agricultural character of the island.
- c. Preserve and enhance opportunities for the expansion of Hawai‘i’s Agricultural Industry.

AGRICULTURAL POLICIES

- u. Encourage other compatible economic uses that complement existing agricultural and pastoral activities.

Discussion: The proposed expansion will include an extensive agricultural program that supports farm-to-table programs and teach the community about agricultural practices and aquaculture.

PUNA COMMUNITY DEVELOPMENT PLAN

The Puna Community Development Plan (PCDP) was developed through the implementation of the 2005 County of Hawai‘i General Plan. CDP’s are designed to translate and implement the goals, policies, and standards of the General Plan as they apply to specific communities and districts. Additionally, they serve as important framework for a community’s intended outcome and vision and are often used as forum for community input in terms of land-use, availability of public resources, and overall development. The vision of the Puna CDP is for “residents of Puna live in harmony with the land, while promoting a sustainable vibrant local economy, healthy community, and a viable transportation system that is accessible, friendly and safe for now and future generations.” The following goals and objectives outlined in the PCDP apply to the project area and proposed development:

2.1.1 Goals

- a. Structures and cultural sites that are significant to Puna’s history and cultural traditions are preserved.
- b. The design character and natural setting of older communities that are representative of Puna’s historic development are perpetuated.
- c. Areas of scenic and cultural interest are accessible to the public in a manner that does not detract from their aesthetic, natural and cultural value.
- d. Awareness and appreciation of the host culture is expanded.

3.1.1 Goals

- a. Puna retains a rural character while it protects its native natural and cultural resources.
- b. The quality of life improves, and economic opportunity expands for Puna’s residents.
- c. Services and community facilities are more accessible in village/town centers that are distributed throughout the region, including the underserved subdivisions that have been experiencing higher levels of development growth.
- d. Exposure to high risk from natural hazards situations is reduced.

3.2.1 Goals

- a. Lands for agricultural use are preserved.
- b. Quality agricultural land is dedicated to agricultural use in perpetuity.

- c. Opportunities for diversified agriculture increase.
- d. Puna’s agricultural production emphasizes environmentally friendly methods.
- e. Puna agricultural products represent an increasing local market share.
- f. There are more agriculture-related employment training and local job opportunities for youth.
- g. Local job growth is primarily in “green” industries such as agriculture, alternative energy, communications technology, eco-tourism and natural resources management.

3.2.2 Objectives

- f. Form partnerships with local businesses and educational institutions to advance education and training in two sectors:
 - ‘Green’ sector, to include agriculture, alternative energy, resource recycling and recovery, and other related areas; and
 - The information technology sector.
- i. Provide infrastructure support for youth education and job training in the technology and agricultural sectors.
- k. Create new “green” employment opportunities in the agricultural, alternative energy, and natural resources management in Puna.

3.3.1 Goals

- e. Public education is better integrated into Puna’s communities.

3.3.2 Objectives

- f. Increase opportunity for community involvement in public education.
- g. Urge the State to locate its community facilities, such as public schools, in designated village/town centers, and to design them in conformance to the criteria applicable to the type of village/town center at that location.
- h. College level classes and vocational training opportunities should be provided in the Puna district to make post high school education more accessible to Puna residents and to help create a more highly trained and skilled local workforce for emerging industries and commerce.

3.3.3 Actions

- c. Build partnerships between the County and non-profit organizations to increase the range of social services and economic development opportunities.

3.5.2 Objectives

- b. Encourage the collocation of schools, parks, and senior centers to promote interactivity between community members of all ages.

3.5.3 Actions

- c. Improve and expand Community Parks as follows:
 - 10) To supplement Community Parks, make recreation facilities and meeting rooms at public schools available for community use after school hours, whether through direct requests from a community representative to a school principal or a formal standing agreement between the County and the Department of Education.

3.6.1 Goals

- b. Puna lowers its dependence on fossil fuel as an energy source, becoming a demonstration area for alternative sources, systems, and fuels.

3.6.2 Objectives

- a. Promote use of solar technologies, such as solar water heaters and photovoltaic power systems.
- b. Employ energy-efficient design standards for public building and residential development, including ventilation and cooling.

3.6.3 Actions

- a. Apply Leadership in Energy and Environmental Design (LEED) standards for public buildings, with a minimum goal of silver level.
- b. Investigate the use of ground-water cooling systems for public buildings.
- c. Promote energy efficiency standards for larger residences. Applicable standards might include better insulation for the outer walls, low-emissivity windows and doors, reduction of roof heat gain, and use of energy-efficient appliances.

4.1.1 Goals

- d. The percentage of residents who commute to employment or travel for services outside of Puna is reduced.

4.1.2 Objectives

- a. Promote ridesharing, vanpools, and car-pooling.
- b. Provide more services and employment within Puna's village and town centers.
- c. Create new employment opportunities in Puna to reduce long commuting.

Discussion: As discussed above, the proposed development will significantly improve the quality of life for Puna residents through high level education and training, economic opportunity, job creation, and social advancement through community programs, while maintaining an emphasis on natural and culturally appropriate industries such as agriculture and sustainable development. No historical, cultural, or archaeological resources will be impacted by the proposed expansion. The proposed facilities will be energy efficient and will include water saving solutions. Such methods include utilizing energy efficient appliances such as fridges, dishwashers and washing machines, low flow systems in bathrooms for toilets, sinks and shower heads with timed shut off for appropriate devices, natural vegetation that requires minimal watering, water collection systems such as catchment tanks and manmade river systems, composting to improve soil conditions and water retention, sustainable food initiatives and food waste reduction programs.

3.6.2 Hawai'i County Zoning and Special Management Area

The State Land Use District for the Properties is Agricultural and is zoned by the County of Hawai'i as A-5a. A Special Use Permit will be submitted to the Hawai'i County Planning Department in conjunction with the Final Environmental Assessment.

The project site is located approximately 5.6 miles inland from the designated Special Management Area (SMA) and 580 to 610 feet above sea level. Therefore, no impacts to the SMA are possible.

3.6.3 Conservation District

The purpose of regulating land-use in the Conservation District is to conserve, protect, and preserve the important natural resources of the State through appropriate management and use to promote their long-term sustainability and the public health, safety, and welfare. The project site is not within the Conservation District; therefore, the proposed action will have no impact on conservation resources.

PART 4: DETERMINATION, FINDINGS, AND REASONS

4.1 Determination

The applicant expects that the County of Hawai'i Planning Department will determine that the proposed action will not significantly alter the environment and will accordingly issue a Finding of No Significant Impact (FONSI). This determination will be based on comments to the Draft Environmental Assessment (DEA). The Final Environmental Assessment (FEA) will outline the final determination.

4.2 Findings and Supporting Reasons

Agencies must consider several factors to determine whether an Action has significant effects, as outlined in Chapter 11-200.1 of the Hawai'i Administrative Rules (HAR). The following factors evaluate the sum of effects of the proposed action on the quality of the environment by considering every phase of a proposed action, the expected impacts, and the proposed mitigating measures:

1. *The proposed project will not involve an irrevocable commitment or loss or destruction of any natural, cultural, or historic resource.*

The proposed action will not involve an irrevocable commitment or loss or destruction of any natural, cultural, or historic resources. Only common native and alien plants were found on the Properties, and native ecosystems are not expected to be adversely affected. Construction will be conducted in four (4) phases and will closely follow all mitigating measures and Best Management Practices to minimize impacts to natural resources. No significant impacts are expected from this request. As discussed, minor and temporary impacts may be experienced through noise and air quality. The Properties have been previously cleared and used for extensive agriculture and development in the past, therefore, it is unlikely any unknown historical, archaeological, or cultural resources will be found. However, in the event any such resources are discovered, all work will cease immediately, and the State Historic Preservation Division would be contacted to determine appropriate action. The subject site is located roughly 5.6 miles inland and does not encroach on public access to scenic resources.

2. *The proposed project will not curtail the range of beneficial uses of the environment.*

No restriction of beneficial uses would occur under the proposed action. The Properties currently host the HAAS PCS, a Macadamia Nut farm, and gardens. The proposed expansion would be used for public educational and skills training facilities, agriculture, and community gatherings. It is not known whether the Properties have been used for cultural practices in the past, however, it is very unlikely it is used in such a capacity today due to current and historic land use. Agriculture and aquaculture will be significant aspects of the expansion, which will utilize the beneficial uses of the Properties. The Pāhoa area is growing rapidly and lacks proper educational facilities and community gathering space to support the increase in population. The proposed expansion will provide the proper facilities to properly educate and train the community and support sustainable economic growth.

3. *The proposed project will not conflict with the States environmental policies or long-term environmental goals established by law.*

The State's long-term environmental policies are set forth in HRS Chapter 344. The broad goals of this policy are to conserve natural resources and enhance quality of life. The requested action will have no significant impact to environmental processes, nor will

it negatively impact quality of life. The proposed expansion would improve the quality of life for the community by providing access to education and skills training in an area that currently lacks this type of infrastructure. No significant impacts to natural resources will occur. It is therefore consistent with all elements of the State's long-term environmental policies.

- 4. The proposed project will not have a substantial adverse effect on the economic welfare, social welfare, or cultural practices of the community and State.*

The proposed action will have substantial positive impacts on the economic welfare, social welfare, and cultural practices of the community and State. The proposed expansion will provide essential education and skills training to the local community and will support sustainable economic development throughout the larger area. Community events and programs will promote cultural practices and help improve social welfare.

- 5. The proposed project will not have a substantial adverse effect on public health.*

The proposed expansion will not have a substantial effect on public health. Minor and short-term impacts to air quality and noise levels may occur during construction but will be mitigated by using Best Management Practices and appropriate permitting such as noise permits. The Campus expansion will either use Individual Wastewater Systems or a constructed wastewater wetland system offering the highest level of treatment and protection of public health available.

Public health will improve with the proposed action by providing essential education, skills training, open and green space including walkways, outdoor classrooms, and gardens.

- 6. The proposed project will not involve adverse secondary impacts, such as population changes or effects on public facilities.*

The proposed project will not involve adverse secondary impacts, such as population changes or effects on public facilities. The proposed expansion will accommodate the growing population in Puna and provide necessary education and skills training to support sustainable economic development.

- 7. The proposed project will not involve a substantial degradation of environmental quality.*

The proposed action would not contribute to environmental degradation. The Properties have been previously cleared and used extensively for agricultural purposes. Best Management Practices will be strictly followed during all four (4) phases of construction. The proposed expansion will enhance environmental stability by providing sustainable agriculture, aquaculture, composting programs, green spaces, and gardens. Water saving options will be incorporated throughout the grounds and in each proposed building.

8. *The proposed project is not one which is individually limited and will not have substantial adverse effect upon the environment or involve a commitment for larger actions.*

The proposed action will not have substantial adverse effect upon the environment or involve a commitment for larger actions. All buildings associated with the Community Learning Center will incorporate LEED principles. Mitigating measures and Best Management Practices will be strictly followed during construction to minimize potential impacts to air and water quality.

The grounds are planned to incorporate storm water runoff management into naturally inspired and attractive landscape features and will include agriculture, aquaculture, outdoor spaces for learning, gardens, walkways, and open/outdoor community gathering spaces.

There are no expected long-term impacts to water quality. Individual Wastewater Systems or a wastewater treatment alternative such as constructed wetlands will be utilized meeting the approval of the Department of Health. The site landscaping is designed to treat stormwater runoff as a natural feature by incorporating landscaped drainageways and infiltration areas while satisfying drainage requirements.

The proposed action is not expected to have significant impacts to natural resources such as flora and fauna, recreational, cultural, archaeological, or historical resources.

9. *The proposed project will not have a substantial adverse effect on a rare, threatened, or endangered species, or its habitat.*

A biotic survey of the Properties found no rare, threatened, or endangered species. Natural vegetation is mainly non-native. There is currently a Macadamia Nut orchard and a garden with Polynesian Introduced species and native plants. Several fruit trees and ornamental plants are also present throughout the current campus. There are no anticipated impacts to any floral or faunal species.

The potential presence of native endangered birds in the area means the applicant will commit to mitigating measures. The State listed Hawaiian Hoary Bat or 'Ōpe'ape'a (*Lasiurus cinereus semotus*) has the potential to occur in the vicinity of the project area and may roost in nearby trees. Hoary Bats may be sensitive to disturbance between June 1st and September 15th, throughout which no shrubs or trees taller than 15 feet may be disturbed or removed. If this cannot be avoided, woody plants greater than 15 feet (4.6 meters) tall should be disturbed, removed, or trimmed without consulting the DLNR Division of Forestry and Wildlife (DOFAW). The State listed Hawaiian Hawk, or 'Io (*Buteo solitarius*) is also known to occur in the project vicinity. If any tree cutting occurs between March and September, DOFAW must be consulted first. A pre-construction hawk nest search by a qualified ornithologist using standard methods must be conducted. If nests are found, no land clearing is permissible until October. Under the proposed

action the Macadamia Nut orchard would be cleared. Macadamia Nut trees are not known to be utilized by any native endangered birds in the area.

10. *The proposed project will not have a substantial adverse effect on air or water quality or ambient noise levels.*

The proposed action would have minimal and short-term effects on air quality and ambient noise levels during construction. Construction is proposed to occur in four (4) phases to reduce the level of construction occurring at once and the length of potential impacts. Mitigating measures will be strictly followed to reduce impacts to both air quality and noise during all phases of construction. If maximum permissible levels are exceeded during any stage, the contractor will consult with the Department of Health and determine whether a permit is necessary. Noise associated with a typical school will occur during workday hours and is not expected to cause significant impact to the surrounding area due to the rural setting of the subject site. In the event the Campus is used outside of normal operating hours, ASC will adhere to the County Department of Health noise guidelines, which state noise will not occur past 10:00 p.m.

There are no expected long-term impacts to water quality. Individual Wastewater Systems or a wastewater treatment alternative such as constructed wetlands will be utilized meeting the approval of the Department of Health.

11. *The proposed project will not have a substantial adverse effect on or be likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, sea level rise exposure area, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters.*

ASC is located roughly 5.6 miles inland from the shoreline and is in Flood Zone X, or outside of the 500-year floodplain. The Properties will not be impacted by tsunami's, sea level rise, erosion, or freshwater flooding. The Properties are in Lava Zone 2 and has the same volcanic/seismic activity risk as much of Pāhoā. All buildings would be designed according to County building codes to withstand an acceptable level of seismic activity and wind resistance.

ASC has proposed treatment ponds, constructed streams, and water storage areas to prevent the build-up of precipitation and damage to natural and man-made resources. These water resources will help with stormwater drainage and provide a vital resource for agricultural and educational learning purposes. The proposed action would comply with all required codes and regulations regarding drainage and runoff mitigation. These protections will prevent any adverse impacts relating to flooding potential due to the proposed action. Further, as these protective regulations apply equally to each alternative, there are no appreciable differences in potential impacts related to flooding or shoreline resources between project alternatives.

- 12. The proposed project will not have a substantial adverse effect on scenic vistas and viewplanes, during day or night, identified in county or state plans or studies.*

The proposed expansion to the ASC Campus would have limited impacts on scenic resources. The proposed construction will not impose on views to or from any listed resource in the General Plan. During construction, appropriate fencing will be used to mitigate temporary impacts to scenic views, air quality and noise. After construction, landscaping will be incorporated to screen the Properties from the Kea‘au-Pāhoā Bypass Road. The proposed buildings will be aesthetically pleasing with sustainable design and function. The grounds will incorporate natural looking design and will include agriculture, aquaculture, outdoor spaces for learning, gardens, walkways, and open/outdoor community gathering spaces.

- 13. The proposed project will not require substantial energy consumption or emit substantial greenhouse gases.*

The proposed action will not require substantial energy consumption or emit substantial greenhouse gases. Electricity will be sourced from a combination of sources including Hawai‘i Electric Light Company, Inc. (HELCO) and solar. Water saving methods will be incorporated into every building to conserve water and energy use. Such methods include utilizing energy efficient appliances such as fridges, dishwashers and washing machines, low flow systems in bathrooms for toilets, sinks and shower heads with timed shut off for appropriate devices, natural vegetation that requires minimal watering, water collection systems such as catchment tanks and manmade river systems, composting to improve soil conditions and water retention, sustainable food initiatives and food waste reduction programs.

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Exhibit A

March 19, 2021

Island Engineering, LLC



County of Hawai'i
Department of Water Supply
345 Kekuanao'a Street
Hilo, HI 96720

Attention: Manager-Chief Engineering

Subject: Hawaii Academy of Arts and Sciences – Proposed Expansion of Pahoia Campus –
Estimated Water Usage Calculations

The proposed project is located on Post Office Road in Pahoia Village, Puna; TMKs (3) 1-5-006: 002, 012, and 026. The proposed project consists of the following expansion:

- A. Gateway Building – 17,270 ft²
- B. Tech Building – 25,620 ft²
- C. Agriculture Center (including kitchen/cafetorium – 24,300 ft²
- D. Event Center – 24,300 ft²
- E. Vocational School – 19,300 ft²
- F. Maintenance Building – 7,080 ft²

ESTIMATED POTABLE WATER USAGE CALCULATIONS

The estimated gallons per day (GPD) water usage, per occupancy type, is based on DOH Chapter 11-62, Table 1.

Average Daily Demand:

A. Gateway Building 8 employees x 20 gpd/employee = 160 GPD

60 users x 20 gpd/users = 1,200 GPD

Total = 1,360 GPD

= 3.4 water units = **4 water units**

B. Tech Building 11 employees x 20 gpd/employee = 220 GPD

80 users x 20 gpd/users = 1,600 GPD

Total = 1,820 GPD

= 4.6 water units = **5 water units**

C. Agriculture Center	7 employees x 20 gpd/employee = 140 GPD 45 users x 20 gpd/users = 900 GPD Total = 1,040 GPD = 2.6 water units = 3 water units
D. Event Center	20 employees x 20 gpd/employee = 400 GPD 1,400 users x 5 gpd/users = 7,000 GPD Total = 7,400 GPD = 18.5 water units = 19 water units
E. Vocational School	12 employees x 20 gpd/employee = 240 GPD 120 users x 20 gpd/users = 2,400 GPD Total = 2,640 GPD = 6.6 water units = 7 water units
F. Maintenance Building	10 employees x 20 gpd/employee = 200 GPD Total = 200 GPD = 0.5 water units = 1 water units

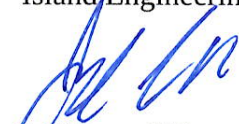
Total Estimated Daily Water Usage = **14,460 GPD** => 36.2 water units = **37 water units**

Peak Hour Flow:

A. Gateway Building	148 Water Supply Fixture Units (WSFU) = 70 gpm
B. Tech Building	192.5 WSFU = 88 gpm
C. Agriculture Center	166 WSFU = 83 gpm
D. Event Center	291 WSFU = 110 gpm
E. Vocational School	93.5 WSFU = 64 gpm
F. Maintenance Building	44 WSFU = 48 gpm

March 19, 2021

Island Engineering, LLC



Jeff Ross, P.E.
Owner

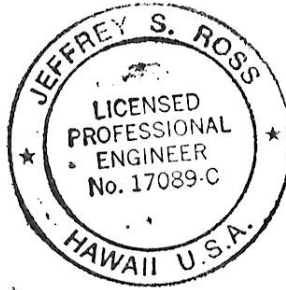
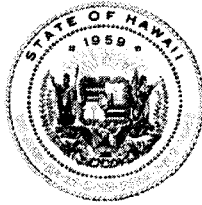
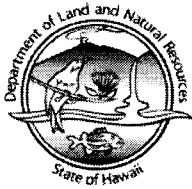


Exhibit B

LINDA LINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RUSSELL Y. TSUJI
FIRST DEPUTY

KEN C. KAWAHARA
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAIHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

February 6, 2009

Gail Clark, President
Arts & Sciences Center
PO Box 2091
Pahoa, Hawaii 96778

LOG NO: 2009.0088
DOC NO: 0902MD01
Archaeology

Dear Ms. Clark:

**SUBJECT: Chapter 6E-42 Historic Preservation Review –
Request for Information Pertaining to an Upcoming Special Use Permit
Nanawale Ahupua`a, Puna District, Island of Hawaii
TMK: (3) 1-5-006:012 and 026**

Thank you for the opportunity to comment on the aforementioned project. We had requested recent photographs of these parcels as we did not have records for them in our office. Thank you for the 16 photos and captions you sent. These parcels are currently in use as a mac nut orchard and modern (less than 50-year-old) structures, and have been completely developed. We determine that **no historic properties will be affected** by this project because:

- Intensive cultivation has altered the land
- Residential development/urbanization has altered the land
- Previous grubbing/grading has altered the land
- An accepted archaeological inventory survey (AIS) found no historic properties
- SHPD previously reviewed this project and mitigation has been completed
- Other: *Based on the photographs submitted to us the ground has already been grubbed/graded in the past.*

In the event that historic resources, including human skeletal remains, cultural materials, lava tubes, and lava blisters/bubbles are identified during the construction activities, all work needs to cease in the immediate vicinity of the find, the find needs to be protected from additional disturbance, and the State Historic Preservation Division, Hawaii Island Section, needs to be contacted immediately at (808) 933-7653. If you have questions about this letter please contact Morgan Davis at (808) 933-7650.

Aloha,

Handwritten signature of Nancy A. McMahon in cursive.

Nancy McMahon, Deputy SHPO/State Archaeologist
and Historic Preservation Manager
State Historic Preservation Division

RECEIVED

EXHIBIT 17

FINAL ENVIRONMENTAL ASSESSMENT

Arts and Sciences Center (ASC) Campus Expansion

Appendix A Traffic Impact Analysis Report (TIAR)

TRAFFIC IMPACT ANALYSIS REPORT ARTS & SCIENCE CENTER DEVELOPMENT PAHOA, ISLAND OF HAWAII, HAWAII

DRAFT FINAL

December 7, 2021

Prepared for:

Arts & Science Center
PO Box 2091
Pahoa, Hawaii, 9677



Austin, Tsutsumi & Associates, Inc.

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Honolulu • Wailuku, Hawaii

**TRAFFIC IMPACT ANALYSIS REPORT
ARTS & SCIENCE CENTER DEVELOPMENT**

Pahoa, Island of Hawaii, Hawaii

DRAFT FINAL

Prepared for

Arts & Science Center

PO Box 2091

Pahoa, Hawaii, 96778

Prepared by

Austin, Tsutsumi & Associates, Inc.

Civil Engineers • Surveyors

Honolulu • Wailuku, Hawaii

December 7, 2021

TABLE OF CONTENTS

	<u>Page</u>
1. INTRODUCTION.....	1-4
1.1 Project Description.....	1
1.2 Study Methodology.....	2
1.3 Analysis Methodology.....	2
2. EXISTING CONDITIONS.....	5-10
2.1 Pedestrian Facilities.....	5
2.2 Bicycle Facilities.....	5
2.3 Bus Transit.....	5
2.4 Roadway System.....	5
2.5 Existing Traffic Volumes.....	6
2.6 Existing Intersection Analysis.....	7
2.7 Crash Data.....	8
3. BASE YEAR TRAFFIC CONDITIONS.....	11-17
3.1 De Facto Growth Rate.....	11
3.2 Background Developments.....	11
3.3 Trip Generation.....	11
3.4 Trip Distribution & Assignment.....	12
3.5 Planned Roadway Improvements.....	12
3.6 Base Year 2026 Analysis.....	14
3.7 Base Year 2031 Analysis.....	15
3.8 Base Year 2041 Analysis.....	15
4. FUTURE YEAR TRAFFIC CONDITIONS.....	18-37
4.1 Project Description.....	18

TABLE OF CONTENTS
Cont'd

4.2	Trip Generation	18
4.3	Trip Distribution & Assignment	19
4.4	Required Roadway Improvements	19
4.4.1	Alternative 1	19
4.4.2	Alternative 2	20
4.5	Future Year 2026	23
4.5.1	Future Year 2026 Analysis Alternative 1	23
4.5.2	Future Year 2026 Analysis Alternative 2	23
4.6	Future Year 2031	25
4.6.1	Future Year 2031 Analysis Alternative 1	25
4.6.2	Future Year 2031 Analysis Alternative 2	25
4.7	Future Year 2041	27
4.7.1	Future Year 2041 Analysis Alternative 1	27
4.7.2	Future Year 2041 Analysis Alternative 2	27
4.8	Future Year 2041 Mitigated Analysis	31
4.8.1	Future Year 2041 Mitigated Analysis Alternative 1	31
4.8.2	Future Year 2041 Mitigated Analysis Alternative 2	31
4.9	Recommended Acceleration and Deceleration Lengths	32
4.9.1	Alternative 1	33
4.9.2	Alternative 2	34
5.	RECOMMENDATIONS	36-38
5.1	Alternative 1	36
5.2	Alternative 2	36
6.	CONCLUSION	39-42

TABLE OF CONTENTS
Cont'd

6.1	Existing Conditions	39
6.2	Base Year Conditions	39
6.3	Future Year Conditions	40
6.3.1	Required Roadway Improvements.....	40
6.3.2	Future Year Alternative 1.....	40
6.3.3	Future Year Alternative 2.....	40
6.4	Recommendations	41
6.4.1	Alternative 1	41
6.4.2	Alternative 2	41
7.	REFERENCES.....	43

TABLE OF CONTENTS
Cont'd

TABLES

2.1	LOS SUMMARY EXISTING CONDITIONS	8
3.1	BACKGROUND DEVELOPMENT TRIP GENERATION RATES	12
3.2	BASE YEAR 2026 BACKGROUND DEVELOPMENT TRIP GENERATION	12
3.3	LOS SUMMARY EXISTING CONDITIONS AND BASE YEAR 2026	14
3.4	LOS SUMMARY BASE YEAR 2026, 2031, AND 2041 CONDITIONS	16
4.1	FUTURE YEAR 2031 PROJECT TRIP GENERATION	18
4.2	LOS SUMMARY BASE AND FUTURE YEAR 2026 CONDITIONS	24
4.3	LOS SUMMARY BASE AND FUTURE YEAR 2031 CONDITIONS	26
4.4	LOS SUMMARY BASE AND FUTURE YEAR 2041 CONDITIONS	28
4.5	LOS SUMMARY FUTURE YEAR 2041 ALTERNATIVE 1 MITIGATED CONDITIONS	31
4.6	LOS SUMMARY FUTURE YEAR 2041 ALTERNATIVE 2 MITIGATED CONDITIONS	32
4.7	FUTURE YEAR 2041 ALTERNATIVE 1 TURN STORAGE LANE LENGTH CALCULATIONS	34
4.8	FUTURE YEAR 2041 ALTERNATIVE 2 TURN STORAGE LANE LENGTH CALCULATIONS	35

FIGURES

1.1	PROJECT LOCATION	3
1.2	PROJECT SITE PLAN	4
2.1	EXISTING TRANSPORTATION FACILITIES	9
2.2	EXISTING LANE CONFIGURATIONS, TRAFFIC VOLUMES, AND LOS	10
3.1	BACKGROUND DEVELOPMENTS	13
3.2	BASE YEAR LANE CONFIGURATIONS, TRAFFIC VOLUMES, AND LOS	17
4.1	PROJECT-GENERATED TRIPS ALTERNATIVE 1	21

TABLE OF CONTENTS
Cont'd

4.2	PROJECT-GENERATED TRIPS ALTERNATIVE 2	22
4.3	FUTURE YEAR LANE CONFIGURATIONS, TRAFFIC VOLUMES, AND LOS ALTERNATIVE 1	29
4.4	FUTURE YEAR LANE CONFIGURATIONS, TRAFFIC VOLUMES, AND LOS ALTERNATIVE 2	30
4.5	FUTURE YEAR RECOMMENDATIONS ALTERNATIVE 1	37
4.6	FUTURE YEAR RECOMMENDATIONS ALTERNATIVE 2	38

TABLE OF CONTENTS
Cont'd

APPENDICES

- A. LOS CRITERIA
- B. TRAFFIC COUNT DATA
- C. LOS WORKSHEETS
- D. CRASH DATA



TERRANCE S. ARASHIRO, P.E.
ADRIENNE W. L.H. WONG, P.E., LEED AP
DEANNA M.R. HAYASHI, P.E.
PAUL K. ARITA, P.E.
ERIK S. KANESHIRO, L.P.L.S., LEED AP
MATT K. NAKAMOTO, P.E.
GARRETT K. TOKUOKA, P.E.

TRAFFIC IMPACT ANALYSIS REPORT

Arts & Science Center Development

Pahoa, Island of Hawaii, Hawaii

1. INTRODUCTION

This report documents the findings of a traffic study conducted by Austin, Tsutsumi, and Associates, Inc. (ATA) to evaluate the potential traffic impacts resulting from the proposed Arts & Sciences Center development (hereinafter referred to as the “Project”) located in Pahoa, Hawaii at Tax Map Key (TMK): (3) 1-5-006:012, 026, and 002.

1.1 Project Description

The proposed Project is located on the Arts & Science Center (ASC) property at the north-east corner of the Pahoa Bypass Road/Homestead Road/Post Office Road intersection. The Project proposes to construct a Community Learning Center that will include a new workforce development/technology center, industrial and skilled trades development center, agricultural center, event center/auditorium, vocational school, and outdoor recreational spaces.

The Hawaii Academy of Arts and Science Public Charter School (HAAS PCS) currently operates on a portion of the property and will remain on site. Access to the Project site is currently provided via two (2) driveways along Homestead Road. The Project is expected to be constructed in four (4) phases with full buildout estimated by 2031, assuming adequate funding is secured.

Two (2) alternatives were evaluated:

- Alternative 1 – Access to the Project site is assumed to be provided via the existing driveways along Homestead Road and a new full access driveway along Pahoa Bypass Road.
- Alternative 2 - Access to the Project site is assumed to be provided via the existing driveways along Homestead Road.

See Figure 1.1 for Project Location and Figure 1.2 for the Project site plan.

1.2 Study Methodology

This study will address the following:

- Assess existing traffic operating conditions during the weekday AM and PM peak hours of traffic within the study area.
- Traffic Projections for Base Year 2026, 2031, and 2041 (without the Project).
- Estimate the vehicular trips that will be generated by the Project.
- Traffic projections for the Project for Future Year 2026, 2031, and 2041 (with Project).
- Provide recommendations for roadway improvements or other mitigative measures, as appropriate, to reduce or eliminate the adverse impacts resulting from traffic generated by the Project.

1.3 Analysis Methodology

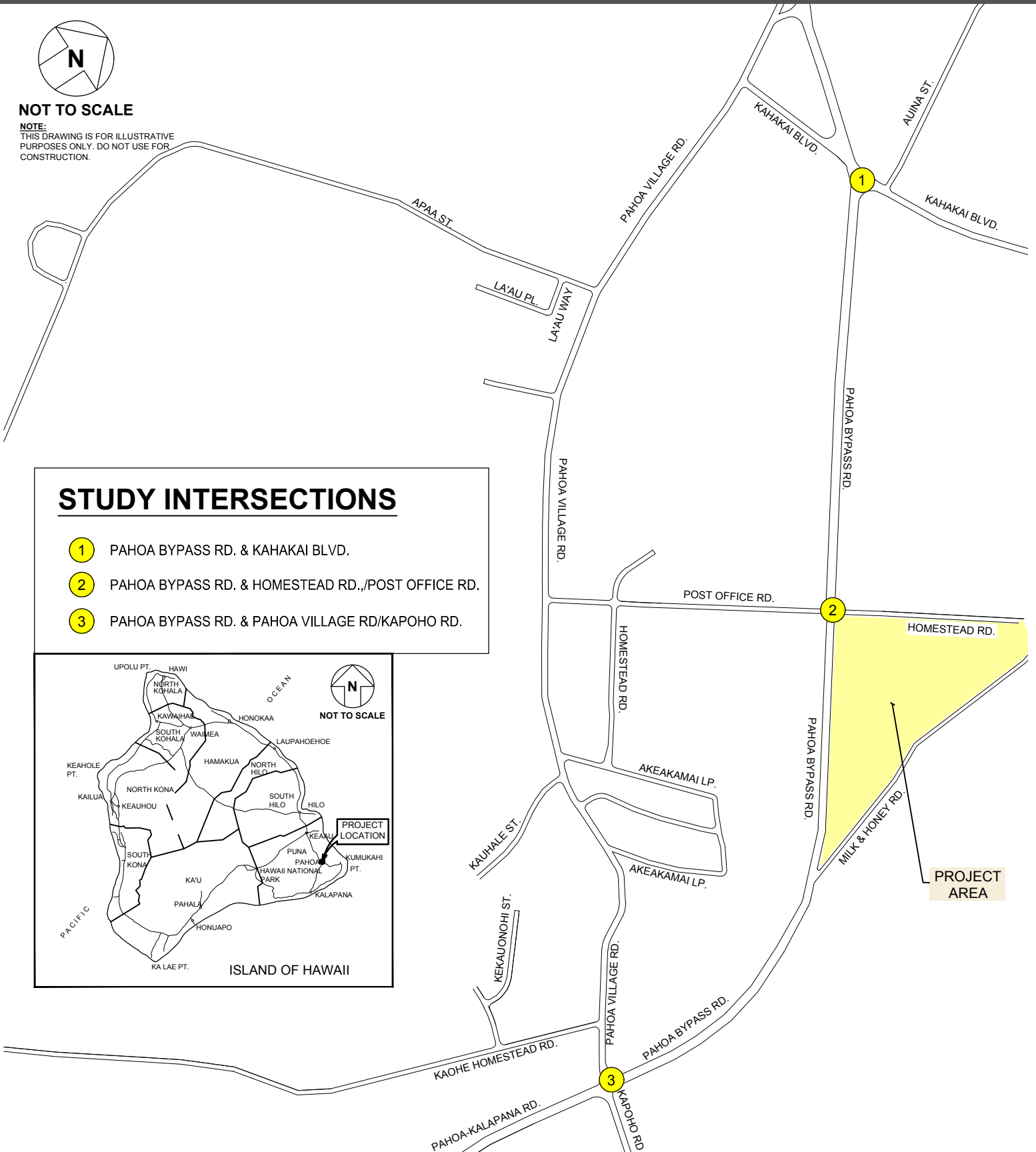
Level of Service (LOS) is a qualitative measure used to describe the conditions of traffic flow at intersections, with values ranging from free-flow conditions at LOS A to congested conditions at LOS F. The Highway Capacity Manual (HCM), 6th Edition, includes methods for calculating volume-to-capacity (v/c) ratios, delays, and corresponding LOS that were used in this study. See Appendix A for LOS Criteria.

Analysis for the study intersections were performed using the traffic analysis software Synchro, which is able to prepare reports based on the methodologies described in the HCM. These reports contain control delay results as based on intersection lane geometry, signal timing, and hourly traffic volumes. Based on the vehicular delay at each intersection, a LOS is assigned to each approach and intersection movement as a qualitative measure of performance. These results constitute the technical analysis that will form the basis of the recommendations outlined in this report.



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STUDY INTERSECTIONS

- 1 PAHOA BYPASS RD. & KAHAKAI BLVD.
- 2 PAHOA BYPASS RD. & HOMESTEAD RD./POST OFFICE RD.
- 3 PAHOA BYPASS RD. & PAHOA VILLAGE RD./KAPOHO RD.

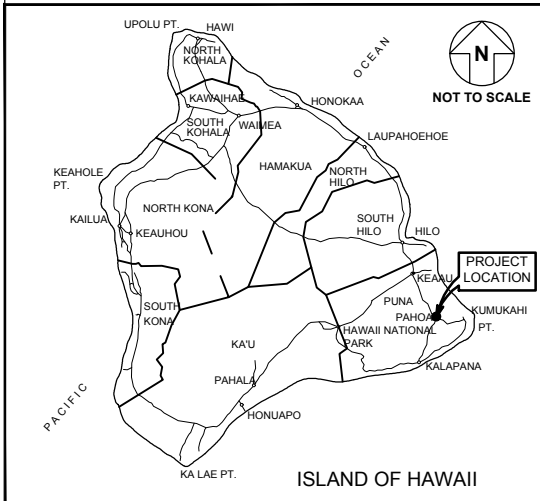


FIGURE 1.1

PROJECT LOCATION



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LEGEND:

- 1 Community Focused Agriculture and Aquaponics
- 2 Terraced Ag (Kalo Loi)
- 3 Learning Terraces/Outdoor Workshop Space
- 4 Outdoor Work/ Learn Areas
- 5 Parking (Various Sizes: 426 stalls + 65 overflow- labeled in plan)
- 6 Drop Off Locations
- 7 Agriculture (Various)
- 8 Aquaculture & Mixed Ag.
- 9 Treatment Ponds & Water Storage
- 10 Stream Ecology
- 11 Ethnobotanical Gardens
- 12 Gardens
- 13 Amphitheatre
- 14 Community Athletic / Outdoor Activity Fields
- 15 Gravel Track/Walking Path / Fire Lane
- 16 Main Campus Road
- 17 Greenhouse
- 18 Composting & Green Waste Drop Off

- A Gateway / Workforce Development/ Technology Center
- B Industrial and Skilled Trades Development Center
- C Agricultural Center
- D Event Center/ Auditorium + Atrium
- E Vocational School & Covered Auditorium
- F HAAS Campus Buildings (Not in EDA Scope)
- G Maintenance/Repair
- H Covered Walkway Structure

MAIN BUILDING BREAKDOWN:

- A Gateway / Community Workforce Development / Technology Center
LEVEL 1_1,800 SQ FT
Community Restrooms
Community work and shared space:
Covered Auditorium
Admin/Nurse Office
Community Welcome Point
- LEVEL 2 _10,470 SQ FT
Mezzanine at Covered Auditorium
Covered Terrace (Flex Use)
4 Guest Accommodations
Walkway/Gallery Bridge
Music Labs /Recording Studio
Photo/Video Studio
- B Industrial and Skilled Trades Development Center _ 25,620 SQ FT
Wood Shop Lab
Metal Shop Lab
Maker Space
Computer Labs
Sewing Studio
Genetics Labs
Restrooms & Showers
Outdoor Flex Spaces & Outdoor Classrooms
- C Agricultural Center _ 24,300 SQ FT
(2) Agricultural Labs
Outdoor Processing / Flex Areas
Processing / Fermentation Lab / Community Cafeteria
Commercial Kitchens
Bulk Refrigeration / Freezer / Dry Storage
Loading
- D Event Center/ Auditorium _ 16,500 SQ FT + Atrium 6,570 SQ FT
10k SQ FT Event/ Activity Space
Commercial Kitchens
Vending / Cafeteria
Locker Rooms / Showers
Staff Offices
Storage

NOTE:
SITE PLAN OBTAINED FROM LAND
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2. EXISTING CONDITIONS

2.1 Pedestrian Facilities

Due to the rural nature, there are limited sidewalks within the study area. Sidewalks are present along various segments of Pahoia Village Road near Pahoia Intermediate and High School and Puna Kai Shopping Center. Marked crosswalks are provided at the Pahoia Bypass Road/Pahoia Village Road/Kapoho Road signalized intersection.

Pedestrian facilities are shown in Figure 2.1.

2.2 Bicycle Facilities

There are no dedicated bike facilities within the study area. However, the Puna Regional Circulation Plan proposes a shared bike route along Kahakai Boulevard and Kapoho Road. Additionally, the Hawaii State Bicycle Master Plan, has also identified several signed shared roadways and bikeways in the Keaau-Pahoia region. However, these planned projects are not within the vicinity of the proposed Project.

Bicycle facilities are shown in Figure 2.1.

2.3 Bus Transit

The Hawaii County Mass Transit Agency operates Hele-On Bus, which provides 13 different routes with service in North, East, and West Hawaii. Service is provided Monday through Saturday with limited service on Sundays and holidays. There is one (1) bus route, Hilo-Pahoia-Kalapana, that travels through the study area along Pahoia Village Road. There are selected trips along Kahakai Boulevard and Pahoia-Kalapana Road through Hawaiian Beaches and Kalapana, respectively. According to the Hele-On Bus schedule, this route generally has 11 stops in Pahoia on weekdays and four (4) stops in Pahoia on Saturdays.

Transit facilities are shown in Figure 2.1.

2.4 Roadway System

The following are brief descriptions of the existing roadways studied within the vicinity of the Project:

Pahoia Bypass Road is generally a north-south, two-way, two-lane, undivided State highway (Route 130) with a posted speed limit of 35 to 45 miles per hour (mph) within the study area. Pahoia Bypass Road serves the lower Puna district from Keaau to Kalapana-Kaimu. Pahoia Bypass Road is a continuation of Keaau-Pahoia Road (Highway 130), which begins at the Keaau-Pahoia Road/Pahoia Bypass Road roundabout and travels south-east through Pahoia where it transitions to Pahoia-Kalapana Road at the Pahoia Village Road/Kapoho Road intersection.

Kahakai Boulevard is generally an east-west, two-way, two-lane, undivided roadway with a posted speed limit of 45 mph within the study area. Kahakai Boulevard begins at the Pahoia Village Road intersection and travels east where it terminates at the Papio Street intersection. Kahakai Boulevard provides access to residential and recreational areas.

Homestead Road is generally an east-west, two-way, two-lane, undivided, local roadway with a posted speed limit of 20 mph. Homestead Road begins to the west at the Pahoia Bypass Road

intersection (opposite Post Office Road) and terminates about ¼ mile to the east at a gated driveway. This roadway provides access to HAAS PCS and a nursery.

Post Office Road is generally an east-west, two-way, two-lane, undivided, local roadway with a posted speed limit of 25 mph. Post Office Road begins to the east at the Pahoa Bypass Road intersection (opposite of Homestead Road) and terminates to the west at the Pahoa Village Road intersection. This roadway mainly provides access to residential areas.

Kapoho Road is generally an east-west, two-way, two-lane, undivided, local roadway with a posted speed limit of 35 mph. Kapoho Road begins to the west at the Pahoa Bypass Road intersection (opposite Pahoa Village Road) and terminates to the east at the Kalapana-Kapoho Road intersection. Kapoho Road continues east of Kalapana-Kapoho Road as an unpaved gravel road to the Cape Kumukahi shoreline. This roadway provides access to residential and recreational areas.

Pahoa Village Road is generally a north-south, two-way, two-lane, undivided, local roadway with a posted speed limit of 25 to 30 mph. Pahoa Village Road begins to the north at the Pahoa Bypass Road roundabout intersection and terminates to the west at the Pahoa Bypass Road (opposite of Kapoho Road). This roadway travels parallel to Pahoa Bypass Road and provides access to commercial, residential, and institutional land uses in Pahoa Town.

2.5 Existing Traffic Volumes

Due to the prolonged disruptions to both residential and visitor traffic in the Pahoa region as a result of the impacts of COVID-19, instead of collecting new traffic count data, most recently available traffic volume data from the Hawaii Department of Transportation (HDOT) and previous traffic studies were used to estimate the existing 2021 traffic volumes at the study intersections. Observations of existing conditions in the study area were not conducted as part of this study.

HDOT collected 24-hour traffic volume data on various weekdays between 2010 and 2019 at the following locations:

- Pahoa Bypass Road (north of Kahakai Boulevard)
- Pahoa Bypass Road (north of Homestead Road)
- Pahoa Bypass Road (south of Kapoho Road)
- Kahakai Boulevard (east of Pahoa Bypass Road)
- Pahoa Village Road (south of Kahakai Boulevard)
- Kapoho Road (east of Pahoa Bypass Road)

The existing 2021 traffic volumes at the following study intersections used in this analysis are based on HDOT 2019 traffic volume data and the following previous traffic studies:

1. **Pahoa Bypass Road/Kahakai Boulevard** is based on 2006 traffic count data collected for the Keaau-Pahoa Road Improvements Technical Report, dated January 2011.
2. **Pahoa Bypass Road/Homestead Road/Post Office Road** is based on 2010 traffic data collected for the HAAS PCS Draft TIAR, dated October 24, 2010.

3. **Pahoa Bypass Road/Pahoa Village Road/Kapoho Road** is based on 2006 traffic count data collected for the Keaau-Pahoa Road Improvements Technical Report, dated January 2011 and 2013 traffic count data collected for the Pahoa Park Master Plan TIAR, dated December 23, 2013.

Based on the collected data for the HAAS PCS Draft TIAR, the weekday AM peak hour of vehicular traffic was generally observed to occur from 7:15 AM to 8:15 AM and the PM peak hour of vehicular traffic was generally observed to occur from 1:45 AM to 2:45 PM.

As stated in the HAAS PCS Draft TIAR, there were 250 students located at the main HAAS PCS campus (i.e., the Project site) in year 2010. Per the HAAS PCS website, the current Year 2020-2021 student enrollment is 735 students. However, during a phone conversation on February 18, 2021, a HAAS PCS staff member indicated that under pre-COVID-19 pandemic conditions, roughly 350 students opted into distance learning, resulting in roughly 385 students reporting to campus. Currently due to the COVID-19 pandemic, all 735 students are learning remotely. HAAS PCS staff confirmed that under post-COVID-19 pandemic conditions school operations would eventually revert back to pre-COVID-19 conditions with the roughly 385 students returning to campus and the roughly 350 students continuing to learn remotely. Thus, the trips generated by the additional 135 on-campus students since Year 2010 were included in the existing 2021 traffic volume estimates.

There are two (2) known developments in the vicinity of the study intersections that have been completed since the previous data was collected. The Phase 1 of the Pahoa Park Master Plan was completed in October 2016 and various shops at the Puna Kai Shopping Center began to open in November 2019. Trips generated by these two (2) developments were included in the existing 2021 traffic volume estimates. In addition, an annual ambient growth rate ranging between 0.1% and 2.3%, which is based on recent (2010-2019) HDOT traffic volumes within the study area, was applied to the through movements along Pahoa Bypass Road to represent traffic growth to year 2021.

It has been estimated that the months long 2018 Kilauea eruption has destroyed roughly 700 residential homes in the Puna district and the lava flow cut off access along Kapoho Road (Highway 132) between Pahoa and Kapoho, which likely reduced traffic volumes along Kapoho Road south of Pahoa and/or rerouted traffic to other roadways. The previously collected data used to estimate existing traffic volumes predates the 2018 Kilauea eruption. However, the growth rates between 2010 and 2019 conservatively account for the impacts of the 2018 Kilauea eruption.

Traffic volume data is provided in Appendix B.

2.6 Existing Intersection Analysis

Based on aerial imagery, the westbound through and left-turn movements are prohibited at the Pahoa Bypass Road/Homestead Road/Post Office Road intersection during the AM and PM school peak periods (7:30 AM to 8:30 AM and 1:30 PM to 3:00 PM). The existing conditions analysis reflects this turn restriction.

Under Existing 2021 conditions, all movements at the study intersections operate at LOS D or better during both the AM and PM peak hours of traffic, except for the following movements:

[2] Pahoa Bypass Road/Homestead Road/Post Office Road

- The eastbound approach is expected to operate at LOS E and F during the AM and PM peak hours of traffic, respectively.

Table 2.1 shows a summary of the existing delay, v/c ratio, and LOS. Figure 2.2 shows the existing traffic volumes and LOS at the study intersections. LOS worksheets are provided in Appendix C.

Table 2.1 LOS Summary Existing Conditions

Intersection	Existing Conditions					
	AM			PM		
	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS
1. Pahoa Bypass Road & Kahakai Boulevard						
WB LT	24.6	0.44	C	30.2	0.32	D
WB RT	0.0	-	A	0.0	-	A
SB LT	8.6	0.15	A	9.1	0.24	A
Overall	4.2	-	-	3.5	-	-
2. Pahoa Bypass Road & Homestead Road/Post Office Road						
NB LT/TH/RT	8.1	0.00	A	8.4	0.01	A
EB LT/TH/RT	43.6	0.39	E	83.5	0.83	F
WB RT	13.0	0.29	B	12.4	0.25	B
SB LT/TH/RT	8.8	0.12	A	8.3	0.06	A
Overall	5.0	-	-	11.4	-	-
3. Pahoa Bypass Road & Pahoa Village Road/Kapoho Road						
EB LT/TH/RT	34.6	0.77	C	30.3	0.78	C
WB LT/TH/RT	27.2	0.67	C	29.1	0.75	C
NB LT	12.0	0.23	B	9.7	0.15	B
NB TH	15.5	0.24	B	13.9	0.15	B
NB RT	13.4	0.01	B	12.7	0.00	B
SB LT	11.7	0.15	B	10.3	0.29	B
SB TH	15.1	0.13	B	13.0	0.22	B
SB RT	16.9	0.28	B	11.6	0.05	B
Overall	22.5	-	C	21.5	-	C

2.7 Crash Data

Based on HDOT crash data between 2016 and 2020, there were three (3) non-fatal crashes at the Pahoa Bypass Road/Homestead Road/Post Office Road intersection. Two (2) crashes involved a broadside (“T”-bone) crash and one (1) crash involved a pedestrian crossing without a crosswalk. There were also three (3) non-fatal crashes at the Pahoa Bypass Road/Nanawale Homestead Road intersection. Nanawale Homestead Road is also known as the Milk & Honey Road, which is a gravel roadway that travels along the southern border of the Project site. One crash involved a single vehicle colliding with the guardrail, one crash involved a broadside (“T”-bone) crash, and one crash involved a motorcyclist jumping or falling off of the motorcycle. Crash data is provided in Appendix D.










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STUDY INTERSECTIONS

- 1 PAHOA BYPASS RD. & KAHAKAI BLVD.
- 2 PAHOA BYPASS RD. & HOMESTEAD RD./POST OFFICE RD.
- 3 PAHOA BYPASS RD. & PAHOA VILLAGE RD./KAPOHO RD.

LEGEND

-  - PROJECT AREA
-  - EXISTING SIDEWALKS
-  - EXISTING TRANSIT FACILITIES
-  - SCHOOL
-  - COMMUNITY PARK
-  - SHOPPING CENTER
-  - GAS STATION

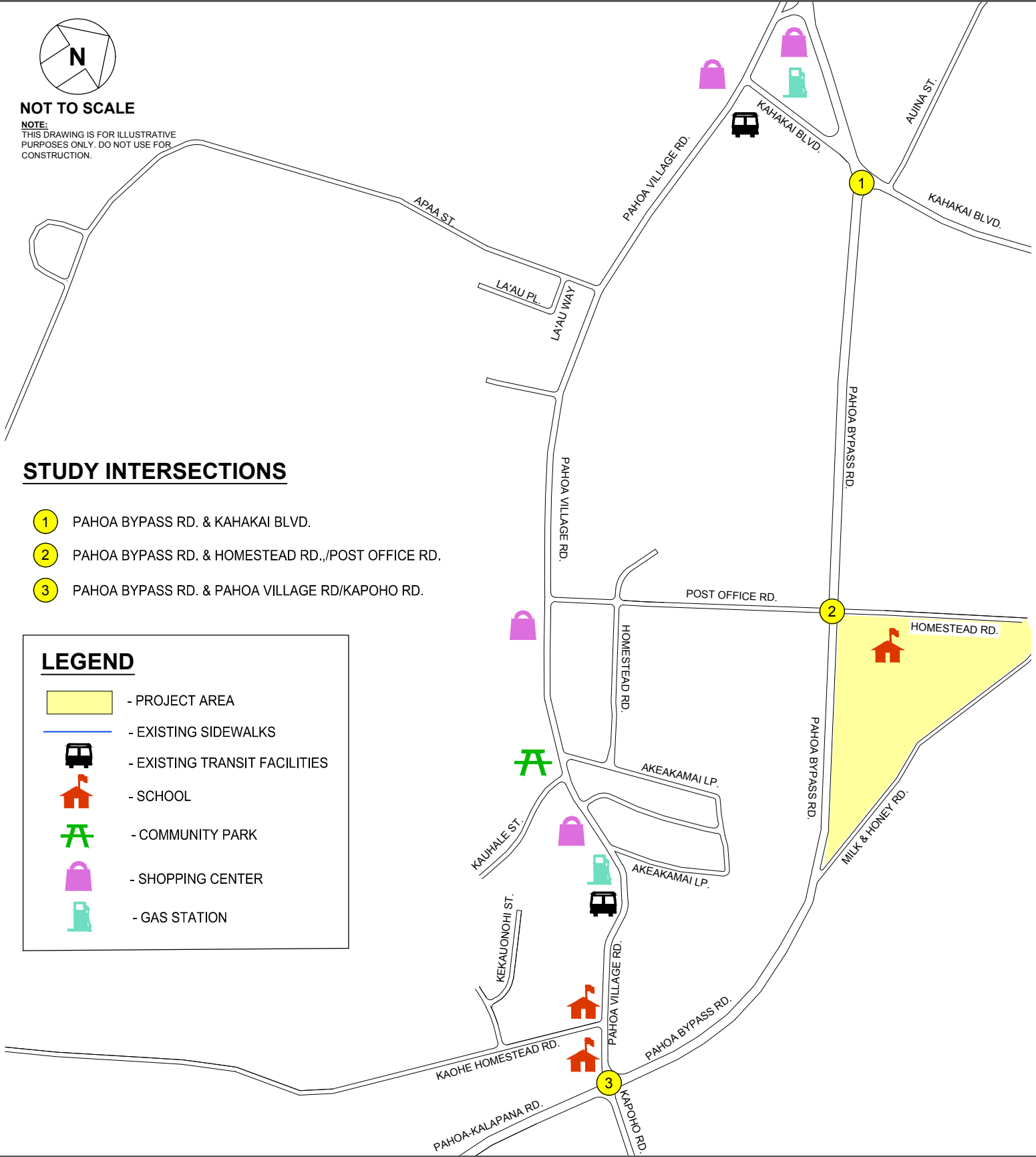


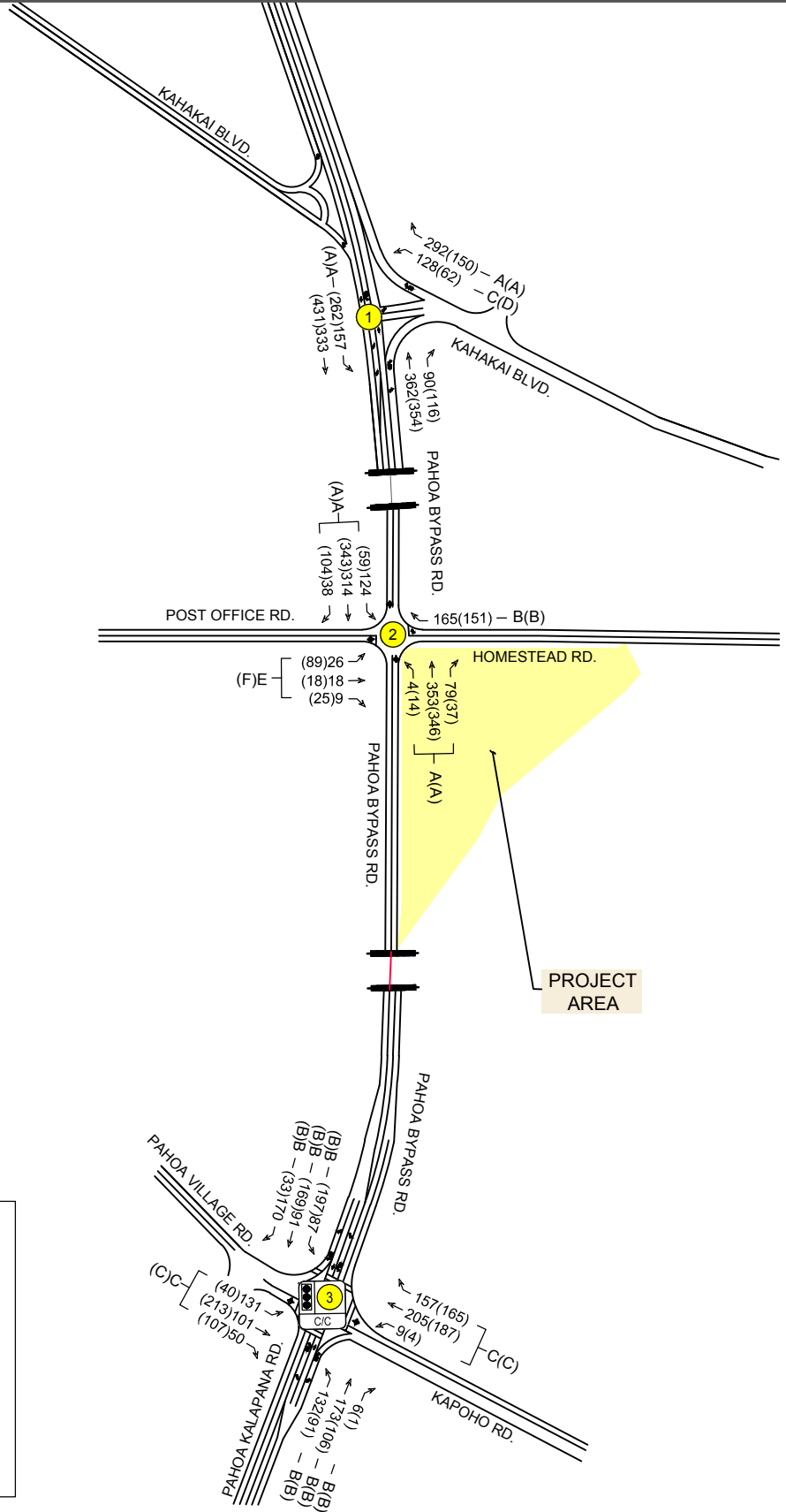
FIGURE 2.1

EXISTING TRANSPORTATION FACILITIES



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LEGEND

- ##(##) - AM(PM) VEHICLE VOLUMES
- (X) - UNSIGNALIZED INTERSECTION X
- (Y) - SIGNALIZED INTERSECTION Y, OVERALL AM/PM LOS
- X(X) - AM(PM) LOS

FIGURE 2.2

**EXISTING LANE CONFIGURATION,
VOLUMES, AND MOVEMENT LOS**

3. BASE YEAR TRAFFIC CONDITIONS

In compliance with Chapter 25 of the Hawaii County Code concurrency requirements (Section 25-2-46, HCC), which state “The (Traffic Impact Analysis Report) TIAR shall include projections for future growth in traffic, for a minimum of five, ten, and twenty years, and shall include other approved or proposed development that is expected to impact the project area, with reasonable assumptions about the build-out of such development”; the years 2026, 2031, and 2041 were studied to reflect the build-out of the Project. Inclusion of other approved or proposed developments are discussed in the following sections.

The Base Year scenarios represent the traffic conditions within the study area without the Project.

3.1 De Facto Growth Rate

Background traffic growth in the study area was determined based on the HDOT island of Hawaii 2035 Travel Demand Forecasting Model (TDFM). The forecasting model uses population forecasts from the Hawaii County General Plan to distribute households and vehicular trips across predetermined Traffic Analysis Zones (TAZs) based upon existing TAZ household distributions. Based on the TDFM and previous traffic studies in the area, a conservative annual ambient growth rate of 1.0% was applied to the through movements along Pahoa Bypass Road to determine Base Year conditions without the Project.

3.2 Background Developments

There are three (3) known planned development in the vicinity of the project.

Pahoa Park Phase 2 Expansion – Pahoa Park is located south of Pahoa Village Road with access via Kauhale Street. The Pahoa Park Phase 2 Expansion proposes to provide additional recreational uses including a youth baseball field, multi-use field, maintenance yard, potential archery range, community center, covered playground, amphitheater with a covered stage, and additional parking areas. Access to Phase 2 will continue to be provided via Kauhale Street. Phase 1 was completed in 2016. The Pahoa Park Master Plan TIAR, Dated December 13, 2013, states that full buildout Phase 2 would be completed after 10 years. Thus, the Pahoa Park Phase 2 project trips were included in Base Year 2026 conditions.

Pahoa Affordable Housing – Based on conversations with the Client, there is a 30-unit affordable housing project planned south of Pahoa Bypass Road near the Milk & Honey Road. Access to this project is desired via Pahoa Bypass Road. However, it is believed that HDOT prefers access via Pahoa Village Road. Construction of this project was not known at the time of this report. However, to be conservative the project trips were included in Base Year 2026 conditions.

Kupuna Housing – As part of the recovery efforts from the 2018 Kilauea eruption, Hope Services plans to construct Kupuna Housing units south of Pahoa Bypass Road near the Milk & Honey Road. Due to the low anticipated trip generation, the project trips were assumed to be included in the background growth rate.

The background developments are illustrated in Figure 3.1.

3.3 Trip Generation

ITE publishes trip rates, Trip Generation Manual, 10th Edition, based upon historical data from similar land uses. These trip rates/formulae and their associated directional distributions were

used to estimate the increase in the number of vehicular trips generated by the Pahoia Affordable Housing development. The rates selected were based on the land use description.

The Pahoia Park Phase 2 estimated trips were based on the trip generation methodology identified in the previously approved Pahoia Park Master Plan TIAR for Phase 1.

See Table 3.1 for the Trip Generation formulae and Table 3.2 for the background development trips.

Table 3.1 Background Development Trip Generation Rates

Land Use (ITE Code)	Independent Variable	AM Peak Hour		PM Peak Hour	
		Trip Rate	% Enter	Trip Rate	% Enter
Single Family Detached Housing (210)	DU	[a]	25%	[b]	63%
[a] $T = 0.71(X) + 4.80$		[b] $\ln(T) = 0.96 \ln(X) + 0.20$			

Table 3.2 Base Year 2026 Background Development Trip Generation

Land Use (ITE Code)	Units	Quantity	AM			PM		
			Enter	Exit	Total	Enter	Exit	Total
Single Family Detached Housing (210)	DU	30	6	20	26	20	12	32
Pahoia Park Phase 2	-	-	-	-	-	156	156	312
SUBTOTAL			6	20	26	176	168	344

3.4 Trip Distribution & Assignment

Trips generated by the background developments were assigned throughout the study area generally based upon previous traffic studies, historic and existing traffic patterns, and the proposed site plan, if available.

3.5 Planned Roadway Improvements

HDOT planned to widen Keaau-Pahoia Road/Pahoia Bypass Road to four (4) lanes between Keaau Bypass and Kapoho Road. Widening Keaau-Pahoia Road to four (4) lanes between Keaau Bypass and Pohaku Drive was completed in 2017. The HDOT Statewide Transportation Improvement Plan (STIP) allocated funds to continue widening Keaau-Pahoia Road/Pahoia Bypass Road. However, in 2018 due to lack of sufficient funding HDOT transferred the STIP funds to construct roundabouts along Keaau-Pahoia Road/Pahoia Bypass Road at Ainaloa Boulevard, Orchidland Drive, and Makuu Drive. Construction for the first roundabout at Ainaloa Boulevard begin in August 2020 and is expected to be complete in early 2021. Thus, widening of Pahoia Bypass Road to four (4) lanes was not assumed to be completed under Base Year 2026, 2031, or 2041 conditions.

HDOT is planning to install and replace guardrail at various locations along Keaau-Pahoia Road/Pahoia Bypass Road, which were scheduled to begin in the summer of 2020¹. This project is not anticipated to have significant long-term impacts to traffic within the study area.

¹ Based on HDOT Highway Program Status online map. Date Accessed February 26, 2020.



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BACKGROUND DEVELOPMENTS

- A** PAHOA PARK PHASE 2 EXPANSION
- B** PAHOA AFFORDABLE HOUSING
- C** KUPUNA HOUSING

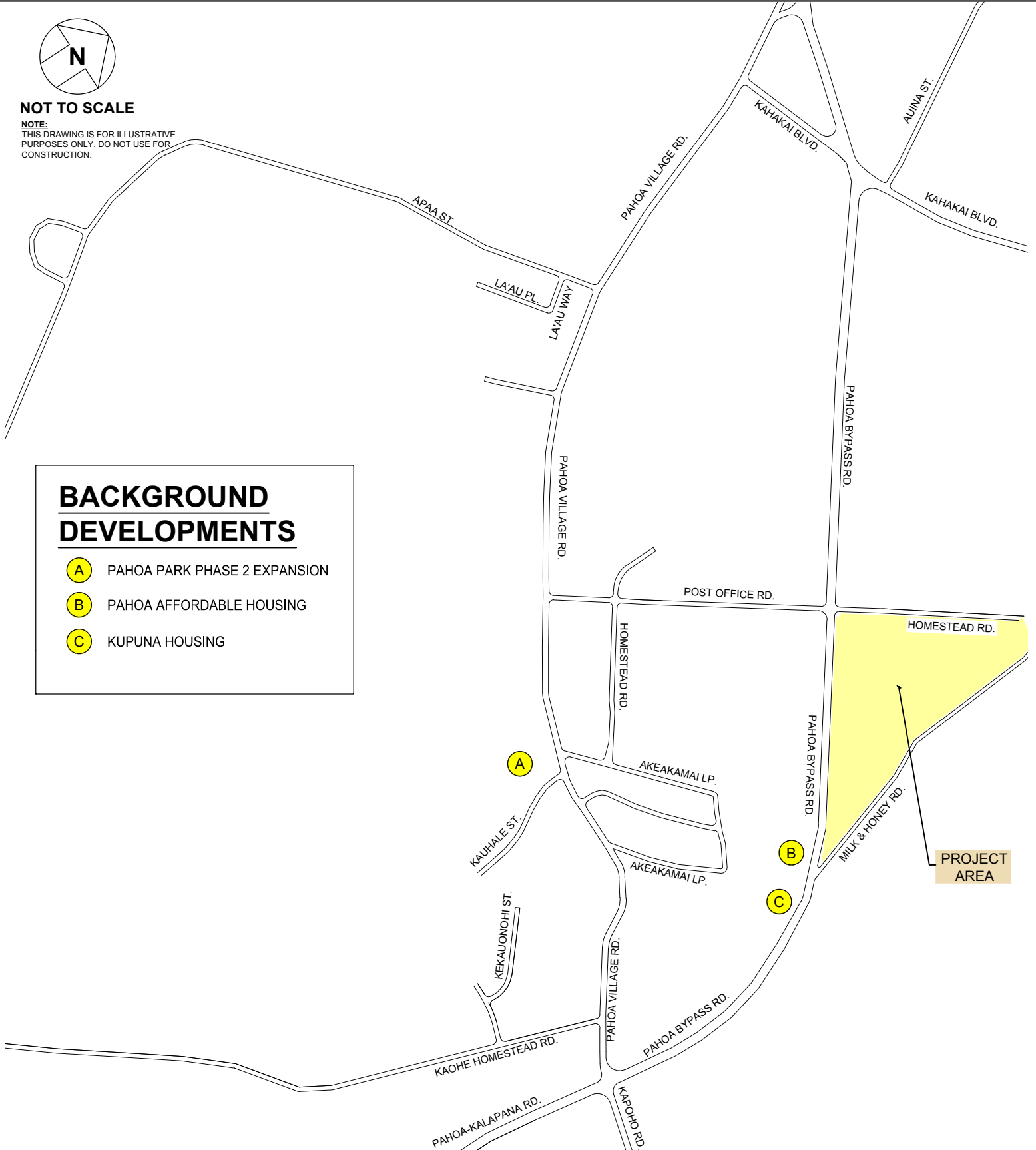


FIGURE 3.1

BACKGROUND DEVELOPMENTS

3.6 Base Year 2026 Analysis

It is anticipated that by Base Year 2026, traffic will have increased over existing conditions due to the growth in the Puna district. Actual growth within the study region may vary based upon the actual construction of the various nearby developments.

Under Base Year 2026 conditions, all movements at the study intersections are expected to continue operating similar to existing conditions during the AM and PM peak hours of traffic.

Table 3.3 shows a summary of the Base Year 2026 delay, v/c ratio, and LOS. Figure 3.2 shows the Base Year 2026 traffic volumes and LOS at the study intersections. LOS worksheets are provided in Appendix C.

Table 3.3 LOS Summary Existing Conditions and Base Year 2026

Intersection	Existing Conditions						Base Year 2026					
	AM			PM			AM			PM		
	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS
1. Pahoa Bypass Road & Kahakai Boulevard												
WB LT	24.6	0.44	C	30.2	0.32	D	26.1	0.45	D	32.1	0.34	D
WB RT	0.0	-	A	0.0	-	A	0.0	-	A	0.0	-	A
SB LT	8.6	0.15	A	9.1	0.24	A	8.7	0.15	A	9.2	0.25	A
Overall	4.2	-	-	3.5	-	-	4.2	-	-	3.4	-	-
2. Pahoa Bypass Road & Homestead Road/Post Office Road												
NB LT/TH/RT	8.1	0.00	A	8.4	0.01	A	8.1	0.00	A	8.5	0.01	A
EB LT/TH/RT	43.6	0.39	E	83.5	0.83	F	49.6	0.42	E	107.6	0.91	F
WB RT	13.0	0.29	B	12.4	0.25	B	13.5	0.30	B	12.7	0.26	B
SB LT/TH/RT	8.8	0.12	A	8.3	0.06	A	8.9	0.13	A	8.4	0.06	A
Overall	5.0	-	-	11.4	-	-	5.1	-	-	13.5	-	-
3. Pahoa Bypass Road & Pahoa Village Road/Kapoho Road												
EB LT/TH/RT	34.6	0.77	C	30.3	0.78	C	34.6	0.77	C	33.5	0.82	C
WB LT/TH/RT	27.2	0.67	C	29.1	0.75	C	27.2	0.67	C	29.8	0.75	C
NB LT	12.0	0.23	B	9.7	0.15	B	12.0	0.23	B	10.9	0.19	B
NB TH	15.5	0.24	B	13.9	0.15	B	15.7	0.25	B	15.6	0.18	B
NB RT	13.4	0.01	B	12.7	0.00	B	13.4	0.01	B	14.1	0.00	B
SB LT	11.7	0.15	B	10.3	0.29	B	11.8	0.16	B	11.5	0.30	B
SB TH	15.1	0.13	B	13.0	0.22	B	15.3	0.15	B	14.7	0.24	B
SB RT	16.9	0.28	B	11.6	0.05	B	16.9	0.28	B	12.9	0.05	B
Overall	22.5	-	C	21.5	-	C	22.4	-	C	23.3	-	C

3.7 Base Year 2031 Analysis

It is anticipated that by Base Year 2031, traffic will have increased over Base Year 2026 due to the continued growth of the Puna district. Actual growth within the study region may vary based upon the actual construction of the various nearby developments.

Under Base Year 2031 conditions, all movements at the study intersections are expected to continue operating similar to Base Year 2026 conditions during the AM and PM peak hours of traffic, except for the following movements:

[2] Pahoia Bypass Road/Homestead Road/Post Office Road

- The eastbound approach is expected to operate at LOS F during the AM peak hour of traffic.

3.8 Base Year 2041 Analysis

It is anticipated that by Base Year 2041, traffic will have increased over Base Year 2041 due to the continued growth of the Puna district. Actual growth within the study region may vary based upon the actual construction of the various nearby developments.

Under Base Year 2041 conditions, all movements at the study intersections are expected to continue operating similar to Base Year 2031 conditions during the AM and PM peak hours of traffic, except for the following movements:

[1] Pahoia Bypass Road/Kahakai Boulevard

- The westbound left-turn is expected to operate at LOS E during the PM peak hour of traffic.

[2] Pahoia Bypass Road/Homestead Road/Post Office Road

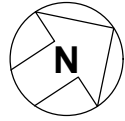
- The eastbound approach is expected to operate at over capacity conditions during the PM peak hour of traffic.

Table 3.4 shows a summary of the Base Year 2026, 2031, and 2041 delay, v/c ratio, and LOS. Figure 3.2 shows the Base Year 2026, 2031, and 2041 traffic volumes and LOS at the study intersections. LOS worksheets are provided in Appendix C.

Table 3.4 LOS Summary Base Year 2026, 2031, and 2041 Conditions

Intersection	Base Year 2026						Base Year 2031						Base Year 2041					
	AM			PM			AM			PM			AM			PM		
	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS
1. Pahoa Bypass Road & Kahakai Boulevard																		
WB LT	26.1	0.45	D	32.1	0.34	D	27.4	0.47	D	33.8	0.35	D	30.3	0.50	D	37.3	0.38	E
WB RT	0.0	-	A	0.0	-	A	0.0	-	A	0.0	-	A	0.0	-	A	0.0	-	A
SB LT	8.7	0.15	A	9.2	0.25	A	8.8	0.15	A	9.3	0.25	A	9.0	0.16	A	9.5	0.26	A
Overall	4.2	-	-	3.4	-	-	4.2	-	-	3.4	-	-	4.3	-	-	3.4	-	-
2. Pahoa Bypass Road & Homestead Road/Post Office Road																		
NB LT/TH/RT	8.1	0.00	A	8.5	0.01	A	8.2	0.00	A	8.5	0.02	A	8.3	0.00	A	8.7	0.02	A
EB LT/TH/RT	49.6	0.42	E	107.6	0.91	F	55.6	0.46	F	130.3	0.98	F	71.3	0.53	F	193.5	1.15	F*
WB RT	13.5	0.30	B	12.7	0.26	B	13.8	0.31	B	13.0	0.27	B	14.6	0.32	B	13.6	0.28	B
SB LT/TH/RT	8.9	0.13	A	8.4	0.06	A	9.0	0.13	A	8.5	0.06	A	9.1	0.13	A	8.6	0.06	A
Overall	5.1	-	-	13.5	-	-	5.3	-	-	15.5	-	-	5.7	-	-	20.9	-	-
3. Pahoa Bypass Road & Pahoa Village Road/Kapoho Road																		
EB LT/TH/RT	34.6	0.77	C	33.5	0.82	C	34.6	0.77	C	33.5	0.82	C	34.6	0.77	C	33.5	0.82	C
WB LT/TH/RT	27.2	0.67	C	29.8	0.75	C	27.2	0.67	C	29.8	0.75	C	27.2	0.67	C	29.8	0.75	C
NB LT	12.0	0.23	B	10.9	0.19	B	12.0	0.23	B	11.0	0.19	B	12.0	0.24	B	11.0	0.20	B
NB TH	15.7	0.25	B	15.6	0.18	B	15.8	0.26	B	15.7	0.18	B	16.1	0.29	B	15.9	0.20	B
NB RT	13.4	0.01	B	14.1	0.00	B	13.4	0.01	B	14.1	0.00	B	13.4	0.01	B	14.1	0.00	B
SB LT	11.8	0.16	B	11.5	0.30	B	11.8	0.16	B	11.6	0.31	B	11.9	0.16	B	11.6	0.31	B
SB TH	15.3	0.15	B	14.7	0.24	B	15.3	0.16	B	14.8	0.26	B	15.5	0.17	B	15.1	0.28	B
SB RT	16.9	0.28	B	12.9	0.05	B	16.9	0.28	B	12.9	0.05	B	16.9	0.28	B	12.9	0.05	B
Overall	22.4	-	C	23.3	-	C	22.3	-	C	23.4	-	C	22.2	-	C	23.3	-	C

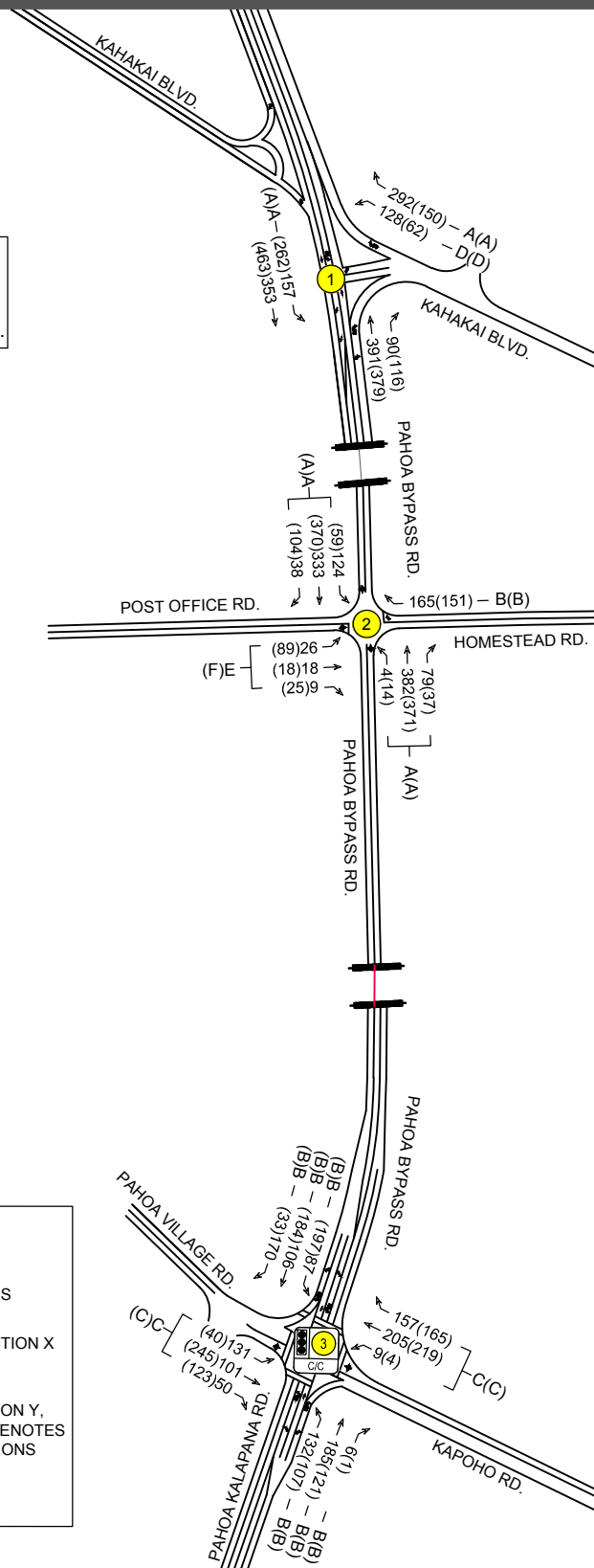
*Denotes overcapacity conditions, v/c >1.0



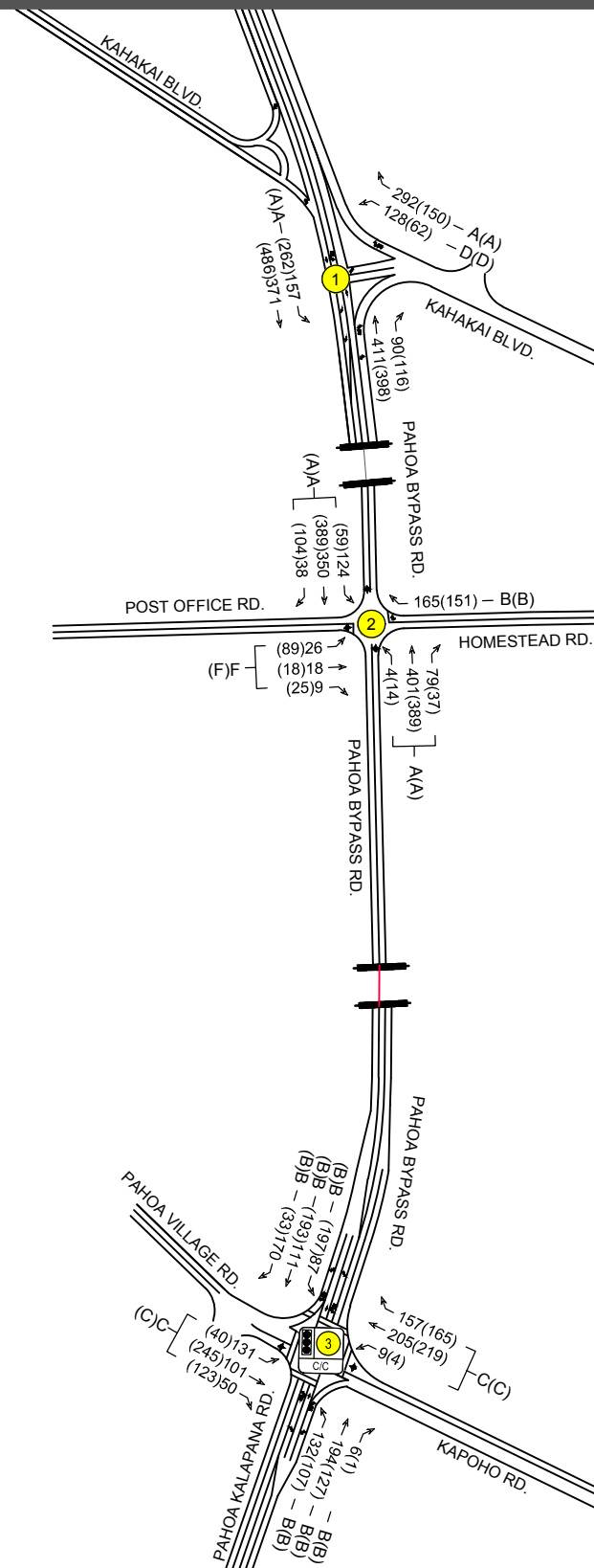
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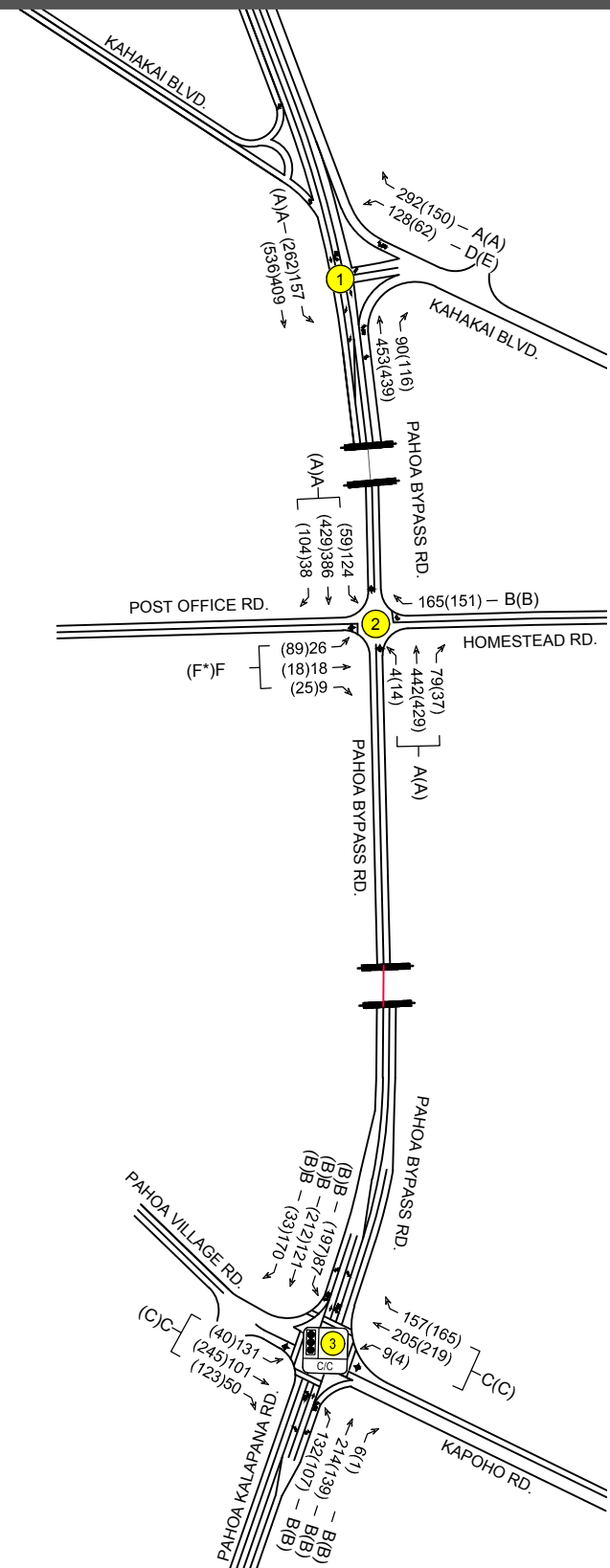
BASE YEAR 2026



BASE YEAR 2031



BASE YEAR 2041



LEGEND

- ##(##) - AM(PM) VEHICLE VOLUMES
- X - UNSIGNALIZED INTERSECTION X
- Y - SIGNALIZED INTERSECTION Y, OVERALL AM/PM LOS. *DENOTES OVERCAPACITY CONDITIONS V/C>1.0
- X(X) - AM(PM) LOS

FIGURE 3.2

BASE YEAR LANE CONFIGURATION, VOLUMES, AND MOVEMENT LOS

4. FUTURE YEAR TRAFFIC CONDITIONS

The Future Year scenarios represent the traffic conditions within the Project study area as a result of the full build-out of the Project.

4.1 Project Description

The Project proposes to construct a Community Learning Center on the north-east corner of the Pahoa Bypass Road/Homestead Road/Post Office Road intersection. The Community Learning Center will include a new workforce development/technology center, industrial and skilled trades development center, agricultural center, event center/auditorium, vocational school, and outdoor recreational spaces. The HAAS PCS will remain on site. The Project is expected to be constructed in four (4) phases with full buildout estimated by 2031, assuming adequate funding is secured.

Two (2) alternatives were evaluated:

- **Alternative 1** – Access to the Project site is assumed to be provided via the existing driveways along Homestead Road and a new full access driveway along Pahoa Bypass Road. The new full access driveway is intended to serve the Community Learning Center traffic, while the existing driveways along Homestead Road will continue to serve HAAS PCS.
- **Alternative 2** - Access to the Project site is assumed to be provided via the existing driveways along Homestead Road.

4.2 Trip Generation

It is our understanding that the Community Learning Center will be mainly used for after-school programs with potential weekend use. ASC estimates that the Community Learning Center would conservatively generate up to 100 additional trips during the PM peak hour. It is assumed that HAAS PCS students that attend the after-school programs at the Community Learning Center will remain on campus (i.e., will not generate a new trip). Although the Community Learning Center is expected to be mainly used for after-school programs, to be conservative it was assumed that the proposed Project could generate up to 100 additional trips during the AM peak hour. Lastly, the HAAS PCS student on-campus attendance is not expected to increase due to the proposed Project. However, to be conservative it was assumed that the student enrollment would increase by 50 students. Trip rates for the additional students were generated based upon the HAAS PCS Draft TIAR project trip rates.

Thus, as shown in Table 4.1, the Project is projected to generated 151(135) new trips during the AM(PM) peak hours of traffic by year 2031. Under Future Year 2026 conditions, it was assumed that the project would generate 50 percent of the total new trips.

Table 4.1: Future Year 2031 Project Trip Generation

Land Use	Student/Visitor Increase	AM			PM		
		Enter	Exit	Total	Enter	Exit	Total
Community Learning Center	100	81	19	100	56	44	100
HAAS PCS	50	29	22	51	15	20	35
Total	150	110	41	151	71	64	135

4.3 Trip Distribution & Assignment

Trips generated by the proposed Project were assigned throughout the study area generally based upon the HAAS PCS Draft TIAR, and the proposed site plan. Under Alternative 1, approximately 40 percent of existing HAAS PCS traffic was re-routed to use the new Project driveway on Pahoa Bypass Road.

Figure 4.1 and 4.2 illustrate the Project-generated trip distribution.

4.4 Required Roadway Improvements

It is expected that the conditions of approval identified for the previous 2011 ASC Special Permit Application (SPP 11-000115) would be carried forward to the updated 2021/2022 Special Permit Application. The conditions of approval identified in 2011 include the following improvements at the Pahoa Bypass/Homestead Road/Post Office Road intersection:

- Completed: Pave Post Office Road to a width of twenty (20) feet from the Pahoa Bypass to the easternmost campus access.
- Reconfigure the east leg of the intersection to provide a separate right-turn lane and left-turn/through lane on Post Office Road for vehicles entering onto the Pahoa Bypass (i.e., provide a westbound right-turn and westbound shared left-turn/through lane).
- Construct an exclusive left-turn lane on the Pahoa Bypass heading towards Kalapana for vehicles entering onto Post Office Road, (i.e., construct a southbound left-turn lane).
- Construct a left-turn refuge on the Pahoa Bypass for vehicles turning left out of Post Office Road heading towards Kalapana (i.e., construct a westbound left-turn acceleration lane).
- Construct a right-turn (deceleration) lane or taper on the Pahoa Bypass for Keaau-bound vehicles exiting the bypass turning right onto Post Office Road, (i.e., construct a northbound right-turn lane).
- Provide a traffic signal at the Pahoa Bypass/Homestead Road/Post Office Road intersection if required by the Department of Transportation.

4.4.1 Alternative 1

Based on the conditions of approval listed above and the two (2) Project accesses proposed under Alternative 1 the following improvements are included:

- Pahoa Bypass Road/Homestead Road/Post Office Road
 - Construct a southbound left-turn lane.
 - Construct a northbound right-turn lane.
- Construct a new full-access driveway along Pahoa Bypass Road.

A new Project access would help to reduce the impact at the Pahoa Bypass Road/Homestead Road/Post Office Road intersection. The new Project access would also keep the school-related traffic and community program traffic separate with the option of providing a gate at the Homestead Road access to be closed during school hours. Lastly, due to geometry and visibility limitations ASC will not be using the Milk and Honey Road.

According to the HAAS PCS Draft TIAR, no pedestrians or bicycles were observed during the AM and PM count period. Due to the rural nature, it is anticipated that minimal pedestrian and bicycle activity will continue in the vicinity of the Project. However, ASC should consider providing a school crossing guard and/or staff member to be present at the Project driveways to help direct traffic, provide active conflict management, and minimize vehicle queueing impacts to Pahoa Bypass Road.

The Project proposes to construct appropriate acceleration and deceleration lanes at both the Pahoa Bypass/Homestead Road/Post Office Road and Pahoa Bypass/New Project Driveway intersections. These additional lanes can help to separate traffic slowing down to enter the Project site and provide space for vehicles to merge with the Pahoa Bypass traffic. Additionally, the westbound left-turn acceleration lane provides drivers the opportunity to complete a two-stage left-turn, which allows drivers to focus on one conflicting direction of traffic at a time. The existing Pahoa Bypass/Homestead Road/Post Office Road and Pahoa Bypass/Milk & Honey Road intersections do not currently have acceleration or deceleration lanes.

As mentioned above, the westbound through and left-turn movements are prohibited at the Pahoa Bypass Road/Homestead Road/Post Office Road intersection during the AM and PM school peak periods (7:30 AM to 8:30 AM and 1:30 PM to 3:00 PM). Thus, this providing a westbound right-turn lane, westbound left-turn/through lane, and a westbound left-turn acceleration lane may not be necessary with the current turn restrictions.

4.4.2 Alternative 2

Based on the conditions of approval listed above and the single Project access proposed under Alternative 2 the following improvements are included:

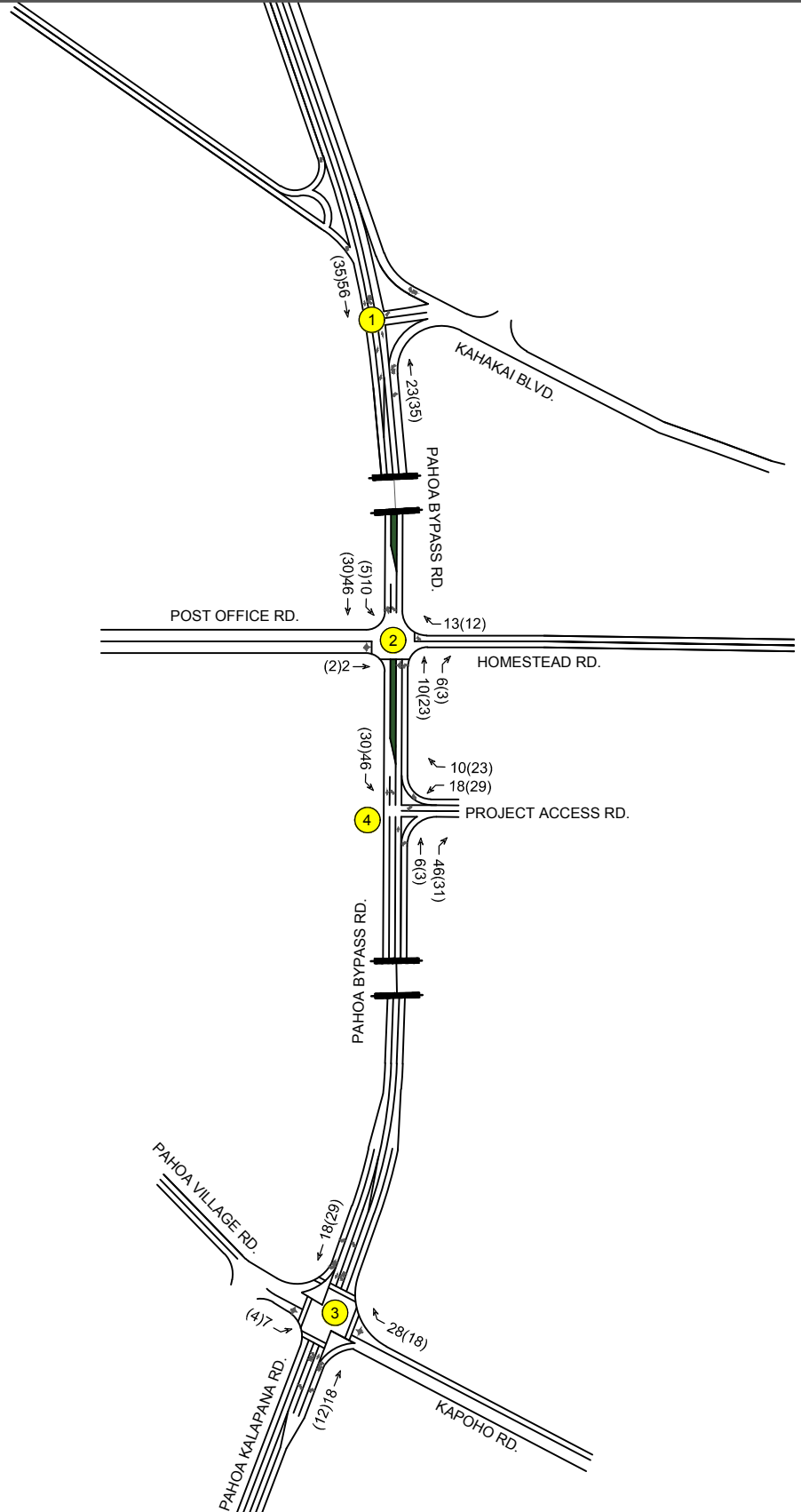
- Pahoa Bypass Road/Homestead Road/Post Office Road
 - Provide a westbound right-turn and westbound shared left-turn/through lane.
 - Construct a southbound left-turn lane.
 - Construct a westbound left-turn acceleration lane.
 - Construct a northbound right-turn lane.

Since a second full access driveway will not be provided under Alternative 2, it is assumed that the existing westbound through and left-turn movement restrictions would need to be lifted in order to serve the Project traffic.



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LEGEND

##(##) - AM(PM) VEHICLE VOLUMES



- STUDY INTERSECTION X

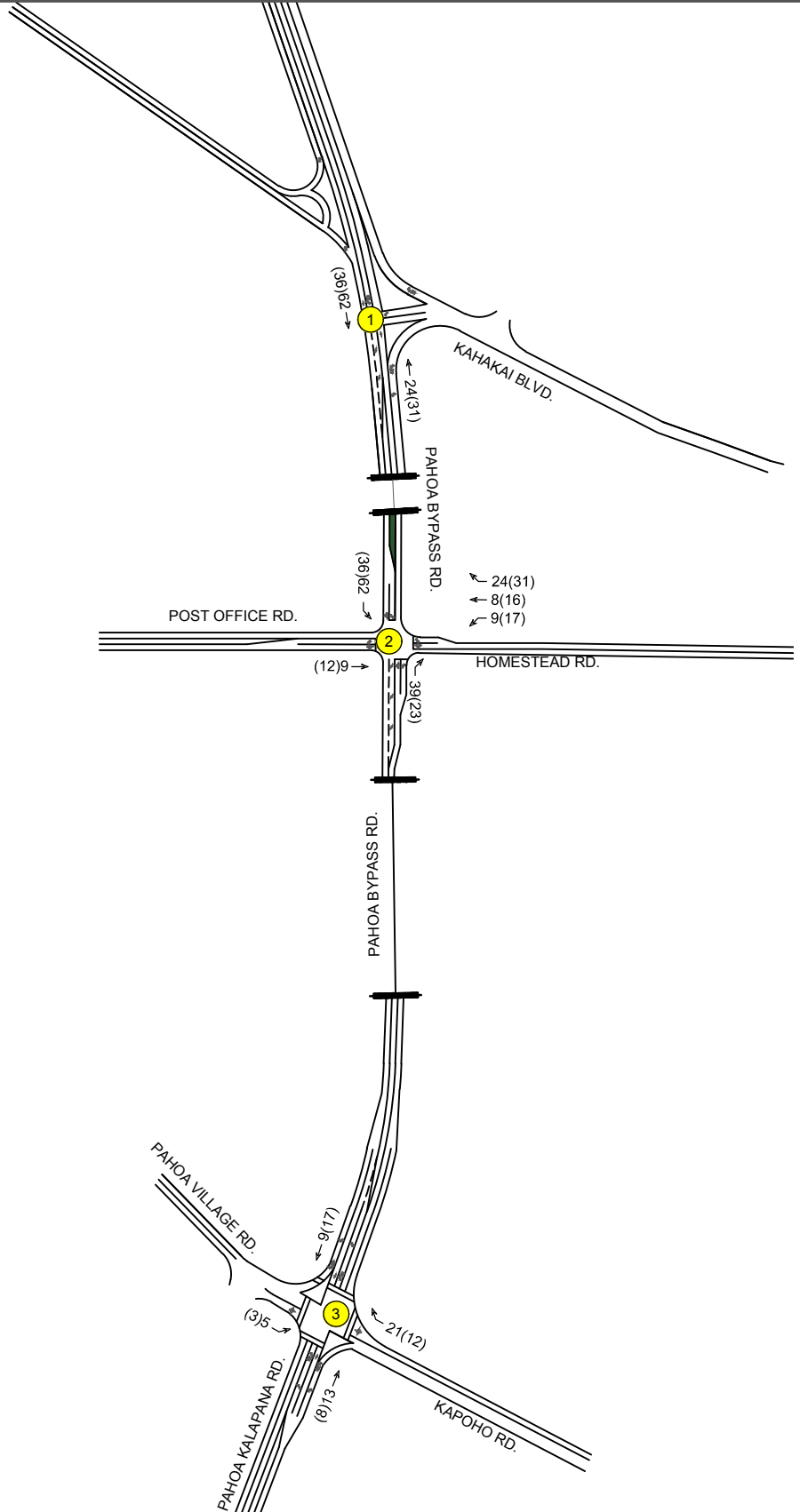
FIGURE 4.1

PROJECT-GENERATED TRIPS ALTERNATIVE 1



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LEGEND

##(##) - AM(PM) VEHICLE VOLUMES



- STUDY INTERSECTION X

FIGURE 4.2

PROJECT-GENERATED TRIPS ALTERNATIVE 2

4.5 Future Year 2026

4.5.1 Future Year 2026 Analysis – Alternative 1

Under Future Year 2026 Alternative 1 conditions, all movements at the study intersections are expected to continue operating similar to Base Year 2026 conditions during the AM and PM peak hours of traffic. The eastbound approach at the Pahoa Bypass Road/Homestead Road/Post Office Road intersection is still expected to operate at LOS E/F, but under capacity during the AM and PM peak hours of traffic.

4.5.2 Future Year 2026 Analysis – Alternative 2

Under Future Year 2026 Alternative 2 conditions, all movements at the study intersections are expected to continue operating similar to Base Year 2026 conditions during the AM and PM peak hours of traffic except for the following movements:

[2] Pahoa Bypass Road/Homestead Road/Post Office Road

- The eastbound approach is expected to operate at LOS F during the AM peak hour of traffic.
- The eastbound approach is expected to operate at capacity conditions during the PM peak hour of traffic.

Consolidating the Project traffic to one access is expected to push the eastbound approach to operate at capacity during the PM peak hour. The Project-generated trips account for roughly 9% and 4% of the Future Year 2026 Alternative 2 traffic volumes on the eastbound approach during the AM and PM peak hours of traffic, respectively. To help mitigate the impacts of the Project, possible improvements could include constructing an eastbound left-turn lane or traffic signal at the Pahoa Bypass/Homestead Road/Post Office Road intersection.

With the addition of an exclusive eastbound left-turn lane at the Pahoa Bypass Road/Homestead Road/Post Office Road intersection, the eastbound left-turn is still expected to operate at LOS F, but under capacity during the AM and PM peak hours of traffic. The eastbound through/right-turn lane is expected to operate at LOS D and LOS C during the AM and PM peak hours of traffic, respectively.

A preliminary signal warrant analysis was conducted and a traffic signal is not expected to be warranted at the Pahoa Bypass Road/Homestead Road/Post Office Road intersection under Future Year 2026 Alternative 2 conditions.

Table 4.2 shows a summary of the Future Year 2026 Alternative 1 and Alternative 2 delay, v/c ratio, and LOS. Figure 4.3 and 4.4 show the Future Year 2026 Alternative 1 and Alternative 2 traffic volumes and LOS at the study intersections. LOS worksheets are provided in Appendix C.

Table 4.2 LOS Summary Base Year Future Year 2026 Conditions

Intersection	Base Year 2026						Future Year 2026 Alternative 1						Future Year 2026 Alternative 2					
	AM			PM			AM			PM			AM			PM		
	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS
1. Pahoa Bypass Road & Kahakai Boulevard																		
WB LT	26.1	0.45	D	32.1	0.34	D	25.7	0.45	D	31.5	0.33	D	27.6	0.47	D	33.3	0.35	D
WB RT	0.0	-	A	0.0	-	A	0.0	-	A	0.0	-	A	0.0	-	A	0.0	-	A
SB LT	8.7	0.15	A	9.2	0.25	A	8.5	0.14	A	8.9	0.24	A	8.8	0.15	A	9.3	0.25	A
Overall	4.2	-	-	3.4	-	-	4.2	-	-	3.4	-	-	4.2	-	-	3.4	-	-
2. Pahoa Bypass Road & Homestead Road/Post Office Road																		
NB LT/TH/RT	8.1	0.00	A	8.5	0.01	A	-	-	-	-	-	-	-	-	-	-	-	-
NB LT/TH	-	-	-	-	-	-	8.4	0.03	A	8.8	0.05	A	8.1	0.00	A	8.5	0.01	A
EB LT/TH/RT	49.6	0.42	E	107.6	0.91	F	41.7	0.38	E	91.4	0.86	F	58.5	0.50	F	132.9	1.00	F*
WB LT/TH	-	-	-	-	-	-	-	-	-	-	-	-	26.2	0.33	D	24.8	0.36	C
WB RT	13.5	0.30	B	12.7	0.26	B	11.8	0.12	B	11.5	0.09	B	12.0	0.19	B	11.6	0.15	B
SB LT/TH/RT	8.9	0.13	A	8.4	0.06	A	-	-	-	-	-	-	-	-	-	-	-	-
SB LT	-	-	-	-	-	-	8.7	0.08	A	8.4	0.04	A	9.1	0.16	A	8.5	0.08	A
Overall	5.1	-	-	13.5	-	-	3.4	-	-	11.1	-	-	6.5	-	-	17.2	-	-
3. Pahoa Bypass Road & Pahoa Village Road/Kapoho Road																		
EB LT/TH/RT	34.6	0.77	C	33.5	0.82	C	36.9	0.78	D	34.1	0.82	C	36.4	0.78	D	34.1	0.82	C
WB LT/TH/RT	27.2	0.67	C	29.8	0.75	C	27.5	0.67	C	30.4	0.76	C	27.4	0.67	C	30.2	0.75	C
NB LT	12.0	0.23	B	10.9	0.19	B	12.7	0.25	B	11.3	0.21	B	12.5	0.24	B	11.2	0.19	B
NB TH	15.7	0.25	B	15.6	0.18	B	16.5	0.27	B	16.0	0.19	B	16.4	0.27	B	16.0	0.18	B
NB RT	13.4	0.01	B	14.1	0.00	B	14.0	0.01	B	14.3	0.00	B	13.9	0.01	B	14.3	0.00	B
SB LT	11.8	0.16	B	11.5	0.30	B	12.4	0.16	B	11.8	0.31	B	12.3	0.16	B	11.8	0.31	B
SB TH	15.3	0.15	B	14.7	0.24	B	16.7	0.22	B	15.8	0.32	B	15.9	0.16	B	15.0	0.26	B
SB RT	16.9	0.28	B	12.9	0.05	B	17.7	0.29	B	13.1	0.05	B	17.5	0.29	B	13.1	0.05	B
Overall	22.4	-	C	23.3	-	C	23.2	-	C	23.7	-	C	23.1	-	C	23.8	-	C
4. Pahoa Bypass Road & New Project Driveway																		
WB LT/RT	-	-	-	-	-	-	16.1	0.14	C	14.6	0.14	B	-	-	-	-	-	-
SB LT	-	-	-	-	-	-	8.6	0.07	A	8.1	0.04	A	-	-	-	-	-	-
Overall	-	-	-	-	-	-	1.4	-	-	1.3	-	-	-	-	-	-	-	-

*Denotes overcapacity conditions, v/c >1.0

4.6 Future Year 2031

4.6.1 Future Year 2031 Analysis – Alternative 1

Under Future Year 2031 Alternative 1 conditions, all movements at the study intersections are expected to continue operating similar to Base Year 2031 conditions during the AM and PM peak hours of traffic.

The eastbound approach at the Pahoa Bypass Road/Homestead Road/Post Office Road intersection is still expected to operate at LOS F and/or at near capacity conditions during the AM and PM peak hours of traffic. The Project-generated trips account for roughly 4% and 2% of the Future Year 2031 Alternative 1 traffic volumes on the eastbound approach during the AM and PM peak hours of traffic, respectively. Thus, the reduction of traffic operations (LOS and capacity) can be mostly attributed to the volume increases due to the three (3) background developments and projected ambient growth. Given the low additional project trips, no additional improvements are recommended at the Pahoa Bypass Road/Homestead Road/Post Office Road intersection.

4.6.2 Future Year 2031 Analysis – Alternative 2

Under Future Year 2031 Alternative 2 conditions, all movements at the study intersections are expected to continue operating similar to Base Year 2031 conditions during the AM and PM peak hours of traffic except for the following movements:

[2] Pahoa Bypass Road/Homestead Road/Post Office Road

- The eastbound approach is expected to operate at overcapacity conditions during the PM peak hour of traffic.

As mentioned above, consolidating the Project traffic to one access is expected to push the eastbound approach to operate at overcapacity conditions during the PM peak hour. The Project-generated trips account for roughly 15% and 8% of the Future Year 2031 Alternative 2 traffic volumes on the eastbound approach during the AM and PM peak hours of traffic respectively. To help mitigate the impacts of the Project, possible improvements could include constructing an eastbound left-turn lane or traffic signal at the Pahoa Bypass/Homestead Road/Post Office Road intersection.

With the addition of an exclusive eastbound left-turn lane at the Pahoa Bypass Road/Homestead Road/Post Office Road intersection, the eastbound left-turn is expected to operate at LOS F and over capacity during the PM peak hour of traffic. The eastbound through/right-turn lane is expected to operate at LOS E and LOS C during the AM and PM peak hours of traffic, respectively.

A preliminary signal warrant analysis was conducted and a traffic signal may be warranted at the Pahoa Bypass Road/Homestead Road/Post Office Road intersection under Future Year 2031 Alternative 2 conditions.

Table 4.3 shows a summary of the Future Year 2031 Alternative 1 and Alternative 2 delay, v/c ratio, and LOS. Figure 4.3 and 4.4 show the Future Year 2031 Alternative 1 and Alternative 2 traffic volumes and LOS at the study intersections. LOS worksheets are provided in Appendix C.

Table 4.3 LOS Summary Base Year Future Year 2031 Conditions

Intersection	Base Year 2031						Future Year 2031 Alternative 1						Future Year 2031 Alternative 2					
	AM			PM			AM			PM			AM			PM		
	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS
1. Pahoa Bypass Road & Kahakai Boulevard																		
WB LT	27.4	0.47	D	33.8	0.35	D	28.5	0.48	D	34.2	0.36	D	30.8	0.51	D	36.5	0.37	E
WB RT	0.0	-	A	0.0	-	A	0.0	-	A	0.0	-	A	0.0	-	A	0.0	-	A
SB LT	8.8	0.15	A	9.3	0.25	A	8.6	0.15	A	9.1	0.24	A	8.9	0.16	A	9.4	0.26	A
Overall	4.2	-	-	3.4	-	-	4.3	-	-	3.4	-	-	4.3	-	-	3.4	-	-
2. Pahoa Bypass Road & Homestead Road/Post Office Road																		
NB LT/TH/RT	8.2	0.00	A	8.5	0.02	A	-	-	-	-	-	-	-	-	-	-	-	-
NB LT/TH	-	-	-	-	-	-	8.6	0.03	A	8.9	0.06	A	8.2	0.00	A	8.5	0.02	A
EB LT/TH/RT	55.6	0.46	F	130.3	0.98	F	51.9	0.45	F	131.9	0.99	F	99.2	0.69	F	243.4	1.28	F*
WB LT/TH	-	-	-	-	-	-	-	-	-	-	-	-	34.0	0.43	D	31.4	0.47	D
WB RT	13.8	0.31	B	13.0	0.27	B	12.2	0.14	B	11.9	0.10	B	12.4	0.21	B	12.0	0.18	B
SB LT/TH/RT	9.0	0.13	A	8.5	0.06	A	-	-	-	-	-	-	-	-	-	-	-	-
SB LT	-	-	-	-	-	-	8.9	0.09	A	8.5	0.04	A	9.5	0.20	A	8.7	0.10	A
Overall	5.3	-	-	15.5	-	-	3.8	-	-	14.8	-	-	9.0	-	-	28.9	-	-
3. Pahoa Bypass Road & Pahoa Village Road/Kapoho Road																		
EB LT/TH/RT	34.6	0.77	C	33.5	0.82	C	41.2	0.82	D	34.7	0.82	C	38.5	0.80	D	34.3	0.82	C
WB LT/TH/RT	27.2	0.67	C	29.8	0.75	C	28.4	0.70	C	31.0	0.77	C	27.9	0.69	C	30.5	0.76	C
NB LT	12.0	0.23	B	11.0	0.19	B	12.7	0.26	B	11.6	0.21	B	12.6	0.24	B	11.3	0.20	B
NB TH	15.8	0.26	B	15.7	0.18	B	16.8	0.29	B	16.4	0.20	B	16.7	0.29	B	16.2	0.20	B
NB RT	13.4	0.01	B	14.1	0.00	B	14.0	0.01	B	14.5	0.00	B	14.0	0.01	B	14.4	0.00	B
SB LT	11.8	0.16	B	11.6	0.31	B	12.4	0.17	B	12.0	0.31	B	12.4	0.17	B	11.9	0.31	B
SB TH	15.3	0.16	B	14.8	0.26	B	16.9	0.24	B	16.4	0.35	B	16.2	0.17	B	15.4	0.28	B
SB RT	16.9	0.28	B	12.9	0.05	B	17.7	0.29	B	13.3	0.05	B	17.7	0.29	B	13.2	0.05	B
Overall	22.3	-	C	23.4	-	C	24.2	-	C	24.1	-	C	23.7	-	C	23.9	-	C
4. Pahoa Bypass Road & New Project Driveway																		
WB LT/RT	-	-	-	-	-	-	17.7	0.18	C	15.9	0.19	C	-	-	-	-	-	-
SB LT	-	-	-	-	-	-	8.7	0.10	A	8.1	0.05	A	-	-	-	-	-	-
Overall	-	-	-	-	-	-	1.7	-	-	1.7	-	-	-	-	-	-	-	-

*Denotes overcapacity conditions, v/c >1.0

4.7 Future Year 2041

4.7.1 Future Year 2041 Analysis – Alternative 1

Under Future Year 2041 Alternative 1 conditions, all movements at the study intersections are expected to continue operating similar to Base Year 2041 conditions during the AM and PM peak hours of traffic.

The eastbound approach at the Pahoa Bypass Road/Homestead Road/Post Office Road intersection is still expected to operate at LOS F and/or at over capacity conditions during the AM and PM peak hours of traffic. The Project-generated trips account for roughly 4% and 2% of the Future Year 2041 Alternative 1 traffic volumes on the eastbound approach during the AM and PM peak hours of traffic, respectively. Although the reduction in traffic operations (LOS and capacity) can mostly be attributed to background traffic, improvements can be considered to help improve operating conditions at the Pahoa Bypass Road/Homestead Road/Post Office Road intersection. Possible improvements include providing an eastbound left-turn lane or constructing a traffic signal.

4.7.2 Future Year 2041 Analysis – Alternative 2

Under Future Year 2041 Alternative 2 conditions, all movements at the study intersections are expected to continue operating similar to Base Year 2041 conditions during the AM and PM peak hours of traffic.

Under Base Year 2041 conditions, the eastbound approach is expected to operate at overcapacity conditions during the PM peak hour. However, the vehicle delay is expected to increase by over two (2) minutes under Future Year 2041 Alternative 2 conditions, when compared to Base Year 2041 conditions. The Project-generated trips account for roughly 15% and 8% of the Future Year 2041 Alternative 2 traffic volumes on the eastbound approach during the AM and PM peak hours of traffic respectively. To help mitigate the impacts of the Project, possible improvements could include constructing an eastbound left-turn lane or traffic signal at the Pahoa Bypass/Homestead Road/Post Office Road intersection.

Table 4.4 shows a summary of the Future Year 2041 Alternative 1 and Alternative 2 delay, v/c ratio, and LOS. Figure 4.3 and 4.4 show the Future Year 2041 Alternative 1 and Alternative 2 traffic volumes and LOS at the study intersections. LOS worksheets are provided in Appendix C.

Table 4.4 LOS Summary Base Year Future Year 2041 Conditions

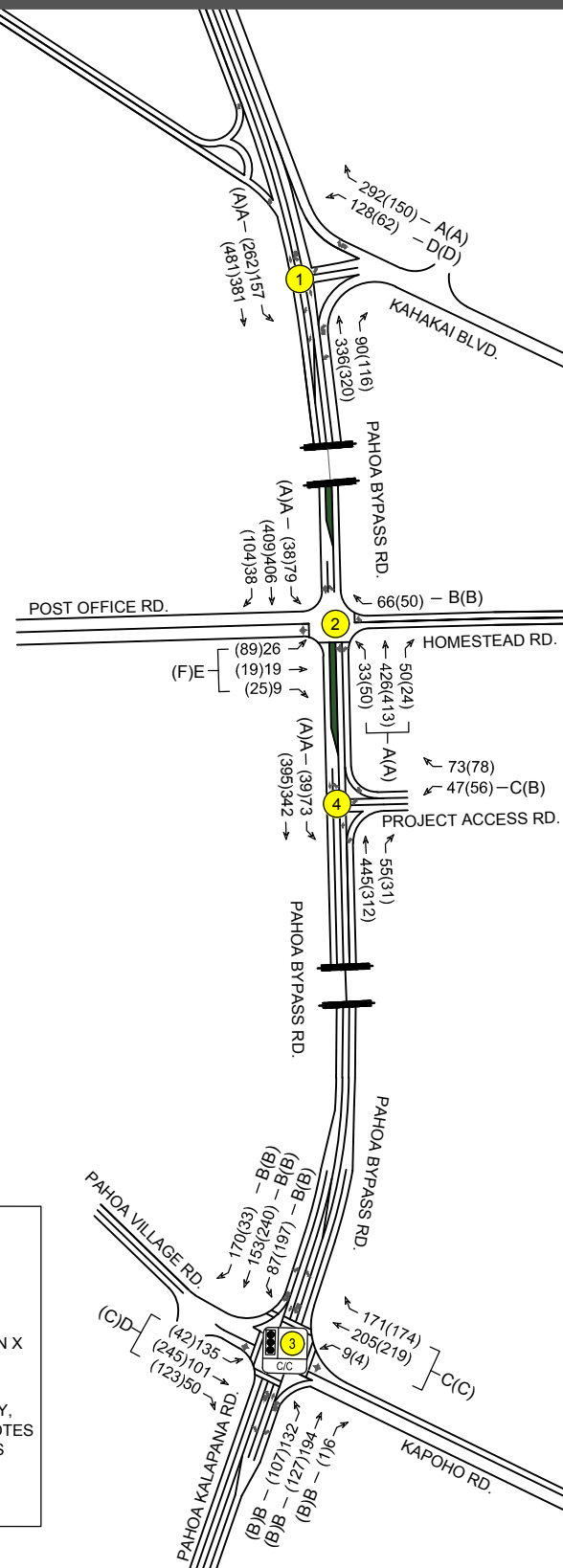
Intersection	Base Year 2041						Future Year 2041 Alternative 1						Future Year 2041 Alternative 2					
	AM			PM			AM			PM			AM			PM		
	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS
1. Pahoa Bypass Road & Kahakai Boulevard																		
WB LT	30.3	0.50	D	37.3	0.38	E	31.5	0.51	D	38.2	0.39	E	34.4	0.54	D	40.8	0.41	E
WB RT	0.0	-	A	0.0	-	A	0.0	-	A	0.0	-	A	0.0	-	A	0.0	-	A
SB LT	9.0	0.16	A	9.5	0.26	A	8.8	0.15	A	9.3	0.25	A	9.1	0.16	A	9.7	0.27	A
Overall	4.3	-	-	3.4	-	-	4.3	-	-	3.4	-	-	4.4	-	-	3.4	-	-
2. Pahoa Bypass Road & Homestead Road/Post Office Road																		
NB LT/TH/RT	8.3	0.00	A	8.7	0.02	A	-	-	-	-	-	-	-	-	-	-	-	-
NB LT/TH	-	-	-	-	-	-	8.7	0.04	A	9.0	0.06	A	8.3	0.00	A	8.7	0.02	A
EB LT/TH/RT	71.3	0.53	F	193.5	1.15	F*	64.2	0.51	F	191.8	1.15	F*	132.2	0.79	F	343.9	1.51	F*
WB LT/TH	-	-	-	-	-	-	-	-	-	-	-	-	37.9	0.46	E	35.2	0.51	E
WB RT	14.6	0.32	B	13.6	0.28	B	12.7	0.14	B	12.3	0.11	B	12.9	0.23	B	12.5	0.19	B
SB LT/TH/RT	9.1	0.13	A	8.6	0.06	A	-	-	-	-	-	-	-	-	-	-	-	-
SB LT	-	-	-	-	-	-	9.0	0.09	A	8.7	0.04	A	9.7	0.21	A	8.9	0.10	A
Overall	5.7	-	-	20.9	-	-	4.2	-	-	19.8	-	-	10.3	-	-	37.3	-	-
3. Pahoa Bypass Road & Pahoa Village Road/Kapoho Road																		
EB LT/TH/RT	34.6	0.77	C	33.5	0.82	C	41.2	0.82	D	34.7	0.82	C	38.5	0.80	D	34.3	0.82	C
WB LT/TH/RT	27.2	0.67	C	29.8	0.75	C	28.4	0.70	C	31.0	0.77	C	27.9	0.69	C	30.5	0.76	C
NB LT	12.0	0.24	B	11.0	0.20	B	12.8	0.26	B	11.7	0.22	B	12.6	0.24	B	11.4	0.20	B
NB TH	16.1	0.29	B	15.9	0.20	B	17.2	0.32	B	16.6	0.22	B	17.1	0.31	B	16.4	0.22	B
NB RT	13.4	0.01	B	14.1	0.00	B	14.0	0.01	B	14.5	0.00	B	14.0	0.01	B	14.4	0.00	B
SB LT	11.9	0.16	B	11.6	0.31	B	12.5	0.17	B	12.0	0.32	B	12.5	0.17	B	11.9	0.32	B
SB TH	15.5	0.17	B	15.1	0.28	B	17.1	0.25	B	16.7	0.38	B	16.3	0.19	B	15.7	0.31	B
SB RT	16.9	0.28	B	12.9	0.05	B	17.7	0.29	B	13.3	0.05	B	17.7	0.29	B	13.2	0.05	B
Overall	22.2	-	C	23.3	-	C	24.2	-	C	24.0	-	C	23.6	-	C	23.8	-	C
4. Pahoa Bypass Road & New Project Driveway																		
WB LT/RT	-	-	-	-	-	-	18.4	0.19	C	16.5	0.20	C	-	-	-	-	-	-
SB LT	-	-	-	-	-	-	8.8	0.10	A	8.2	0.05	A	-	-	-	-	-	-
Overall	-	-	-	-	-	-	1.7	-	-	1.7	-	-	-	-	-	-	-	-

*Denotes overcapacity conditions, v/c >1.0

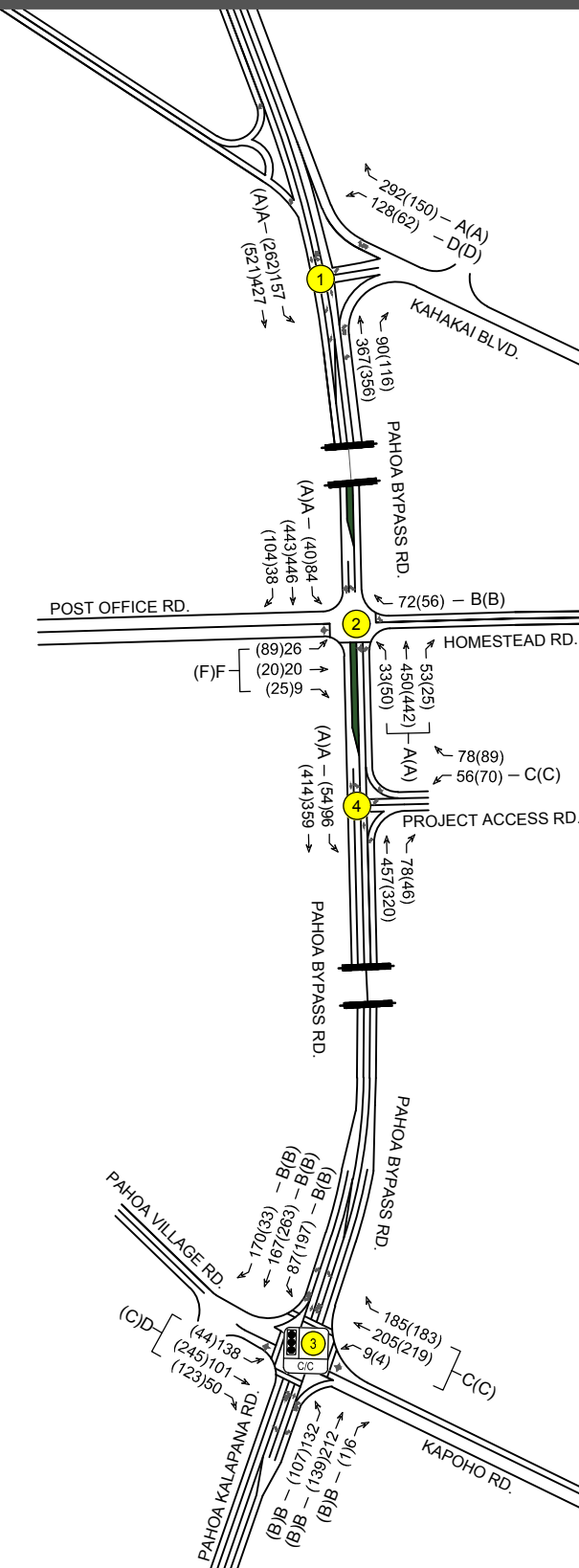
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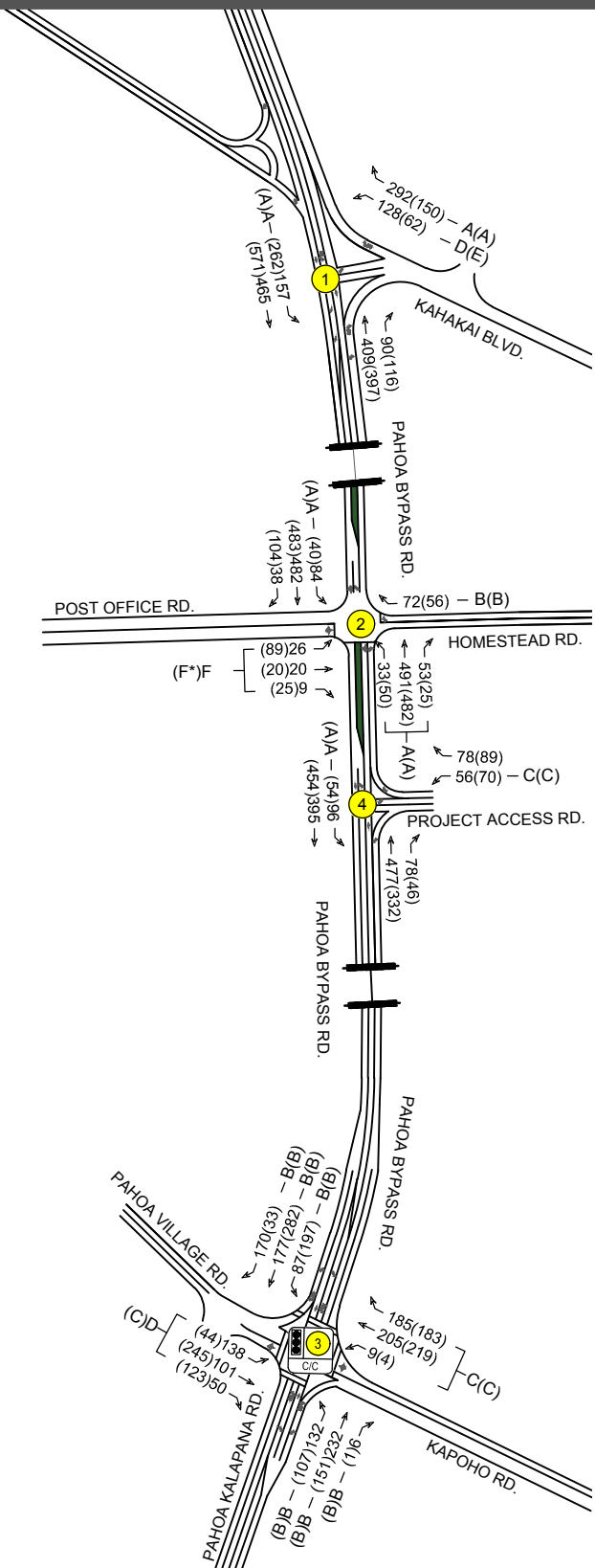
FUTURE YEAR 2026



FUTURE YEAR 2031



FUTURE YEAR 2041




LEGEND

- ##(##) - AM(PM) VEHICLE VOLUMES
- X - UNSIGNALIZED INTERSECTION X
- Y - SIGNALIZED INTERSECTION Y, OVERALL AM/PM LOS. *DENOTES OVERCAPACITY CONDITIONS V/C > 1.0
- X(X) - AM(PM) LOS

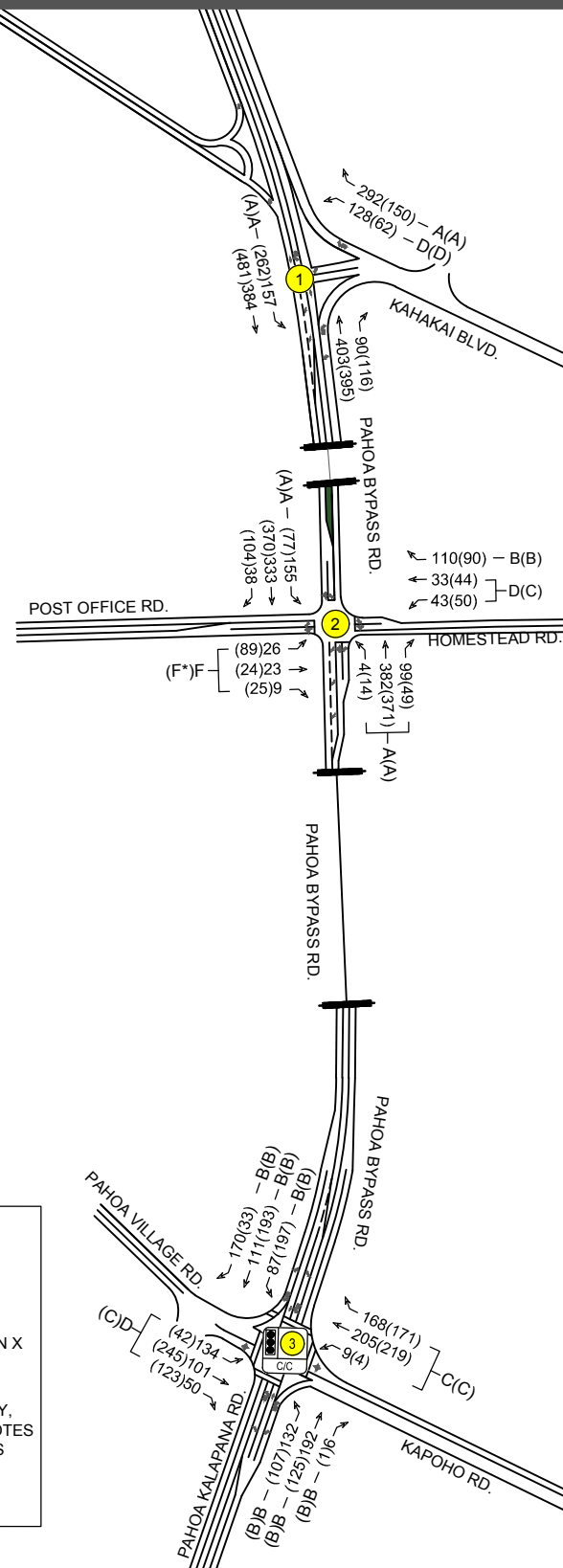
FUTURE YEAR LANE CONFIGURATION, VOLUMES, AND MOVEMENT LOS ALTERNATIVE 1

FIGURE 4.3

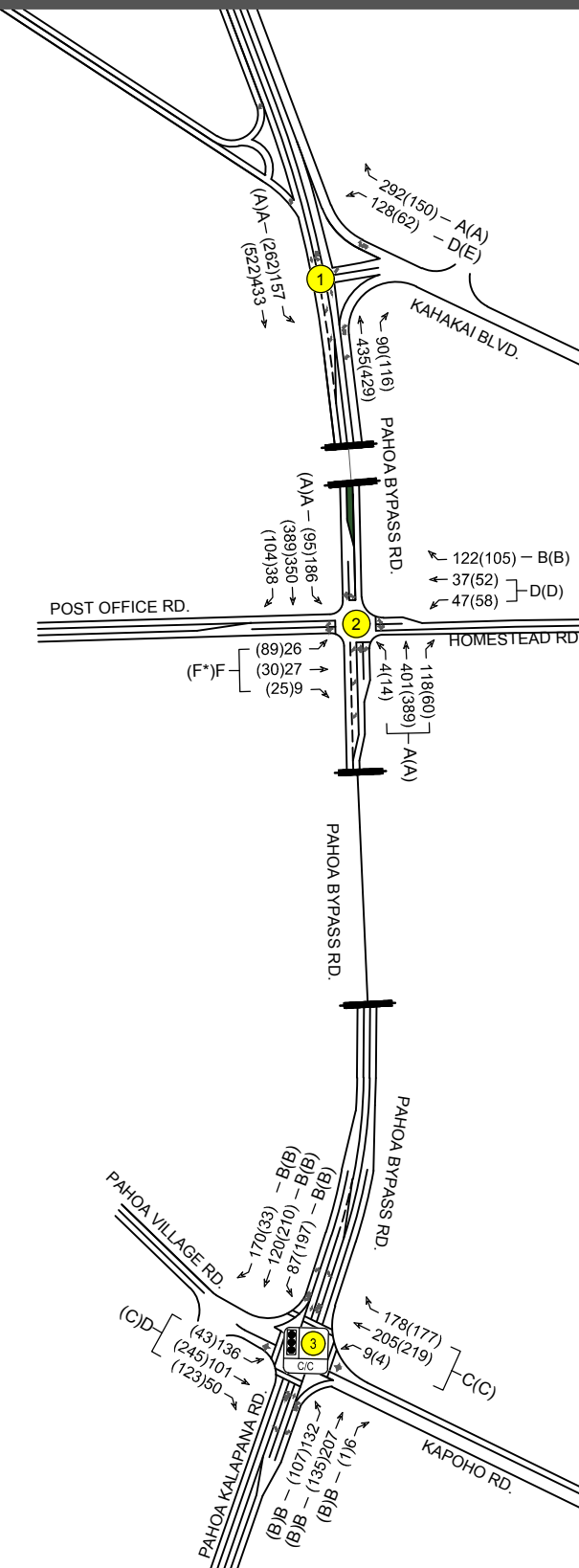

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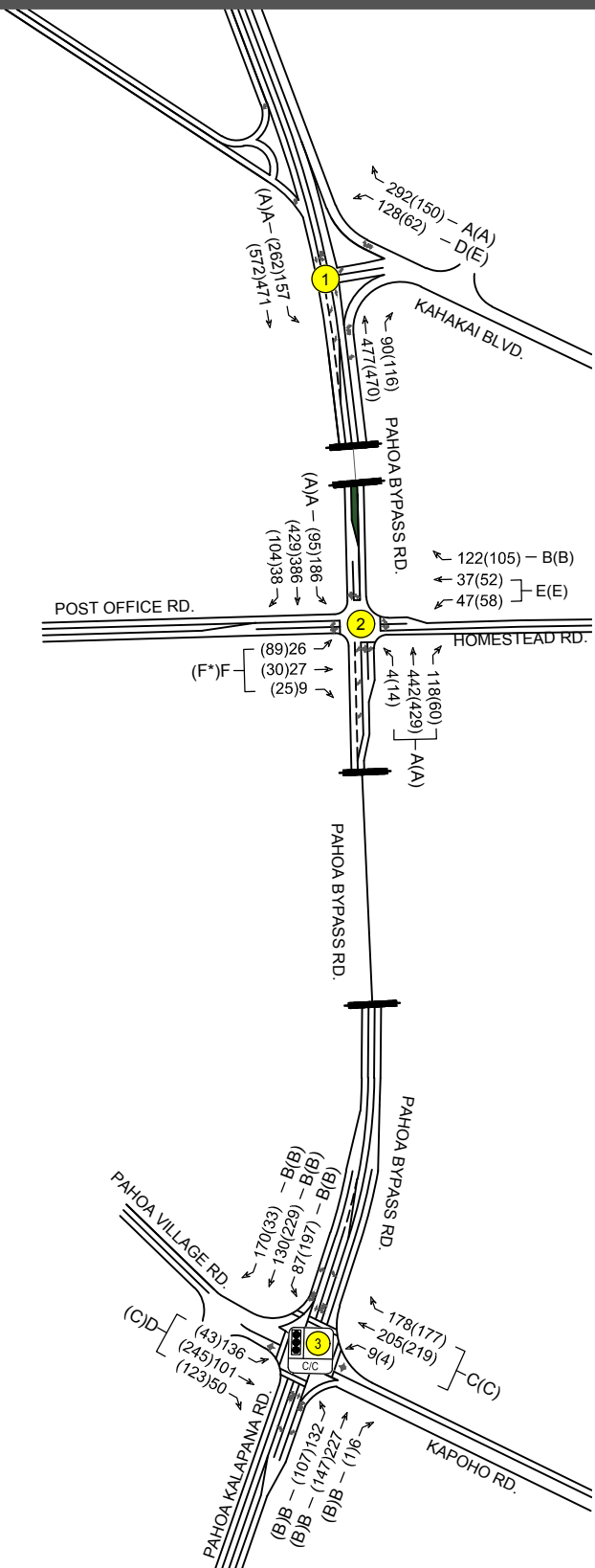
FUTURE YEAR 2026



FUTURE YEAR 2031





FUTURE YEAR 2041



LEGEND

##(##) - AM(PM) VEHICLE VOLUMES

 - UNSIGNALIZED INTERSECTION X

 - SIGNALIZED INTERSECTION Y, OVERALL AM/PM LOS. *DENOTES OVERCAPACITY CONDITIONS V/C > 1.0

X(X) - AM(PM) LOS

FIGURE 4.4

FUTURE YEAR LANE CONFIGURATION, VOLUMES, AND MOVEMENT LOS ALTERNATIVE 2

4.8 Future Year 2041 Mitigated Analysis

4.8.1 Future Year 2041 Mitigated Analysis – Alternative 1

With the addition of an exclusive eastbound left-turn lane at the Pahoa Bypass Road/Homestead Road/Post Office Road intersection, the eastbound left-turn is still expected to operate at LOS F, but under capacity during the AM and PM peak hours of traffic. The eastbound through/right-turn lane is expected to operate at LOS D and LOS C during the AM and PM peak hours of traffic, respectively.

A preliminary signal warrant analysis was conducted and a traffic signal is not expected to be warranted at the Pahoa Bypass Road/Homestead Road/Post Office Road intersection under Future Year 2041 Alternative 1 conditions.

Due to unknowns regarding future traffic patterns and future development within the study area, actual volumes may differ from the projected Future Year volumes. Additionally, intersection improvements should be coordinated with the surrounding future developments, listed in Section 3.2 above. Therefore, it is recommended that the intersection be monitored and an eastbound left-turn lane should be constructed when appropriate under Future Year 2041 Alternative 1 conditions.

Table 4.5 shows a summary of the Future Year 2041 Alternative 1 Mitigated delay, v/c ratio, and LOS. LOS worksheets are provided in Appendix C.

Table 4.5 LOS Summary Future Year 2041 Alternative 1 Mitigated

Intersection	Future Year 2041 Alternative 1						Future Year 2041 Alternative 1 Mitigated					
	AM			PM			AM			PM		
	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS
2. Pahoa Bypass Road & Homestead Road/Post Office Road												
NB LT/TH	8.7	0.04	A	9.0	0.06	A	8.7	0.04	A	9.0	0.06	A
EB LT	-	-	-	-	-	-	62.3	0.31	F	145.3	0.93	F
EB TH/RT	-	-	-	-	-	-	32.7	0.20	D	24.8	0.21	C
WB LT/TH/RT	64.2	0.51	F	191.8	1.15	F*	-	-	-	-	-	-
WB RT	12.7	0.14	B	12.3	0.11	B	12.7	0.14	B	12.3	0.11	B
SB LT	9.0	0.09	A	8.7	0.04	A	9.0	0.09	A	8.7	0.04	A
Overall	4.2	-	-	19.8	-	-	3.5	-	-	11.3	-	-
*Denotes overcapacity conditions, v/c >1.0												

4.8.2 Future Year 2041 Mitigated Analysis – Alternative 2

With the addition of an exclusive eastbound left-turn lane at the Pahoa Bypass Road/Homestead Road/Post Office Road intersection, the eastbound left-turn is still expected to operate at LOS F and overcapacity during the PM peak hour of traffic. The eastbound through/right-turn lane is expected to operate at LOS E and LOS D during the AM and PM peak hours of traffic, respectively.

A preliminary signal warrant analysis was conducted and a traffic signal may be warranted at the Pahoa Bypass Road/Homestead Road/Post Office Road intersection under Future Year 2041 Alternative 2 conditions.

Due to unknowns regarding future traffic patterns and future development within the study area, actual volumes may differ from the projected Future Year volumes. Additionally, intersection improvements should be coordinated with the surrounding future developments, listed in Section 3.2 above. Therefore, it is recommended that the intersection be monitored and an eastbound left-turn lane and/or a traffic signal should be constructed when appropriate under Future Year 2041 Alternative 2 conditions.

Table 4.6 shows a summary of the Future Year 2041 Alternative 1 Mitigated delay, v/c ratio, and LOS. LOS worksheets are provided in Appendix C.

Table 4.6 LOS Summary Future Year 2041 Alternative 2 Mitigated

Intersection	Future Year 2041 Alternative 2						Future Year 2041 Alternative 2 Mitigated					
	AM			PM			AM			PM		
	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS	Delay	v/c Ratio	LOS
2. Pahoa Bypass Road & Homestead Road/Post Office Road												
NB LT/TH	8.3	0.00	A	8.7	0.02	A	8.3	0.00	A	8.7	0.02	A
EB LT	-	-	-	-	-	-	115.8	0.49	F	267.4	1.23	F*
EB TH/RT	-	-	-	-	-	-	44.6	0.30	E	27.8	0.28	D
WB LT/TH/RT	132.2	0.79	F	343.9	1.51	F*	-	-	-	-	-	-
WB LT/TH	37.9	0.46	E	35.2	0.51	E	37.9	0.46	E	35.2	0.51	E
WB RT	12.9	0.23	B	12.5	0.19	B	12.9	0.23	B	12.5	0.19	B
SB LT	9.7	0.21	A	8.9	0.10	A	9.7	0.21	A	8.9	0.10	A
Overall	10.3	-	-	37.3	-	-	7.8	-	-	21.1	-	-

*Denotes overcapacity conditions, v/c >1.0

4.9 Recommended Acceleration and Deceleration Lengths

The 2011 AASHTO Green Book provides guidelines for the design and recommendation of auxiliary lanes at intersections, which includes acceleration and deceleration lane lengths. The recommendation for auxiliary lane length is based on the following parameters.

- **Design Speed:** is typically assumed to be 10 mph above the posted speed limit.
 - The posted speed limit on Pahoa Bypass Road is 35 mph in the vicinity of the Project; therefore, a design speed of 45 mph was assumed.
- **Storage Length (for deceleration only):** At unsignalized intersections, storage length is based on the number of turning vehicles likely to arrive in an average two-minute period within the peak hour.
- **Initial Speed (for acceleration only):** The speed the vehicles are traveling at the beginning of the acceleration lane which is assumed to be 14 mph.

- *Taper Length (for acceleration only)*: The 2011 AASHTO Green Book states that "a taper length of approximately 300 ft is suitable for design speeds up to 70 mph", which would equate to a prorated taper length of roughly 110 feet and 195 feet for a design speed of 25 mph and 45 mph, respectively.

The 2011 AASHTO Green Book acknowledges that there may be variances to providing full deceleration or acceleration lengths due to both physical constraints and practicality. Thus, the final deceleration and acceleration lane lengths will need to be verified and approved by the District Engineer.

Based on Table 9-22 of the 2011 AASHTO Green Book, a deceleration length of 115 feet and 350 feet is recommended for a design speed of 25 mph and 45 mph, respectively, which is the "desirable objective on arterial roads and streets and should be incorporated into design, where practical".

4.9.1 Alternative 1

Under Future Year 2041 Alternative 1 conditions, the AASHTO Green Book recommends that the following acceleration and deceleration lengths for the turn lanes, refer to Table 4.7:

[2] Pahoa Bypass Road/Homestead Road/Post Office Road

- Since the northbound right-turn is an uncontrolled movement, it is recommended that at a minimum adequate deceleration length, 350 feet, is provided for the northbound right-turn lane.
- The full desired southbound left-turn lane deceleration length would be 475 feet (125 ft. storage + 350 deceleration length).
- The full desired eastbound left-turn lane deceleration length would be 240 feet (125 ft. storage + 115 deceleration length).

[4] Pahoa Bypass Road/New Project Driveway

- The full desired southbound left-turn lane deceleration length would be 475 feet (125 ft. storage + 350 deceleration length).
- Since the northbound right-turn is an uncontrolled movement, it is recommended that at a minimum adequate deceleration length, 350 feet, is provided for the northbound right-turn lane.
- Given the anticipated low travel speed on campus, the westbound left-turn lane is recommended to provide at least 100 feet of storage.
- Per the 2011 AASHTO Green Book, the recommended acceleration length for the westbound right-turn acceleration lane would be 685 feet (490 feet + 195 feet taper).
 - Due to the close proximity to the Pahoa Bypass Road/Homestead Road/Post Office Road intersection, providing the minimum acceleration length may not be possible. As mentioned above, the AASHTO 2011 Green Book acknowledges that the full acceleration length can't always be provided.
 - Instead, a roughly 405-foot (210 ft. acceleration distance + 195 ft. taper) westbound right-turn acceleration lane can be provided.

- Per the 2011 AASHTO Green Book, the recommended acceleration length for the westbound left-turn acceleration lane is 755 feet (560 feet + 195 feet taper).
 - Alternatively, based on the Transportation Research Board's (TRB) 2014 Access Management Manual, Second Edition, an acceleration length of 440 feet (320 feet + 120 feet taper) would provide sufficient acceleration distance for a speed of 35 mph from a stopped condition. Thus, the acceleration length for the westbound left-turn acceleration lane could be lowered to 440 feet.

Sight distance evaluation at the Project Driveway is not included in this report. Sight distance evaluation should be performed by the designer/engineer once the design is finalized prior to construction.

Table 4.7: Future Year 2041 Alternative 1 Turn Storage Lane Length Calculations

Movement	Peak Hour	Design Volume per lane (veh)	2-min period	Minimum		Decel. Length (ft)	Recommended turn lane length ³
				Storage Length (1.5 factor) ^{1,2}			
				Veh	Ft		
2. Pahoa Bypass Road & Homestead Road/Post Office Road							
NB Right-turn Lane	AM	53	2	3	75	350	350
	PM	25	1	2	50		
SB Left-turn Lane	AM	84	3	5	125	350	475
	PM	40	2	2	50		
EB Left-turn Lane	AM	26	1	2	50	115	240
	PM	89	3	5	125		
4. Pahoa Bypass Road & New Project Driveway							
SB Left-turn Lane	AM	96	4	5	125	350	475
	PM	54	2	3	75		
NB Right-turn Lane	AM	78	3	4	100	350	350
	PM	46	2	3	75		
WB Left-turn Lane	AM	56	2	3	75	-	100
	PM	70	3	4	100		
Notes:							
1. Minimum storage length is 1.5 times the average number of vehicles per cycle; assume 1 vehicle length = 25 ft.							
2. Based on AASHTO Green Book, minimum storage length should accommodate at least two passenger cars.							
3. Recommended storage length is exclusive of taper length or deceleration length. To be verified upon design.							

4.9.2 Alternative 2

Under Future Year 2041 Alternative 2 conditions, the AASHTO Green Book recommends that the following acceleration and deceleration lengths for the turn lanes, refer to Table 4.8:

[2] Pahoa Bypass Road/Homestead Road/Post Office Road

- Since the northbound right-turn is an uncontrolled movement, it is recommended that at a minimum adequate deceleration length, 350 feet, is provided for the northbound right-turn lane.
- The full desired southbound left-turn lane deceleration length would be 600 feet (250 ft. storage + 350 deceleration length).

- The full desired eastbound left-turn lane deceleration length would be 240 feet (125 ft. storage + 115 deceleration length).
- Given the anticipated low travel speed on Homestead Road, the westbound left-turn/through lane is recommended to provide at least 150 feet of storage.
- Per the 2011 AASHTO Green Book, the recommended acceleration length for the westbound left-turn acceleration lane is 755 feet (560 feet + 195 feet taper).
 - As mentioned above, based on the TRB's 2014 Access Management Manual, the acceleration length for the westbound left-turn acceleration lane could be lowered to 440 feet.

Table 4.8: Future Year 2041 Alternative 2 Turn Storage Lane Length Calculations

Movement	Peak Hour	Design Volume per lane (veh)	2-min period	Minimum		Decel. Length (ft)	Recommended turn lane length ³
				Storage Length (1.5 factor) ^{1,2}			
				Veh	Ft		
2. Pahoa Bypass Road & Homestead Road/Post Office Road							
NB Right-turn Lane	AM	118	4	6	150	350	350
	PM	60	2	3	75		
SB Left-turn Lane	AM	186	7	10	250	350	600
	PM	95	4	5	125		
EB Left-turn Lane	AM	26	1	2	50	115	240
	PM	89	3	5	125		
WB Left-turn/Through Lane	AM	84	3	5	125	-	150
	PM	110	4	6	150		
Notes:							
1. Minimum storage length is 1.5 times the average number of vehicles per cycle; assume 1 vehicle length = 25 ft.							
2. Based on AASHTO Green Book, minimum storage length should accommodate at least two passenger cars.							
3. Recommended storage length is exclusive of taper length or deceleration length. To be verified upon design.							

5. RECOMMENDATIONS

5.1 Alternative 1

As shown in Figure 4.5, the AASHTO 2011 Green Book and TRB's 2014 Access Management Manual recommends that the following acceleration and deceleration lengths for the turn lanes under Alternative 1:

[2] Pahoa Bypass Road/Homestead Road/Post Office Road

- Provide a 350-foot northbound right-turn lane.
- Provide a 475-foot southbound left-turn lane.
- Provide a 240-foot eastbound left-turn lane, when appropriate.
- Continue to restrict the westbound left-turn and through movements during the AM and PM school peak hours of traffic.
- Providing a gate at the HAAS PCS driveways along Homestead Road, which would be closed during school hours (i.e., only open during drop-off/pick-up times).

[4] Pahoa Bypass Road/New Project Driveway

- Provide a 475-foot southbound left-turn lane.
- Provide a 350-foot northbound right-turn lane.
- Provide a 100-foot westbound left-turn lane
- Provide a 405-foot westbound right-turn acceleration lane.
- Provide a 440-foot westbound left-turn acceleration lane.

5.2 Alternative 2

As shown in Figure 4.6, the AASHTO 2011 Green Book and TRB's 2014 Access Management Manual recommends that the following acceleration and deceleration lengths for the turn lanes under Alternative 2:

[2] Pahoa Bypass Road/Homestead Road/Post Office Road

- Provide a 350-foot northbound right-turn lane.
- Provide a 600-foot southbound left-turn lane.
- Provide a 240-foot eastbound left-turn lane, when appropriate.
- Provide a 150-foot westbound left-turn/through lane.
- Provide a 440-foot westbound left-turn acceleration lane.
- Monitor the intersection and when appropriate install a traffic signal.

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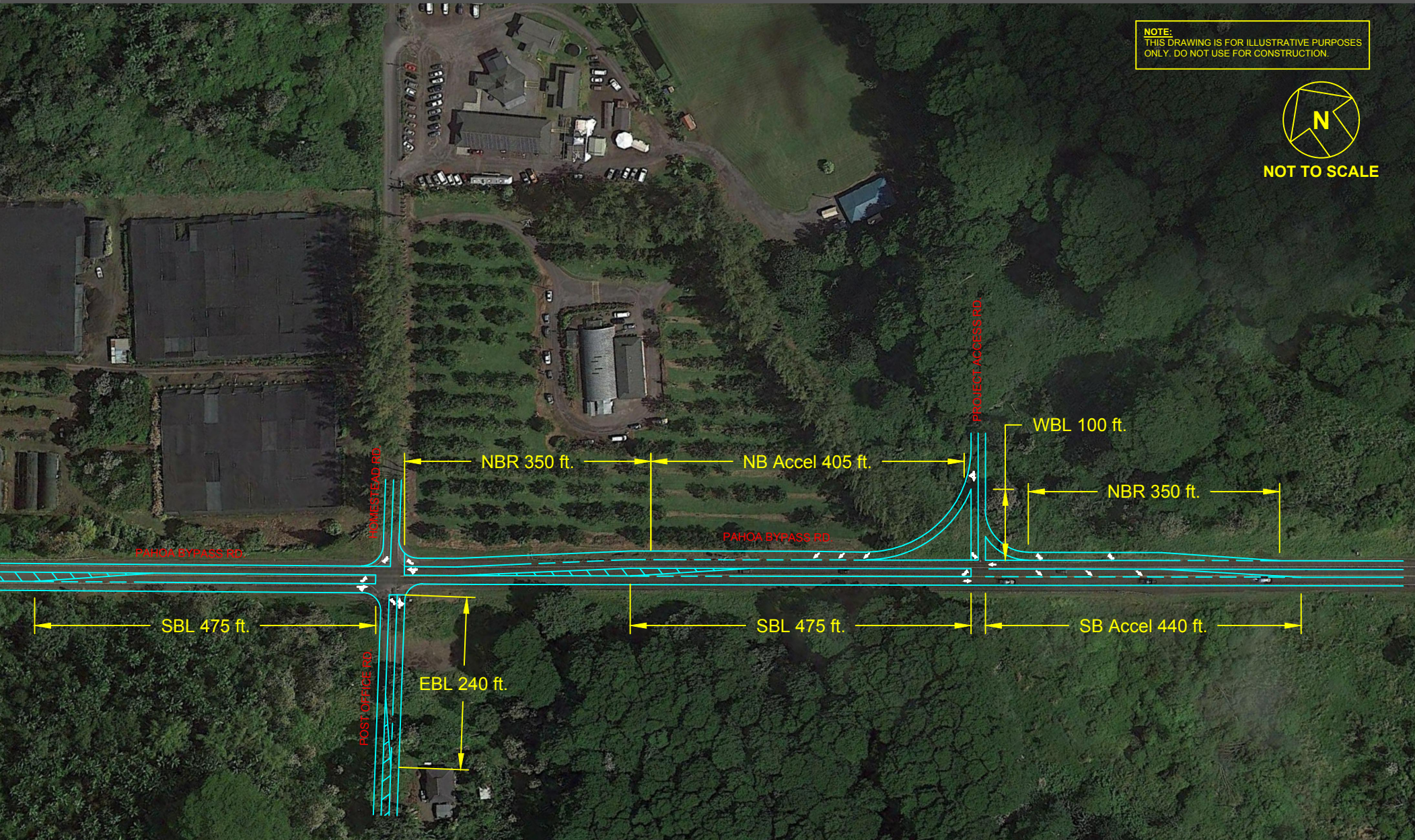


FIGURE 4.5

FUTURE YEAR TURN LANE LENGTHS ALTERNATIVE 1

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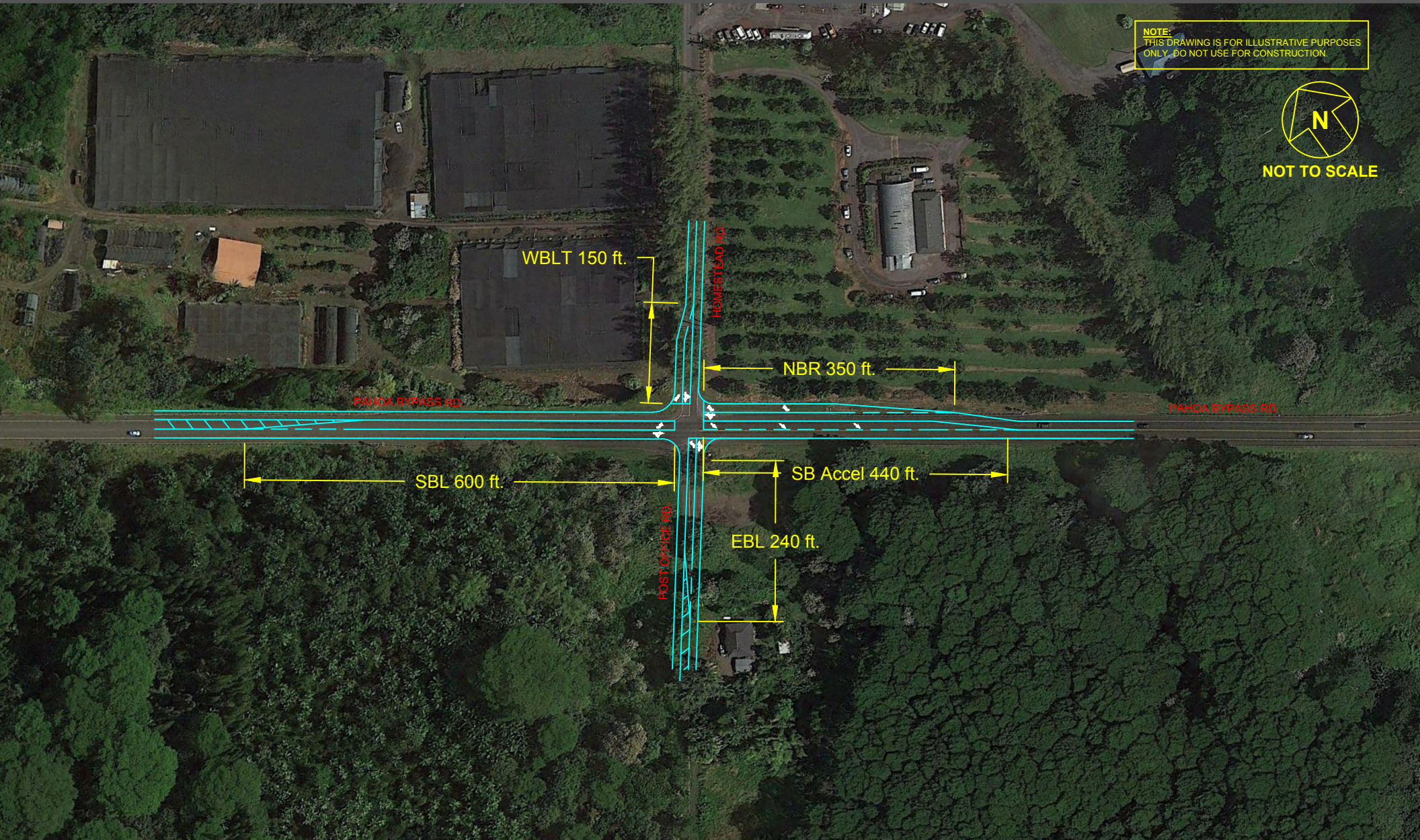


FIGURE 4.6

FUTURE YEAR TURN LANE LENGTHS ALTERNATIVE 2

6. CONCLUSION

The Project proposes to construct a Community Learning Center on the north-east corner of the Pahoa Bypass Road/Homestead Road/Post Office Road intersection. The Community Learning Center will include a new workforce development/technology center, industrial and skilled trades development center, agricultural center, event center/auditorium, vocational school, and outdoor recreational spaces. The HAAS PCS will remain on site. The Project is expected to be constructed in four (4) phases with full buildout estimated by 2031, assuming adequate funding is secured.

Two (2) alternatives were evaluated:

- Alternative 1 – Access to the Project site is assumed to be provided via the existing driveways along Homestead Road and a new full access driveway along Pahoa Bypass Road.
- Alternative 2 - Access to the Project site is assumed to be provided via the existing driveways along Homestead Road.

6.1 Existing Conditions

Pahoa Bypass Road serves the lower Puna district from Keaau to Kalapana-Kaimu. There are limited pedestrian and bicycle facilities throughout the study area. There is one (1) bus route that travels between Hilo and Pahoa/Kalapana.

Due to the prolonged disruptions to both residential and visitor traffic in the Puna district as a result of the impacts of COVID-19, instead of collecting new traffic count data, most recently available traffic volume data from the HDOT and previous traffic studies were used to estimate the existing 2021 traffic volumes at the study intersections.

Under Existing 2021 conditions, all movements at the study intersections operate at LOS D or better during both the AM and PM peak hours of traffic, except for the eastbound approach at the Pahoa Bypass/Homestead Road/Post Office Road intersection, which operates at LOS E(F) during the AM(PM) peak hour of traffic.

6.2 Base Year Conditions

Under Base Year 2026 conditions, all movements at the study intersections are expected to continue operating similar to existing conditions during the AM and PM peak hours of traffic.

Under Base Year 2031 conditions, all movements at the study intersections are expected to continue operating similar to Base Year 2026 conditions during the AM and PM peak hours of traffic, except for the eastbound approach at the Pahoa Bypass/Homestead Road/Post Office Road intersection, which is expected to operate at LOS F during the AM peak hour of traffic.

Under Base Year 2041 conditions, all movements at the study intersections are expected to continue operating similar to Base Year 2031 conditions during the AM and PM peak hours of traffic, except for the following movements:

- The westbound left-turn at the Pahoa Bypass Road/Kahakai Boulevard intersection is expected to operate at LOS E during the PM peak hour of traffic.

- The eastbound approach at the Pahoa Bypass Road/Homestead Road/Post Office Road intersection is expected to operate at over capacity conditions during the PM peak hour of traffic.

The reduction of LOS can be attributed to the volume increases due to the three (3) background developments and projected ambient growth.

6.3 Future Year Conditions

The Project is projected to generate 151(135) new external trips during the AM(PM) peak hours of traffic.

6.3.1 Required Roadway Improvements

It is expected that the conditions of approval identified for the previous 2011 ASC Special Permit Application (SPP 11-000115) would be carried forward to the updated 2021/2022 Special Permit Application. The conditions of approval identified in 2011 include the following improvements at the Pahoa Bypass/Homestead Road/Post Office Road intersection:

- Provide a westbound right-turn and westbound shared left-turn/through lane.
- Construct a southbound left-turn lane.
- Construct a westbound left-turn acceleration lane.
- Construct a northbound right-turn lane.
- Provide a traffic signal at the Pahoa Bypass/Homestead Road/Post Office Road intersection if required by the Department of Transportation.

6.3.2 Future Year Alternative 1

Under Future Year 2026(2031)[2041] Alternative 1 conditions, all movements at the study intersections are expected to continue operating similar to Base Year 2026(2031)[2041] conditions during the AM and PM peak hours of traffic. The eastbound approach at the Pahoa Bypass Road/Homestead Road/Post Office Road intersection is expected to operate at LOS F and/or at over capacity conditions during the AM and PM peak hours of traffic.

With the addition of an exclusive eastbound left-turn lane, under Future Year 2041 Alternative 1 conditions the eastbound left-turn is still expected to operate at LOS F, but under capacity during the AM and PM peak hours of traffic. Due to the low Project volume increase on the eastbound approach and unknowns regarding future traffic patterns and future development, it is recommended that the Pahoa Bypass Road/Homestead Road/Post Office Road intersection be monitored and an eastbound left-turn lane should be constructed when appropriate under Future Year 2041 Alternative 1 conditions.

6.3.3 Future Year Alternative 2

Under Future Year 2026(2031) Alternative 2 conditions, all movements at the study intersections are expected to continue operating similar to Base Year 2026(2031) conditions except for the eastbound approach at the Pahoa Bypass Road/Homestead Road/Post Office Road intersection, which is expected to operate at LOS F and/or at over capacity conditions during the AM and PM peak hours of traffic. Under Future Year 2041 Alternative 2 conditions, all movements at the study intersections are expected to continue operating similar to Base Year 2041 conditions during the AM and PM peak hours of traffic.

With the addition of an exclusive eastbound left-turn lane, under Future Year 2031 Alternative 2 conditions the eastbound left-turn is still expected to operate at LOS F and overcapacity conditions during the PM peak hour of traffic. A preliminary signal warrant analysis was conducted and a traffic signal may be warranted at the Pahoia Bypass Road/Homestead Road/Post Office Road intersection under Future Year 2031 and 2041 Alternative 2 conditions.

Due to the unknowns regarding future traffic patterns and future development, it is recommended that the intersection be monitored and an eastbound left-turn lane and/or a traffic signal should be constructed when appropriate under Future Year 2031 Alternative 2 conditions.

6.4 Recommendations

6.4.1 Alternative 1

As shown in Figure 4.5, the AASHTO 2011 Green Book and TRB's 2014 Access Management Manual recommends that the following acceleration and deceleration lengths for the turn lanes under Alternative 1:

[2] Pahoia Bypass Road/Homestead Road/Post Office Road

- Provide a 350-foot northbound right-turn lane.
- Provide a 475-foot southbound left-turn lane.
- Provide a 240-foot eastbound left-turn lane, when appropriate.
- Continue to restrict the westbound left-turn and through movements during the AM and PM school peak hours of traffic.
- Providing a gate at the HAAS PCS driveways along Homestead Road, which would be closed during school hours (i.e., only open during drop-off/pick-up times).

[4] Pahoia Bypass Road/New Project Driveway

- Provide a 475-foot southbound left-turn lane.
- Provide a 350-foot northbound right-turn lane.
- Provide a 100-foot westbound left-turn lane
- Provide a 405-foot westbound right-turn acceleration lane.
- Provide a 440-foot westbound left-turn acceleration lane.

6.4.2 Alternative 2

As shown in Figure 4.6, the AASHTO 2011 Green Book and TRB's 2014 Access Management Manual recommends that the following acceleration and deceleration lengths for the turn lanes under Alternative 2:

[2] Pahoia Bypass Road/Homestead Road/Post Office Road

- Provide a 350-foot northbound right-turn lane.
- Provide a 600-foot southbound left-turn lane.
- Provide a 240-foot eastbound left-turn lane, when appropriate.

- Provide a 150-foot westbound left-turn/through lane.
- Provide a 440-foot westbound left-turn acceleration lane.
- Monitor the intersection and when appropriate install a traffic signal.

However, the 2011 AASHTO Green Book acknowledges that there may be variances to providing full deceleration or acceleration lengths due to both physical constraints and practicality. Thus, the final deceleration and acceleration lane lengths will need to be verified and approved by the District Engineer.

7. REFERENCES

1. Transportation Research Board, Highway Capacity Manual, 6th Edition.
2. Hawaii Department of Transportation, Bike Plan Hawaii Master Plan – Appendix E. Date accessed March 26, 2021.
3. Phillip Rowell and Associates, Hawaii Academy of Arts & Science New Century Public Charter School Draft Traffic Impact Assessment Report, October 24, 2020
4. SSFM International, INC., Keaau-Pahoa Road Improvements Technical Report, January 2011.
5. Fehr & Peers, Pahoa Park Master Plan Traffic Impact Analysis Report, December 23, 2013
6. Institute of Transportation Engineers, Trip Generation, 10th Edition, 2017.
7. The American Association of State Highway and Transportation Officials, A Policy on Geometric Design of Highways and Streets, 2011.
8. Transportation Research Board, Access Management Manual Second Edition, 2014.



APPENDICES



APPENDIX A

LEVEL OF SERVICE CRITERIA

LEVEL OF SERVICE (LOS) CRITERIA

VEHICULAR LEVEL OF SERVICE FOR SIGNALIZED INTERSECTIONS (HCM 6th Edition)

Level of service for vehicles at signalized intersections is directly related to delay values and is assigned on that basis. Level of Service is a measure of the acceptability of delay values to motorists at a given intersection. The criteria are given in the table below.

Level-of Service Criteria for Signalized Intersections

Level of Service	Control Delay per Vehicle (sec./veh.)
A	< 10.0
B	>10.0 and ≤ 20.0
C	>20.0 and ≤ 35.0
D	>35.0 and ≤ 55.0
E	>55.0 and ≤ 80.0
F	> 80.0

Delay is a complex measure, and is dependent on a number of variables, including the quality of progression, the cycle length, the green ratio, and the v/c ratio for the lane group or approach in question.

VEHICULAR LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS (HCM 6th Edition)

The level of service criteria for vehicles at unsignalized intersections is defined as the average control delay, in seconds per vehicle.

LOS delay threshold values are lower for two-way stop-controlled (TWSC) and all-way stop-controlled (AWSC) intersections than those of signalized intersections. This is because more vehicles pass through signalized intersections, and therefore, drivers expect and tolerate greater delays. While the criteria for level of service for TWSC and AWSC intersections are the same, procedures to calculate the average total delay may differ.

Level of Service Criteria for Two-Way Stop-Controlled Intersections

Level of Service	Average Control Delay (sec/veh)
A	≤ 10
B	>10 and ≤15
C	>15 and ≤25
D	>25 and ≤35
E	>35 and ≤50
F	> 50

LEVEL OF SERVICE (LOS) CRITERIA

VEHICULAR LEVEL OF SERVICE FOR SIGNALIZED INTERSECTIONS (HCM 2000)

Level of service for vehicles at signalized intersections is directly related to delay values and is assigned on that basis. Level of Service is a measure of the acceptability of delay values to motorists at a given intersection. The criteria are given in the table below.

Level-of Service Criteria for Signalized Intersections

Level of Service	Control Delay per Vehicle (sec./veh.)
A	≤ 10.0
B	>10.0 and ≤ 20.0
C	>20.0 and ≤ 35.0
D	>35.0 and ≤ 55.0
E	>55.0 and ≤ 80.0
F	> 80.0

Delay is a complex measure, and is dependent on a number of variables, including the quality of progression, the cycle length, the green ratio, and the v/c ratio for the lane group or approach in question.

VEHICULAR LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS (HCM 2000)

The level of service criteria for vehicles at unsignalized intersections is defined as the average control delay, in seconds per vehicle.

LOS delay threshold values are lower for two-way stop-controlled (TWSC) and all-way stop-controlled (AWSC) intersections than those of signalized intersections. This is because more vehicles pass through signalized intersections, and therefore, drivers expect and tolerate greater delays. While the criteria for level of service for TWSC and AWSC intersections are the same, procedures to calculate the average total delay may differ.

Level of Service Criteria for Two-Way Stop-Controlled Intersections

Level of Service	Average Control Delay (sec/veh)
A	≤ 10
B	>10 and ≤ 15
C	>15 and ≤ 25
D	>25 and ≤ 35
E	>35 and ≤ 50
F	> 50



APPENDIX B

TRAFFIC COUNT DATA



APPENDIX B

TRAFFIC COUNT DATA

HDOT 24-hour Traffic Volume Data

2013 HDOT Volumes

Traffic Data Service

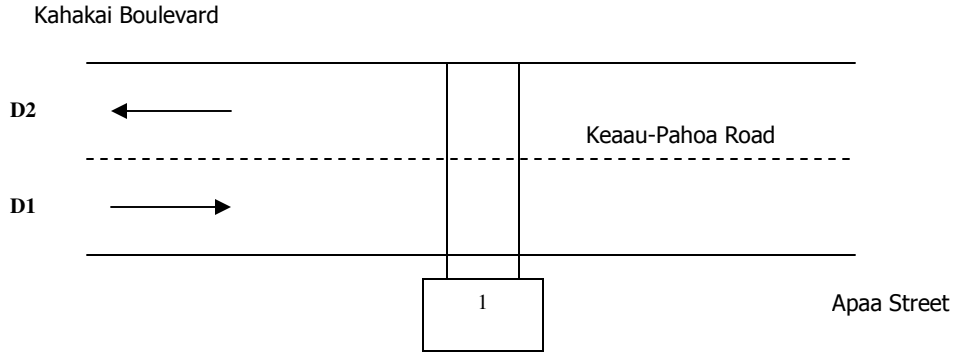
Traffic Station Sketch



Section ID/Station #: B7101340000

Island: Hawaii

Area: Hilo



Meter #
1. v241

File Name
D0203023_B7101340000
D0203024_B7101340000

GPS
19.50100, 154.95455

Station Description: Keaau-Paho Road: Kahakai Boulevard to Apaa Street					
Survey Beginning Date/Time: 2/3/2010 @ 0000			Survey Ending Date/Time: 2/4/2010 @ 2400		
Survey Method:	Road Tube	Data Type:	Class		
Survey Crew:	LM	C1B			
Sketch Updated:	By:			SR	
Remarks:					
FACILITY NAME	JURI	FUNC CLASS	AREA TYPE	ROUTE NO.	ROUTE MILE
Keaau-Paho Road		7		0134	
D1= Direction to End D2= Direction to Begin			D1: Apaa Street / Pahoia Bypass D2: Kahakai Boulevard / Keaau Pahoia Road		

Run Date: 2010/11/30

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2010 Program Count - Summary

Site ID: B71013400000

Functional Class: RURAL:MAJOR COLLECTOR

Location: Pahoia Rd. between Kahakai Blvd_Old Ce

Town: Hawaii
 Count Type: CLASS

DIR 1: +MP DIR 2: -MP
 Counter Type: Tube

Final AADT: 0
 Route No: 134

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 02/03/2010															
12:00-12:15	6	3	9	06:00-06:15	11	10	21	12:00-12:15	66	42	108	06:00-06:15	55	30	85
12:15-12:30	2	1	3	06:15-06:30	15	10	25	12:15-12:30	78	70	148	06:15-06:30	54	30	84
12:30-12:45	2	2	4	06:30-06:45	26	29	55	12:30-12:45	76	82	158	06:30-06:45	35	47	82
12:45-01:00	0	1	1	06:45-07:00	34	21	55	12:45-01:00	79	64	143	06:45-07:00	30	30	60
01:00-01:15	0	0	0	07:00-07:15	36	24	60	01:00-01:15	83	67	150	07:00-07:15	31	25	56
01:15-01:30	3	1	4	07:15-07:30	47	46	93	01:15-01:30	87	70	157	07:15-07:30	29	25	54
01:30-01:45	1	1	2	07:30-07:45	68	57	125	01:30-01:45	74	92	166	07:30-07:45	16	17	33
01:45-02:00	2	1	3	07:45-08:00	64	49	113	01:45-02:00	99	80	179	07:45-08:00	22	13	35
02:00-02:15	1	2	3	08:00-08:15	44	52	96	02:00-02:15	80	67	147	08:00-08:15	9	18	27
02:15-02:30	1	1	2	08:15-08:30	62	57	119	02:15-02:30	67	64	131	08:15-08:30	17	26	43
02:30-02:45	0	2	2	08:30-08:45	57	59	116	02:30-02:45	84	73	157	08:30-08:45	17	19	36
02:45-03:00	0	1	1	08:45-09:00	48	63	111	02:45-03:00	80	64	144	08:45-09:00	8	20	28
03:00-03:15	2	1	3	09:00-09:15	54	56	110	03:00-03:15	91	48	139	09:00-09:15	16	20	36
03:15-03:30	0	2	2	09:15-09:30	64	64	128	03:15-03:30	76	70	146	09:15-09:30	23	10	33
03:30-03:45	1	2	3	09:30-09:45	53	56	109	03:30-03:45	84	69	153	09:30-09:45	15	5	20
03:45-04:00	1	2	3	09:45-10:00	69	62	131	03:45-04:00	82	62	144	09:45-10:00	18	8	26
04:00-04:15	0	2	2	10:00-10:15	69	55	124	04:00-04:15	62	46	108	10:00-10:15	7	5	12
04:15-04:30	5	1	6	10:15-10:30	67	73	140	04:15-04:30	71	66	137	10:15-10:30	7	5	12
04:30-04:45	4	5	9	10:30-10:45	47	60	107	04:30-04:45	79	42	121	10:30-10:45	6	13	19
04:45-05:00	1	6	7	10:45-11:00	61	54	115	04:45-05:00	60	55	115	10:45-11:00	5	6	11
05:00-05:15	3	5	8	11:00-11:15	48	56	104	05:00-05:15	74	50	124	11:00-11:15	8	2	10
05:15-05:30	2	5	7	11:15-11:30	80	60	140	05:15-05:30	55	38	93	11:15-11:30	4	3	7
05:30-05:45	3	7	10	11:30-11:45	67	72	139	05:30-05:45	64	47	111	11:30-11:45	0	5	5
05:45-06:00	7	6	13	11:45-12:00	82	72	154	05:45-06:00	63	39	102	11:45-12:00	2	2	4

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2
TWO DIRECTIONAL PEAK			TWO DIRECTIONAL PEAK		
AM - PEAK HR TIME	07:30 AM to 08:30 AM		PM - PEAK HR TIME	03:00 PM to 04:00 PM	
AM - PEAK HR VOLUME	238	215	PM - PEAK HR VOLUME	333	249
AM - K FACTOR (%)	6.77		PM - K FACTOR (%)	8.69	
AM - D (%)	52.54	47.46	PM - D (%)	57.22	42.78
DIRECTIONAL PEAK			DIRECTIONAL PEAK		
AM - PEAK HR TIME	07:30 AM to 08:30 AM	08:00 AM to 09:00 AM	PM - PEAK HR TIME	03:00 PM to 04:00 PM	03:00 PM to 04:00 PM
AM - PEAK HR VOLUME	238	231	PM - PEAK HR VOLUME	333	249

AM PERIOD (00:00-12:00)	PM PERIOD (12:00-24:00)
TWO DIRECTIONAL PEAK	
AM - PEAK HR TIME	11:00 AM to 12:00 PM
AM - PEAK HR VOLUME	277
AM - K FACTOR (%)	8.02
AM - D (%)	51.58
TWO DIRECTIONAL PEAK	
PM - PEAK HR TIME	01:00 PM to 02:00 PM
PM - PEAK HR VOLUME	343
PM - K FACTOR (%)	9.74
PM - D (%)	52.61

NON-COMMUTER PERIOD (09:00-15:00)	6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	Total				
TWO DIRECTIONAL PEAK								
PEAK HR TIME	01:00 PM to 02:00 PM	AM 6-HR PERIOD (06:00-12:00)	1,273	1,217	2,490			
PEAK HR VOLUME	343	309	652	AM 12-HR PERIOD (00:00-12:00)	1,320	1,277	2,597	
DIRECTIONAL PEAK								
PEAK HR TIME	01:00 PM to 02:00 PM	01:00 PM to 02:00 PM	PM 6-HR PERIOD (12:00-18:00)	1,814	1,467	3,281		
PEAK HR VOLUME	343	309	PM 12-HR PERIOD (12:00-24:00)	2,248	1,851	4,099		
					24 HOUR PERIOD	3,568	3,128	6,696
					D (%)	53.29	46.71	100.00

Run Date: 2010/11/30

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2010 Program Count - Summary

Site ID: B71013400000

Functional Class: RURAL:MAJOR COLLECTOR

Location: Pahoia Rd. between Kahakai Blvd_Old Ce

Town: Hawaii
 Count Type: CLASS

DIR 1: +MP DIR 2: -MP
 Counter Type: Tube

Final AADT: 0
 Route No: 134

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 02/04/2010															
12:00-12:15	2	4	6	06:00-06:15	16	12	28	12:00-12:15	71	74	145	06:00-06:15	67	44	111
12:15-12:30	3	3	6	06:15-06:30	12	11	23	12:15-12:30	63	62	125	06:15-06:30	57	37	94
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05:45-06:00	7	9	16	11:45-12:00	70	55	125	05:45-06:00	64	41	105	11:45-12:00	4	7	11

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2
TWO DIRECTIONAL PEAK		TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:30 AM to 08:30 AM		PM - PEAK HR TIME	03:30 PM to 04:30 PM	
AM - PEAK HR VOLUME	243	194	PM - PEAK HR VOLUME	321	254
AM - K FACTOR (%)	6.67		PM - K FACTOR (%)	8.78	
AM - D (%)	55.61	44.39	PM - D (%)	55.83	44.17
DIRECTIONAL PEAK		DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:15 AM to 08:15 AM	07:30 AM to 08:30 AM	PM - PEAK HR TIME	03:30 PM to 04:30 PM	03:00 PM to 04:00 PM
AM - PEAK HR VOLUME	245	194	PM - PEAK HR VOLUME	321	258

AM PERIOD (00:00-12:00)	PM PERIOD (12:00-24:00)
TWO DIRECTIONAL PEAK	
AM - PEAK HR TIME	10:00 AM to 11:00 AM
AM - PEAK HR VOLUME	240
AM - K FACTOR (%)	7.54
AM - D (%)	48.58
TWO DIRECTIONAL PEAK	
PM - PEAK HR TIME	01:30 PM to 02:30 PM
PM - PEAK HR VOLUME	314
PM - K FACTOR (%)	9.13
PM - D (%)	52.51

NON-COMMUTER PERIOD (09:00-15:00)	6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	Total
TWO DIRECTIONAL PEAK				
PEAK HR TIME	01:30 PM to 02:30 PM	AM 6-HR PERIOD (06:00-12:00)	1,199	1,101
PEAK HR VOLUME	314	AM 12-HR PERIOD (00:00-12:00)	1,254	1,162
DIRECTIONAL PEAK		PM 6-HR PERIOD (12:00-18:00)	1,740	1,405
PEAK HR TIME	01:00 PM to 02:00 PM	PM 12-HR PERIOD (12:00-24:00)	2,252	1,883
PEAK HR VOLUME	316	24 HOUR PERIOD	3,506	3,045
		D (%)	53.52	46.48
				100.00

Traffic Data Service

Traffic Station Sketch

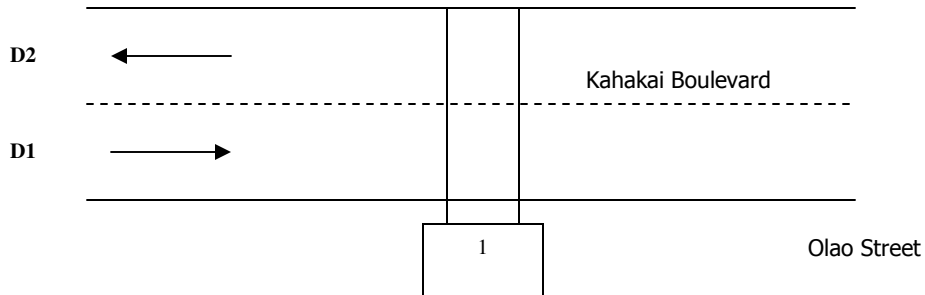


Section ID/Station #: B7101380000

Island: Hawaii

Area: Paho

Auina Street



Meter #
1. w786

File Name
D0712001_B7101380000
D0712002_B7101380000

GPS
19.50818, -154.94758

Station Description:
Kahakai Boulevard: Auina Street to Olao Street

Survey Beginning Date/Time:
7/12/2010 @ 0000

Survey Ending Date/Time:
7/13/2010 @ 2400

Survey Method:	Road Tube	Data Type:	Class
Survey Crew:	LM		C1B
Sketch Updated:		By:	SR

Remarks:

FACILITY NAME	JURI	FUNC CLASS	AREA TYPE	ROUTE	
				NO.	MILE
Kahakai Boulevard		7		0138	

D1= Direction to End
D2= Direction to Begin

D1: Olao Street / End of Kahakai Boulevard
D2: Auina Street / Keaau-Paho Road (Rte 130)

Run Date: 2011/02/10

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2010 Program Count - Summary

Site ID: B71013800000
Functional Class: RURAL:MAJOR COLLECTOR
Location: Kakajai Blvd b/t Auina Rd. _Ola'o St

Town: Hawaii
Count Type: CLASS

DIR 1: +MP **DIR 2: -MP**
Counter Type: Tube

Final AADT: 0
Route No: 138

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL				
DATE : 07/12/2010																			
12:00-12:15	7	1	8	06:00-06:15	8	45	53	12:00-12:15	49	65	114	06:00-06:15	68	27	95				
12:15-12:30	11	4	15	06:15-06:30	8	41	49	12:15-12:30	52	44	96	06:15-06:30	49	26	75				
12:30-12:45	8	4	12	06:30-06:45	14	62	76	12:30-12:45	39	63	102	06:30-06:45	50	19	69				
12:45-01:00	3	1	4	06:45-07:00	12	68	80	12:45-01:00	59	50	109	06:45-07:00	62	23	85				
01:00-01:15	0	0	0	07:00-07:15	16	57	73	01:00-01:15	46	44	90	07:00-07:15	41	25	66				
01:15-01:30	3	1	4	07:15-07:30	24	67	91	01:15-01:30	49	57	106	07:15-07:30	31	23	54				
01:30-01:45	4	3	7	07:30-07:45	25	69	94	01:30-01:45	58	41	99	07:30-07:45	41	24	65				
01:45-02:00	1	2	3	07:45-08:00	38	84	122	01:45-02:00	44	48	92	07:45-08:00	34	23	57				
02:00-02:15	0	1	1	08:00-08:15	34	72	106	02:00-02:15	52	37	89	08:00-08:15	27	21	48				
02:15-02:30	1	1	2	08:15-08:30	18	58	76	02:15-02:30	60	39	99	08:15-08:30	27	17	44				
02:30-02:45	0	0	0	08:30-08:45	34	58	92	02:30-02:45	64	34	98	08:30-08:45	40	12	52				
02:45-03:00	2	1	3	08:45-09:00	28	43	71	02:45-03:00	63	49	112	08:45-09:00	27	13	40				
03:00-03:15	2	2	4	09:00-09:15	29	53	82	03:00-03:15	63	59	122	09:00-09:15	21	22	43				
03:15-03:30	0	0	0	09:15-09:30	40	50	90	03:15-03:30	53	51	104	09:15-09:30	17	13	30				
03:30-03:45	0	6	6	09:30-09:45	40	47	87	03:30-03:45	72	40	112	09:30-09:45	22	5	27				
03:45-04:00	0	3	3	09:45-10:00	38	76	114	03:45-04:00	65	33	98	09:45-10:00	26	6	32				
04:00-04:15	1	3	4	10:00-10:15	32	55	87	04:00-04:15	70	35	105	10:00-10:15	20	12	32				
04:15-04:30	1	9	10	10:15-10:30	31	47	78	04:15-04:30	56	32	88	10:15-10:30	15	12	27				
04:30-04:45	1	8	9	10:30-10:45	41	55	96	04:30-04:45	65	34	99	10:30-10:45	10	9	19				
04:45-05:00	0	19	19	10:45-11:00	42	45	87	04:45-05:00	65	43	108	10:45-11:00	9	8	17				
05:00-05:15	1	15	16	11:00-11:15	27	60	87	05:00-05:15	65	33	98	11:00-11:15	10	3	13				
05:15-05:30	0	17	17	11:15-11:30	51	51	102	05:15-05:30	75	42	117	11:15-11:30	10	5	15				
05:30-05:45	7	36	43	11:30-11:45	45	39	84	05:30-05:45	71	26	97	11:30-11:45	14	3	17				
05:45-06:00	12	23	35	11:45-12:00	56	45	101	05:45-06:00	55	32	87	11:45-12:00	6	3	9				
AM COMMUTER PERIOD (05:00-09:00)			DIR 1	DIR 2			PM COMMUTER PERIOD (15:00-19:00)			DIR 1	DIR 2								
TWO DIRECTIONAL PEAK																			
AM - PEAK HR TIME				07:15 AM to 08:15 AM				PM - PEAK HR TIME				03:00 PM to 04:00 PM							
AM - PEAK HR VOLUME				121				292				413							
AM - K FACTOR (%)								7.15				7.55							
AM - D (%)				29.30				70.70				100.00							
DIRECTIONAL PEAK																			
AM - PEAK HR TIME				07:45 AM to 08:45 AM				07:15 AM to 08:15 AM				PM - PEAK HR TIME				04:45 PM to 05:45 PM			
AM - PEAK HR VOLUME				124				292				276				183			
AM PERIOD (00:00-12:00)																			
TWO DIRECTIONAL PEAK																			
AM - PEAK HR TIME				07:15 AM to 08:15 AM				PM - PEAK HR TIME				02:45 PM to 03:45 PM							
AM - PEAK HR VOLUME				121				292				413							
AM - K FACTOR (%)								7.15				7.79							
AM - D (%)				29.30				70.70				100.00							
NON-COMMUTER PERIOD (09:00-15:00)																			
TWO DIRECTIONAL PEAK																			
PEAK HR TIME				12:00 PM to 01:00 PM				6-HR, 12-HR, 24-HR PERIODS				DIR 1 DIR 2 Total							
PEAK HR VOLUME				199				222				421							
DIRECTIONAL PEAK																			
PEAK HR TIME				02:00 PM to 03:00 PM				09:45 AM to 10:45 AM				24 HOUR PERIOD							
PEAK HR VOLUME				239				233				49.92 50.08 100.00							

Run Date: 2011/02/10

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2010 Program Count - Summary


Site ID: B71013800000
Functional Class: RURAL:MAJOR COLLECTOR
Location: Kakajai Blvd b/t Auina Rd. _Ola'o St

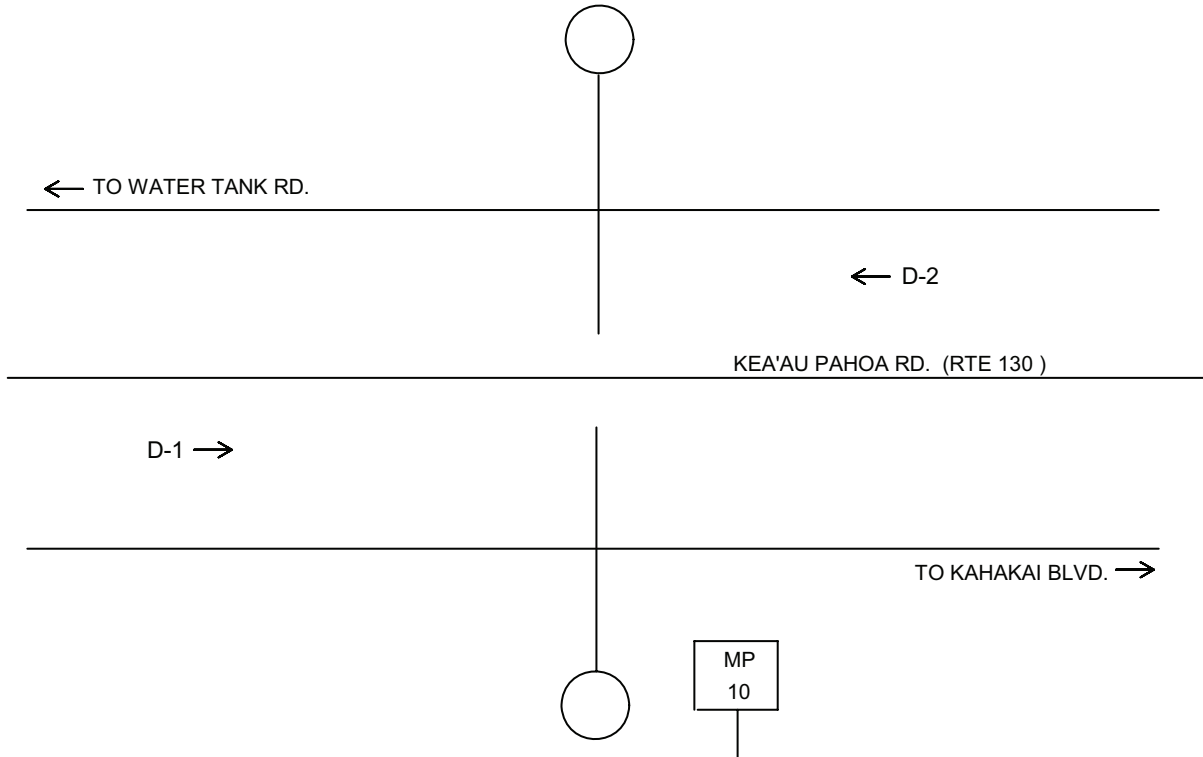
Town: Hawaii
Count Type: CLASS

DIR 1: +MP **DIR 2:** -MP
Counter Type: Tube

Final AADT: 0
Route No: 138

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 07/13/2010															
12:00-12:15	9	6	15	06:00-06:15	4	40	44	12:00-12:15	43	50	93	06:00-06:15	63	30	93
12:15-12:30	7	0	7	06:15-06:30	9	45	54	12:15-12:30	46	55	101	06:15-06:30	40	37	77
12:30-12:45	4	2	6	06:30-06:45	15	56	71	12:30-12:45	44	57	101	06:30-06:45	50	40	90
12:45-01:00	2	1	3	06:45-07:00	20	50	70	12:45-01:00	47	41	88	06:45-07:00	48	25	73
01:00-01:15	0	5	5	07:00-07:15	16	65	81	01:00-01:15	50	49	99	07:00-07:15	35	26	61
01:15-01:30	2	2	4	07:15-07:30	18	53	71	01:15-01:30	36	49	85	07:15-07:30	30	33	63
01:30-01:45	3	2	5	07:30-07:45	26	63	89	01:30-01:45	66	43	109	07:30-07:45	47	29	76
01:45-02:00	1	0	1	07:45-08:00	31	86	117	01:45-02:00	57	52	109	07:45-08:00	33	22	55
02:00-02:15	1	0	1	08:00-08:15	29	56	85	02:00-02:15	46	46	92	08:00-08:15	33	18	51
02:15-02:30	0	0	0	08:15-08:30	19	57	76	02:15-02:30	46	42	88	08:15-08:30	35	16	51
02:30-02:45	2	2	4	08:30-08:45	41	49	90	02:30-02:45	54	49	103	08:30-08:45	32	7	39
02:45-03:00	2	2	4	08:45-09:00	33	46	79	02:45-03:00	64	52	116	08:45-09:00	41	14	55
03:00-03:15	1	3	4	09:00-09:15	31	55	86	03:00-03:15	58	43	101	09:00-09:15	32	20	52
03:15-03:30	2	1	3	09:15-09:30	35	58	93	03:15-03:30	65	46	111	09:15-09:30	24	15	39
03:30-03:45	2	4	6	09:30-09:45	33	52	85	03:30-03:45	63	32	95	09:30-09:45	30	11	41
03:45-04:00	1	3	4	09:45-10:00	45	57	102	03:45-04:00	67	40	107	09:45-10:00	19	14	33
04:00-04:15	1	7	8	10:00-10:15	29	56	85	04:00-04:15	54	29	83	10:00-10:15	18	6	24
04:15-04:30	0	12	12	10:15-10:30	43	55	98	04:15-04:30	64	32	96	10:15-10:30	22	10	32
04:30-04:45	0	9	9	10:30-10:45	41	45	86	04:30-04:45	50	41	91	10:30-10:45	11	5	16
04:45-05:00	2	14	16	10:45-11:00	42	45	87	04:45-05:00	74	24	98	10:45-11:00	8	7	15
05:00-05:15	1	15	16	11:00-11:15	49	43	92	05:00-05:15	80	44	124	11:00-11:15	7	7	14
05:15-05:30	4	29	33	11:15-11:30	43	33	76	05:15-05:30	73	33	106	11:15-11:30	6	2	8
05:30-05:45	5	32	37	11:30-11:45	39	55	94	05:30-05:45	66	26	92	11:30-11:45	9	3	12
05:45-06:00	10	36	46	11:45-12:00	41	49	90	05:45-06:00	66	26	92	11:45-12:00	8	3	11
AM COMMUTER PERIOD (05:00-09:00)			DIR 1	DIR 2			PM COMMUTER PERIOD (15:00-19:00)			DIR 1	DIR 2				
TWO DIRECTIONAL PEAK			07:45 AM to 08:45 AM			TWO DIRECTIONAL PEAK			04:45 PM to 05:45 PM						
AM - PEAK HR TIME						PM - PEAK HR TIME									
AM - PEAK HR VOLUME			120	248		368		PM - PEAK HR VOLUME			293	127		420	
AM - K FACTOR (%)						6.44			PM - K FACTOR (%)			7.35			
AM - D (%)			32.61	67.39		100.00		PM - D (%)			69.76	30.24		100.00	
DIRECTIONAL PEAK			08:00 AM to 09:00 AM			07:00 AM to 08:00 AM			04:45 PM to 05:45 PM			03:00 PM to 04:00 PM			
AM - PEAK HR TIME															
AM - PEAK HR VOLUME			122	267					293			161			
AM PERIOD (00:00-12:00)						PM PERIOD (12:00-24:00)									
TWO DIRECTIONAL PEAK			09:45 AM to 10:45 AM			TWO DIRECTIONAL PEAK			02:30 PM to 03:30 PM						
AM - PEAK HR TIME						PM - PEAK HR TIME									
AM - PEAK HR VOLUME			158	213		371		PM - PEAK HR VOLUME			241	190		431	
AM - K FACTOR (%)						6.50			PM - K FACTOR (%)			7.55			
AM - D (%)			42.59	57.41		100.00		PM - D (%)			55.92	44.08		100.00	
NON-COMMUTER PERIOD (09:00-15:00)						6-HR, 12-HR, 24-HR PERIODS			DIR 1	DIR 2	Total				
TWO DIRECTIONAL PEAK			01:00 PM to 02:00 PM			AM 6-HR PERIOD (06:00-12:00)			732	1,269	2,001				
PEAK HR TIME						AM 12-HR PERIOD (00:00-12:00)			794	1,456	2,250				
PEAK HR VOLUME			209	193		402		PM 6-HR PERIOD (12:00-18:00)			1,379	1,001	2,380		
DIRECTIONAL PEAK			01:30 PM to 02:30 PM			09:15 AM to 10:15 AM			PM 12-HR PERIOD (12:00-24:00)			2,060	1,401	3,461	
PEAK HR TIME									24 HOUR PERIOD			2,854	2,857	5,711	
PEAK HR VOLUME			215	223		D (%)					49.97	50.03	100.00		


ISLAND: HAWAII
AREA: PAHOA



Station No:	B71 0130 00771
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Station Location:			
Kea'au Pahoa Road between Water Tank Road and Kahakai Boulevard at 10 milepost			
Station Mileage:	10.69	GPS Coord (Latitude):	
		GPS Coord (Longitude):	
Begin Survey (Date/Time):		End Survey (Date/Time):	
Survey Method:	LOOP HOSE OTHER	Survey Type:	VOL CLASS SPEED OTHER
Survey Crew:		Module No.:	

HPMS DATA							
Segment Description:							
KEA'AU PAHOA ROAD - AINALOA BOULEVARD TO KAHAKAI BOULEVARD							
Segment Begin LRS	7.71	Segment End LRS	10.88	Length	3.17		
Facility Name	Juris	Func Class	Area Type	Route		D-1 = Direction to End of Route	
				No.	Mile	D-2 = Direction to Beginning of Route	
KEA'AU PAHOA ROAD	S	6	1	130	10.69	D-1	TOKAIMU-CHAIN OF CRATER ROAD
						D-2	TO VOLCANO ROAD

Sketch By:	C A	Date:	1/30/2006	SLD:	2005
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Run Date: 2010/11/09

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2010 Program Count - Summary

Site ID: B71013000771
Functional Class: RURAL:MINOR ARTERIAL
Location: KEAAU PAHOA RD - AINALA Blvd TO KAH

Town: Hawaii **DIR 1: +MP** **DIR 2:-MP** **Final AADT: 0**
Count Type:VOLUME **Counter Type:** Tube **Route No:** 130

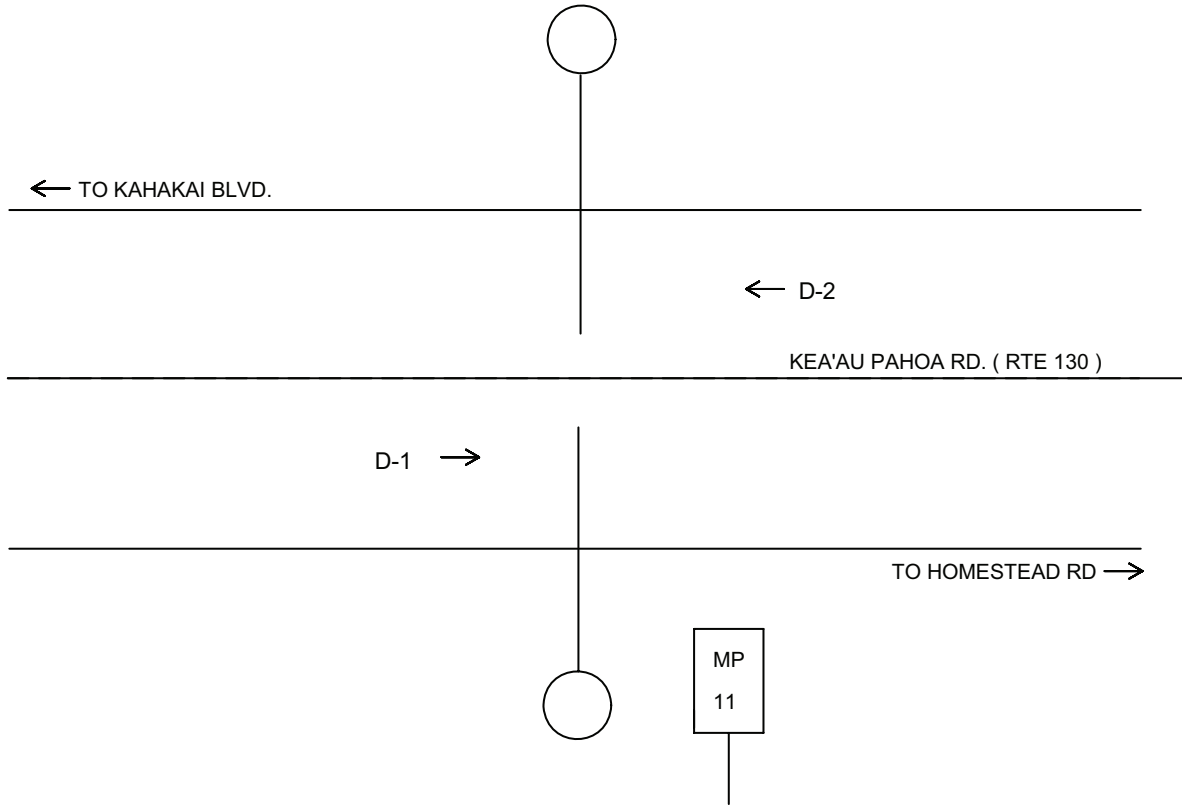
TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 05/26/2010															
12:00-12:15	5	2	7	06:00-06:15	29	84	113	12:00-12:15	124	102	226	06:00-06:15	124	57	181
12:15-12:30	5	7	12	06:15-06:30	34	109	143	12:15-12:30	129	85	214	06:15-06:30	99	71	170
12:30-12:45	3	2	5	06:30-06:45	78	171	249	12:30-12:45	111	102	213	06:30-06:45	122	59	181
12:45-01:00	10	2	12	06:45-07:00	75	153	228	12:45-01:00	129	143	272	06:45-07:00	85	52	137
01:00-01:15	5	1	6	07:00-07:15	105	154	259	01:00-01:15	111	106	217	07:00-07:15	94	65	159
01:15-01:30	3	7	10	07:15-07:30	83	163	246	01:15-01:30	113	113	226	07:15-07:30	103	51	154
01:30-01:45	5	5	10	07:30-07:45	136	146	282	01:30-01:45	115	98	213	07:30-07:45	79	45	124
01:45-02:00	2	4	6	07:45-08:00	141	172	313	01:45-02:00	113	105	218	07:45-08:00	71	48	119
02:00-02:15	2	2	4	08:00-08:15	81	143	224	02:00-02:15	111	102	213	08:00-08:15	73	58	131
02:15-02:30	3	2	5	08:15-08:30	79	140	219	02:15-02:30	133	111	244	08:15-08:30	55	51	106
02:30-02:45	4	6	10	08:30-08:45	85	133	218	02:30-02:45	121	121	242	08:30-08:45	59	27	86
02:45-03:00	2	8	10	08:45-09:00	96	122	218	02:45-03:00	129	105	234	08:45-09:00	77	59	136
03:00-03:15	2	5	7	09:00-09:15	84	111	195	03:00-03:15	148	93	241	09:00-09:15	46	46	92
03:15-03:30	2	8	10	09:15-09:30	78	137	215	03:15-03:30	133	117	250	09:15-09:30	48	37	85
03:30-03:45	8	6	14	09:30-09:45	95	110	205	03:30-03:45	132	118	250	09:30-09:45	40	34	74
03:45-04:00	3	7	10	09:45-10:00	90	121	211	03:45-04:00	133	109	242	09:45-10:00	49	35	84
04:00-04:15	1	8	9	10:00-10:15	69	134	203	04:00-04:15	139	111	250	10:00-10:15	45	28	73
04:15-04:30	1	19	20	10:15-10:30	85	101	186	04:15-04:30	129	121	250	10:15-10:30	30	18	48
04:30-04:45	2	18	20	10:30-10:45	95	111	206	04:30-04:45	138	99	237	10:30-10:45	29	17	46
04:45-05:00	4	34	38	10:45-11:00	86	107	193	04:45-05:00	150	96	246	10:45-11:00	16	8	24
05:00-05:15	5	34	39	11:00-11:15	71	79	150	05:00-05:15	157	106	263	11:00-11:15	20	10	30
05:15-05:30	7	30	37	11:15-11:30	98	106	204	05:15-05:30	129	78	207	11:15-11:30	13	16	29
05:30-05:45	10	59	69	11:30-11:45	108	112	220	05:30-05:45	120	83	203	11:30-11:45	14	6	20
05:45-06:00	18	73	91	11:45-12:00	104	101	205	05:45-06:00	122	76	198	11:45-12:00	5	6	11

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2
TWO DIRECTIONAL PEAK		TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:00 AM to 08:00 AM		PM - PEAK HR TIME	04:15 PM to 05:15 PM	
AM - PEAK HR VOLUME	465	635	PM - PEAK HR VOLUME	574	422
AM - K FACTOR (%)	8.19		PM - K FACTOR (%)	7.41	
AM - D (%)	42.27	57.73	PM - D (%)	57.63	42.37
DIRECTIONAL PEAK		DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:00 AM to 08:00 AM	06:30 AM to 07:30 AM	PM - PEAK HR TIME	04:15 PM to 05:15 PM	03:30 PM to 04:30 PM
AM - PEAK HR VOLUME	465	641	PM - PEAK HR VOLUME	574	459

AM PERIOD (00:00-12:00)	PM PERIOD (12:00-24:00)
TWO DIRECTIONAL PEAK	
AM - PEAK HR TIME	07:00 AM to 08:00 AM
AM - PEAK HR VOLUME	465
AM - K FACTOR (%)	8.19
AM - D (%)	42.27
TWO DIRECTIONAL PEAK	
PM - PEAK HR TIME	04:15 PM to 05:15 PM
PM - PEAK HR VOLUME	574
PM - K FACTOR (%)	7.41
PM - D (%)	57.63

NON-COMMUTER PERIOD (09:00-15:00)	6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	Total
TWO DIRECTIONAL PEAK				
PEAK HR TIME	02:00 PM to 03:00 PM			
PEAK HR VOLUME	494	439	933	
DIRECTIONAL PEAK				
PEAK HR TIME	02:00 PM to 03:00 PM	09:15 AM to 10:15 AM		
PEAK HR VOLUME	494	502		
		AM 6-HR PERIOD (06:00-12:00)	2,085	3,020
		AM 12-HR PERIOD (00:00-12:00)	2,197	3,369
		PM 6-HR PERIOD (12:00-18:00)	3,069	2,500
		PM 12-HR PERIOD (12:00-24:00)	4,465	3,404
		24 HOUR PERIOD	6,662	6,773
		D (%)	49.59	50.41

← Z
ISLAND: HAWAII
AREA: PAHOA



Station No:	B71 0130 01088
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Station Location:			
Kea'au Pahoa Road between Kahakai Boulevard and Homestead Road at 11 milepost			
Station Mileage:	11.66	GPS Coord (Latitude):	
		GPS Coord (Longitude):	
Begin Survey (Date/Time):		End Survey (Date/Time):	
Survey Method:	LOOP HOSE OTHER	Survey Type:	VOL CLASS SPEED OTHER
Survey Crew:		Module No.:	

HPMS DATA							
Segment Description:							
KEA'AU PAHOA ROAD - KAHAKAI BOULEVARD TO OLD PAHOA KAPOHO ROAD							
Segment Begin LRS	10.88	Segment End LRS	12.14	Length	1.26		
Facility Name	Juris	Func Class	Area Type	Route		D-1 = Direction to End of Route	
				No.	Mile	D-2 = Direction to Beginning of Route	
KEA'AU PAHOA ROAD	S	6	1	130	11.66	D-1	TO KAIMU-CHAIN OF CRATER ROAD
						D-2	TO VOLCANO ROAD

Sketch By:	C A	Date:	1/30/2006	SLD:	2005
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Run Date: 2010/11/09

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2010 Program Count - Summary

Site ID: B71013001088

Functional Class: RURAL:MINOR ARTERIAL

Location: KEAAU PAHOA RD - KAHAKAI BLVD TO OLD PAH

Town: Hawaii
 Count Type: VOLUME

DIR 1: +MP DIR 2: -MP
 Counter Type: Tube

Final AADT: 0
 Route No: 130

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 05/25/2010															
12:00-12:15	6	2	8	06:00-06:15	29	48	77	12:00-12:15	64	65	129	06:00-06:15	79	45	124
12:15-12:30	3	3	6	06:15-06:30	28	61	89	12:15-12:30	80	62	142	06:15-06:30	67	47	114
12:30-12:45	6	3	9	06:30-06:45	55	80	135	12:30-12:45	57	61	118	06:30-06:45	55	47	102
12:45-01:00	6	2	8	06:45-07:00	58	100	158	12:45-01:00	81	51	132	06:45-07:00	56	46	102
01:00-01:15	2	0	2	07:00-07:15	75	117	192	01:00-01:15	61	68	129	07:00-07:15	46	42	88
01:15-01:30	3	2	5	07:15-07:30	62	87	149	01:15-01:30	77	74	151	07:15-07:30	47	42	89
01:30-01:45	3	1	4	07:30-07:45	102	86	188	01:30-01:45	83	83	166	07:30-07:45	58	32	90
01:45-02:00	1	0	1	07:45-08:00	83	112	195	01:45-02:00	107	83	190	07:45-08:00	56	28	84
02:00-02:15	2	2	4	08:00-08:15	57	85	142	02:00-02:15	104	99	203	08:00-08:15	36	44	80
02:15-02:30	1	1	2	08:15-08:30	53	81	134	02:15-02:30	85	120	205	08:15-08:30	39	45	84
02:30-02:45	2	2	4	08:30-08:45	47	82	129	02:30-02:45	99	99	198	08:30-08:45	28	23	51
02:45-03:00	3	5	8	08:45-09:00	55	77	132	02:45-03:00	96	95	191	08:45-09:00	27	27	54
03:00-03:15	1	1	2	09:00-09:15	67	62	129	03:00-03:15	84	79	163	09:00-09:15	38	20	58
03:15-03:30	4	4	8	09:15-09:30	45	76	121	03:15-03:30	85	67	152	09:15-09:30	31	14	45
03:30-03:45	1	2	3	09:30-09:45	64	55	119	03:30-03:45	96	109	205	09:30-09:45	21	28	49
03:45-04:00	0	3	3	09:45-10:00	60	83	143	03:45-04:00	98	90	188	09:45-10:00	26	8	34
04:00-04:15	0	4	4	10:00-10:15	54	69	123	04:00-04:15	91	79	170	10:00-10:15	17	22	39
04:15-04:30	1	8	9	10:15-10:30	78	62	140	04:15-04:30	94	89	183	10:15-10:30	14	11	25
04:30-04:45	3	13	16	10:30-10:45	72	59	131	04:30-04:45	86	68	154	10:30-10:45	18	11	29
04:45-05:00	3	14	17	10:45-11:00	63	58	121	04:45-05:00	101	70	171	10:45-11:00	10	9	19
05:00-05:15	8	11	19	11:00-11:15	58	88	146	05:00-05:15	93	73	166	11:00-11:15	11	5	16
05:15-05:30	5	18	23	11:15-11:30	64	57	121	05:15-05:30	94	73	167	11:15-11:30	12	6	18
05:30-05:45	12	20	32	11:30-11:45	63	59	122	05:30-05:45	77	50	127	11:30-11:45	2	6	8
05:45-06:00	15	35	50	11:45-12:00	63	63	126	05:45-06:00	78	46	124	11:45-12:00	5	3	8

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2
TWO DIRECTIONAL PEAK		TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:00 AM to 08:00 AM		PM - PEAK HR TIME	03:30 PM to 04:30 PM	
AM - PEAK HR VOLUME	322	402	PM - PEAK HR VOLUME	379	367
AM - K FACTOR (%)	8.19		PM - K FACTOR (%)	8.44	
AM - D (%)	44.48	55.52	PM - D (%)	50.80	49.20
DIRECTIONAL PEAK		DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:00 AM to 08:00 AM	07:00 AM to 08:00 AM	PM - PEAK HR TIME	03:30 PM to 04:30 PM	03:30 PM to 04:30 PM
AM - PEAK HR VOLUME	322	402	PM - PEAK HR VOLUME	379	367

AM PERIOD (00:00-12:00)	PM PERIOD (12:00-24:00)
TWO DIRECTIONAL PEAK	
AM - PEAK HR TIME	07:00 AM to 08:00 AM
AM - PEAK HR VOLUME	322
AM - K FACTOR (%)	8.19
AM - D (%)	44.48
TWO DIRECTIONAL PEAK	
PM - PEAK HR TIME	02:00 PM to 03:00 PM
PM - PEAK HR VOLUME	384
PM - K FACTOR (%)	9.01
PM - D (%)	48.18

NON-COMMUTER PERIOD (09:00-15:00)	6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	Total	
TWO DIRECTIONAL PEAK					
PEAK HR TIME	02:00 PM to 03:00 PM		AM 6-HR PERIOD (06:00-12:00)	1,455	
PEAK HR VOLUME	384	413	797	1,546	
DIRECTIONAL PEAK					
PEAK HR TIME	01:45 PM to 02:45 PM	02:00 PM to 03:00 PM	AM 12-HR PERIOD (00:00-12:00)	1,963	
PEAK HR VOLUME	395	413	843	3,509	
				PM 6-HR PERIOD (12:00-18:00)	2,071
				PM 12-HR PERIOD (12:00-24:00)	1,853
				24 HOUR PERIOD	3,924
				D (%)	2,870
					2,464
					5,334
					4,416
					4,427
					8,843
					49.94
					50.06
					100.00

Run Date: 2010/11/09

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2010 Program Count - Summary

Site ID: B71013001088

Functional Class: RURAL:MINOR ARTERIAL

Location: KEAAU PAHOA RD - KAHAKAI BLVD TO OLD PAH

Town: Hawaii
 Count Type: VOLUME

DIR 1: +MP DIR 2: -MP
 Counter Type: Tube

Final AADT: 0
 Route No: 130

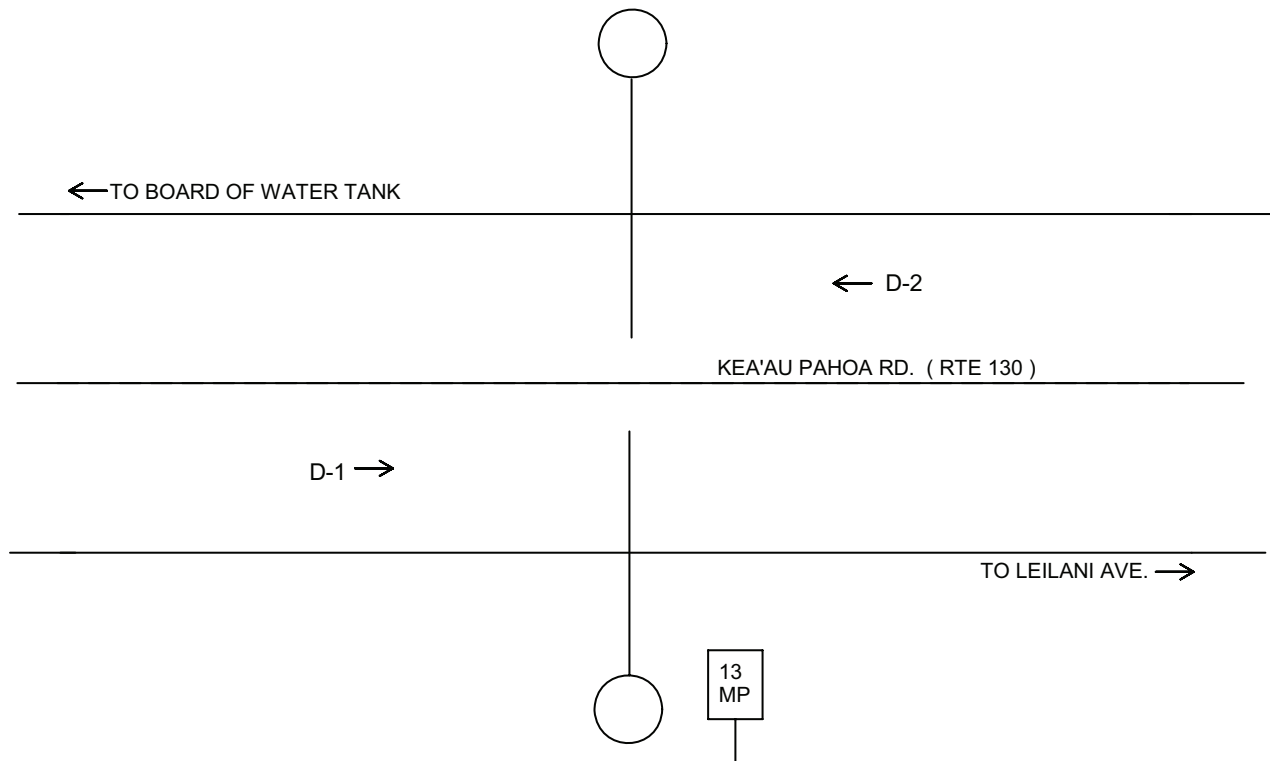
TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 05/26/2010															
12:00-12:15	3	2	5	06:00-06:15	21	46	67	12:00-12:15	65	71	136	06:00-06:15	83	41	124
12:15-12:30	3	6	9	06:15-06:30	33	63	96	12:15-12:30	72	51	123	06:15-06:30	74	49	123
12:30-12:45	2	2	4	06:30-06:45	54	97	151	12:30-12:45	65	69	134	06:30-06:45	72	32	104
12:45-01:00	5	0	5	06:45-07:00	58	85	143	12:45-01:00	78	74	152	06:45-07:00	49	38	87
01:00-01:15	4	1	5	07:00-07:15	48	85	133	01:00-01:15	77	73	150	07:00-07:15	57	43	100
01:15-01:30	0	7	7	07:15-07:30	43	100	143	01:15-01:30	64	73	137	07:15-07:30	63	39	102
01:30-01:45	1	6	7	07:30-07:45	74	81	155	01:30-01:45	78	67	145	07:30-07:45	54	42	96
01:45-02:00	1	2	3	07:45-08:00	80	105	185	01:45-02:00	62	73	135	07:45-08:00	47	41	88
02:00-02:15	0	2	2	08:00-08:15	63	85	148	02:00-02:15	78	87	165	08:00-08:15	53	47	100
02:15-02:30	4	3	7	08:15-08:30	53	82	135	02:15-02:30	77	64	141	08:15-08:30	35	33	68
02:30-02:45	4	4	8	08:30-08:45	71	80	151	02:30-02:45	86	83	169	08:30-08:45	37	26	63
02:45-03:00	2	5	7	08:45-09:00	60	71	131	02:45-03:00	75	72	147	08:45-09:00	48	39	87
03:00-03:15	1	2	3	09:00-09:15	65	59	124	03:00-03:15	99	61	160	09:00-09:15	35	27	62
03:15-03:30	0	3	3	09:15-09:30	52	80	132	03:15-03:30	72	83	155	09:15-09:30	25	21	46
03:30-03:45	7	3	10	09:30-09:45	68	65	133	03:30-03:45	84	99	183	09:30-09:45	28	22	50
03:45-04:00	3	3	6	09:45-10:00	58	80	138	03:45-04:00	88	72	160	09:45-10:00	29	24	53
04:00-04:15	2	3	5	10:00-10:15	47	73	120	04:00-04:15	66	78	144	10:00-10:15	29	23	52
04:15-04:30	0	8	8	10:15-10:30	54	72	126	04:15-04:30	79	79	158	10:15-10:30	18	10	28
04:30-04:45	2	13	15	10:30-10:45	61	69	130	04:30-04:45	90	64	154	10:30-10:45	16	10	26
04:45-05:00	1	17	18	10:45-11:00	56	71	127	04:45-05:00	79	78	157	10:45-11:00	15	11	26
05:00-05:15	7	11	18	11:00-11:15	42	50	92	05:00-05:15	93	76	169	11:00-11:15	12	7	19
05:15-05:30	6	16	22	11:15-11:30	64	64	128	05:15-05:30	90	71	161	11:15-11:30	6	8	14
05:30-05:45	7	28	35	11:30-11:45	73	63	136	05:30-05:45	71	56	127	11:30-11:45	8	4	12
05:45-06:00	20	36	56	11:45-12:00	67	68	135	05:45-06:00	80	57	137	11:45-12:00	2	2	4

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2
TWO DIRECTIONAL PEAK		TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:15 AM to 08:15 AM		PM - PEAK HR TIME	03:00 PM to 04:00 PM	
AM - PEAK HR VOLUME	260	371	PM - PEAK HR VOLUME	343	315
AM - K FACTOR (%)	7.37		PM - K FACTOR (%)	7.69	
AM - D (%)	41.20	58.80	PM - D (%)	52.13	47.87
DIRECTIONAL PEAK		DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:30 AM to 08:30 AM	07:15 AM to 08:15 AM	PM - PEAK HR TIME	04:30 PM to 05:30 PM	03:15 PM to 04:15 PM
AM - PEAK HR VOLUME	270	371	PM - PEAK HR VOLUME	352	332

AM PERIOD (00:00-12:00)	PM PERIOD (12:00-24:00)
TWO DIRECTIONAL PEAK	
AM - PEAK HR TIME	07:15 AM to 08:15 AM
AM - PEAK HR VOLUME	260
AM - K FACTOR (%)	7.37
AM - D (%)	41.20
TWO DIRECTIONAL PEAK	
PM - PEAK HR TIME	03:00 PM to 04:00 PM
PM - PEAK HR VOLUME	343
PM - K FACTOR (%)	7.69
PM - D (%)	52.13

NON-COMMUTER PERIOD (09:00-15:00)	6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	Total
TWO DIRECTIONAL PEAK				
PEAK HR TIME	02:00 PM to 03:00 PM			
PEAK HR VOLUME	316	306	622	
DIRECTIONAL PEAK				
PEAK HR TIME	02:00 PM to 03:00 PM	01:45 PM to 02:45 PM		
PEAK HR VOLUME	316	307		
		AM 6-HR PERIOD (06:00-12:00)	1,365	1,794
		AM 12-HR PERIOD (00:00-12:00)	1,450	1,977
		PM 6-HR PERIOD (12:00-18:00)	1,868	1,731
		PM 12-HR PERIOD (12:00-24:00)	2,763	2,370
		24 HOUR PERIOD	4,213	4,347
		D (%)	49.22	50.78

← Z
ISLAND: HAWAII
AREA: PAHOA



Station No:	B71 0130 01214
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Station Location:			
Kea'au Pahoa Road between Board of Water tank and Leilani Avenue at 13 milepost			
Station Mileage:	13.71	GPS Coord (Latitude):	
		GPS Coord (Longitude):	
Begin Survey (Date/Time):		End Survey (Date/Time):	
Survey Method:	LOOP HOSE OTHER	Survey Type:	VOL CLASS SPEED OTHER
Survey Crew:		Module No.:	

HPMS DATA							
Segment Description:							
KEA'AU PAHOA ROAD - OLD PAHOA KAPOHO ROAD TO LEILANI AVENUE							
Segment Begin LRS	12.14	Segment End LRS	14.20	Length	2.06		
Facility Name	Juris	Func Class	Area Type	Route		D-1 = Direction to End of Route	
				No.	Mile	D-2 = Direction to Beginning of Route	
KEA'AU PAHOA ROAD	S	7	1	130	13.71	D-1	TO KAIMU-CHAIN OF CRATER ROAD
						D-2	TO VOLCANO ROAD

Sketch By: C A Date: 1/30/2006 SLD: 2005

Run Date: 2010/11/09

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2010 Program Count - Summary

Site ID: B71013001214

Functional Class: RURAL:MAJOR COLLECTOR

Location: KEAAU PAHOA RD - OLD PAHOA KAPOHO TO LEI

Town: Hawaii

Count Type: VOLUME

DIR 1: +MP

DIR 2: -MP

Final AADT: 0

Counter Type: Tube

Route No: 130

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 05/25/2010															
12:00-12:15	3	1	4	06:00-06:15	9	22	31	12:00-12:15	31	37	68	06:00-06:15	52	17	69
12:15-12:30	2	1	3	06:15-06:30	11	29	40	12:15-12:30	38	43	81	06:15-06:30	52	16	68
12:30-12:45	2	0	2	06:30-06:45	12	49	61	12:30-12:45	46	33	79	06:30-06:45	38	33	71
12:45-01:00	2	0	2	06:45-07:00	15	63	78	12:45-01:00	59	42	101	06:45-07:00	39	28	67
01:00-01:15	3	0	3	07:00-07:15	12	66	78	01:00-01:15	45	39	84	07:00-07:15	42	24	66
01:15-01:30	2	0	2	07:15-07:30	20	40	60	01:15-01:30	44	34	78	07:15-07:30	33	23	56
01:30-01:45	1	0	1	07:30-07:45	22	58	80	01:30-01:45	49	52	101	07:30-07:45	39	21	60
01:45-02:00	0	0	0	07:45-08:00	41	57	98	01:45-02:00	58	27	85	07:45-08:00	35	16	51
02:00-02:15	1	1	2	08:00-08:15	24	43	67	02:00-02:15	54	42	96	08:00-08:15	28	22	50
02:15-02:30	0	0	0	08:15-08:30	24	45	69	02:15-02:30	58	44	102	08:15-08:30	26	29	55
02:30-02:45	0	0	0	08:30-08:45	22	51	73	02:30-02:45	50	33	83	08:30-08:45	13	14	27
02:45-03:00	0	0	0	08:45-09:00	46	52	98	02:45-03:00	54	38	92	08:45-09:00	19	20	39
03:00-03:15	1	1	2	09:00-09:15	29	45	74	03:00-03:15	50	46	96	09:00-09:15	28	7	35
03:15-03:30	7	1	8	09:15-09:30	33	48	81	03:15-03:30	39	28	67	09:15-09:30	26	8	34
03:30-03:45	1	1	2	09:30-09:45	35	41	76	03:30-03:45	59	41	100	09:30-09:45	19	13	32
03:45-04:00	0	0	0	09:45-10:00	38	52	90	03:45-04:00	58	28	86	09:45-10:00	10	13	23
04:00-04:15	0	2	2	10:00-10:15	42	51	93	04:00-04:15	59	34	93	10:00-10:15	16	12	28
04:15-04:30	0	3	3	10:15-10:30	32	37	69	04:15-04:30	63	38	101	10:15-10:30	6	6	12
04:30-04:45	2	3	5	10:30-10:45	47	42	89	04:30-04:45	61	32	93	10:30-10:45	10	4	14
04:45-05:00	1	3	4	10:45-11:00	30	31	61	04:45-05:00	64	33	97	10:45-11:00	2	1	3
05:00-05:15	1	8	9	11:00-11:15	37	46	83	05:00-05:15	66	39	105	11:00-11:15	5	4	9
05:15-05:30	0	9	9	11:15-11:30	33	32	65	05:15-05:30	75	32	107	11:15-11:30	4	4	8
05:30-05:45	4	10	14	11:30-11:45	38	39	77	05:30-05:45	49	26	75	11:30-11:45	2	4	6
05:45-06:00	5	23	28	11:45-12:00	43	38	81	05:45-06:00	49	24	73	11:45-12:00	2	2	4

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2
TWO DIRECTIONAL PEAK			TWO DIRECTIONAL PEAK		
AM - PEAK HR TIME			PM - PEAK HR TIME		
07:00 AM to 08:00 AM			04:30 PM to 05:30 PM		
AM - PEAK HR VOLUME	95	221	PM - PEAK HR VOLUME	266	136
AM - K FACTOR (%)		6.44	PM - K FACTOR (%)		8.19
AM - D (%)	30.06	69.94	PM - D (%)	66.17	33.83
DIRECTIONAL PEAK			DIRECTIONAL PEAK		
AM - PEAK HR TIME			PM - PEAK HR TIME		
08:00 AM to 09:00 AM			04:30 PM to 05:30 PM		
AM - PEAK HR VOLUME	116	227	PM - PEAK HR VOLUME	266	143

AM PERIOD (00:00-12:00)	PM PERIOD (12:00-24:00)
TWO DIRECTIONAL PEAK	
AM - PEAK HR TIME	
09:45 AM to 10:45 AM	
AM - PEAK HR VOLUME	159
AM - K FACTOR (%)	6.95
AM - D (%)	46.63
TWO DIRECTIONAL PEAK	
PM - PEAK HR TIME	
04:30 PM to 05:30 PM	
PM - PEAK HR VOLUME	266
PM - K FACTOR (%)	8.19
PM - D (%)	66.17

NON-COMMUTER PERIOD (09:00-15:00)	6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	Total	
TWO DIRECTIONAL PEAK		AM 6-HR PERIOD (06:00-12:00)			
PEAK HR TIME		01:30 PM to 02:30 PM			
PEAK HR VOLUME		AM 12-HR PERIOD (00:00-12:00)			
219	165	384	733	1,144	
DIRECTIONAL PEAK		PM 6-HR PERIOD (12:00-18:00)			
PEAK HR TIME		01:45 PM to 02:45 PM			
PEAK HR VOLUME		09:15 AM to 10:15 AM			
220	192	412	1,824	1,206	
		24 HOUR PERIOD			
		D (%)			
		52.11			
		47.89			
		100.00			

Run Date: 2010/11/09

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2010 Program Count - Summary

Site ID: B71013001214

Functional Class: RURAL:MAJOR COLLECTOR

Location: KEAAU PAHOA RD - OLD PAHOA KAPOHO TO LEI

Town: Hawaii
 Count Type: VOLUME

DIR 1: +MP DIR 2: -MP
 Counter Type: Tube

Final AADT: 0
 Route No: 130

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 05/26/2010															
12:00-12:15	2	1	3	06:00-06:15	6	21	27	12:00-12:15	42	38	80	06:00-06:15	50	29	79
12:15-12:30	1	4	5	06:15-06:30	7	31	38	12:15-12:30	39	28	67	06:15-06:30	47	23	70
12:30-12:45	2	1	3	06:30-06:45	9	50	59	12:30-12:45	36	33	69	06:30-06:45	48	13	61
12:45-01:00	3	3	6	06:45-07:00	14	36	50	12:45-01:00	34	29	63	06:45-07:00	45	20	65
01:00-01:15	0	1	1	07:00-07:15	11	47	58	01:00-01:15	44	34	78	07:00-07:15	41	25	66
01:15-01:30	1	2	3	07:15-07:30	18	44	62	01:15-01:30	43	22	65	07:15-07:30	48	19	67
01:30-01:45	0	0	0	07:30-07:45	30	43	73	01:30-01:45	43	33	76	07:30-07:45	30	24	54
01:45-02:00	2	1	3	07:45-08:00	36	57	93	01:45-02:00	52	31	83	07:45-08:00	35	14	49
02:00-02:15	0	1	1	08:00-08:15	33	39	72	02:00-02:15	55	33	88	08:00-08:15	32	27	59
02:15-02:30	2	1	3	08:15-08:30	25	39	64	02:15-02:30	54	31	85	08:15-08:30	19	21	40
02:30-02:45	2	1	3	08:30-08:45	31	41	72	02:30-02:45	56	42	98	08:30-08:45	25	18	43
02:45-03:00	0	0	0	08:45-09:00	28	38	66	02:45-03:00	66	31	97	08:45-09:00	29	19	48
03:00-03:15	1	0	1	09:00-09:15	42	49	91	03:00-03:15	58	32	90	09:00-09:15	22	19	41
03:15-03:30	0	0	0	09:15-09:30	33	37	70	03:15-03:30	53	32	85	09:15-09:30	18	9	27
03:30-03:45	0	0	0	09:30-09:45	39	48	87	03:30-03:45	62	35	97	09:30-09:45	15	10	25
03:45-04:00	0	2	2	09:45-10:00	31	48	79	03:45-04:00	53	31	84	09:45-10:00	11	16	27
04:00-04:15	1	2	3	10:00-10:15	29	34	63	04:00-04:15	48	29	77	10:00-10:15	13	5	18
04:15-04:30	0	2	2	10:15-10:30	37	46	83	04:15-04:30	58	33	91	10:15-10:30	17	6	23
04:30-04:45	0	5	5	10:30-10:45	34	40	74	04:30-04:45	66	22	88	10:30-10:45	9	5	14
04:45-05:00	2	6	8	10:45-11:00	34	32	66	04:45-05:00	55	28	83	10:45-11:00	4	2	6
05:00-05:15	3	8	11	11:00-11:15	29	30	59	05:00-05:15	57	26	83	11:00-11:15	6	0	6
05:15-05:30	1	6	7	11:15-11:30	40	40	80	05:15-05:30	58	35	93	11:15-11:30	3	2	5
05:30-05:45	2	8	10	11:30-11:45	45	33	78	05:30-05:45	49	21	70	11:30-11:45	5	0	5
05:45-06:00	4	15	19	11:45-12:00	41	28	69	05:45-06:00	61	25	86	11:45-12:00	2	0	2

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2
TWO DIRECTIONAL PEAK			TWO DIRECTIONAL PEAK		
AM - PEAK HR TIME	07:30 AM to 08:30 AM		PM - PEAK HR TIME	03:00 PM to 04:00 PM	
AM - PEAK HR VOLUME	124	178	PM - PEAK HR VOLUME	226	130
AM - K FACTOR (%)		6.55	PM - K FACTOR (%)		7.73
AM - D (%)	41.06	58.94	PM - D (%)	63.48	36.52
DIRECTIONAL PEAK			DIRECTIONAL PEAK		
AM - PEAK HR TIME	07:45 AM to 08:45 AM	07:00 AM to 08:00 AM	PM - PEAK HR TIME	04:30 PM to 05:30 PM	03:00 PM to 04:00 PM
AM - PEAK HR VOLUME	125	191	PM - PEAK HR VOLUME	236	130

AM PERIOD (00:00-12:00)	PM PERIOD (12:00-24:00)
TWO DIRECTIONAL PEAK	
AM - PEAK HR TIME	09:00 AM to 10:00 AM
AM - PEAK HR VOLUME	145
AM - K FACTOR (%)	7.10
AM - D (%)	44.34
TWO DIRECTIONAL PEAK	
PM - PEAK HR TIME	02:15 PM to 03:15 PM
PM - PEAK HR VOLUME	234
PM - K FACTOR (%)	8.03
PM - D (%)	63.24

NON-COMMUTER PERIOD (09:00-15:00)	6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	Total
TWO DIRECTIONAL PEAK				
PEAK HR TIME	02:00 PM to 03:00 PM	AM 6-HR PERIOD (06:00-12:00)	682	951
PEAK HR VOLUME	231	AM 12-HR PERIOD (00:00-12:00)	711	1,021
DIRECTIONAL PEAK		PM 6-HR PERIOD (12:00-18:00)	1,242	734
PEAK HR TIME	02:00 PM to 03:00 PM	PM 12-HR PERIOD (12:00-24:00)	1,816	1,060
PEAK HR VOLUME	231	24 HOUR PERIOD	2,527	2,081
	09:00 AM to 10:00 AM	D (%)	54.84	45.16
				100.00

Run Date: 2010/11/09

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2010 Program Count - Summary

Site ID: B71013001214

Functional Class: RURAL:MAJOR COLLECTOR

Location: KEAAU PAHOA RD - OLD PAHOA KAPOHO TO LEI

Town: Hawaii
 Count Type: VOLUME

DIR 1: +MP DIR 2: -MP
 Counter Type: Tube

Final AADT: 0
 Route No: 130

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 06/29/2010															
12:00-12:15	3	1	4	06:00-06:15	7	26	33	12:00-12:15	46	36	82	06:00-06:15	43	26	69
12:15-12:30	2	1	3	06:15-06:30	16	27	43	12:15-12:30	48	43	91	06:15-06:30	47	24	71
12:30-12:45	2	0	2	06:30-06:45	13	45	58	12:30-12:45	36	29	65	06:30-06:45	49	29	78
12:45-01:00	2	0	2	06:45-07:00	14	64	78	12:45-01:00	32	41	73	06:45-07:00	55	22	77
01:00-01:15	3	0	3	07:00-07:15	12	63	75	01:00-01:15	46	42	88	07:00-07:15	55	24	79
01:15-01:30	2	0	2	07:15-07:30	21	44	65	01:15-01:30	42	43	85	07:15-07:30	46	25	71
01:30-01:45	1	0	1	07:30-07:45	24	52	76	01:30-01:45	46	45	91	07:30-07:45	31	28	59
01:45-02:00	0	0	0	07:45-08:00	34	57	91	01:45-02:00	46	34	80	07:45-08:00	44	17	61
02:00-02:15	1	1	2	08:00-08:15	29	49	78	02:00-02:15	51	52	103	08:00-08:15	32	37	69
02:15-02:30	0	0	0	08:15-08:30	28	45	73	02:15-02:30	58	47	105	08:15-08:30	28	37	65
02:30-02:45	0	0	0	08:30-08:45	27	52	79	02:30-02:45	50	46	96	08:30-08:45	20	31	51
02:45-03:00	0	0	0	08:45-09:00	46	54	100	02:45-03:00	51	43	94	08:45-09:00	11	14	25
03:00-03:15	2	1	3	09:00-09:15	32	46	78	03:00-03:15	62	39	101	09:00-09:15	18	17	35
03:15-03:30	5	1	6	09:15-09:30	37	57	94	03:15-03:30	60	58	118	09:15-09:30	14	16	30
03:30-03:45	1	1	2	09:30-09:45	31	42	73	03:30-03:45	47	48	95	09:30-09:45	13	15	28
03:45-04:00	0	0	0	09:45-10:00	32	44	76	03:45-04:00	57	46	103	09:45-10:00	17	13	30
04:00-04:15	1	2	3	10:00-10:15	37	45	82	04:00-04:15	60	35	95	10:00-10:15	9	9	18
04:15-04:30	1	3	4	10:15-10:30	38	44	82	04:15-04:30	59	47	106	10:15-10:30	10	6	16
04:30-04:45	2	3	5	10:30-10:45	43	44	87	04:30-04:45	68	32	100	10:30-10:45	5	6	11
04:45-05:00	2	3	5	10:45-11:00	47	48	95	04:45-05:00	73	63	136	10:45-11:00	5	5	10
05:00-05:15	1	8	9	11:00-11:15	43	52	95	05:00-05:15	68	46	114	11:00-11:15	2	3	5
05:15-05:30	1	10	11	11:15-11:30	45	45	90	05:15-05:30	66	42	108	11:15-11:30	6	2	8
05:30-05:45	6	13	19	11:30-11:45	42	35	77	05:30-05:45	51	36	87	11:30-11:45	1	1	2
05:45-06:00	5	25	30	11:45-12:00	33	42	75	05:45-06:00	49	23	72	11:45-12:00	4	2	6

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2
TWO DIRECTIONAL PEAK		TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	08:00 AM to 09:00 AM		PM - PEAK HR TIME	04:30 PM to 05:30 PM	
AM - PEAK HR VOLUME	130	200	PM - PEAK HR VOLUME	275	183
AM - K FACTOR (%)	6.31		PM - K FACTOR (%)	8.76	
AM - D (%)	39.39	60.61	PM - D (%)	60.04	39.96
DIRECTIONAL PEAK		DIRECTIONAL PEAK			
AM - PEAK HR TIME	08:00 AM to 09:00 AM	06:45 AM to 07:45 AM	PM - PEAK HR TIME	04:30 PM to 05:30 PM	03:00 PM to 04:00 PM
AM - PEAK HR VOLUME	130	223	PM - PEAK HR VOLUME	275	191

AM PERIOD (00:00-12:00)	PM PERIOD (12:00-24:00)
TWO DIRECTIONAL PEAK	
AM - PEAK HR TIME	10:30 AM to 11:30 AM
AM - PEAK HR VOLUME	178
AM - K FACTOR (%)	7.02
AM - D (%)	48.50
TWO DIRECTIONAL PEAK	
PM - PEAK HR TIME	04:30 PM to 05:30 PM
PM - PEAK HR VOLUME	275
PM - K FACTOR (%)	8.76
PM - D (%)	60.04

NON-COMMUTER PERIOD (09:00-15:00)	6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	Total
TWO DIRECTIONAL PEAK				
PEAK HR TIME	02:00 PM to 03:00 PM			
PEAK HR VOLUME	210	188	398	
DIRECTIONAL PEAK				
PEAK HR TIME	02:00 PM to 03:00 PM	10:30 AM to 11:30 AM		
PEAK HR VOLUME	210	189		
		AM 6-HR PERIOD (06:00-12:00)	731	1,122
		AM 12-HR PERIOD (00:00-12:00)	774	1,195
		PM 6-HR PERIOD (12:00-18:00)	1,272	1,016
		PM 12-HR PERIOD (12:00-24:00)	1,837	1,425
		24 HOUR PERIOD	2,611	2,620
		D (%)	49.91	50.09
				100.00

Run Date: 2010/11/09

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2010 Program Count - Summary

Site ID: B71013001214

Functional Class: RURAL:MAJOR COLLECTOR

Location: KEAAU PAHOA RD - OLD PAHOA KAPOHO TO LEI

Town: Hawaii
 Count Type: VOLUME

DIR 1: +MP DIR 2: -MP
 Counter Type: Tube

Final AADT: 0
 Route No: 130

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 06/30/2010															
12:00-12:15	3	1	4	06:00-06:15	7	25	32	12:00-12:15	43	57	100	06:00-06:15	56	59	115
12:15-12:30	2	4	6	06:15-06:30	8	32	40	12:15-12:30	34	64	98	06:15-06:30	47	29	76
12:30-12:45	1	1	2	06:30-06:45	9	54	63	12:30-12:45	38	49	87	06:30-06:45	45	38	83
12:45-01:00	2	3	5	06:45-07:00	15	42	57	12:45-01:00	37	55	92	06:45-07:00	48	44	92
01:00-01:15	1	1	2	07:00-07:15	14	46	60	01:00-01:15	46	72	118	07:00-07:15	47	42	89
01:15-01:30	3	2	5	07:15-07:30	17	41	58	01:15-01:30	48	61	109	07:15-07:30	49	26	75
01:30-01:45	1	0	1	07:30-07:45	36	47	83	01:30-01:45	40	60	100	07:30-07:45	35	37	72
01:45-02:00	1	1	2	07:45-08:00	29	56	85	01:45-02:00	55	77	132	07:45-08:00	33	31	64
02:00-02:15	1	1	2	08:00-08:15	36	34	70	02:00-02:15	57	102	159	08:00-08:15	31	47	78
02:15-02:30	2	1	3	08:15-08:30	27	39	66	02:15-02:30	54	97	151	08:15-08:30	17	44	61
02:30-02:45	2	1	3	08:30-08:45	38	44	82	02:30-02:45	56	86	142	08:30-08:45	25	36	61
02:45-03:00	0	0	0	08:45-09:00	26	65	91	02:45-03:00	63	77	140	08:45-09:00	28	17	45
03:00-03:15	1	0	1	09:00-09:15	47	67	114	03:00-03:15	51	89	140	09:00-09:15	26	24	50
03:15-03:30	0	0	0	09:15-09:30	35	78	113	03:15-03:30	58	91	149	09:15-09:30	14	21	35
03:30-03:45	1	0	1	09:30-09:45	37	45	82	03:30-03:45	67	96	163	09:30-09:45	17	23	40
03:45-04:00	0	2	2	09:45-10:00	36	65	101	03:45-04:00	59	86	145	09:45-10:00	12	18	30
04:00-04:15	1	2	3	10:00-10:15	28	70	98	04:00-04:15	45	81	126	10:00-10:15	13	11	24
04:15-04:30	1	2	3	10:15-10:30	34	61	95	04:15-04:30	54	71	125	10:15-10:30	17	9	26
04:30-04:45	0	5	5	10:30-10:45	35	83	118	04:30-04:45	66	74	140	10:30-10:45	9	7	16
04:45-05:00	2	6	8	10:45-11:00	38	75	113	04:45-05:00	55	100	155	10:45-11:00	4	11	15
05:00-05:15	3	9	12	11:00-11:15	29	63	92	05:00-05:15	56	86	142	11:00-11:15	6	10	16
05:15-05:30	3	10	13	11:15-11:30	47	81	128	05:15-05:30	61	67	128	11:15-11:30	3	3	6
05:30-05:45	4	13	17	11:30-11:45	46	52	98	05:30-05:45	54	61	115	11:30-11:45	5	5	10
05:45-06:00	6	17	23	11:45-12:00	41	71	112	05:45-06:00	61	59	120	11:45-12:00	2	4	6

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2
TWO DIRECTIONAL PEAK		TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	08:00 AM to 09:00 AM		PM - PEAK HR TIME	03:00 PM to 04:00 PM	
AM - PEAK HR VOLUME	127	182	PM - PEAK HR VOLUME	235	362
AM - K FACTOR (%)	4.80		PM - K FACTOR (%)	9.28	
AM - D (%)	41.10	58.90	PM - D (%)	39.36	60.64
DIRECTIONAL PEAK		DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:45 AM to 08:45 AM	07:00 AM to 08:00 AM	PM - PEAK HR TIME	04:30 PM to 05:30 PM	03:00 PM to 04:00 PM
AM - PEAK HR VOLUME	130	190	PM - PEAK HR VOLUME	238	362

AM PERIOD (00:00-12:00)	PM PERIOD (12:00-24:00)
TWO DIRECTIONAL PEAK	
AM - PEAK HR TIME	10:30 AM to 11:30 AM
AM - PEAK HR VOLUME	149
AM - K FACTOR (%)	7.01
AM - D (%)	33.04
TWO DIRECTIONAL PEAK	
PM - PEAK HR TIME	03:00 PM to 04:00 PM
PM - PEAK HR VOLUME	235
PM - K FACTOR (%)	9.28
PM - D (%)	39.36

NON-COMMUTER PERIOD (09:00-15:00)	6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	Total
TWO DIRECTIONAL PEAK				
PEAK HR TIME	02:00 PM to 03:00 PM	AM 6-HR PERIOD (06:00-12:00)	715	1,336
PEAK HR VOLUME	230	AM 12-HR PERIOD (00:00-12:00)	756	1,418
DIRECTIONAL PEAK		PM 6-HR PERIOD (12:00-18:00)	1,258	1,818
PEAK HR TIME	02:00 PM to 03:00 PM	PM 12-HR PERIOD (12:00-24:00)	1,847	2,414
PEAK HR VOLUME	230	24 HOUR PERIOD	2,603	3,832
		D (%)	40.45	59.55
				100.00

Traffic Data Service

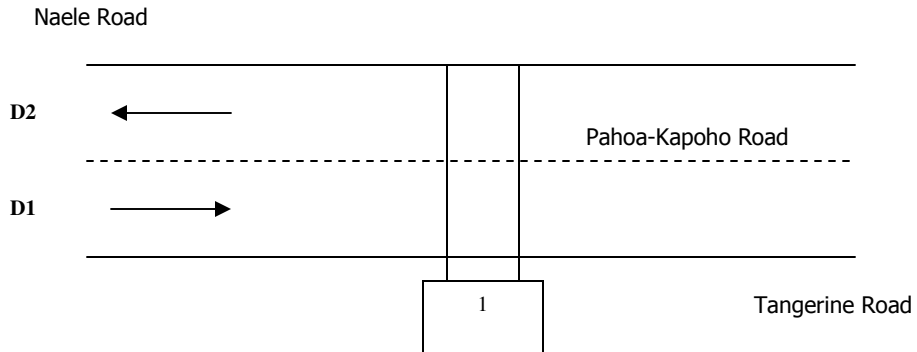
Traffic Station Sketch



Section ID/Station #: B71013200000

Island: Hawaii

Area: Hilo



<u>Meter #</u>	<u>File Name</u>	<u>GPS</u>
1. a689	D0203019_B71013200000 D0203020_B71013200000	19.48998, 154.93531

Station Description: Pahoa-Kapoho Road: Naele Road to Tangerine Road					
Survey Beginning Date/Time: 2/3/2010 @ 0000			Survey Ending Date/Time: 2/4/2010 @ 2400		
Survey Method:	Road Tube		Data Type:	Class	
Survey Crew:	LM			C1B	
Sketch Updated:	By:			SR	
Remarks:					
FACILITY NAME	JURI	FUNC CLASS	AREA TYPE	ROUTE NO.	ROUTE MILE
Pahoa-Kapoho Road		7		0132	
D1= Direction to End D2= Direction to Begin			D1: Tangerine Road / Kapoho-Kaimu Road (Rte 137) D2: Naele Road / Keeau-Pahoa Road (Rte 130)		

Run Date: 2010/11/30

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2010 Program Count - Summary

Site ID: B71013200000

Functional Class: RURAL:MAJOR COLLECTOR

Location: Pahoehoe Rd. between Naele Rd. _Tang

Town: Hawaii
 Count Type: CLASS

DIR 1: +MP DIR 2: -MP
 Counter Type: Tube

Final AADT: 0
 Route No: 132

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 02/03/2010															
12:00-12:15	1	6	7	06:00-06:15	23	40	63	12:00-12:15	59	58	117	06:00-06:15	76	40	116
12:15-12:30	5	3	8	06:15-06:30	30	56	86	12:15-12:30	52	54	106	06:15-06:30	61	41	102
12:30-12:45	12	3	15	06:30-06:45	35	59	94	12:30-12:45	59	73	132	06:30-06:45	57	40	97
12:45-01:00	5	3	8	06:45-07:00	40	67	107	12:45-01:00	45	65	110	06:45-07:00	62	36	98
01:00-01:15	0	4	4	07:00-07:15	44	83	127	01:00-01:15	79	46	125	07:00-07:15	40	22	62
01:15-01:30	0	2	2	07:15-07:30	48	77	125	01:15-01:30	72	66	138	07:15-07:30	37	28	65
01:30-01:45	3	2	5	07:30-07:45	55	95	150	01:30-01:45	63	70	133	07:30-07:45	33	23	56
01:45-02:00	1	1	2	07:45-08:00	52	86	138	01:45-02:00	64	61	125	07:45-08:00	33	14	47
02:00-02:15	0	2	2	08:00-08:15	56	63	119	02:00-02:15	80	63	143	08:00-08:15	44	25	69
02:15-02:30	2	0	2	08:15-08:30	41	56	97	02:15-02:30	72	61	133	08:15-08:30	31	30	61
02:30-02:45	1	4	5	08:30-08:45	45	58	103	02:30-02:45	79	65	144	08:30-08:45	24	18	42
02:45-03:00	1	3	4	08:45-09:00	53	54	107	02:45-03:00	83	57	140	08:45-09:00	18	19	37
03:00-03:15	2	3	5	09:00-09:15	52	70	122	03:00-03:15	85	62	147	09:00-09:15	23	9	32
03:15-03:30	0	1	1	09:15-09:30	42	69	111	03:15-03:30	74	65	139	09:15-09:30	28	8	36
03:30-03:45	0	1	1	09:30-09:45	33	53	86	03:30-03:45	82	62	144	09:30-09:45	24	7	31
03:45-04:00	1	1	2	09:45-10:00	49	51	100	03:45-04:00	96	61	157	09:45-10:00	18	10	28
04:00-04:15	2	2	4	10:00-10:15	51	61	112	04:00-04:15	70	63	133	10:00-10:15	12	7	19
04:15-04:30	1	9	10	10:15-10:30	52	64	116	04:15-04:30	78	63	141	10:15-10:30	12	9	21
04:30-04:45	3	7	10	10:30-10:45	45	58	103	04:30-04:45	77	54	131	10:30-10:45	15	8	23
04:45-05:00	3	9	12	10:45-11:00	66	67	133	04:45-05:00	77	61	138	10:45-11:00	10	6	16
05:00-05:15	5	15	20	11:00-11:15	34	51	85	05:00-05:15	81	54	135	11:00-11:15	13	7	20
05:15-05:30	3	17	20	11:15-11:30	45	63	108	05:15-05:30	76	64	140	11:15-11:30	6	5	11
05:30-05:45	5	22	27	11:30-11:45	46	53	99	05:30-05:45	64	47	111	11:30-11:45	5	4	9
05:45-06:00	14	25	39	11:45-12:00	60	50	110	05:45-06:00	82	56	138	11:45-12:00	5	1	6

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2	
TWO DIRECTIONAL PEAK		TWO DIRECTIONAL PEAK		TWO DIRECTIONAL PEAK		
AM - PEAK HR TIME	07:00 AM to 08:00 AM		PM - PEAK HR TIME	03:00 PM to 04:00 PM		
AM - PEAK HR VOLUME	199	341	540	337	250	587
AM - K FACTOR (%)			7.58	8.24		
AM - D (%)	36.85	63.15	100.00	57.41	42.59	100.00
DIRECTIONAL PEAK		DIRECTIONAL PEAK		DIRECTIONAL PEAK		
AM - PEAK HR TIME	07:15 AM to 08:15 AM	07:00 AM to 08:00 AM	PM - PEAK HR TIME	03:00 PM to 04:00 PM	03:15 PM to 04:15 PM	
AM - PEAK HR VOLUME	211	341	337	251		

AM PERIOD (00:00-12:00)	PM PERIOD (12:00-24:00)
TWO DIRECTIONAL PEAK	
AM - PEAK HR TIME	07:00 AM to 08:00 AM
AM - PEAK HR VOLUME	199 341 540
AM - K FACTOR (%)	7.58
AM - D (%)	36.85 63.15 100.00
TWO DIRECTIONAL PEAK	
PM - PEAK HR TIME	03:00 PM to 04:00 PM
PM - PEAK HR VOLUME	337 250 587
PM - K FACTOR (%)	8.24
PM - D (%)	57.41 42.59 100.00

NON-COMMUTER PERIOD (09:00-15:00)	6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	Total			
TWO DIRECTIONAL PEAK							
PEAK HR TIME	02:00 PM to 03:00 PM		AM 6-HR PERIOD (06:00-12:00)	1,097	1,504	2,601	
PEAK HR VOLUME	314	246	560	AM 12-HR PERIOD (00:00-12:00)	1,167	1,649	2,816
DIRECTIONAL PEAK				PM 6-HR PERIOD (12:00-18:00)	1,749	1,451	3,200
PEAK HR TIME	02:00 PM to 03:00 PM		01:15 PM to 02:15 PM	PM 12-HR PERIOD (12:00-24:00)	2,436	1,868	4,304
PEAK HR VOLUME	314	260		24 HOUR PERIOD	3,603	3,517	7,120
				D (%)	50.60	49.40	100.00

Run Date: 2010/11/30

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2010 Program Count - Summary

Site ID: B71013200000
Functional Class: RURAL:MAJOR COLLECTOR
Location: Pahoa-Kaphoh Rd. between Naele Rd. _Tang

Town: Hawaii **DIR 1: +MP** **DIR 2:-MP** **Final AADT: 0**
Count Type: CLASS **Counter Type:** Tube **Route No:** 132

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 02/04/2010															
12:00-12:15	3	2	5	06:00-06:15	19	42	61	12:00-12:15	53	58	111	06:00-06:15	69	46	115
12:15-12:30	4	3	7	06:15-06:30	30	42	72	12:15-12:30	64	48	112	06:15-06:30	74	56	130
12:30-12:45	3	1	4	06:30-06:45	32	53	85	12:30-12:45	52	57	109	06:30-06:45	54	43	97
12:45-01:00	5	6	11	06:45-07:00	27	70	97	12:45-01:00	61	56	117	06:45-07:00	41	47	88
01:00-01:15	7	1	8	07:00-07:15	46	78	124	01:00-01:15	54	63	117	07:00-07:15	44	40	84
01:15-01:30	0	2	2	07:15-07:30	48	77	125	01:15-01:30	61	50	111	07:15-07:30	45	33	78
01:30-01:45	3	2	5	07:30-07:45	54	100	154	01:30-01:45	59	71	130	07:30-07:45	35	28	63
01:45-02:00	2	1	3	07:45-08:00	61	82	143	01:45-02:00	66	61	127	07:45-08:00	45	34	79
02:00-02:15	3	2	5	08:00-08:15	41	53	94	02:00-02:15	77	66	143	08:00-08:15	41	13	54
02:15-02:30	1	2	3	08:15-08:30	61	52	113	02:15-02:30	71	37	108	08:15-08:30	25	23	48
02:30-02:45	1	5	6	08:30-08:45	51	53	104	02:30-02:45	75	55	130	08:30-08:45	36	13	49
02:45-03:00	1	5	6	08:45-09:00	36	57	93	02:45-03:00	84	62	146	08:45-09:00	25	17	42
03:00-03:15	2	2	4	09:00-09:15	47	74	121	03:00-03:15	80	74	154	09:00-09:15	35	22	57
03:15-03:30	0	1	1	09:15-09:30	40	64	104	03:15-03:30	63	79	142	09:15-09:30	18	17	35
03:30-03:45	1	1	2	09:30-09:45	41	59	100	03:30-03:45	79	55	134	09:30-09:45	26	7	33
03:45-04:00	2	1	3	09:45-10:00	42	56	98	03:45-04:00	84	62	146	09:45-10:00	24	9	33
04:00-04:15	1	4	5	10:00-10:15	56	54	110	04:00-04:15	87	64	151	10:00-10:15	18	5	23
04:15-04:30	1	11	12	10:15-10:30	42	56	98	04:15-04:30	98	78	176	10:15-10:30	10	7	17
04:30-04:45	3	7	10	10:30-10:45	45	48	93	04:30-04:45	93	74	167	10:30-10:45	17	10	27
04:45-05:00	0	10	10	10:45-11:00	45	54	99	04:45-05:00	82	62	144	10:45-11:00	16	9	25
05:00-05:15	3	12	15	11:00-11:15	45	60	105	05:00-05:15	82	59	141	11:00-11:15	6	6	12
05:15-05:30	2	17	19	11:15-11:30	46	61	107	05:15-05:30	56	62	118	11:15-11:30	12	7	19
05:30-05:45	8	18	26	11:30-11:45	65	55	120	05:30-05:45	50	55	105	11:30-11:45	10	1	11
05:45-06:00	11	21	32	11:45-12:00	49	62	111	05:45-06:00	74	45	119	11:45-12:00	6	7	13

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2
TWO DIRECTIONAL PEAK		TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:00 AM to 08:00 AM		PM - PEAK HR TIME	03:45 PM to 04:45 PM	
AM - PEAK HR VOLUME	209	337	PM - PEAK HR VOLUME	362	278
AM - K FACTOR (%)	7.66		PM - K FACTOR (%)	8.98	
AM - D (%)	38.28	61.72	PM - D (%)	56.56	43.44
DIRECTIONAL PEAK		DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:30 AM to 08:30 AM	07:00 AM to 08:00 AM	PM - PEAK HR TIME	03:45 PM to 04:45 PM	03:45 PM to 04:45 PM
AM - PEAK HR VOLUME	217	337	PM - PEAK HR VOLUME	362	278

AM PERIOD (00:00-12:00)	PM PERIOD (12:00-24:00)
TWO DIRECTIONAL PEAK	
AM - PEAK HR TIME	07:00 AM to 08:00 AM
AM - PEAK HR VOLUME	209
AM - K FACTOR (%)	7.66
AM - D (%)	38.28
TWO DIRECTIONAL PEAK	
PM - PEAK HR TIME	03:45 PM to 04:45 PM
PM - PEAK HR VOLUME	362
PM - K FACTOR (%)	8.98
PM - D (%)	56.56

NON-COMMUTER PERIOD (09:00-15:00)	6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	Total
TWO DIRECTIONAL PEAK				
PEAK HR TIME	02:00 PM to 03:00 PM			
PEAK HR VOLUME	307	220	527	
DIRECTIONAL PEAK				
PEAK HR TIME	02:00 PM to 03:00 PM	09:00 AM to 10:00 AM		
PEAK HR VOLUME	307	253		
		AM 6-HR PERIOD (06:00-12:00)	1,069	1,462
		AM 12-HR PERIOD (00:00-12:00)	1,136	1,599
		PM 6-HR PERIOD (12:00-18:00)	1,705	1,453
		PM 12-HR PERIOD (12:00-24:00)	2,437	1,953
		24 HOUR PERIOD	3,573	3,552
		D (%)	50.15	49.85

2013 HDOT Volumes

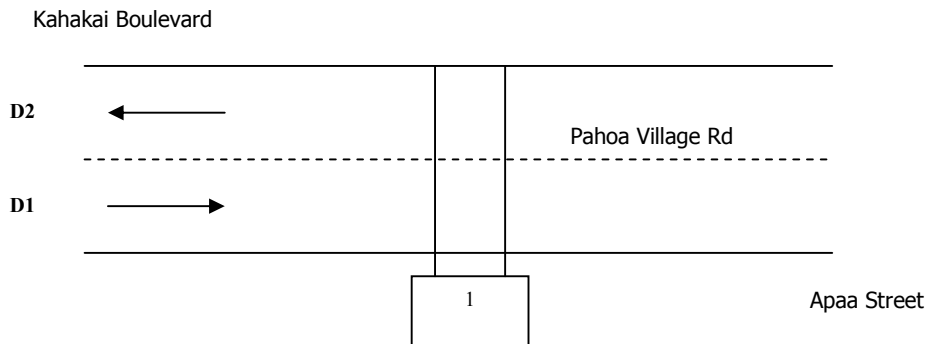
Traffic Data Service
Traffic Station Sketch



Section ID/Station #: B71013400013

Island: Hawaii

Area: Pahoia



<u>Meter #</u>	<u>File Name</u>	<u>GPS</u>
1. v241	D1106001_B71013400013 D1106002_B71013400013	19.50072, -154.9544

Station Description: Pahoa Village Road: Kahakai Boulevard to Apaa Street					
Survey Beginning Date/Time: 11/6/13 @ 0000			Survey Ending Date/Time: 11/7/13 @ 2400		
Survey Method:	Road Tube		Data Type:	Class	
Survey Crew:	LM		C1B		
Sketch Updated:			By:	SR	
Remarks:	923				
FACILITY NAME	JURI	FUNC CLASS	AREA TYPE	ROUTE NO.	ROUTE MILE
Keaau-Pahoa Road		7		0134	
D1= Direction to End D2= Direction to Begin			D1: Apaa Street / Pahoa-Kalapana Rd (Rte 130) D2: Kahakai Boulevard / Keaau Pahoa Road		

Run Date: 2014/05/30

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2013 Program Count - Summary

Site ID: B71013400013
Functional Class: RURAL:MAJOR COLLECTOR
Location: Pahoia Village Rd - Kahakai Blvd to Apaa St

Town: Hawaii
Count Type: CLASS

DIR 1: +MP
Counter Type: Tube

Final AADT: 6900
Route No: 134

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 11/06/2013															
12:00-12:15	0	3	3	06:00-06:15	7	13	20	12:00-12:15	72	70	142	06:00-06:15	53	53	106
12:15-12:30	0	0	0	06:15-06:30	14	26	40	12:15-12:30	83	84	167	06:15-06:30	45	42	87
12:30-12:45	2	4	6	06:30-06:45	27	25	52	12:30-12:45	82	78	160	06:30-06:45	44	40	84
12:45-01:00	2	0	2	06:45-07:00	58	26	84	12:45-01:00	79	94	173	06:45-07:00	42	28	70
01:00-01:15	5	0	5	07:00-07:15	37	43	80	01:00-01:15	94	69	163	07:00-07:15	26	27	53
01:15-01:30	0	3	3	07:15-07:30	46	42	88	01:15-01:30	67	114	181	07:15-07:30	20	27	47
01:30-01:45	0	1	1	07:30-07:45	76	59	135	01:30-01:45	72	80	152	07:30-07:45	22	22	44
01:45-02:00	0	2	2	07:45-08:00	64	68	132	01:45-02:00	83	90	173	07:45-08:00	21	27	48
02:00-02:15	2	1	3	08:00-08:15	61	66	127	02:00-02:15	84	78	162	08:00-08:15	11	25	36
02:15-02:30	0	2	2	08:15-08:30	60	70	130	02:15-02:30	70	84	154	08:15-08:30	22	23	45
02:30-02:45	1	1	2	08:30-08:45	69	51	120	02:30-02:45	94	76	170	08:30-08:45	16	13	29
02:45-03:00	0	0	0	08:45-09:00	55	72	127	02:45-03:00	78	70	148	08:45-09:00	15	12	27
03:00-03:15	0	0	0	09:00-09:15	57	50	107	03:00-03:15	64	77	141	09:00-09:15	13	14	27
03:15-03:30	3	0	3	09:15-09:30	50	56	106	03:15-03:30	81	78	159	09:15-09:30	9	10	19
03:30-03:45	0	1	1	09:30-09:45	59	56	115	03:30-03:45	84	63	147	09:30-09:45	6	17	23
03:45-04:00	1	0	1	09:45-10:00	64	51	115	03:45-04:00	77	74	151	09:45-10:00	5	8	13
04:00-04:15	2	2	4	10:00-10:15	55	65	120	04:00-04:15	87	83	170	10:00-10:15	7	15	22
04:15-04:30	1	4	5	10:15-10:30	73	78	151	04:15-04:30	60	69	129	10:15-10:30	6	12	18
04:30-04:45	4	4	8	10:30-10:45	75	93	168	04:30-04:45	76	57	133	10:30-10:45	9	3	12
04:45-05:00	0	1	1	10:45-11:00	59	84	143	04:45-05:00	81	59	140	10:45-11:00	4	8	12
05:00-05:15	1	12	13	11:00-11:15	70	77	147	05:00-05:15	53	64	117	11:00-11:15	4	6	10
05:15-05:30	5	9	14	11:15-11:30	77	73	150	05:15-05:30	68	53	121	11:15-11:30	10	6	16
05:30-05:45	7	9	16	11:30-11:45	65	75	140	05:30-05:45	63	57	120	11:30-11:45	1	3	4
05:45-06:00	11	10	21	11:45-12:00	68	82	150	05:45-06:00	61	44	105	11:45-12:00	2	0	2
AM COMMUTER PERIOD (05:00-09:00)			DIR 1	DIR 2			PM COMMUTER PERIOD (15:00-19:00)			DIR 1	DIR 2				
TWO DIRECTIONAL PEAK			07:30 AM to 08:30 AM			TWO DIRECTIONAL PEAK			03:15 PM to 04:15 PM						
AM - PEAK HR TIME						PM - PEAK HR TIME									
AM - PEAK HR VOLUME			261	263		524	PM - PEAK HR VOLUME			329	298		627		
AM - K FACTOR (%)						7.18	PM - K FACTOR (%)			8.59					
AM - D (%)			49.81	50.19		100.00	PM - D (%)			52.47	47.53		100.00		
DIRECTIONAL PEAK			07:30 AM to 08:30 AM			DIRECTIONAL PEAK			03:15 PM to 04:15 PM						
AM - PEAK HR TIME			07:30 AM to 08:30 AM			PM - PEAK HR TIME			03:15 PM to 04:15 PM						
AM - PEAK HR VOLUME			261	263		PM - PEAK HR VOLUME			329	298					
AM PERIOD (00:00-12:00)			10:15 AM to 11:15 AM			PM PERIOD (12:00-24:00)			12:30 PM to 01:30 PM						
TWO DIRECTIONAL PEAK						TWO DIRECTIONAL PEAK									
AM - PEAK HR TIME						PM - PEAK HR TIME									
AM - PEAK HR VOLUME			277	332		609	PM - PEAK HR VOLUME			322	355		677		
AM - K FACTOR (%)						8.35	PM - K FACTOR (%)			9.28					
AM - D (%)			45.48	54.52		100.00	PM - D (%)			47.56	52.44		100.00		
NON-COMMUTER PERIOD (09:00-15:00)			12:30 PM to 01:30 PM			6-HR, 12-HR, 24-HR PERIODS			DIR 1	DIR 2	Total				
TWO DIRECTIONAL PEAK						AM 6-HR PERIOD (06:00-12:00)			1,346	1,401	2,747				
PEAK HR TIME						AM 12-HR PERIOD (00:00-12:00)			1,393	1,470	2,863				
PEAK HR VOLUME			322	355		677	PM 6-HR PERIOD (12:00-18:00)			1,813	1,765	3,578			
DIRECTIONAL PEAK			12:15 PM to 01:15 PM			PM 12-HR PERIOD (12:00-24:00)			2,226	2,206	4,432				
PEAK HR TIME			12:15 PM to 01:15 PM			24 HOUR PERIOD			3,619	3,676	7,295				
PEAK HR VOLUME			338	362		D (%)			49.61	50.39	100.00				

Run Date: 2014/05/30

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2013 Program Count - Summary

Site ID: B71013400013
Functional Class: RURAL:MAJOR COLLECTOR
Location: Pahoia Village Rd - Kahakai Blvd to Apaa St

Town: Hawaii
Count Type: CLASS

DIR 1: +MP **DIR 2: -MP** **Final AADT:** 6900
Counter Type: Tube **Route No:** 134

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 11/07/2013															
12:00-12:15	3	1	4	06:00-06:15	17	19	36	12:00-12:15	62	81	143	06:00-06:15	54	58	112
12:15-12:30	1	4	5	06:15-06:30	11	24	35	12:15-12:30	78	69	147	06:15-06:30	47	39	86
12:30-12:45	1	2	3	06:30-06:45	27	25	52	12:30-12:45	64	55	119	06:30-06:45	42	51	93
12:45-01:00	1	4	5	06:45-07:00	50	28	78	12:45-01:00	67	60	127	06:45-07:00	29	23	52
01:00-01:15	2	5	7	07:00-07:15	52	38	90	01:00-01:15	73	68	141	07:00-07:15	27	26	53
01:15-01:30	3	6	9	07:15-07:30	61	50	111	01:15-01:30	76	86	162	07:15-07:30	30	12	42
01:30-01:45	1	1	2	07:30-07:45	66	51	117	01:30-01:45	83	70	153	07:30-07:45	23	26	49
01:45-02:00	1	1	2	07:45-08:00	60	80	140	01:45-02:00	75	67	142	07:45-08:00	25	28	53
02:00-02:15	1	1	2	08:00-08:15	54	49	103	02:00-02:15	74	93	167	08:00-08:15	20	22	42
02:15-02:30	0	2	2	08:15-08:30	60	49	109	02:15-02:30	82	95	177	08:15-08:30	20	20	40
02:30-02:45	0	0	0	08:30-08:45	49	58	107	02:30-02:45	75	79	154	08:30-08:45	13	14	27
02:45-03:00	3	1	4	08:45-09:00	63	61	124	02:45-03:00	82	58	140	08:45-09:00	16	17	33
03:00-03:15	3	1	4	09:00-09:15	63	64	127	03:00-03:15	69	71	140	09:00-09:15	9	13	22
03:15-03:30	0	3	3	09:15-09:30	54	59	113	03:15-03:30	79	67	146	09:15-09:30	12	10	22
03:30-03:45	1	1	2	09:30-09:45	61	59	120	03:30-03:45	84	82	166	09:30-09:45	19	6	25
03:45-04:00	3	1	4	09:45-10:00	55	62	117	03:45-04:00	76	68	144	09:45-10:00	6	9	15
04:00-04:15	2	1	3	10:00-10:15	70	62	132	04:00-04:15	77	72	149	10:00-10:15	15	14	29
04:15-04:30	1	3	4	10:15-10:30	63	77	140	04:15-04:30	72	74	146	10:15-10:30	9	6	15
04:30-04:45	1	4	5	10:30-10:45	56	62	118	04:30-04:45	65	63	128	10:30-10:45	5	6	11
04:45-05:00	3	3	6	10:45-11:00	56	69	125	04:45-05:00	81	68	149	10:45-11:00	8	8	16
05:00-05:15	1	6	7	11:00-11:15	57	65	122	05:00-05:15	66	75	141	11:00-11:15	4	4	8
05:15-05:30	4	8	12	11:15-11:30	66	82	148	05:15-05:30	79	55	134	11:15-11:30	2	6	8
05:30-05:45	6	10	16	11:30-11:45	68	69	137	05:30-05:45	47	74	121	11:30-11:45	4	3	7
05:45-06:00	10	5	15	11:45-12:00	73	73	146	05:45-06:00	49	39	88	11:45-12:00	5	4	9

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2
TWO DIRECTIONAL PEAK			TWO DIRECTIONAL PEAK		
AM - PEAK HR TIME	07:15 AM to 08:15 AM		PM - PEAK HR TIME	03:15 PM to 04:15 PM	
AM - PEAK HR VOLUME	241	230	PM - PEAK HR VOLUME	316	289
AM - K FACTOR (%)		6.67	PM - K FACTOR (%)		8.56
AM - D (%)	51.17	48.83	PM - D (%)	52.23	47.77
DIRECTIONAL PEAK			DIRECTIONAL PEAK		
AM - PEAK HR TIME	07:15 AM to 08:15 AM	07:45 AM to 08:45 AM	PM - PEAK HR TIME	03:15 PM to 04:15 PM	03:30 PM to 04:30 PM
AM - PEAK HR VOLUME	241	236	PM - PEAK HR VOLUME	316	296

AM PERIOD (00:00-12:00)	PM PERIOD (12:00-24:00)
TWO DIRECTIONAL PEAK	
AM - PEAK HR TIME	11:00 AM to 12:00 PM
AM - PEAK HR VOLUME	264
AM - K FACTOR (%)	7.83
AM - D (%)	47.74
TWO DIRECTIONAL PEAK	
PM - PEAK HR TIME	01:45 PM to 02:45 PM
PM - PEAK HR VOLUME	306
PM - K FACTOR (%)	9.06
PM - D (%)	52.19

NON-COMMUTER PERIOD (09:00-15:00)	6-HR, 12-HR, 24-HR PERIODS
TWO DIRECTIONAL PEAK	
PEAK HR TIME	01:45 PM to 02:45 PM
PEAK HR VOLUME	306
DIRECTIONAL PEAK	
PEAK HR TIME	01:30 PM to 02:30 PM
PEAK HR VOLUME	314
AM 6-HR PERIOD (06:00-12:00)	
AM 12-HR PERIOD (00:00-12:00)	
PM 6-HR PERIOD (12:00-18:00)	
PM 12-HR PERIOD (12:00-24:00)	
24 HOUR PERIOD	
D (%)	

Run Date: 2014/05/29

Hawaii Department of Transportation
Highways Division
Highways Planning Survey Section

Vehicle Classification Data Summary
2013

Site ID: B71013400013

Route No: 134

Date From: 2013/11/06 0:00

Town: Hawaii

Direction: +MP

Date To: 2013/11/07 23:45

Location: Pahoa Village Rd - Kahakai Blvd to Apaa St

Functional Classification: 7 RURAL:MAJOR COLLECTOR
REPORT TOTALS - 48 HOURS RECORDED

	VOLUME	%	NUMBER OF AXLES
Cycles	136	0.95%	273
PC	10914	76.00%	21828
2A-4T	3202	22.30%	6404

LIGHT VEHICLE TOTALS	14252	99.24%	28505
HEAVY VEHICLES			
Bus	38	0.26%	95
SINGLE UNIT TRUCK			
2A-6T	45	0.31%	90
3A-SU	10	0.07%	30
4A-SU	3	0.02%	12
SINGLE-TRAILER TRUCKS			
4A-ST	3	0.02%	12
5A-ST	7	0.05%	35
6A-ST	1	0.01%	6
MULTI-TRAILER TRUCKS			
5A-MT	0	0.00%	0
6A-MT	0	0.00%	0
7A-MT	1	0.01%	7

HEAVY VEHICLE TOTALS	108	0.75%	287

CLASSIFIED VEHICLES TOTALS 14360 (A) 100.00% 28792 (B)

UNCLASSIFIED VEHICLES TOTALS 1 0.00%

AXLE
CORRECTION
FACTOR (A/C) = 0.998

ROADTUBE
EQUIVALENT(B/2) = 14396 (C)

PEAK HOUR VOLUME : 669 2013/11/06 13:00	PEAK HOUR TRUCK VOLUME	% TOTAL PEAK HOUR VOLUME	24 HOUR TRUCK VOLUME	AADT	% OF AADT	HPMS K-FACTOR (PEAK/AADT) (ITEM 66)
SINGLE UNIT TRUCKS (TYPE 4-7)	2	(65A-1) 0.30%	48	6900	(65A-2) 0.70%	9.70%
COMBINATION (TYPE 8-13)	1	(65B-1) 0.15%	6		(65B-2) 0.09%	9.70%

Traffic Data Service

Traffic Station Sketch

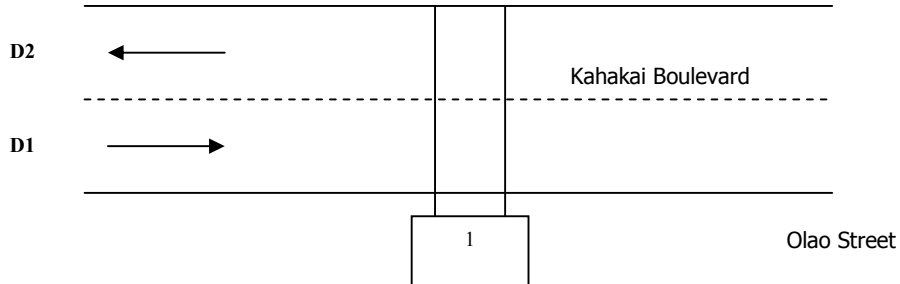


Section ID/Station #: B71013800004

Island: Hawaii

Area: Paho

Auina Street



Meter #
1. bw88

File Name
D0716011_B71013800004
D0716012_B71013800004

GPS
19.50674, -154.9493

Station Description:

Kahakai Boulevard: Auina Street to Olao Street

Survey Beginning Date/Time:
7/16/13 @ 0000

Survey Ending Date/Time:
7/17/13 @ 2400

Survey Method:	Road Tube	Data Type:	Class			
Survey Crew:	LM		C1B			
Sketch Updated:		By:	SR			
Remarks:						
FACILITY NAME	JURI	FUNC CLASS	AREA TYPE	NO.	ROUTE	MILE
Kahakai Boulevard		17		0138		
D1= Direction to End		D1: Olao Street / Papio St				
D2= Direction to Begin		D2: Auina Street / Keaau-Paho Road (Rte 130)				

Run Date: 2014/05/29

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2013 Program Count - Summary

Site ID: B71013800004

Functional Class: URBAN:COLLECTOR

Location: Kahakai Blvd - Auina St to Olao St

Town: Hawaii
 Count Type: CLASS

DIR 1: +MP DIR 2: -MP
 Counter Type: Tube

Final AADT: 5300
 Route No: 138

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL												
DATE : 07/16/2013																											
12:00-12:15	9	3	12	06:00-06:15	6	53	59	12:00-12:15	34	45	79	06:00-06:15	54	31	85												
12:15-12:30	4	3	7	06:15-06:30	15	62	77	12:15-12:30	47	40	87	06:15-06:30	54	50	104												
12:30-12:45	2	0	2	06:30-06:45	14	57	71	12:30-12:45	41	37	78	06:30-06:45	59	32	91												
12:45-01:00	1	0	1	06:45-07:00	15	58	73	12:45-01:00	33	38	71	06:45-07:00	51	33	84												
01:00-01:15	1	3	4	07:00-07:15	20	60	80	01:00-01:15	47	53	100	07:00-07:15	46	15	61												
01:15-01:30	1	0	1	07:15-07:30	23	39	62	01:15-01:30	43	48	91	07:15-07:30	33	17	50												
01:30-01:45	2	0	2	07:30-07:45	29	62	91	01:30-01:45	50	36	86	07:30-07:45	29	18	47												
01:45-02:00	1	2	3	07:45-08:00	22	53	75	01:45-02:00	42	40	82	07:45-08:00	38	14	52												
02:00-02:15	0	1	1	08:00-08:15	26	56	82	02:00-02:15	47	37	84	08:00-08:15	29	13	42												
02:15-02:30	1	2	3	08:15-08:30	24	49	73	02:15-02:30	43	41	84	08:15-08:30	29	18	47												
02:30-02:45	1	4	5	08:30-08:45	25	52	77	02:30-02:45	60	27	87	08:30-08:45	24	11	35												
02:45-03:00	1	2	3	08:45-09:00	21	48	69	02:45-03:00	55	42	97	08:45-09:00	24	7	31												
03:00-03:15	0	4	4	09:00-09:15	21	44	65	03:00-03:15	60	40	100	09:00-09:15	22	10	32												
03:15-03:30	2	4	6	09:15-09:30	24	56	80	03:15-03:30	57	50	107	09:15-09:30	26	13	39												
03:30-03:45	0	4	4	09:30-09:45	25	44	69	03:30-03:45	61	51	112	09:30-09:45	26	4	30												
03:45-04:00	0	7	7	09:45-10:00	31	52	83	03:45-04:00	72	50	122	09:45-10:00	16	8	24												
04:00-04:15	0	4	4	10:00-10:15	29	52	81	04:00-04:15	61	31	92	10:00-10:15	13	5	18												
04:15-04:30	0	9	9	10:15-10:30	33	41	74	04:15-04:30	58	48	106	10:15-10:30	14	9	23												
04:30-04:45	0	12	12	10:30-10:45	25	36	61	04:30-04:45	42	33	75	10:30-10:45	15	8	23												
04:45-05:00	0	7	7	10:45-11:00	36	47	83	04:45-05:00	76	39	115	10:45-11:00	11	3	14												
05:00-05:15	1	16	17	11:00-11:15	45	41	86	05:00-05:15	73	36	109	11:00-11:15	10	5	15												
05:15-05:30	1	22	23	11:15-11:30	36	46	82	05:15-05:30	75	29	104	11:15-11:30	6	1	7												
05:30-05:45	8	27	35	11:30-11:45	46	56	102	05:30-05:45	71	29	100	11:30-11:45	9	3	12												
05:45-06:00	9	33	42	11:45-12:00	39	39	78	05:45-06:00	54	39	93	11:45-12:00	7	1	8												
AM COMMUTER PERIOD (05:00-09:00)			DIR 1	DIR 2			PM COMMUTER PERIOD (15:00-19:00)			DIR 1	DIR 2																
TWO DIRECTIONAL PEAK																											
AM - PEAK HR TIME				07:30 AM to 08:30 AM				PM - PEAK HR TIME				03:00 PM to 04:00 PM															
AM - PEAK HR VOLUME			101	220			321			250			191			441											
AM - K FACTOR (%)						6.08						8.35															
AM - D (%)			31.46	68.54			100.00			56.69			43.31			100.00											
DIRECTIONAL PEAK																											
AM - PEAK HR TIME				07:30 AM to 08:30 AM				06:15 AM to 07:15 AM				04:45 PM to 05:45 PM				03:00 PM to 04:00 PM											
AM - PEAK HR VOLUME			101	237						295			191														
AM PERIOD (00:00-12:00)																											
TWO DIRECTIONAL PEAK																											
AM - PEAK HR TIME				10:45 AM to 11:45 AM				PM - PEAK HR TIME				03:00 PM to 04:00 PM															
AM - PEAK HR VOLUME			163	190			353			250			191			441											
AM - K FACTOR (%)						6.68						8.35															
AM - D (%)			46.18	53.82			100.00			56.69			43.31			100.00											
NON-COMMUTER PERIOD (09:00-15:00)																											
TWO DIRECTIONAL PEAK																											
PEAK HR TIME				01:00 PM to 02:00 PM				AM 6-HR PERIOD (06:00-12:00)				DIR 1				DIR 2				Total							
PEAK HR VOLUME			182	177			359			675			1,372			2,047											
DIRECTIONAL PEAK																											
PEAK HR TIME				02:00 PM to 03:00 PM				09:15 AM to 10:15 AM				PM 6-HR PERIOD (12:00-18:00)				1,947				1,288				3,235			
PEAK HR VOLUME			205	204						2,622			2,660			5,282											
D (%)																											
									49.64			50.36			100.00												

Run Date: 2014/05/29

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2013 Program Count - Summary

Site ID: B71013800004

Functional Class: URBAN:COLLECTOR

Location: Kahakai Blvd - Auina St to Olao St

Town: Hawaii
 Count Type: CLASS

DIR 1: +MP DIR 2: -MP
 Counter Type: Tube

Final AADT: 5300
 Route No: 138

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL												
DATE : 07/17/2013																											
12:00-12:15	4	0	4	06:00-06:15	6	30	36	12:00-12:15	41	51	92	06:00-06:15	63	34	97												
12:15-12:30	2	1	3	06:15-06:30	11	51	62	12:15-12:30	58	42	100	06:15-06:30	52	39	91												
12:30-12:45	0	3	3	06:30-06:45	18	69	87	12:30-12:45	43	35	78	06:30-06:45	39	33	72												
12:45-01:00	2	2	4	06:45-07:00	18	45	63	12:45-01:00	35	38	73	06:45-07:00	42	29	71												
01:00-01:15	0	1	1	07:00-07:15	17	64	81	01:00-01:15	47	32	79	07:00-07:15	45	22	67												
01:15-01:30	2	1	3	07:15-07:30	26	67	93	01:15-01:30	52	45	97	07:15-07:30	43	18	61												
01:30-01:45	4	1	5	07:30-07:45	27	62	89	01:30-01:45	45	38	83	07:30-07:45	41	17	58												
01:45-02:00	2	1	3	07:45-08:00	20	57	77	01:45-02:00	37	38	75	07:45-08:00	42	15	57												
02:00-02:15	3	1	4	08:00-08:15	23	63	86	02:00-02:15	47	39	86	08:00-08:15	45	19	64												
02:15-02:30	2	3	5	08:15-08:30	22	63	85	02:15-02:30	47	42	89	08:15-08:30	38	12	50												
02:30-02:45	1	4	5	08:30-08:45	31	56	87	02:30-02:45	48	48	96	08:30-08:45	36	12	48												
02:45-03:00	4	4	8	08:45-09:00	26	48	74	02:45-03:00	53	37	90	08:45-09:00	39	10	49												
03:00-03:15	2	5	7	09:00-09:15	32	38	70	03:00-03:15	53	48	101	09:00-09:15	21	10	31												
03:15-03:30	0	1	1	09:15-09:30	36	59	95	03:15-03:30	54	36	90	09:15-09:30	23	12	35												
03:30-03:45	1	1	2	09:30-09:45	33	64	97	03:30-03:45	57	57	114	09:30-09:45	31	7	38												
03:45-04:00	1	7	8	09:45-10:00	30	52	82	03:45-04:00	64	47	111	09:45-10:00	22	18	40												
04:00-04:15	0	9	9	10:00-10:15	43	39	82	04:00-04:15	58	42	100	10:00-10:15	19	10	29												
04:15-04:30	1	13	14	10:15-10:30	23	48	71	04:15-04:30	72	49	121	10:15-10:30	20	6	26												
04:30-04:45	2	11	13	10:30-10:45	44	40	84	04:30-04:45	73	39	112	10:30-10:45	18	14	32												
04:45-05:00	0	13	13	10:45-11:00	37	54	91	04:45-05:00	69	30	99	10:45-11:00	13	3	16												
05:00-05:15	6	16	22	11:00-11:15	38	44	82	05:00-05:15	82	29	111	11:00-11:15	13	8	21												
05:15-05:30	3	21	24	11:15-11:30	28	47	75	05:15-05:30	58	44	102	11:15-11:30	5	6	11												
05:30-05:45	9	29	38	11:30-11:45	52	57	109	05:30-05:45	71	31	102	11:30-11:45	14	5	19												
05:45-06:00	10	43	53	11:45-12:00	32	36	68	05:45-06:00	48	30	78	11:45-12:00	3	1	4												
AM COMMUTER PERIOD (05:00-09:00)			DIR 1	DIR 2			PM COMMUTER PERIOD (15:00-19:00)			DIR 1	DIR 2																
TWO DIRECTIONAL PEAK																											
AM - PEAK HR TIME				07:15 AM to 08:15 AM				PM - PEAK HR TIME				03:30 PM to 04:30 PM															
AM - PEAK HR VOLUME			96	249			345			251			195			446											
AM - K FACTOR (%)						6.22						8.04															
AM - D (%)			27.83	72.17			100.00			56.28			43.72			100.00											
DIRECTIONAL PEAK																											
AM - PEAK HR TIME				08:00 AM to 09:00 AM				07:00 AM to 08:00 AM				04:15 PM to 05:15 PM				03:30 PM to 04:30 PM											
AM - PEAK HR VOLUME			102	250			296			195																	
AM PERIOD (00:00-12:00)																											
TWO DIRECTIONAL PEAK																											
AM - PEAK HR TIME				10:45 AM to 11:45 AM				PM - PEAK HR TIME				03:30 PM to 04:30 PM															
AM - PEAK HR VOLUME			155	202			357			251			195			446											
AM - K FACTOR (%)						6.44						8.04															
AM - D (%)			43.42	56.58			100.00			56.28			43.72			100.00											
NON-COMMUTER PERIOD (09:00-15:00)																											
TWO DIRECTIONAL PEAK																											
PEAK HR TIME				11:30 AM to 12:30 PM				AM 6-HR PERIOD (06:00-12:00)				DIR 1				DIR 2				Total							
PEAK HR VOLUME			183	186			369			734			1,444			2,178											
DIRECTIONAL PEAK																											
PEAK HR TIME				02:00 PM to 03:00 PM				09:15 AM to 10:15 AM				PM 6-HR PERIOD (12:00-18:00)				2,039				1,327				3,366			
PEAK HR VOLUME			195	214			50.02			49.98			100.00			2,773			2,771			5,544					
D (%)																											

Run Date: 2014/05/28

**Hawaii Department of Transportation
Highways Division
Highways Planning Survey Section
Vehicle Classification Data Summary
2013**

Site ID: B71013800004

Route No: 138

Date From: 2013/07/16 0:00

Town: Hawaii

Direction: +MP

Date To: 2013/07/17 23:45

Location: Kahakai Blvd - Auina St to Olao St

Functional Classification: 17 URBAN:COLLECTOR
REPORT TOTALS - 48 HOURS RECORDED

	VOLUME	%	NUMBER OF AXLES
Cycles	69	0.64%	139
PC	8199	75.73%	16398
2A-4T	2450	22.63%	4900

LIGHT VEHICLE TOTALS	10718	99.01%	21437
<u>HEAVY VEHICLES</u>			
Bus	16	0.15%	40
<u>SINGLE UNIT TRUCK</u>			
2A-6T	58	0.54%	116
3A-SU	19	0.18%	57
4A-SU	0	0.00%	0
<u>SINGLE-TRAILER TRUCKS</u>			
4A-ST	3	0.03%	12
5A-ST	7	0.06%	35
6A-ST	1	0.01%	6
<u>MULTI-TRAILER TRUCKS</u>			
5A-MT	3	0.03%	15
6A-MT	0	0.00%	0
7A-MT	1	0.01%	7

HEAVY VEHICLE TOTALS	108	1.00%	288

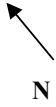
CLASSIFIED VEHICLES TOTALS	10826 (A)	100.00%	21725 (B)
UNCLASSIFIED VEHICLES TOTALS	-0	-0.00%	

AXLE CORRECTION FACTOR (A/C) = 0.997

ROADTUBE EQUIVALENT(B/2) = 10862 (C)

PEAK HOUR VOLUME : 441 2013/07/16 15:00	PEAK HOUR TRUCK VOLUME	% TOTAL PEAK HOUR VOLUME	24 HOUR TRUCK VOLUME	AADT	% OF AADT	HPMS K-FACTOR (PEAK/AADT) (ITEM 66)
SINGLE UNIT TRUCKS (TYPE 4-7)	5	(65A-1) 1.13%	46	5300	(65A-2) 0.87%	8.32%
COMBINATION (TYPE 8-13)	0	(65B-1) 0.00%	7		(65B-2) 0.13%	8.32%

Traffic Data Service Traffic Station Sketch

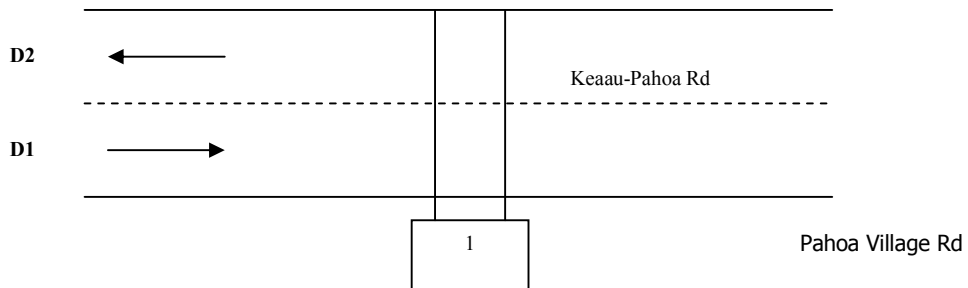


Section ID/Station #: B71013000937

Island: Hawaii

Area: Paho

Kaluahine St



<u>Meter #</u>	<u>File Name</u>	<u>GPS</u>
1. bg67	D0729011_B71013000937	19.51418, -154.9633
2.	D0729012_B71013000937	

Station Description: Keaau-Paho Rd: Kaluahine St to Paho Village Rd					
Survey Beginning Date/Time: 7/29/13 @ 0000			Survey Ending Date/Time: 7/30/13 @ 2400		
Survey Method:	Road Tube	Data Type:	Class		
Survey Crew:	LM			C1B	
Sketch Updated:			By:	SR	
Remarks:	1295				
FACILITY NAME	JURI	FUNC CLASS	AREA TYPE	ROUTE NO.	ROUTE MILE
Keaau-Paho Rd		16		0130	
D1= Direction to End		D1: Paho Village Rd/Royal Palm Dr			
D2= Direction to Begin		D2: Kaluahine St / VOLCANO ROAD			

Run Date: 2014/05/23

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2013 Program Count - Summary

Site ID: B71013000937

Town: Hawaii
 Count Type: CLASS

DIR 1: +MP DIR 2: -MP
 Counter Type: Tube

Final AADT: 11300
 Route No: 130

Location: Keaau-Pahoa Road: Kaluahine St to Pahoa Village Rd

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 07/30/2013															
12:00-12:15	15	13	28	06:00-06:15	29	59	88	12:00-12:15	117	105	222	06:00-06:15	66	69	135
12:15-12:30	7	8	15	06:15-06:30	36	81	117	12:15-12:30	120	103	223	06:15-06:30	86	50	136
12:30-12:45	8	3	11	06:30-06:45	57	79	136	12:30-12:45	122	103	225	06:30-06:45	57	42	99
12:45-01:00	4	7	11	06:45-07:00	55	86	141	12:45-01:00	84	89	173	06:45-07:00	70	53	123
01:00-01:15	3	2	5	07:00-07:15	72	88	160	01:00-01:15	101	93	194	07:00-07:15	50	46	96
01:15-01:30	3	4	7	07:15-07:30	61	114	175	01:15-01:30	99	77	176	07:15-07:30	75	52	127
01:30-01:45	7	2	9	07:30-07:45	68	91	159	01:30-01:45	88	63	151	07:30-07:45	41	45	86
01:45-02:00	4	1	5	07:45-08:00	65	95	160	01:45-02:00	82	75	157	07:45-08:00	38	42	80
02:00-02:15	6	8	14	08:00-08:15	89	80	169	02:00-02:15	103	72	175	08:00-08:15	36	47	83
02:15-02:30	4	7	11	08:15-08:30	79	101	180	02:15-02:30	103	75	178	08:15-08:30	57	46	103
02:30-02:45	5	4	9	08:30-08:45	86	91	177	02:30-02:45	91	74	165	08:30-08:45	42	28	70
02:45-03:00	3	6	9	08:45-09:00	101	109	210	02:45-03:00	78	79	157	08:45-09:00	26	30	56
03:00-03:15	2	8	10	09:00-09:15	91	124	215	03:00-03:15	84	90	174	09:00-09:15	30	28	58
03:15-03:30	0	2	2	09:15-09:30	99	114	213	03:15-03:30	72	63	135	09:15-09:30	33	18	51
03:30-03:45	5	3	8	09:30-09:45	101	93	194	03:30-03:45	105	77	182	09:30-09:45	26	24	50
03:45-04:00	6	5	11	09:45-10:00	83	117	200	03:45-04:00	111	68	179	09:45-10:00	21	15	36
04:00-04:15	4	8	12	10:00-10:15	82	107	189	04:00-04:15	98	70	168	10:00-10:15	27	19	46
04:15-04:30	4	10	14	10:15-10:30	108	104	212	04:15-04:30	88	63	151	10:15-10:30	20	18	38
04:30-04:45	7	16	23	10:30-10:45	103	132	235	04:30-04:45	107	65	172	10:30-10:45	27	13	40
04:45-05:00	5	15	20	10:45-11:00	90	105	195	04:45-05:00	94	78	172	10:45-11:00	19	15	34
05:00-05:15	8	21	29	11:00-11:15	107	123	230	05:00-05:15	70	72	142	11:00-11:15	17	13	30
05:15-05:30	12	29	41	11:15-11:30	106	126	232	05:15-05:30	79	81	160	11:15-11:30	11	17	28
05:30-05:45	25	48	73	11:30-11:45	111	114	225	05:30-05:45	91	68	159	11:30-11:45	9	5	14
05:45-06:00	19	44	63	11:45-12:00	104	97	201	05:45-06:00	68	67	135	11:45-12:00	12	3	15

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2
TWO DIRECTIONAL PEAK		TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	08:00 AM to 09:00 AM		PM - PEAK HR TIME	03:30 PM to 04:30 PM	
AM - PEAK HR VOLUME	355	381	PM - PEAK HR VOLUME	402	278
AM - K FACTOR (%)	6.94		PM - K FACTOR (%)	6.41	
AM - D (%)	48.23	51.77	PM - D (%)	59.12	40.88
DIRECTIONAL PEAK		DIRECTIONAL PEAK			
AM - PEAK HR TIME	08:00 AM to 09:00 AM	07:00 AM to 08:00 AM	PM - PEAK HR TIME	03:45 PM to 04:45 PM	04:45 PM to 05:45 PM
AM - PEAK HR VOLUME	355	388	PM - PEAK HR VOLUME	404	299

AM PERIOD (00:00-12:00)	PM PERIOD (12:00-24:00)
TWO DIRECTIONAL PEAK	
AM - PEAK HR TIME	10:30 AM to 11:30 AM
AM - PEAK HR VOLUME	406
AM - K FACTOR (%)	8.41
AM - D (%)	45.52
TWO DIRECTIONAL PEAK	
PM - PEAK HR TIME	12:00 PM to 01:00 PM
PM - PEAK HR VOLUME	443
PM - K FACTOR (%)	7.94
PM - D (%)	52.55

NON-COMMUTER PERIOD (09:00-15:00)	6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	Total
TWO DIRECTIONAL PEAK				
PEAK HR TIME	10:30 AM to 11:30 AM	AM 6-HR PERIOD (06:00-12:00)	1,983	2,430
PEAK HR VOLUME	406	AM 12-HR PERIOD (00:00-12:00)	2,149	2,704
DIRECTIONAL PEAK		PM 6-HR PERIOD (12:00-18:00)	2,255	1,870
PEAK HR TIME	11:45 AM to 12:45 PM	PM 12-HR PERIOD (12:00-24:00)	3,151	2,608
PEAK HR VOLUME	463	24 HOUR PERIOD	5,300	5,312
		D (%)	49.94	50.06
				100.00

Run Date: 2014/05/23

Hawaii Department of Transportation
Highways Division
Highways Planning Survey Section

Vehicle Classification Data Summary
2013

Site ID: B71013000937

Route No: 130

Date From: 2013/07/30 0:00

Town: Hawaii

Direction: +MP

Date To: 2013/07/31 23:45

Location: Keaau-Pahoa Road: Kaluahine St to Pahoa Village Rd

Functional Classification: 16 URBAN:MINOR ARTERIAL
REPORT TOTALS - 48 HOURS RECORDED

	VOLUME	%	NUMBER OF AXLES
Cycles	59	0.25%	117
PC	17262	73.60%	34524
2A-4T	5811	24.78%	11622

LIGHT VEHICLE TOTALS	23132	98.63%	46263
HEAVY VEHICLES			
Bus	45	0.19%	113
SINGLE UNIT TRUCK			
2A-6T	120	0.51%	240
3A-SU	79	0.34%	237
4A-SU	23	0.10%	92
SINGLE-TRAILER TRUCKS			
4A-ST	11	0.05%	44
5A-ST	29	0.12%	145
6A-ST	7	0.03%	42
MULTI-TRAILER TRUCKS			
5A-MT	3	0.01%	15
6A-MT	1	0.00%	6
7A-MT	5	0.02%	35

HEAVY VEHICLE TOTALS	323	1.38%	969

CLASSIFIED VEHICLES TOTALS 23455 (A) 100.00% 47232 (B)
UNCLASSIFIED VEHICLES TOTALS -1 -0.00%

AXLE CORRECTION FACTOR (A/C) = 0.993

ROADTUBE EQUIVALENT(B/2) = 23616 (C)

PEAK HOUR VOLUME : 1060 2013/07/31 14:00	PEAK HOUR TRUCK VOLUME	% TOTAL PEAK HOUR VOLUME	24 HOUR TRUCK VOLUME	AADT	% OF AADT	HPMS K-FACTOR (PEAK/AADT) (ITEM 66)
SINGLE UNIT TRUCKS (TYPE 4-7)	16	(65A-1) 1.51%	133	11300	(65A-2) 1.18%	9.38%
COMBINATION (TYPE 8-13)	3	(65B-1) 0.28%	28		(65B-2) 0.25%	9.38%

Traffic Data Service
Traffic Station Sketch

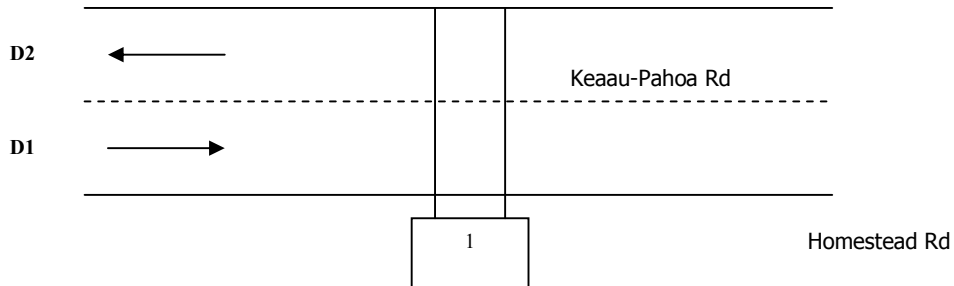


Section ID/Station #: B71013001088

Island: Hawaii

Area: Paho

Kahakai Blvd



Meter #
1. bg75

File Name
D1106011_B71013001088
D1106012_B71013001088

GPS
19.50071, -154.9474

Station Description:

Keaau-Paho Rd: Kahakai Blvd to Homestead Rd

Survey Beginning Date/Time:
11/6/13 @ 0000

Survey Ending Date/Time:
11/7/13 @ 2400

Survey Method:	Road Tube	Data Type:	Class
Survey Crew:	LM		C1B
Sketch Updated:		By:	SR

Remarks: 1293

FACILITY NAME	JURI	FUNC CLASS	AREA TYPE	NO.	ROUTE MILE
Keaau-Paho Rd		16		0130	

D1= Direction to End
D2= Direction to Begin

D1: Homestead Rd / end of rte (.83 mi past Royal Palm Dr)
D2: Kahakai Blvd / VOLCANO ROAD

Run Date: 2014/05/30

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2013 Program Count - Summary

Site ID: B71013001088

Functional Class: URBAN:MINOR ARTERIAL

Location: Keaau-Pahoa Rd - Kahakai Blvd to Homestead Rd

Town: Hawaii
 Count Type: CLASS

DIR 1: +MP DIR 2: -MP
 Counter Type: Tube

Final AADT: 7600
 Route No: 130

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 11/06/2013															
12:00-12:15	3	0	3	06:00-06:15	26	42	68	12:00-12:15	64	48	112	06:00-06:15	84	60	144
12:15-12:30	4	1	5	06:15-06:30	30	73	103	12:15-12:30	70	66	136	06:15-06:30	75	33	108
12:30-12:45	4	1	5	06:30-06:45	52	97	149	12:30-12:45	68	62	130	06:30-06:45	76	45	121
12:45-01:00	1	2	3	06:45-07:00	44	75	119	12:45-01:00	71	67	138	06:45-07:00	71	28	99
01:00-01:15	3	2	5	07:00-07:15	48	64	112	01:00-01:15	67	78	145	07:00-07:15	60	31	91
01:15-01:30	2	1	3	07:15-07:30	67	81	148	01:15-01:30	81	76	157	07:15-07:30	58	27	85
01:30-01:45	1	1	2	07:30-07:45	113	108	221	01:30-01:45	76	69	145	07:30-07:45	38	24	62
01:45-02:00	4	2	6	07:45-08:00	103	122	225	01:45-02:00	77	77	154	07:45-08:00	24	31	55
02:00-02:15	0	5	5	08:00-08:15	58	81	139	02:00-02:15	78	65	143	08:00-08:15	33	23	56
02:15-02:30	5	5	10	08:15-08:30	59	76	135	02:15-02:30	72	65	137	08:15-08:30	36	30	66
02:30-02:45	1	1	2	08:30-08:45	52	70	122	02:30-02:45	84	66	150	08:30-08:45	37	28	65
02:45-03:00	0	1	1	08:45-09:00	59	69	128	02:45-03:00	81	74	155	08:45-09:00	40	26	66
03:00-03:15	0	3	3	09:00-09:15	52	66	118	03:00-03:15	88	82	170	09:00-09:15	26	24	50
03:15-03:30	1	6	7	09:15-09:30	43	62	105	03:15-03:30	93	55	148	09:15-09:30	31	29	60
03:30-03:45	2	3	5	09:30-09:45	44	61	105	03:30-03:45	73	69	142	09:30-09:45	29	25	54
03:45-04:00	2	1	3	09:45-10:00	50	67	117	03:45-04:00	92	60	152	09:45-10:00	15	20	35
04:00-04:15	1	4	5	10:00-10:15	47	50	97	04:00-04:15	74	69	143	10:00-10:15	18	21	39
04:15-04:30	0	7	7	10:15-10:30	31	53	84	04:15-04:30	92	67	159	10:15-10:30	17	19	36
04:30-04:45	0	10	10	10:30-10:45	42	60	102	04:30-04:45	82	56	138	10:30-10:45	9	18	27
04:45-05:00	4	17	21	10:45-11:00	52	62	114	04:45-05:00	84	39	123	10:45-11:00	12	7	19
05:00-05:15	4	20	24	11:00-11:15	48	61	109	05:00-05:15	97	60	157	11:00-11:15	10	4	14
05:15-05:30	4	23	27	11:15-11:30	47	50	97	05:15-05:30	85	65	150	11:15-11:30	7	5	12
05:30-05:45	2	26	28	11:30-11:45	67	68	135	05:30-05:45	86	50	136	11:30-11:45	10	7	17
05:45-06:00	13	35	48	11:45-12:00	64	60	124	05:45-06:00	84	65	149	11:45-12:00	5	10	15
AM COMMUTER PERIOD (05:00-09:00)			DIR 1	DIR 2			PM COMMUTER PERIOD (15:00-19:00)			DIR 1	DIR 2				
TWO DIRECTIONAL PEAK			07:15 AM to 08:15 AM			TWO DIRECTIONAL PEAK			03:00 PM to 04:00 PM						
AM - PEAK HR TIME			341			PM - PEAK HR TIME			346						
AM - PEAK HR VOLUME			392			PM - PEAK HR VOLUME			266						
AM - K FACTOR (%)			733			PM - K FACTOR (%)			612						
AM - D (%)			9.07			PM - D (%)			7.58						
DIRECTIONAL PEAK			46.52			DIRECTIONAL PEAK			56.54						
AM - PEAK HR TIME			53.48			DIRECTIONAL PEAK			43.46						
AM - PEAK HR VOLUME			100.00			PM - PEAK HR TIME			100.00						
DIRECTIONAL PEAK			07:15 AM to 08:15 AM			DIRECTIONAL PEAK			04:15 PM to 05:15 PM						
AM - PEAK HR TIME			07:15 AM to 08:15 AM			DIRECTIONAL PEAK			03:00 PM to 04:00 PM						
AM - PEAK HR VOLUME			341			PM - PEAK HR TIME			355						
			392			PM - PEAK HR VOLUME			266						
AM PERIOD (00:00-12:00)						PM PERIOD (12:00-24:00)									
TWO DIRECTIONAL PEAK			07:15 AM to 08:15 AM			TWO DIRECTIONAL PEAK			02:30 PM to 03:30 PM						
AM - PEAK HR TIME			341			PM - PEAK HR TIME			346						
AM - PEAK HR VOLUME			392			PM - PEAK HR VOLUME			277						
AM - K FACTOR (%)			733			PM - K FACTOR (%)			623						
AM - D (%)			9.07			PM - D (%)			7.71						
			46.52						55.54						
			53.48						44.46						
			100.00						100.00						
NON-COMMUTER PERIOD (09:00-15:00)						6-HR, 12-HR, 24-HR PERIODS			DIR 1 DIR 2 Total						
TWO DIRECTIONAL PEAK			01:00 PM to 02:00 PM			AM 6-HR PERIOD (06:00-12:00)			1,298 1,678 2,976						
PEAK HR TIME			301			AM 12-HR PERIOD (00:00-12:00)			1,359 1,855 3,214						
PEAK HR VOLUME			300			PM 6-HR PERIOD (12:00-18:00)			1,919 1,550 3,469						
DIRECTIONAL PEAK			02:00 PM to 03:00 PM			PM 12-HR PERIOD (12:00-24:00)			2,740 2,125 4,865						
PEAK HR TIME			01:00 PM to 02:00 PM			24 HOUR PERIOD			4,099 3,980 8,079						
PEAK HR VOLUME			315			D (%)			50.74 49.26 100.00						

Run Date: 2014/05/30

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2013 Program Count - Summary

Site ID: B71013001088

Functional Class: URBAN:MINOR ARTERIAL

Location: Keaau-Pahoa Rd - Kahakai Blvd to Homestead Rd

Town: Hawaii
 Count Type: CLASS

DIR 1: +MP DIR 2: -MP
 Counter Type: Tube

Final AADT: 7600
 Route No: 130

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 11/07/2013															
12:00-12:15	2	2	4	06:00-06:15	22	42	64	12:00-12:15	49	51	100	06:00-06:15	68	39	107
12:15-12:30	6	7	13	06:15-06:30	25	75	100	12:15-12:30	57	68	125	06:15-06:30	74	46	120
12:30-12:45	3	4	7	06:30-06:45	41	102	143	12:30-12:45	60	58	118	06:30-06:45	51	21	72
12:45-01:00	3	4	7	06:45-07:00	61	77	138	12:45-01:00	58	60	118	06:45-07:00	70	26	96
01:00-01:15	1	1	2	07:00-07:15	47	80	127	01:00-01:15	66	47	113	07:00-07:15	61	24	85
01:15-01:30	2	1	3	07:15-07:30	65	79	144	01:15-01:30	45	72	117	07:15-07:30	40	21	61
01:30-01:45	2	2	4	07:30-07:45	102	118	220	01:30-01:45	66	58	124	07:30-07:45	42	26	68
01:45-02:00	2	1	3	07:45-08:00	103	136	239	01:45-02:00	69	68	137	07:45-08:00	32	21	53
02:00-02:15	1	8	9	08:00-08:15	65	93	158	02:00-02:15	72	83	155	08:00-08:15	36	26	62
02:15-02:30	2	5	7	08:15-08:30	68	90	158	02:15-02:30	89	82	171	08:15-08:30	30	14	44
02:30-02:45	2	2	4	08:30-08:45	54	83	137	02:30-02:45	77	72	149	08:30-08:45	33	18	51
02:45-03:00	1	2	3	08:45-09:00	62	56	118	02:45-03:00	68	72	140	08:45-09:00	29	11	40
03:00-03:15	1	2	3	09:00-09:15	53	72	125	03:00-03:15	89	78	167	09:00-09:15	28	8	36
03:15-03:30	0	4	4	09:15-09:30	44	55	99	03:15-03:30	87	70	157	09:15-09:30	19	18	37
03:30-03:45	2	7	9	09:30-09:45	38	63	101	03:30-03:45	69	91	160	09:30-09:45	17	15	32
03:45-04:00	1	2	3	09:45-10:00	54	54	108	03:45-04:00	70	56	126	09:45-10:00	20	11	31
04:00-04:15	2	8	10	10:00-10:15	57	68	125	04:00-04:15	78	80	158	10:00-10:15	15	7	22
04:15-04:30	1	8	9	10:15-10:30	47	57	104	04:15-04:30	66	60	126	10:15-10:30	16	9	25
04:30-04:45	0	12	12	10:30-10:45	45	67	112	04:30-04:45	74	61	135	10:30-10:45	14	3	17
04:45-05:00	3	12	15	10:45-11:00	57	51	108	04:45-05:00	81	59	140	10:45-11:00	12	3	15
05:00-05:15	4	20	24	11:00-11:15	49	64	113	05:00-05:15	92	55	147	11:00-11:15	16	6	22
05:15-05:30	4	31	35	11:15-11:30	55	59	114	05:15-05:30	81	47	128	11:15-11:30	5	1	6
05:30-05:45	9	25	34	11:30-11:45	46	63	109	05:30-05:45	56	56	112	11:30-11:45	8	2	10
05:45-06:00	17	27	44	11:45-12:00	47	48	95	05:45-06:00	78	38	116	11:45-12:00	9	5	14

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2
TWO DIRECTIONAL PEAK		TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:30 AM to 08:30 AM		PM - PEAK HR TIME	03:00 PM to 04:00 PM	
AM - PEAK HR VOLUME	338	437	PM - PEAK HR VOLUME	315	295
AM - K FACTOR (%)	10.08		PM - K FACTOR (%)	7.93	
AM - D (%)	43.61	56.39	PM - D (%)	51.64	48.36

DIRECTIONAL PEAK	DIR 1	DIR 2	DIRECTIONAL PEAK	DIR 1	DIR 2
AM - PEAK HR TIME	07:30 AM to 08:30 AM		PM - PEAK HR TIME	04:30 PM to 05:30 PM	
AM - PEAK HR VOLUME	338	437	PM - PEAK HR VOLUME	328	297

AM PERIOD (00:00-12:00)	DIR 1	DIR 2	PM PERIOD (12:00-24:00)	DIR 1	DIR 2
TWO DIRECTIONAL PEAK		TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:30 AM to 08:30 AM		PM - PEAK HR TIME	02:15 PM to 03:15 PM	
AM - PEAK HR VOLUME	338	437	PM - PEAK HR VOLUME	323	304
AM - K FACTOR (%)	10.08		PM - K FACTOR (%)	8.15	
AM - D (%)	43.61	56.39	PM - D (%)	51.52	48.48

NON-COMMUTER PERIOD (09:00-15:00)	DIR 1	DIR 2	Total
6-HR, 12-HR, 24-HR PERIODS			
TWO DIRECTIONAL PEAK	AM 6-HR PERIOD (06:00-12:00)	1,307	1,752
PEAK HR TIME	AM 12-HR PERIOD (00:00-12:00)	1,378	1,949
PEAK HR VOLUME	PM 6-HR PERIOD (12:00-18:00)	1,697	1,542
DIRECTIONAL PEAK	PM 12-HR PERIOD (12:00-24:00)	2,442	1,923
PEAK HR TIME	24 HOUR PERIOD	3,820	3,872
PEAK HR VOLUME	D (%)	49.66	50.34
			100.00

Run Date: 2014/05/29

Hawaii Department of Transportation
Highways Division
Highways Planning Survey Section

Vehicle Classification Data Summary
2013

Site ID: B71013001088

Route No: 130

Date From: 2013/11/06 0:00

Town: Hawaii

Direction: +MP

Date To: 2013/11/07 23:45

Location: Keaau-Pahoa Rd - Kahakai Blvd to Homestead Rd

Functional Classification: 16 URBAN:MINOR ARTERIAL

REPORT TOTALS - 48 HOURS RECORDED

	VOLUME	%	NUMBER OF AXLES
Cycles	71	0.45%	142
PC	10891	69.06%	21782
2A-4T	4372	27.72%	8744

LIGHT VEHICLE TOTALS	15334	97.23%	30668
HEAVY VEHICLES			
Bus	155	0.98%	387
SINGLE UNIT TRUCK			
2A-6T	139	0.88%	278
3A-SU	57	0.36%	171
4A-SU	25	0.16%	100
SINGLE-TRAILER TRUCKS			
4A-ST	26	0.16%	104
5A-ST	25	0.16%	125
6A-ST	5	0.03%	30
MULTI-TRAILER TRUCKS			
5A-MT	2	0.01%	10
6A-MT	0	0.00%	0
7A-MT	3	0.02%	21

HEAVY VEHICLE TOTALS	437	2.77%	1226

CLASSIFIED VEHICLES TOTALS	15771 (A)	100.00%	31894 (B)
UNCLASSIFIED VEHICLES TOTALS	0	0.00%	

AXLE
CORRECTION
FACTOR (A/C) = 0.989

ROADTUBE
EQUIVALENT(B/2) = 15947 (C)

PEAK HOUR VOLUME : 730 2013/11/07 07:00	PEAK HOUR TRUCK VOLUME	% TOTAL PEAK HOUR VOLUME	24 HOUR TRUCK VOLUME	AADT	% OF AADT	HPMS K-FACTOR (PEAK/AADT) (ITEM 66)
SINGLE UNIT TRUCKS (TYPE 4-7)	28	(65A-1) 3.84%	188	7600	(65A-2) 2.47%	9.61%
COMBINATION (TYPE 8-13)	3	(65B-1) 0.41%	30		(65B-2) 0.39%	9.61%

Traffic Data Service
Traffic Station Sketch



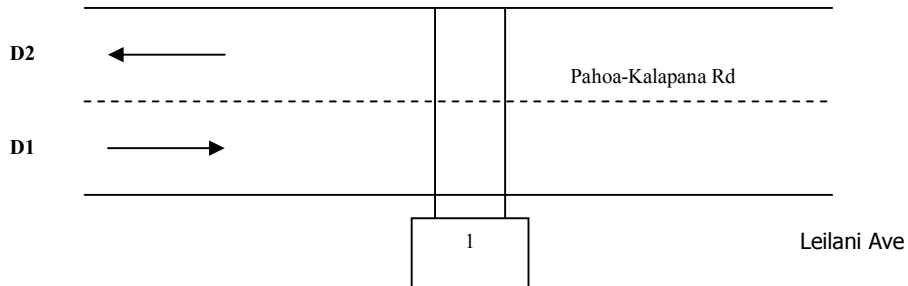
N

Section ID/Station #: B71013001316

Island: Hawaii

Area: Paho

Board of Water Supply tank



<u>Meter #</u>	<u>File Name</u>	<u>GPS</u>
1. bg68	D0729013_B71013001316	19.46607, -154.9411
2.	D0729014_B71013001316	

Station Description: Pahoa-Kalapana Rd: Board of Water Supply tank to Leilani Ave					
Survey Beginning Date/Time: 7/29/13 @ 0000			Survey Ending Date/Time: 7/30/13 @ 2400		
Survey Method:	Road Tube		Data Type:	Class	
Survey Crew:	LM		C1B		
Sketch Updated:			By:	SR	
Remarks:	1292				
FACILITY NAME	JURI	FUNC CLASS	AREA TYPE	NO.	ROUTE MILE
Pahoa-Kalapana Rd		7		0130	
D1= Direction to End		D1: Leilani Ave / TO KAIMU-CHAIN OF CRATER ROAD			
D2= Direction to Begin		D2: Board of Water Supply tank / VOLCANO ROAD			

Run Date: 2014/05/23

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2013 Program Count - Summary

Site ID: B71013001316

Town: Hawaii
 Count Type: CLASS

DIR 1: +MP DIR 2: -MP Final AADT: 6000
 Counter Type: Tube Route No: 130

Location: Pahoehoe-Kalapana Road: Board of WaterSupply Tank to Leilani Ave

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL								
DATE : 07/29/2013																							
12:00-12:15	2	7	9	06:00-06:15	15	30	45	12:00-12:15	54	41	95	06:00-06:15	39	41	80								
12:15-12:30	7	4	11	06:15-06:30	12	36	48	12:15-12:30	61	48	109	06:15-06:30	43	28	71								
12:30-12:45	4	1	5	06:30-06:45	23	39	62	12:30-12:45	49	40	89	06:30-06:45	25	19	44								
12:45-01:00	2	2	4	06:45-07:00	24	51	75	12:45-01:00	36	49	85	06:45-07:00	37	17	54								
01:00-01:15	0	3	3	07:00-07:15	22	38	60	01:00-01:15	52	48	100	07:00-07:15	27	25	52								
01:15-01:30	2	2	4	07:15-07:30	26	41	67	01:15-01:30	49	33	82	07:15-07:30	34	23	57								
01:30-01:45	4	1	5	07:30-07:45	38	54	92	01:30-01:45	43	46	89	07:30-07:45	22	16	38								
01:45-02:00	3	0	3	07:45-08:00	42	55	97	01:45-02:00	49	34	83	07:45-08:00	17	24	41								
02:00-02:15	1	1	2	08:00-08:15	37	43	80	02:00-02:15	37	37	74	08:00-08:15	20	12	32								
02:15-02:30	1	5	6	08:15-08:30	29	55	84	02:15-02:30	56	29	85	08:15-08:30	16	10	26								
02:30-02:45	5	0	5	08:30-08:45	38	54	92	02:30-02:45	45	39	84	08:30-08:45	36	12	48								
02:45-03:00	2	2	4	08:45-09:00	38	65	103	02:45-03:00	37	41	78	08:45-09:00	24	17	41								
03:00-03:15	1	5	6	09:00-09:15	38	54	92	03:00-03:15	58	30	88	09:00-09:15	13	3	16								
03:15-03:30	0	2	2	09:15-09:30	38	51	89	03:15-03:30	42	32	74	09:15-09:30	17	10	27								
03:30-03:45	0	1	1	09:30-09:45	43	53	96	03:30-03:45	55	38	93	09:30-09:45	18	13	31								
03:45-04:00	1	3	4	09:45-10:00	50	54	104	03:45-04:00	60	31	91	09:45-10:00	16	5	21								
04:00-04:15	4	3	7	10:00-10:15	35	51	86	04:00-04:15	41	46	87	10:00-10:15	15	15	30								
04:15-04:30	0	4	4	10:15-10:30	55	67	122	04:15-04:30	46	32	78	10:15-10:30	9	8	17								
04:30-04:45	2	1	3	10:30-10:45	46	67	113	04:30-04:45	56	46	102	10:30-10:45	12	3	15								
04:45-05:00	3	11	14	10:45-11:00	52	46	98	04:45-05:00	52	43	95	10:45-11:00	4	5	9								
05:00-05:15	5	11	16	11:00-11:15	52	72	124	05:00-05:15	42	43	85	11:00-11:15	9	4	13								
05:15-05:30	5	17	22	11:15-11:30	57	67	124	05:15-05:30	48	48	96	11:15-11:30	8	2	10								
05:30-05:45	8	18	26	11:30-11:45	41	53	94	05:30-05:45	43	47	90	11:30-11:45	3	2	5								
05:45-06:00	14	21	35	11:45-12:00	59	66	125	05:45-06:00	48	26	74	11:45-12:00	10	4	14								
AM COMMUTER PERIOD (05:00-09:00)			DIR 1	DIR 2			PM COMMUTER PERIOD (15:00-19:00)			DIR 1	DIR 2												
TWO DIRECTIONAL PEAK																							
AM - PEAK HR TIME				08:00 AM to 09:00 AM				PM - PEAK HR TIME				04:30 PM to 05:30 PM											
AM - PEAK HR VOLUME				142	217			359	PM - PEAK HR VOLUME				198	180			378						
AM - K FACTOR (%)								6.81	PM - K FACTOR (%)				7.17										
AM - D (%)				39.55	60.45			100.00	PM - D (%)				52.38	47.62			100.00						
DIRECTIONAL PEAK																							
AM - PEAK HR TIME				07:30 AM to 08:30 AM				08:00 AM to 09:00 AM				PM - PEAK HR TIME				03:00 PM to 04:00 PM				04:45 PM to 05:45 PM			
AM - PEAK HR VOLUME				146				217				PM - PEAK HR VOLUME				215				181			
AM PERIOD (00:00-12:00)																							
TWO DIRECTIONAL PEAK																							
AM - PEAK HR TIME				11:00 AM to 12:00 PM				PM - PEAK HR TIME				12:15 PM to 01:15 PM											
AM - PEAK HR VOLUME				209	258			467	PM - PEAK HR VOLUME				198	185			383						
AM - K FACTOR (%)								8.86	PM - K FACTOR (%)				7.27										
AM - D (%)				44.75	55.25			100.00	PM - D (%)				51.70	48.30			100.00						
NON-COMMUTER PERIOD (09:00-15:00)																							
TWO DIRECTIONAL PEAK																							
PEAK HR TIME				11:00 AM to 12:00 PM				AM 6-HR PERIOD (06:00-12:00)				910	1,262			2,172							
PEAK HR VOLUME				209	258			467	AM 12-HR PERIOD (00:00-12:00)				986	1,387			2,373						
DIRECTIONAL PEAK																							
PEAK HR TIME				11:45 AM to 12:45 PM				11:00 AM to 12:00 PM				PM 6-HR PERIOD (12:00-18:00)				1,159	947			2,106			
PEAK HR VOLUME				223				258				PM 12-HR PERIOD (12:00-24:00)				1,633	1,265			2,898			
24 HOUR PERIOD																							
D (%)								49.69				50.31			100.00								

Run Date: 2014/05/23

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2013 Program Count - Summary

Site ID: B71013001316

Town: Hawaii
 Count Type: CLASS

DIR 1: +MP DIR 2: -MP Final AADT: 6000
 Counter Type: Tube Route No: 130

Location: Pahoehoe-Kalapana Road: Board of WaterSupply Tank to Leilani Ave

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 07/30/2013															
12:00-12:15	2	4	6	06:00-06:15	10	35	45	12:00-12:15	46	60	106	06:00-06:15	80	38	118
12:15-12:30	6	3	9	06:15-06:30	12	47	59	12:15-12:30	51	63	114	06:15-06:30	63	53	116
12:30-12:45	3	2	5	06:30-06:45	40	55	95	12:30-12:45	66	59	125	06:30-06:45	66	34	100
12:45-01:00	1	0	1	06:45-07:00	35	60	95	12:45-01:00	62	55	117	06:45-07:00	58	38	96
01:00-01:15	3	3	6	07:00-07:15	35	49	84	01:00-01:15	71	59	130	07:00-07:15	44	31	75
01:15-01:30	0	3	3	07:15-07:30	37	72	109	01:15-01:30	66	57	123	07:15-07:30	43	50	93
01:30-01:45	5	1	6	07:30-07:45	70	61	131	01:30-01:45	59	70	129	07:30-07:45	35	30	65
01:45-02:00	2	1	3	07:45-08:00	56	63	119	01:45-02:00	57	63	120	07:45-08:00	42	33	75
02:00-02:15	0	3	3	08:00-08:15	40	60	100	02:00-02:15	66	69	135	08:00-08:15	38	32	70
02:15-02:30	0	5	5	08:15-08:30	48	74	122	02:15-02:30	59	78	137	08:15-08:30	27	20	47
02:30-02:45	4	2	6	08:30-08:45	41	56	97	02:30-02:45	66	66	132	08:30-08:45	32	23	55
02:45-03:00	0	4	4	08:45-09:00	45	61	106	02:45-03:00	71	64	135	08:45-09:00	31	17	48
03:00-03:15	4	3	7	09:00-09:15	40	74	114	03:00-03:15	74	62	136	09:00-09:15	23	16	39
03:15-03:30	2	6	8	09:15-09:30	55	55	110	03:15-03:30	73	75	148	09:15-09:30	32	19	51
03:30-03:45	4	0	4	09:30-09:45	47	61	108	03:30-03:45	92	63	155	09:30-09:45	24	21	45
03:45-04:00	0	3	3	09:45-10:00	55	67	122	03:45-04:00	74	71	145	09:45-10:00	19	23	42
04:00-04:15	1	7	8	10:00-10:15	39	59	98	04:00-04:15	88	58	146	10:00-10:15	21	19	40
04:15-04:30	3	3	6	10:15-10:30	51	68	119	04:15-04:30	85	60	145	10:15-10:30	10	8	18
04:30-04:45	3	1	4	10:30-10:45	60	45	105	04:30-04:45	101	72	173	10:30-10:45	21	2	23
04:45-05:00	1	10	11	10:45-11:00	52	55	107	04:45-05:00	76	46	122	10:45-11:00	9	3	12
05:00-05:15	3	15	18	11:00-11:15	67	54	121	05:00-05:15	85	66	151	11:00-11:15	14	11	25
05:15-05:30	2	17	19	11:15-11:30	42	69	111	05:15-05:30	85	52	137	11:15-11:30	8	4	12
05:30-05:45	6	23	29	11:30-11:45	65	57	122	05:30-05:45	73	56	129	11:30-11:45	7	1	8
05:45-06:00	13	32	45	11:45-12:00	61	54	115	05:45-06:00	66	48	114	11:45-12:00	7	5	12

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2
TWO DIRECTIONAL PEAK		TWO DIRECTIONAL PEAK		TWO DIRECTIONAL PEAK	
AM - PEAK HR TIME	07:30 AM to 08:30 AM		PM - PEAK HR TIME	03:45 PM to 04:45 PM	
AM - PEAK HR VOLUME	214	258	472	348	261
AM - K FACTOR (%)			6.54	8.43	
AM - D (%)	45.34	54.66	100.00	57.14	42.86
DIRECTIONAL PEAK		DIRECTIONAL PEAK		DIRECTIONAL PEAK	
AM - PEAK HR TIME	07:30 AM to 08:30 AM	07:30 AM to 08:30 AM	PM - PEAK HR TIME	04:00 PM to 05:00 PM	03:00 PM to 04:00 PM
AM - PEAK HR VOLUME	214	258	350	271	

AM PERIOD (00:00-12:00)	PM PERIOD (12:00-24:00)
TWO DIRECTIONAL PEAK	
AM - PEAK HR TIME	07:30 AM to 08:30 AM
AM - PEAK HR VOLUME	214
AM - K FACTOR (%)	6.54
AM - D (%)	45.34
TWO DIRECTIONAL PEAK	
PM - PEAK HR TIME	03:45 PM to 04:45 PM
PM - PEAK HR VOLUME	348
PM - K FACTOR (%)	8.43
PM - D (%)	57.14

NON-COMMUTER PERIOD (09:00-15:00)	6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	Total	
TWO DIRECTIONAL PEAK		AM 6-HR PERIOD (06:00-12:00)			
PEAK HR TIME	02:00 PM to 03:00 PM	1,103	1,411	2,514	
PEAK HR VOLUME		1,171	1,562	2,733	
DIRECTIONAL PEAK		AM 12-HR PERIOD (00:00-12:00)			
PEAK HR TIME	12:30 PM to 01:30 PM	1,712	1,492	3,204	
PEAK HR VOLUME	01:30 PM to 02:30 PM	2,466	2,023	4,489	
		PM 6-HR PERIOD (12:00-18:00)			
		PM 12-HR PERIOD (12:00-24:00)			
		24 HOUR PERIOD			
		D (%)			

Run Date: 2014/05/23

**Hawaii Department of Transportation
Highways Division
Highways Planning Survey Section
Vehicle Classification Data Summary
2013**

Site ID: B71013001316

Route No: 130

Date From: 2013/07/29 0:00

Town: Hawaii

Direction: +MP

Date To: 2013/07/30 23:45

Location: Pahoa-Kalapana Road: Board of WaterSupply Tank to Leilani Ave

Functional Classification: 7 RURAL:MAJOR COLLECTOR
REPORT TOTALS - 48 HOURS RECORDED

	VOLUME	%	NUMBER OF AXLES
Cycles	52	0.42%	105
PC	8924	71.43%	17848
2A-4T	3318	26.56%	6636

LIGHT VEHICLE TOTALS	12294	98.41%	24589
HEAVY VEHICLES			
Bus	22	0.18%	55
<u>SINGLE UNIT TRUCK</u>			
2A-6T	66	0.53%	132
3A-SU	62	0.50%	186
4A-SU	25	0.20%	100
<u>SINGLE-TRAILER TRUCKS</u>			
4A-ST	5	0.04%	20
5A-ST	10	0.08%	50
6A-ST	3	0.02%	18
<u>MULTI-TRAILER TRUCKS</u>			
5A-MT	4	0.03%	20
6A-MT	0	0.00%	0
7A-MT	1	0.01%	7

HEAVY VEHICLE TOTALS	198	1.58%	588

CLASSIFIED VEHICLES TOTALS	12492 (A)	100.00%	25177 (B)
UNCLASSIFIED VEHICLES TOTALS	1	0.00%	

AXLE CORRECTION FACTOR (A/C) = 0.992

ROADTUBE EQUIVALENT(B/2) = 12588 (C)

PEAK HOUR VOLUME : 586 2013/07/30 16:00	PEAK HOUR TRUCK VOLUME	% TOTAL PEAK HOUR VOLUME	24 HOUR TRUCK VOLUME	AADT	% OF AADT	HPMS K-FACTOR (PEAK/AADT) (ITEM 66)
SINGLE UNIT TRUCKS (TYPE 4-7)	1	(65A-1) 0.17%	87	6000	(65A-2) 1.45%	9.77%
COMBINATION (TYPE 8-13)	0	(65B-1) 0.00%	11		(65B-2) 0.18%	9.77%

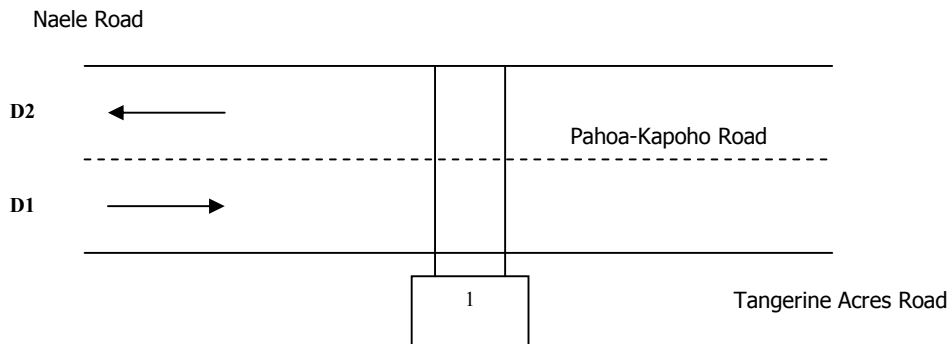
Traffic Data Service
Traffic Station Sketch



Section ID/Station #: B71013200030

Island: Hawaii

Area: Hilo



Meter #	File Name	GPS
1. bz92	D0716009_B71013200030 D0716010_B71013200030	19.49008, -154.9351

Station Description: Pahoa-Kapoho Road: Naele Road to Tangerine Road					
Survey Beginning Date/Time: 7/16/13 @ 0000			Survey Ending Date/Time: 7/17/13 @ 2400		
Survey Method:	Road Tube		Data Type:	Class	
Survey Crew:	LM		C1B		
Sketch Updated:			By:	SR	
Remarks:					
FACILITY NAME	JURI	FUNC CLASS	AREA TYPE	ROUTE NO.	ROUTE MILE
Pahoa-Kapoho Road		7		0132	
D1= Direction to End D2= Direction to Begin		D1: Tangerine Road / Kapoho-Kaimu Road (Rte 137) D2: Naele Road / Keeau-Pahoa Road (Rte 130)			

Run Date: 2014/05/29

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2013 Program Count - Summary

Site ID: B71013200030

Functional Class: RURAL:MAJOR COLLECTOR

Location: Pahoehoe Rd - Naele Rd to Tangerine Acres Rd

Town: Hawaii
 Count Type: CLASS

DIR 1: +MP DIR 2: -MP
 Counter Type: Tube

Final AADT: 6600
 Route No: 132

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL												
DATE : 07/16/2013																											
12:00-12:15	1	1	2	06:00-06:15	13	24	37	12:00-12:15	53	45	98	06:00-06:15	59	58	117												
12:15-12:30	4	3	7	06:15-06:30	20	46	66	12:15-12:30	48	59	107	06:15-06:30	70	48	118												
12:30-12:45	4	5	9	06:30-06:45	29	45	74	12:30-12:45	55	51	106	06:30-06:45	51	46	97												
12:45-01:00	1	1	2	06:45-07:00	28	46	74	12:45-01:00	60	50	110	06:45-07:00	44	39	83												
01:00-01:15	2	1	3	07:00-07:15	26	64	90	01:00-01:15	57	63	120	07:00-07:15	46	38	84												
01:15-01:30	5	1	6	07:15-07:30	24	62	86	01:15-01:30	56	64	120	07:15-07:30	46	44	90												
01:30-01:45	1	2	3	07:30-07:45	31	52	83	01:30-01:45	50	62	112	07:30-07:45	50	31	81												
01:45-02:00	3	3	6	07:45-08:00	36	47	83	01:45-02:00	68	42	110	07:45-08:00	39	25	64												
02:00-02:15	5	5	10	08:00-08:15	39	58	97	02:00-02:15	53	79	132	08:00-08:15	40	27	67												
02:15-02:30	0	2	2	08:15-08:30	29	57	86	02:15-02:30	59	62	121	08:15-08:30	37	20	57												
02:30-02:45	1	7	8	08:30-08:45	38	56	94	02:30-02:45	64	72	136	08:30-08:45	44	17	61												
02:45-03:00	1	2	3	08:45-09:00	37	51	88	02:45-03:00	62	65	127	08:45-09:00	28	21	49												
03:00-03:15	0	2	2	09:00-09:15	39	45	84	03:00-03:15	68	63	131	09:00-09:15	22	11	33												
03:15-03:30	1	3	4	09:15-09:30	56	51	107	03:15-03:30	55	63	118	09:15-09:30	25	14	39												
03:30-03:45	1	3	4	09:30-09:45	48	47	95	03:30-03:45	63	62	125	09:30-09:45	23	15	38												
03:45-04:00	1	2	3	09:45-10:00	37	56	93	03:45-04:00	62	63	125	09:45-10:00	15	12	27												
04:00-04:15	2	5	7	10:00-10:15	51	54	105	04:00-04:15	82	67	149	10:00-10:15	10	10	20												
04:15-04:30	1	7	8	10:15-10:30	55	64	119	04:15-04:30	75	43	118	10:15-10:30	17	12	29												
04:30-04:45	1	3	4	10:30-10:45	43	58	101	04:30-04:45	74	66	140	10:30-10:45	14	5	19												
04:45-05:00	4	6	10	10:45-11:00	49	45	94	04:45-05:00	90	46	136	10:45-11:00	12	10	22												
05:00-05:15	5	8	13	11:00-11:15	40	53	93	05:00-05:15	76	51	127	11:00-11:15	12	6	18												
05:15-05:30	10	17	27	11:15-11:30	58	53	111	05:15-05:30	71	73	144	11:15-11:30	8	8	16												
05:30-05:45	9	25	34	11:30-11:45	63	45	108	05:30-05:45	79	50	129	11:30-11:45	9	6	15												
05:45-06:00	15	28	43	11:45-12:00	57	49	106	05:45-06:00	79	38	117	11:45-12:00	3	1	4												
AM COMMUTER PERIOD (05:00-09:00)			DIR 1	DIR 2			PM COMMUTER PERIOD (15:00-19:00)			DIR 1	DIR 2																
TWO DIRECTIONAL PEAK																											
AM - PEAK HR TIME				08:00 AM to 09:00 AM				PM - PEAK HR TIME				04:30 PM to 05:30 PM															
AM - PEAK HR VOLUME			143	222			365			311			236			547											
AM - K FACTOR (%)						5.53						8.29															
AM - D (%)			39.18	60.82			100.00			56.86			43.14			100.00											
DIRECTIONAL PEAK																											
AM - PEAK HR TIME				08:00 AM to 09:00 AM				07:00 AM to 08:00 AM				04:00 PM to 05:00 PM				03:15 PM to 04:15 PM											
AM - PEAK HR VOLUME			143	225			321			255																	
AM PERIOD (00:00-12:00)																											
TWO DIRECTIONAL PEAK																											
AM - PEAK HR TIME				10:00 AM to 11:00 AM				PM - PEAK HR TIME				04:30 PM to 05:30 PM															
AM - PEAK HR VOLUME			198	221			419			311			236			547											
AM - K FACTOR (%)						6.35						8.29															
AM - D (%)			47.26	52.74			100.00			56.86			43.14			100.00											
NON-COMMUTER PERIOD (09:00-15:00)																											
TWO DIRECTIONAL PEAK																											
PEAK HR TIME				02:00 PM to 03:00 PM				AM 6-HR PERIOD (06:00-12:00)				946				1,228				2,174							
PEAK HR VOLUME			238	278			516			1,024			1,370			2,394											
DIRECTIONAL PEAK																											
PEAK HR TIME				01:45 PM to 02:45 PM				02:00 PM to 03:00 PM				PM 6-HR PERIOD (12:00-18:00)				1,559				1,399				2,958			
PEAK HR VOLUME			244	278			516			2,283			1,923			4,206											
24 HOUR PERIOD																											
D (%)						50.11			49.89			100.00															

Run Date: 2014/05/29

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2013 Program Count - Summary

Site ID: B71013200030

Functional Class: RURAL:MAJOR COLLECTOR

Location: Pahoa-Kapoho Rd - Naele Rd to Tangerine Acres Rd

Town: Hawaii
 Count Type: CLASS

DIR 1: +MP DIR 2: -MP
 Counter Type: Tube

Final AADT: 6600
 Route No: 132

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL												
DATE : 07/17/2013																											
12:00-12:15	4	1	5	06:00-06:15	13	21	34	12:00-12:15	64	40	104	06:00-06:15	67	72	139												
12:15-12:30	8	4	12	06:15-06:30	22	46	68	12:15-12:30	63	51	114	06:15-06:30	59	59	118												
12:30-12:45	1	3	4	06:30-06:45	27	52	79	12:30-12:45	64	62	126	06:30-06:45	61	43	104												
12:45-01:00	1	1	2	06:45-07:00	39	69	108	12:45-01:00	56	61	117	06:45-07:00	55	38	93												
01:00-01:15	3	5	8	07:00-07:15	31	51	82	01:00-01:15	60	66	126	07:00-07:15	56	47	103												
01:15-01:30	3	9	12	07:15-07:30	24	56	80	01:15-01:30	59	57	116	07:15-07:30	55	35	90												
01:30-01:45	4	1	5	07:30-07:45	24	48	72	01:30-01:45	59	57	116	07:30-07:45	51	27	78												
01:45-02:00	2	0	2	07:45-08:00	38	61	99	01:45-02:00	59	57	116	07:45-08:00	36	41	77												
02:00-02:15	2	5	7	08:00-08:15	35	55	90	02:00-02:15	66	52	118	08:00-08:15	35	35	70												
02:15-02:30	2	4	6	08:15-08:30	45	53	98	02:15-02:30	75	64	139	08:15-08:30	42	25	67												
02:30-02:45	2	4	6	08:30-08:45	34	54	88	02:30-02:45	56	69	125	08:30-08:45	36	18	54												
02:45-03:00	0	4	4	08:45-09:00	53	53	106	02:45-03:00	62	57	119	08:45-09:00	32	14	46												
03:00-03:15	1	0	1	09:00-09:15	43	71	114	03:00-03:15	77	53	130	09:00-09:15	20	15	35												
03:15-03:30	2	3	5	09:15-09:30	43	63	106	03:15-03:30	60	62	122	09:15-09:30	13	21	34												
03:30-03:45	4	4	8	09:30-09:45	43	71	114	03:30-03:45	71	58	129	09:30-09:45	33	19	52												
03:45-04:00	1	0	1	09:45-10:00	47	55	102	03:45-04:00	71	69	140	09:45-10:00	23	13	36												
04:00-04:15	2	4	6	10:00-10:15	38	58	96	04:00-04:15	87	58	145	10:00-10:15	18	7	25												
04:15-04:30	3	7	10	10:15-10:30	49	52	101	04:15-04:30	76	48	124	10:15-10:30	17	13	30												
04:30-04:45	5	6	11	10:30-10:45	57	49	106	04:30-04:45	91	68	159	10:30-10:45	22	9	31												
04:45-05:00	3	6	9	10:45-11:00	51	68	119	04:45-05:00	87	65	152	10:45-11:00	11	7	18												
05:00-05:15	10	11	21	11:00-11:15	46	58	104	05:00-05:15	77	50	127	11:00-11:15	21	9	30												
05:15-05:30	7	17	24	11:15-11:30	45	57	102	05:15-05:30	67	59	126	11:15-11:30	9	4	13												
05:30-05:45	8	24	32	11:30-11:45	47	49	96	05:30-05:45	66	51	117	11:30-11:45	9	7	16												
05:45-06:00	19	28	47	11:45-12:00	51	51	102	05:45-06:00	68	46	114	11:45-12:00	12	6	18												
AM COMMUTER PERIOD (05:00-09:00)			DIR 1	DIR 2			PM COMMUTER PERIOD (15:00-19:00)			DIR 1	DIR 2																
TWO DIRECTIONAL PEAK																											
AM - PEAK HR TIME				08:00 AM to 09:00 AM				PM - PEAK HR TIME				04:00 PM to 05:00 PM															
AM - PEAK HR VOLUME			167	215			382			341			239			580											
AM - K FACTOR (%)						5.53						8.39															
AM - D (%)			43.72	56.28			100.00			58.79			41.21			100.00											
DIRECTIONAL PEAK																											
AM - PEAK HR TIME				08:00 AM to 09:00 AM				06:30 AM to 07:30 AM				PM - PEAK HR TIME				04:00 PM to 05:00 PM				03:15 PM to 04:15 PM							
AM - PEAK HR VOLUME			167	228						341			247														
AM PERIOD (00:00-12:00)																											
TWO DIRECTIONAL PEAK																											
AM - PEAK HR TIME				08:45 AM to 09:45 AM				PM - PEAK HR TIME				04:00 PM to 05:00 PM															
AM - PEAK HR VOLUME			182	258			440			341			239			580											
AM - K FACTOR (%)						6.37						8.39															
AM - D (%)			41.36	58.64			100.00			58.79			41.21			100.00											
NON-COMMUTER PERIOD (09:00-15:00)																											
TWO DIRECTIONAL PEAK																											
PEAK HR TIME				02:00 PM to 03:00 PM				AM 6-HR PERIOD (06:00-12:00)				945				1,321				2,266							
PEAK HR VOLUME			259	242			501			AM 12-HR PERIOD (00:00-12:00)			1,042			1,472			2,514								
DIRECTIONAL PEAK						PM 6-HR PERIOD (12:00-18:00)			1,641			1,380			3,021												
PEAK HR TIME				01:30 PM to 02:30 PM				09:00 AM to 10:00 AM				PM 12-HR PERIOD (12:00-24:00)				2,434				1,964				4,398			
PEAK HR VOLUME			259	260			D (%)			50.29			49.71			100.00											

Run Date: 2014/05/28

Hawaii Department of Transportation
Highways Division
Highways Planning Survey Section

Vehicle Classification Data Summary
2013

Site ID: B71013200030

Route No: 132

Date From: 2013/07/16 0:00

Town: Hawaii

Direction: +MP

Date To: 2013/07/17 23:45

Location: Paho-Kapoho Rd - Naele Rd to Tangerine Acres Rd

Functional Classification: 7 RURAL:MAJOR COLLECTOR
REPORT TOTALS - 48 HOURS RECORDED

	VOLUME	%	NUMBER OF AXLES
Cycles	162	1.20%	324
PC	10588	78.36%	21176
2A-4T	2584	19.12%	5168

LIGHT VEHICLE TOTALS	13334	98.68%	26668
HEAVY VEHICLES			
Bus	14	0.10%	35
SINGLE UNIT TRUCK			
2A-6T	65	0.48%	130
3A-SU	55	0.41%	165
4A-SU	21	0.16%	84
SINGLE-TRAILER TRUCKS			
4A-ST	12	0.09%	48
5A-ST	1	0.01%	5
6A-ST	6	0.04%	36
MULTI-TRAILER TRUCKS			
5A-MT	2	0.01%	10
6A-MT	0	0.00%	0
7A-MT	2	0.01%	14

HEAVY VEHICLE TOTALS	178	1.32%	527

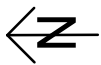
CLASSIFIED VEHICLES TOTALS 13512 (A) 100.00% 27195 (B)
UNCLASSIFIED VEHICLES TOTALS -0 -0.00%

AXLE CORRECTION FACTOR (A/C) = 0.994

ROADTUBE EQUIVALENT(B/2) = 13598 (C)

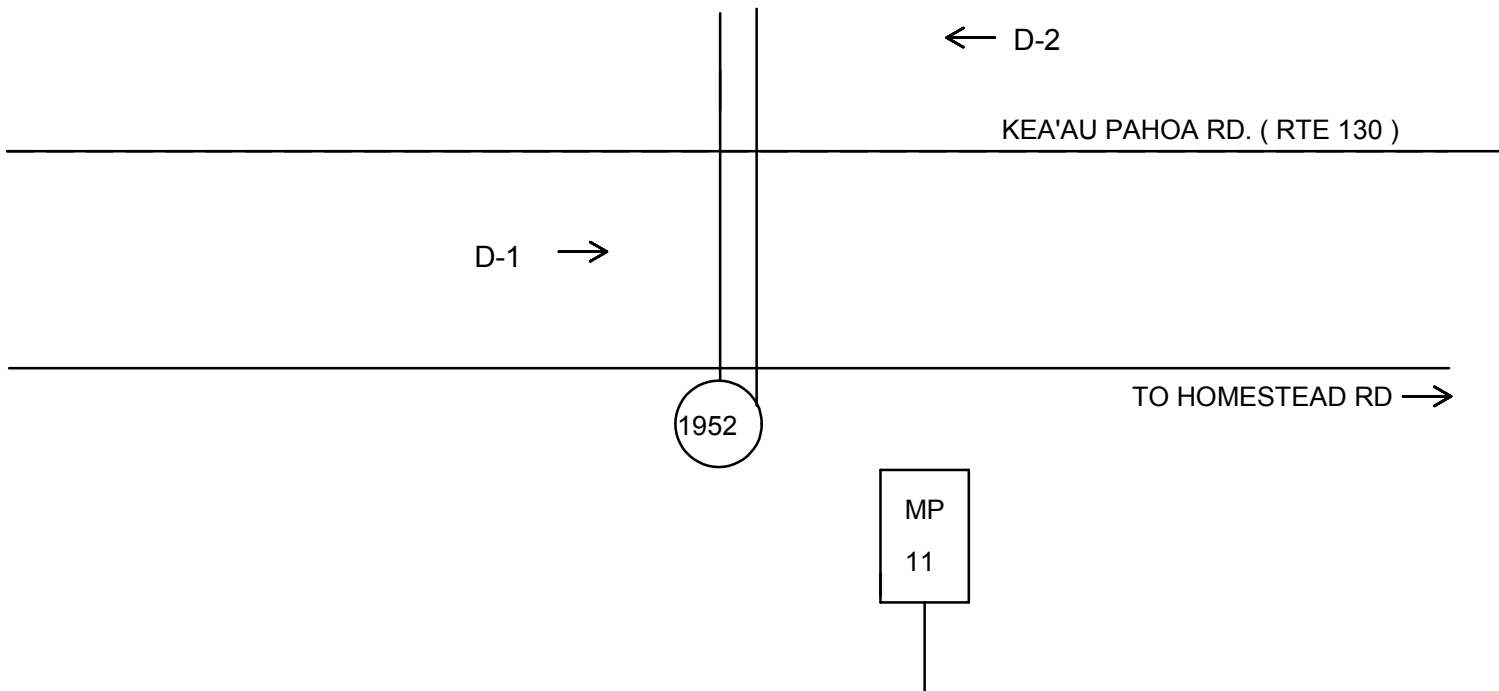
PEAK HOUR VOLUME : 580 2013/07/17 16:00	PEAK HOUR TRUCK VOLUME	% TOTAL PEAK HOUR VOLUME	24 HOUR TRUCK VOLUME	AADT	% OF AADT	HPMS K-FACTOR (PEAK/AADT) (ITEM 66)
SINGLE UNIT TRUCKS (TYPE 4-7)	4	(65A-1) 0.69%	77	6600	(65A-2) 1.17%	8.79%
COMBINATION (TYPE 8-13)	1	(65B-1) 0.17%	11		(65B-2) 0.17%	8.79%

2016 HDOT Volumes



ISLAND: HAWAII
 AREA: PAHOA

← TO KAHAKAI BLVD.



Station No: B71 0130 01088

Station Location:			
Kea'au Pahoa Road between Kahakai Boulevard and Homestead Road at 11 milepost			
Station Mileage:	11.66	GPS Coord (Latitude):	19.50071 N
		GPS Coord (Longitude):	154.9474 W
Begin Survey (Date/Time):	4-4-16 0000	End Survey (Date/Time):	4-7-16 0000
Survey Method:	LOOP HOSE OTHER	Survey Type:	VOL CLASS SPEED OTHER
Survey Crew:	FIELD CREW	Module No.:	

HPMS DATA							
Segment Description:							
KEA'AU PAHOA ROAD - KAHAKAI BOULEVARD TO OLD PAHOA KAPOHO ROAD							
Segment Begin LRS	10.88	Segment End LRS	11.74	Length	0.86		
Facility Name	Juris	Func Class	Area Type	Route		D-1 = Direction to End of Route	
				No.	Mile	D-2 = Direction to Beginning of Route	
KEA'AU PAHOA ROAD	S	6	1	130	11.66	D-1	TO KAIMU-CHAIN OF CRATER ROAD
						D-2	TO VOLCANO ROAD

Sketch By: RG Date: 3/15/2016 SLD: 2005

Run Date: 2017/07/03

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2016 Program Count - Summary

Site ID: B71013001088

Functional Class: URBAN:MINOR ARTERIAL

Location: Keaau-Pahoa Rd - Kahakai Blvd to Homestead Rd

Town: Hawaii
 Count Type: CLASS

DIR 1: +MP DIR 2: -MP
 Counter Type: Tube

Final AADT: 7400
 Route No: 130

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 04/05/2016															
12:00-12:15	4	1	5	06:00-06:15	6	55	61	12:00-12:15	46	60	106	06:00-06:15	68	47	115
12:15-12:30	8	3	11	06:15-06:30	19	69	88	12:15-12:30	51	50	101	06:15-06:30	59	44	103
12:30-12:45	4	2	6	06:30-06:45	23	90	113	12:30-12:45	45	52	97	06:30-06:45	55	59	114
12:45-01:00	2	1	3	06:45-07:00	29	55	84	12:45-01:00	56	56	112	06:45-07:00	46	54	100
01:00-01:15	0	3	3	07:00-07:15	33	71	104	01:00-01:15	60	61	121	07:00-07:15	35	28	63
01:15-01:30	2	2	4	07:15-07:30	39	86	125	01:15-01:30	45	50	95	07:15-07:30	36	27	63
01:30-01:45	2	5	7	07:30-07:45	62	100	162	01:30-01:45	53	55	108	07:30-07:45	40	33	73
01:45-02:00	0	2	2	07:45-08:00	71	122	193	01:45-02:00	47	53	100	07:45-08:00	37	17	54
02:00-02:15	0	1	1	08:00-08:15	60	70	130	02:00-02:15	60	69	129	08:00-08:15	44	27	71
02:15-02:30	2	1	3	08:15-08:30	38	83	121	02:15-02:30	74	84	158	08:15-08:30	38	16	54
02:30-02:45	2	1	3	08:30-08:45	34	67	101	02:30-02:45	79	72	151	08:30-08:45	41	13	54
02:45-03:00	1	2	3	08:45-09:00	28	65	93	02:45-03:00	67	84	151	08:45-09:00	32	15	47
03:00-03:15	1	1	2	09:00-09:15	21	56	77	03:00-03:15	61	88	149	09:00-09:15	34	17	51
03:15-03:30	1	2	3	09:15-09:30	45	62	107	03:15-03:30	67	80	147	09:15-09:30	21	8	29
03:30-03:45	0	9	9	09:30-09:45	46	74	120	03:30-03:45	60	54	114	09:30-09:45	25	11	36
03:45-04:00	1	2	3	09:45-10:00	33	65	98	03:45-04:00	83	69	152	09:45-10:00	12	13	25
04:00-04:15	1	7	8	10:00-10:15	41	57	98	04:00-04:15	40	76	116	10:00-10:15	18	10	28
04:15-04:30	1	5	6	10:15-10:30	38	67	105	04:15-04:30	51	70	121	10:15-10:30	13	6	19
04:30-04:45	4	14	18	10:30-10:45	49	76	125	04:30-04:45	55	50	105	10:30-10:45	10	7	17
04:45-05:00	2	9	11	10:45-11:00	41	58	99	04:45-05:00	78	48	126	10:45-11:00	8	4	12
05:00-05:15	1	14	15	11:00-11:15	38	60	98	05:00-05:15	59	48	107	11:00-11:15	7	1	8
05:15-05:30	0	18	18	11:15-11:30	44	34	78	05:15-05:30	68	52	120	11:15-11:30	6	2	8
05:30-05:45	9	27	36	11:30-11:45	56	65	121	05:30-05:45	60	53	113	11:30-11:45	7	5	12
05:45-06:00	16	29	45	11:45-12:00	43	59	102	05:45-06:00	49	50	99	11:45-12:00	3	4	7

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2	
TWO DIRECTIONAL PEAK		TWO DIRECTIONAL PEAK		TWO DIRECTIONAL PEAK		
AM - PEAK HR TIME	07:15 AM to 08:15 AM		PM - PEAK HR TIME	03:00 PM to 04:00 PM		
AM - PEAK HR VOLUME	232	378	610	271	291	562
AM - K FACTOR (%)			8.85			8.16
AM - D (%)	38.03	61.97	100.00	48.22	51.78	100.00
DIRECTIONAL PEAK		DIRECTIONAL PEAK		DIRECTIONAL PEAK		
AM - PEAK HR TIME	07:15 AM to 08:15 AM	07:00 AM to 08:00 AM	PM - PEAK HR TIME	03:00 PM to 04:00 PM	03:00 PM to 04:00 PM	
AM - PEAK HR VOLUME	232	379	271	291		

AM PERIOD (00:00-12:00)	PM PERIOD (12:00-24:00)		
TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:15 AM to 08:15 AM		
AM - PEAK HR VOLUME	232	378	610
AM - K FACTOR (%)			8.85
AM - D (%)	38.03	61.97	100.00
TWO DIRECTIONAL PEAK			
PM - PEAK HR TIME	02:15 PM to 03:15 PM		
PM - PEAK HR VOLUME	281	328	609
PM - K FACTOR (%)			8.84
PM - D (%)	46.14	53.86	100.00

NON-COMMUTER PERIOD (09:00-15:00)	6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	Total
TWO DIRECTIONAL PEAK		AM 6-HR PERIOD (06:00-12:00)		2,603
PEAK HR TIME	02:00 PM to 03:00 PM	AM 12-HR PERIOD (00:00-12:00)	1,001	1,827
PEAK HR VOLUME	280	309	589	1,414
DIRECTIONAL PEAK		PM 6-HR PERIOD (12:00-18:00)	1,484	2,898
PEAK HR TIME	02:00 PM to 03:00 PM	PM 12-HR PERIOD (12:00-24:00)	2,109	1,952
PEAK HR VOLUME	280	309	3,110	3,779
		24 HOUR PERIOD	45.14	54.86
		D (%)	100.00	

Run Date: 2017/07/03

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2016 Program Count - Summary

Site ID: B71013001088

Functional Class: URBAN:MINOR ARTERIAL

Location: Keaau-Pahoa Rd - Kahakai Blvd to Homestead Rd

Town: Hawaii

Count Type: CLASS

DIR 1: +MP

DIR 2: -MP

Final AADT: 7400

Counter Type: Tube

Route No: 130

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 04/06/2016															
12:00-12:15	3	2	5	06:00-06:15	11	66	77	12:00-12:15	36	65	101	06:00-06:15	68	37	105
12:15-12:30	5	0	5	06:15-06:30	15	65	80	12:15-12:30	35	60	95	06:15-06:30	53	37	90
12:30-12:45	3	3	6	06:30-06:45	26	71	97	12:30-12:45	43	59	102	06:30-06:45	62	30	92
12:45-01:00	0	3	3	06:45-07:00	32	71	103	12:45-01:00	39	51	90	06:45-07:00	56	21	77
01:00-01:15	4	4	8	07:00-07:15	33	83	116	01:00-01:15	44	48	92	07:00-07:15	61	24	85
01:15-01:30	0	2	2	07:15-07:30	31	80	111	01:15-01:30	47	61	108	07:15-07:30	53	22	75
01:30-01:45	1	1	2	07:30-07:45	68	83	151	01:30-01:45	59	62	121	07:30-07:45	65	32	97
01:45-02:00	1	2	3	07:45-08:00	67	118	185	01:45-02:00	60	61	121	07:45-08:00	58	23	81
02:00-02:15	2	2	4	08:00-08:15	54	77	131	02:00-02:15	45	80	125	08:00-08:15	54	18	72
02:15-02:30	1	0	1	08:15-08:30	49	72	121	02:15-02:30	53	78	131	08:15-08:30	59	25	84
02:30-02:45	0	1	1	08:30-08:45	47	64	111	02:30-02:45	58	70	128	08:30-08:45	39	22	61
02:45-03:00	2	2	4	08:45-09:00	31	74	105	02:45-03:00	51	78	129	08:45-09:00	29	30	59
03:00-03:15	2	0	2	09:00-09:15	36	62	98	03:00-03:15	54	66	120	09:00-09:15	24	31	55
03:15-03:30	1	1	2	09:15-09:30	38	57	95	03:15-03:30	61	50	111	09:15-09:30	19	17	36
03:30-03:45	0	8	8	09:30-09:45	30	73	103	03:30-03:45	50	56	106	09:30-09:45	20	31	51
03:45-04:00	3	2	5	09:45-10:00	40	60	100	03:45-04:00	46	70	116	09:45-10:00	16	22	38
04:00-04:15	0	4	4	10:00-10:15	41	72	113	04:00-04:15	68	53	121	10:00-10:15	13	26	39
04:15-04:30	1	9	10	10:15-10:30	54	64	118	04:15-04:30	58	60	118	10:15-10:30	14	24	38
04:30-04:45	2	12	14	10:30-10:45	37	70	107	04:30-04:45	55	43	98	10:30-10:45	8	17	25
04:45-05:00	4	10	14	10:45-11:00	28	57	85	04:45-05:00	62	49	111	10:45-11:00	6	16	22
05:00-05:15	3	15	18	11:00-11:15	41	54	95	05:00-05:15	65	43	108	11:00-11:15	2	17	19
05:15-05:30	0	19	19	11:15-11:30	37	56	93	05:15-05:30	61	45	106	11:15-11:30	6	11	17
05:30-05:45	5	28	33	11:30-11:45	39	59	98	05:30-05:45	60	38	98	11:30-11:45	3	3	6
05:45-06:00	4	26	30	11:45-12:00	61	66	127	05:45-06:00	65	43	108	11:45-12:00	4	6	10

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2
TWO DIRECTIONAL PEAK		TWO DIRECTIONAL PEAK		TWO DIRECTIONAL PEAK	
AM - PEAK HR TIME	07:30 AM to 08:30 AM		PM - PEAK HR TIME	03:30 PM to 04:30 PM	
AM - PEAK HR VOLUME	238	350	PM - PEAK HR VOLUME	222	239
AM - K FACTOR (%)	8.62		PM - K FACTOR (%)	6.76	
AM - D (%)	40.48	59.52	PM - D (%)	48.16	51.84
DIRECTIONAL PEAK		DIRECTIONAL PEAK		DIRECTIONAL PEAK	
AM - PEAK HR TIME	07:30 AM to 08:30 AM	07:00 AM to 08:00 AM	PM - PEAK HR TIME	05:15 PM to 06:15 PM	03:00 PM to 04:00 PM
AM - PEAK HR VOLUME	238	364	PM - PEAK HR VOLUME	254	242

AM PERIOD (00:00-12:00)	PM PERIOD (12:00-24:00)
TWO DIRECTIONAL PEAK	
AM - PEAK HR TIME	07:30 AM to 08:30 AM
AM - PEAK HR VOLUME	238
AM - K FACTOR (%)	8.62
AM - D (%)	40.48
TWO DIRECTIONAL PEAK	
PM - PEAK HR TIME	02:00 PM to 03:00 PM
PM - PEAK HR VOLUME	207
PM - K FACTOR (%)	7.52
PM - D (%)	40.35

NON-COMMUTER PERIOD (09:00-15:00)	6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	Total
TWO DIRECTIONAL PEAK		AM 6-HR PERIOD (06:00-12:00)		
PEAK HR TIME	02:00 PM to 03:00 PM	946	1,674	2,620
PEAK HR VOLUME	207	306	513	2,823
DIRECTIONAL PEAK		AM 12-HR PERIOD (00:00-12:00)		
PEAK HR TIME	01:30 PM to 02:30 PM	1,275	1,389	2,664
PEAK HR VOLUME	217	306	513	3,998
		PM 6-HR PERIOD (12:00-18:00)		
		PM 12-HR PERIOD (12:00-24:00)		
		24 HOUR PERIOD		
		D (%)		

Run Date: 2017/07/03

Hawaii Department of Transportation
Highways Division
Highways Planning Survey Section

Vehicle Classification Data Summary
2016

Site ID: B71013001088

Route No: 130

Date From: 2016/04/05 0:00

Town: Hawaii

Direction: +MP

Date To: 2016/04/06 23:45

Location: Keaau-Pahoa Rd - Kahakai Blvd to Homestead Rd

Functional Classification: 16 URBAN:MINOR ARTERIAL
REPORT TOTALS - 48 HOURS RECORDED

	VOLUME	%	NUMBER OF AXLES
Cycles	73	0.53%	145
PC	12446	90.78%	24892
2A-4T	827	6.03%	1654

LIGHT VEHICLE TOTALS	13346	97.34%	26691
HEAVY VEHICLES			
Bus	80	0.58%	200
SINGLE UNIT TRUCK			
2A-6T	147	1.07%	294
3A-SU	89	0.65%	267
4A-SU	14	0.10%	56
SINGLE-TRAILER TRUCKS			
4A-ST	21	0.15%	84
5A-ST	12	0.09%	60
6A-ST	0	0.00%	0
MULTI-TRAILER TRUCKS			
5A-MT	2	0.01%	10
6A-MT	0	0.00%	0
7A-MT	0	0.00%	0

HEAVY VEHICLE TOTALS	365	2.66%	971

CLASSIFIED VEHICLES TOTALS 13711 (A) 100.00% 27662 (B)
UNCLASSIFIED VEHICLES TOTALS -1 -0.00%

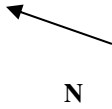
AXLE CORRECTION FACTOR (A/C) = 0.991

ROADTUBE EQUIVALENT(B/2) = 13831 (C)

PEAK HOUR VOLUME : 589 2016/04/05 14:00	PEAK HOUR TRUCK VOLUME	% TOTAL PEAK HOUR VOLUME	24 HOUR TRUCK VOLUME	AADT	% OF AADT	HPMS K-FACTOR (PEAK/AADT) (ITEM 66)
SINGLE UNIT TRUCKS (TYPE 4-7)	24	(65A-1) 4.07%	165	7400	(65A-2) 2.23%	7.96%
COMBINATION (TYPE 8-13)	3	(65B-1) 0.51%	17		(65B-2) 0.23%	7.96%

Traffic Data Service

Traffic Station Sketch

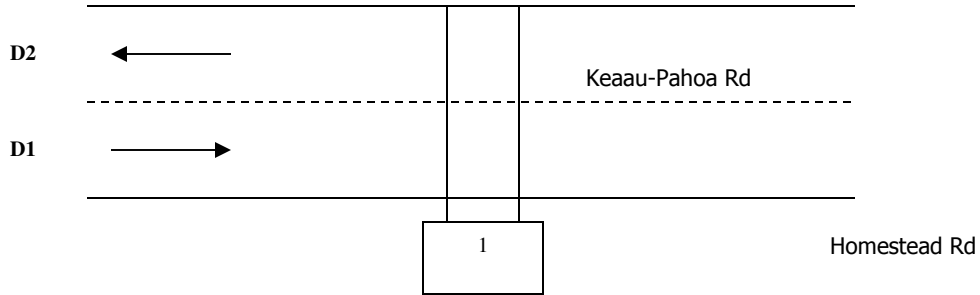


N

Section ID/Station #: B71013001088

Island: Hawaii
Area: Pahoia

Kahakai Blvd



Meter #
1. s117

File Name
D0504019_B71013001088
D0504020_B71013001088

GPS
19.50071, -154.9474

Station Description: Keaau-Pahoia Rd: Kahakai Blvd to Homestead Rd					
Survey Beginning Date/Time: 5/4/16 @ 0000			Survey Ending Date/Time: 5/5/16 @ 2400		
Survey Method:	Road Tube		Data Type:	Class	
Survey Crew:	LM			C1B	
Sketch Updated:				By:	SR
Remarks:	1293				
FACILITY NAME	JURI	FUNC CLASS	AREA TYPE	NO.	ROUTE MILE
Keaau-Pahoia Rd		16		0130	
D1= Direction to End D1: Homestead Rd / end of rte (.83 mi past Royal Palm Dr) D2= Direction to Begin D2: Kahakai Blvd / VOLCANO ROAD					

Run Date: 2017/08/08

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2016 Program Count - Summary

Site ID: B71013001088

Functional Class: URBAN:MINOR ARTERIAL

Location: Keaau-Pahoa Rd - Kahakai Blvd to Homestead Rd

Town: Hawaii
 Count Type: CLASS

DIR 1: +MP DIR 2: -MP
 Counter Type: Tube

Final AADT: 7400
 Route No: 130

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 05/04/2016															
12:00-12:15	0	9	9	06:00-06:15	21	65	86	12:00-12:15	66	74	140	06:00-06:15	86	51	137
12:15-12:30	5	6	11	06:15-06:30	35	71	106	12:15-12:30	69	75	144	06:15-06:30	68	43	111
12:30-12:45	2	3	5	06:30-06:45	27	81	108	12:30-12:45	65	56	121	06:30-06:45	82	31	113
12:45-01:00	0	1	1	06:45-07:00	54	83	137	12:45-01:00	79	64	143	06:45-07:00	71	42	113
01:00-01:15	2	1	3	07:00-07:15	55	68	123	01:00-01:15	56	67	123	07:00-07:15	75	39	114
01:15-01:30	1	0	1	07:15-07:30	99	89	188	01:15-01:30	63	57	120	07:15-07:30	56	47	103
01:30-01:45	1	4	5	07:30-07:45	119	113	232	01:30-01:45	73	87	160	07:30-07:45	47	22	69
01:45-02:00	1	2	3	07:45-08:00	114	115	229	01:45-02:00	83	55	138	07:45-08:00	31	37	68
02:00-02:15	2	4	6	08:00-08:15	77	93	170	02:00-02:15	86	103	189	08:00-08:15	43	36	79
02:15-02:30	0	0	0	08:15-08:30	48	82	130	02:15-02:30	112	97	209	08:15-08:30	43	42	85
02:30-02:45	3	3	6	08:30-08:45	63	70	133	02:30-02:45	97	78	175	08:30-08:45	40	40	80
02:45-03:00	2	4	6	08:45-09:00	66	72	138	02:45-03:00	102	89	191	08:45-09:00	30	37	67
03:00-03:15	3	3	6	09:00-09:15	43	55	98	03:00-03:15	74	102	176	09:00-09:15	29	22	51
03:15-03:30	0	4	4	09:15-09:30	44	75	119	03:15-03:30	89	80	169	09:15-09:30	25	41	66
03:30-03:45	1	6	7	09:30-09:45	47	71	118	03:30-03:45	100	86	186	09:30-09:45	33	39	72
03:45-04:00	2	4	6	09:45-10:00	27	69	96	03:45-04:00	79	85	164	09:45-10:00	19	25	44
04:00-04:15	1	5	6	10:00-10:15	47	52	99	04:00-04:15	80	69	149	10:00-10:15	18	29	47
04:15-04:30	2	7	9	10:15-10:30	52	74	126	04:15-04:30	81	81	162	10:15-10:30	11	19	30
04:30-04:45	4	15	19	10:30-10:45	44	67	111	04:30-04:45	91	59	150	10:30-10:45	14	15	29
04:45-05:00	5	16	21	10:45-11:00	48	69	117	04:45-05:00	96	57	153	10:45-11:00	14	21	35
05:00-05:15	1	10	11	11:00-11:15	52	56	108	05:00-05:15	68	64	132	11:00-11:15	10	15	25
05:15-05:30	10	21	31	11:15-11:30	42	62	104	05:15-05:30	85	41	126	11:15-11:30	10	11	21
05:30-05:45	12	31	43	11:30-11:45	72	59	131	05:30-05:45	102	50	152	11:30-11:45	6	12	18
05:45-06:00	18	30	48	11:45-12:00	68	68	136	05:45-06:00	80	44	124	11:45-12:00	6	5	11

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2
TWO DIRECTIONAL PEAK			TWO DIRECTIONAL PEAK		
AM - PEAK HR TIME	07:15 AM to 08:15 AM		PM - PEAK HR TIME	03:00 PM to 04:00 PM	
AM - PEAK HR VOLUME	409	410	PM - PEAK HR VOLUME	342	353
AM - K FACTOR (%)		9.42	PM - K FACTOR (%)		7.99
AM - D (%)	49.94	50.06	PM - D (%)	49.21	50.79
DIRECTIONAL PEAK			DIRECTIONAL PEAK		
AM - PEAK HR TIME	07:15 AM to 08:15 AM	07:15 AM to 08:15 AM	PM - PEAK HR TIME	05:15 PM to 06:15 PM	03:00 PM to 04:00 PM
AM - PEAK HR VOLUME	409	410	PM - PEAK HR VOLUME	353	353

AM PERIOD (00:00-12:00)	PM PERIOD (12:00-24:00)
TWO DIRECTIONAL PEAK	
AM - PEAK HR TIME	07:15 AM to 08:15 AM
AM - PEAK HR VOLUME	409
AM - K FACTOR (%)	9.42
AM - D (%)	49.94
TWO DIRECTIONAL PEAK	
PM - PEAK HR TIME	02:00 PM to 03:00 PM
PM - PEAK HR VOLUME	397
PM - K FACTOR (%)	8.79
PM - D (%)	51.96

NON-COMMUTER PERIOD (09:00-15:00)	6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	Total
TWO DIRECTIONAL PEAK				
PEAK HR TIME	02:00 PM to 03:00 PM	AM 6-HR PERIOD (06:00-12:00)	1,364	1,779
PEAK HR VOLUME	397	AM 12-HR PERIOD (00:00-12:00)	1,442	1,968
		PM 6-HR PERIOD (12:00-18:00)	1,976	1,720
DIRECTIONAL PEAK				
PEAK HR TIME	02:00 PM to 03:00 PM	PM 12-HR PERIOD (12:00-24:00)	2,843	2,441
PEAK HR VOLUME	397	24 HOUR PERIOD	4,285	4,409
		D (%)	49.29	50.71
				100.00

Run Date: 2017/08/08

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2016 Program Count - Summary

Site ID: B71013001088

Functional Class: URBAN:MINOR ARTERIAL

Location: Keaau-Pahoa Rd - Kahakai Blvd to Homestead Rd

Town: Hawaii
 Count Type: CLASS

DIR 1: +MP DIR 2: -MP
 Counter Type: Tube

Final AADT: 7400
 Route No: 130

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 05/05/2016															
12:00-12:15	10	6	16	06:00-06:15	19	57	76	12:00-12:15	71	81	152	06:00-06:15	83	39	122
12:15-12:30	4	10	14	06:15-06:30	30	71	101	12:15-12:30	65	66	131	06:15-06:30	69	54	123
12:30-12:45	2	7	9	06:30-06:45	39	78	117	12:30-12:45	64	56	120	06:30-06:45	65	53	118
12:45-01:00	3	1	4	06:45-07:00	49	65	114	12:45-01:00	60	53	113	06:45-07:00	58	46	104
01:00-01:15	6	4	10	07:00-07:15	53	76	129	01:00-01:15	70	67	137	07:00-07:15	68	37	105
01:15-01:30	1	1	2	07:15-07:30	77	84	161	01:15-01:30	65	82	147	07:15-07:30	46	29	75
01:30-01:45	4	9	13	07:30-07:45	112	113	225	01:30-01:45	75	69	144	07:30-07:45	41	23	64
01:45-02:00	1	4	5	07:45-08:00	131	137	268	01:45-02:00	94	88	182	07:45-08:00	40	20	60
02:00-02:15	4	4	8	08:00-08:15	72	100	172	02:00-02:15	106	114	220	08:00-08:15	46	32	78
02:15-02:30	4	2	6	08:15-08:30	57	88	145	02:15-02:30	86	115	201	08:15-08:30	40	17	57
02:30-02:45	2	0	2	08:30-08:45	60	89	149	02:30-02:45	94	93	187	08:30-08:45	51	19	70
02:45-03:00	5	4	9	08:45-09:00	52	68	120	02:45-03:00	74	86	160	08:45-09:00	34	16	50
03:00-03:15	2	5	7	09:00-09:15	43	64	107	03:00-03:15	94	92	186	09:00-09:15	28	14	42
03:15-03:30	0	5	5	09:15-09:30	55	74	129	03:15-03:30	91	94	185	09:15-09:30	26	11	37
03:30-03:45	2	5	7	09:30-09:45	54	62	116	03:30-03:45	71	96	167	09:30-09:45	28	15	43
03:45-04:00	0	3	3	09:45-10:00	59	68	127	03:45-04:00	69	65	134	09:45-10:00	30	16	46
04:00-04:15	2	9	11	10:00-10:15	56	60	116	04:00-04:15	75	80	155	10:00-10:15	19	16	35
04:15-04:30	1	13	14	10:15-10:30	54	74	128	04:15-04:30	91	80	171	10:15-10:30	21	9	30
04:30-04:45	4	13	17	10:30-10:45	57	66	123	04:30-04:45	96	74	170	10:30-10:45	14	7	21
04:45-05:00	1	10	11	10:45-11:00	56	68	124	04:45-05:00	91	61	152	10:45-11:00	13	9	22
05:00-05:15	1	15	16	11:00-11:15	75	62	137	05:00-05:15	68	63	131	11:00-11:15	7	10	17
05:15-05:30	11	18	29	11:15-11:30	64	57	121	05:15-05:30	67	47	114	11:15-11:30	13	7	20
05:30-05:45	13	32	45	11:30-11:45	64	61	125	05:30-05:45	74	57	131	11:30-11:45	9	3	12
05:45-06:00	13	37	50	11:45-12:00	69	69	138	05:45-06:00	70	42	112	11:45-12:00	11	7	18

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2
TWO DIRECTIONAL PEAK		TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:15 AM to 08:15 AM		PM - PEAK HR TIME	03:00 PM to 04:00 PM	
AM - PEAK HR VOLUME	392	434	PM - PEAK HR VOLUME	325	347
AM - K FACTOR (%)	9.55		PM - K FACTOR (%)	7.77	
AM - D (%)	47.46	52.54	PM - D (%)	48.36	51.64
DIRECTIONAL PEAK		DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:15 AM to 08:15 AM	07:30 AM to 08:30 AM	PM - PEAK HR TIME	04:00 PM to 05:00 PM	03:00 PM to 04:00 PM
AM - PEAK HR VOLUME	392	438	PM - PEAK HR VOLUME	353	347

AM PERIOD (00:00-12:00)	PM PERIOD (12:00-24:00)
TWO DIRECTIONAL PEAK	
AM - PEAK HR TIME	07:15 AM to 08:15 AM
AM - PEAK HR VOLUME	392 434 826
AM - K FACTOR (%)	9.55
AM - D (%)	47.46 52.54 100.00
TWO DIRECTIONAL PEAK	
PM - PEAK HR TIME	01:45 PM to 02:45 PM
PM - PEAK HR VOLUME	380 410 790
PM - K FACTOR (%)	9.13
PM - D (%)	48.10 51.90 100.00

NON-COMMUTER PERIOD (09:00-15:00)	6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	Total
TWO DIRECTIONAL PEAK				
PEAK HR TIME	01:45 PM to 02:45 PM			
PEAK HR VOLUME	380 410 790			
DIRECTIONAL PEAK				
PEAK HR TIME	01:45 PM to 02:45 PM 01:45 PM to 02:45 PM	AM 6-HR PERIOD (06:00-12:00)	1,457	1,811
PEAK HR VOLUME	380 410	AM 12-HR PERIOD (00:00-12:00)	1,553	2,028
		PM 6-HR PERIOD (12:00-18:00)	1,881	1,821
		PM 12-HR PERIOD (12:00-24:00)	2,741	2,330
		24 HOUR PERIOD	4,294	4,358
		D (%)	49.63	50.37
				100.00

Run Date: 2017/08/08

Hawaii Department of Transportation
 Highways Division
 Highways Planning Survey Section
 Vehicle Classification Data Summary
 2016

Site ID: B71013001088

Route No: 130

Date From: 2016/05/04 0:00

Town: Hawaii

Direction: +MP

Date To: 2016/05/05 23:45

Location: Keaau-Pahoa Rd - Kahakai Blvd to Homestead Rd

Functional Classification: 16 URBAN:MINOR ARTERIAL
 REPORT TOTALS - 48 HOURS RECORDED

	VOLUME	%	NUMBER OF AXLES
Cycles	61	0.35%	121
PC	12129	69.92%	24258
2A-4T	4834	27.87%	9668

LIGHT VEHICLE TOTALS	17024	98.14%	34047
HEAVY VEHICLES			
Bus	112	0.65%	280
<u>SINGLE UNIT TRUCK</u>			
2A-6T	52	0.30%	104
3A-SU	89	0.51%	267
4A-SU	14	0.08%	56
<u>SINGLE-TRAILER TRUCKS</u>			
4A-ST	13	0.07%	52
5A-ST	26	0.15%	130
6A-ST	14	0.08%	84
<u>MULTI-TRAILER TRUCKS</u>			
5A-MT	1	0.01%	5
6A-MT	0	0.00%	0
7A-MT	1	0.01%	7

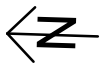
HEAVY VEHICLE TOTALS	322	1.86%	985

CLASSIFIED VEHICLES TOTALS 17346 (A) 100.00% 35032 (B)
UNCLASSIFIED VEHICLES TOTALS 0 0.00%

AXLE CORRECTION FACTOR (A/C) = 0.990

ROADTUBE EQUIVALENT(B/2) = 17516 (C)

PEAK HOUR VOLUME : 783 2016/05/05 07:00	PEAK HOUR TRUCK VOLUME	% TOTAL PEAK HOUR VOLUME	24 HOUR TRUCK VOLUME	AADT	% OF AADT	HPMS K-FACTOR (PEAK/AADT) (ITEM 66)
SINGLE UNIT TRUCKS (TYPE 4-7)	19	(65A-1) 2.43%	133	7400	(65A-2) 1.80%	10.58%
COMBINATION (TYPE 8-13)	2	(65B-1) 0.26%	27		(65B-2) 0.36%	10.58%



ISLAND: HAWAII
 AREA: PAHOA

← TO BOARD OF WATER TANK

← D-2

KEA'AU PAHOA RD. (RTE 130)

D-1 →

TO LEILANI AVE. →

1954

13
MP

Station No: B71 0130 01316

Station Location:			
Pahoa-Kalapana Road between Board of Water tank and Leilani Avenue			
Station Mileage:	13.71	GPS Coord (Latitude):	19.46607 N
		GPS Coord (Longitude):	154.9411 W
Begin Survey (Date/Time):	4-4-16 0000	End Survey (Date/Time):	4-7-16 0000
Survey Method:	LOOP HOSE OTHER	Survey Type:	VOL CLASS SPEED OTHER
Survey Crew:	FIELD CREW	Module No.:	

HPMS DATA							
Segment Description:							
KEA'AU PAHOA ROAD - OLD PAHOA KAPOHO ROAD TO LEILANI AVENUE							
Segment Begin LRS	13.16	Segment End LRS	14.20	Length	1.04		
Facility Name	Juris	Func Class	Area Type	Route		D-1 = Direction to End of Route	
				No.	Mile	D-2 = Direction to Beginning of Route	
KEA'AU PAHOA ROAD	S	7	1	130	13.71	D-1	TO KAIMU-CHAIN OF CRATER ROAD
						D-2	TO VOLCANO ROAD

Sketch By: RG Date: 3/15/2016 SLD: 2005

Run Date: 2017/07/03

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2016 Program Count - Summary

Site ID: B71013001316

Town: Hawaii
 Count Type: CLASS

DIR 1: +MP DIR 2: -MP Final AADT: 4500
 Counter Type: Tube Route No: 130

Location: Pahoehoe-Kalapana Road: Board of Water Supply Tank to Leilani Ave

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 04/05/2016															
12:00-12:15	1	1	2	06:00-06:15	4	27	31	12:00-12:15	42	42	84	06:00-06:15	51	21	72
12:15-12:30	7	2	9	06:15-06:30	4	37	41	12:15-12:30	40	47	87	06:15-06:30	50	34	84
12:30-12:45	3	1	4	06:30-06:45	15	39	54	12:30-12:45	38	36	74	06:30-06:45	41	24	65
12:45-01:00	2	2	4	06:45-07:00	10	35	45	12:45-01:00	54	40	94	06:45-07:00	43	26	69
01:00-01:15	1	3	4	07:00-07:15	14	56	70	01:00-01:15	52	51	103	07:00-07:15	34	16	50
01:15-01:30	2	1	3	07:15-07:30	9	50	59	01:15-01:30	37	40	77	07:15-07:30	42	21	63
01:30-01:45	3	3	6	07:30-07:45	17	77	94	01:30-01:45	38	48	86	07:30-07:45	32	11	43
01:45-02:00	2	0	2	07:45-08:00	33	64	97	01:45-02:00	30	42	72	07:45-08:00	28	19	47
02:00-02:15	0	0	0	08:00-08:15	44	56	100	02:00-02:15	42	48	90	08:00-08:15	40	13	53
02:15-02:30	0	2	2	08:15-08:30	28	54	82	02:15-02:30	57	45	102	08:15-08:30	34	3	37
02:30-02:45	0	0	0	08:30-08:45	29	46	75	02:30-02:45	61	37	98	08:30-08:45	35	14	49
02:45-03:00	0	1	1	08:45-09:00	29	59	88	02:45-03:00	67	43	110	08:45-09:00	25	14	39
03:00-03:15	3	0	3	09:00-09:15	33	53	86	03:00-03:15	55	47	102	09:00-09:15	27	8	35
03:15-03:30	1	2	3	09:15-09:30	31	63	94	03:15-03:30	53	31	84	09:15-09:30	14	6	20
03:30-03:45	0	5	5	09:30-09:45	39	45	84	03:30-03:45	51	39	90	09:30-09:45	11	5	16
03:45-04:00	1	2	3	09:45-10:00	33	54	87	03:45-04:00	51	29	80	09:45-10:00	12	5	17
04:00-04:15	0	4	4	10:00-10:15	27	39	66	04:00-04:15	49	47	96	10:00-10:15	16	3	19
04:15-04:30	0	5	5	10:15-10:30	29	50	79	04:15-04:30	44	42	86	10:15-10:30	11	2	13
04:30-04:45	0	5	5	10:30-10:45	22	51	73	04:30-04:45	48	30	78	10:30-10:45	8	1	9
04:45-05:00	0	4	4	10:45-11:00	38	41	79	04:45-05:00	51	43	94	10:45-11:00	5	0	5
05:00-05:15	0	11	11	11:00-11:15	33	43	76	05:00-05:15	62	22	84	11:00-11:15	5	1	6
05:15-05:30	1	10	11	11:15-11:30	32	42	74	05:15-05:30	44	42	86	11:15-11:30	6	3	9
05:30-05:45	3	13	16	11:30-11:45	45	42	87	05:30-05:45	58	27	85	11:30-11:45	6	3	9
05:45-06:00	6	18	24	11:45-12:00	35	46	81	05:45-06:00	39	25	64	11:45-12:00	2	0	2

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2	
TWO DIRECTIONAL PEAK		TWO DIRECTIONAL PEAK				
AM - PEAK HR TIME	07:30 AM to 08:30 AM		PM - PEAK HR TIME	03:00 PM to 04:00 PM		
AM - PEAK HR VOLUME	122	251	373	210	146	356
AM - K FACTOR (%)			7.66			7.31
AM - D (%)	32.71	67.29	100.00	58.99	41.01	100.00
DIRECTIONAL PEAK		DIRECTIONAL PEAK				
AM - PEAK HR TIME	07:45 AM to 08:45 AM	07:30 AM to 08:30 AM	PM - PEAK HR TIME	04:45 PM to 05:45 PM	04:00 PM to 05:00 PM	
AM - PEAK HR VOLUME	134	251	215	162		

AM PERIOD (00:00-12:00)	PM PERIOD (12:00-24:00)		
TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:30 AM to 08:30 AM		
AM - PEAK HR VOLUME	122	251	373
AM - K FACTOR (%)			7.66
AM - D (%)	32.71	67.29	100.00
TWO DIRECTIONAL PEAK			
PM - PEAK HR TIME	02:15 PM to 03:15 PM		
PM - PEAK HR VOLUME	240	172	412
PM - K FACTOR (%)			8.46
PM - D (%)	58.25	41.75	100.00

NON-COMMUTER PERIOD (09:00-15:00)	6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	Total	
TWO DIRECTIONAL PEAK					
PEAK HR TIME	02:00 PM to 03:00 PM				
PEAK HR VOLUME	227	173	400		
DIRECTIONAL PEAK					
PEAK HR TIME	02:00 PM to 03:00 PM	09:00 AM to 10:00 AM			
PEAK HR VOLUME	227	215			
		AM 6-HR PERIOD (06:00-12:00)	633	1,169	1,802
		AM 12-HR PERIOD (00:00-12:00)	669	1,264	1,933
		PM 6-HR PERIOD (12:00-18:00)	1,163	943	2,106
		PM 12-HR PERIOD (12:00-24:00)	1,741	1,196	2,937
		24 HOUR PERIOD	2,410	2,460	4,870
		D (%)	49.49	50.51	100.00

Run Date: 2017/07/03

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2016 Program Count - Summary

Site ID: B71013001316

Town: Hawaii
 Count Type: CLASS

DIR 1: +MP DIR 2: -MP Final AADT: 4500
 Counter Type: Tube Route No: 130

Location: Pahoehoe-Kalapana Road: Board of Water Supply Tank to Leilani Ave

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 04/06/2016															
12:00-12:15	3	0	3	06:00-06:15	3	35	38	12:00-12:15	31	42	73	06:00-06:15	59	23	82
12:15-12:30	5	0	5	06:15-06:30	6	37	43	12:15-12:30	34	33	67	06:15-06:30	50	20	70
12:30-12:45	2	3	5	06:30-06:45	8	43	51	12:30-12:45	40	41	81	06:30-06:45	45	16	61
12:45-01:00	1	4	5	06:45-07:00	11	44	55	12:45-01:00	41	47	88	06:45-07:00	48	13	61
01:00-01:15	4	1	5	07:00-07:15	15	53	68	01:00-01:15	31	52	83	07:00-07:15	51	21	72
01:15-01:30	1	0	1	07:15-07:30	11	55	66	01:15-01:30	53	42	95	07:15-07:30	43	15	58
01:30-01:45	0	0	0	07:30-07:45	17	67	84	01:30-01:45	47	37	84	07:30-07:45	45	20	65
01:45-02:00	0	1	1	07:45-08:00	23	70	93	01:45-02:00	53	43	96	07:45-08:00	62	21	83
02:00-02:15	1	1	2	08:00-08:15	27	55	82	02:00-02:15	42	55	97	08:00-08:15	50	19	69
02:15-02:30	1	0	1	08:15-08:30	32	58	90	02:15-02:30	40	40	80	08:15-08:30	49	15	64
02:30-02:45	0	0	0	08:30-08:45	38	56	94	02:30-02:45	53	33	86	08:30-08:45	36	23	59
02:45-03:00	0	0	0	08:45-09:00	23	48	71	02:45-03:00	49	40	89	08:45-09:00	24	18	42
03:00-03:15	0	0	0	09:00-09:15	26	53	79	03:00-03:15	44	31	75	09:00-09:15	28	23	51
03:15-03:30	1	2	3	09:15-09:30	33	34	67	03:15-03:30	43	29	72	09:15-09:30	16	18	34
03:30-03:45	0	2	2	09:30-09:45	29	58	87	03:30-03:45	54	29	83	09:30-09:45	12	31	43
03:45-04:00	2	0	2	09:45-10:00	31	37	68	03:45-04:00	54	33	87	09:45-10:00	18	28	46
04:00-04:15	1	3	4	10:00-10:15	40	51	91	04:00-04:15	49	36	85	10:00-10:15	12	31	43
04:15-04:30	1	5	6	10:15-10:30	46	43	89	04:15-04:30	59	37	96	10:15-10:30	8	23	31
04:30-04:45	0	6	6	10:30-10:45	27	42	69	04:30-04:45	49	24	73	10:30-10:45	11	24	35
04:45-05:00	0	6	6	10:45-11:00	29	47	76	04:45-05:00	65	22	87	10:45-11:00	10	13	23
05:00-05:15	0	8	8	11:00-11:15	30	40	70	05:00-05:15	56	25	81	11:00-11:15	3	15	18
05:15-05:30	1	9	10	11:15-11:30	40	32	72	05:15-05:30	56	27	83	11:15-11:30	4	11	15
05:30-05:45	2	13	15	11:30-11:45	34	58	92	05:30-05:45	51	18	69	11:30-11:45	0	6	6
05:45-06:00	4	18	22	11:45-12:00	32	43	75	05:45-06:00	57	21	78	11:45-12:00	0	7	7

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2
TWO DIRECTIONAL PEAK		TWO DIRECTIONAL PEAK		TWO DIRECTIONAL PEAK	
AM - PEAK HR TIME		07:45 AM to 08:45 AM		PM - PEAK HR TIME	
AM - PEAK HR VOLUME		120	239	359	03:30 PM to 04:30 PM
AM - K FACTOR (%)		7.17		PM - PEAK HR VOLUME	
AM - D (%)		33.43	66.57	100.00	216
DIRECTIONAL PEAK		DIRECTIONAL PEAK		DIRECTIONAL PEAK	
AM - PEAK HR TIME		07:45 AM to 08:45 AM	07:30 AM to 08:30 AM	PM - PEAK HR TIME	
AM - PEAK HR VOLUME		120	250	04:15 PM to 05:15 PM	
				03:30 PM to 04:30 PM	
				PM - PEAK HR VOLUME	
				229	
				135	

AM PERIOD (00:00-12:00)	PM PERIOD (12:00-24:00)
TWO DIRECTIONAL PEAK	
AM - PEAK HR TIME	
07:45 AM to 08:45 AM	
AM - PEAK HR VOLUME	
120	239
359	
AM - K FACTOR (%)	
7.17	
AM - D (%)	
33.43	66.57
100.00	
TWO DIRECTIONAL PEAK	
PM - PEAK HR TIME	
01:15 PM to 02:15 PM	
PM - PEAK HR VOLUME	
195	177
372	
PM - K FACTOR (%)	
7.43	
PM - D (%)	
52.42	47.58
100.00	

NON-COMMUTER PERIOD (09:00-15:00)	6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	Total
TWO DIRECTIONAL PEAK		AM 6-HR PERIOD (06:00-12:00)		611
PEAK HR TIME		AM 12-HR PERIOD (00:00-12:00)		1,159
01:15 PM to 02:15 PM		PM 6-HR PERIOD (12:00-18:00)		1,770
PEAK HR VOLUME		PM 12-HR PERIOD (12:00-24:00)		1,882
195	177	24 HOUR PERIOD		1,988
372		D (%)		1,835
DIRECTIONAL PEAK				1,291
PEAK HR TIME				3,126
01:15 PM to 02:15 PM				2,476
PEAK HR VOLUME				2,532
195	189			5,008
				49.44
				50.56
				100.00

Run Date: 2017/07/03

**Hawaii Department of Transportation
Highways Division
Highways Planning Survey Section
Vehicle Classification Data Summary
2016**

Site ID: B71013001316

Route No: 130

Date From: 2016/04/05 0:00

Town: Hawaii

Direction: +MP

Date To: 2016/04/06 23:45

Location: Pahoa-Kalapana Road: Board of Water Supply Tank to Leilani Ave

Functional Classification: 7 RURAL:MAJOR COLLECTOR
REPORT TOTALS - 48 HOURS RECORDED

	VOLUME	%	NUMBER OF AXLES
Cycles	114	1.15%	227
PC	9311	94.26%	18622
2A-4T	255	2.58%	510

LIGHT VEHICLE TOTALS	9680	97.99%	19359
HEAVY VEHICLES			
Bus	22	0.22%	55
<u>SINGLE UNIT TRUCK</u>			
2A-6T	89	0.90%	178
3A-SU	58	0.59%	174
4A-SU	12	0.12%	48
<u>SINGLE-TRAILER TRUCKS</u>			
4A-ST	9	0.09%	36
5A-ST	6	0.06%	30
6A-ST	1	0.01%	6
<u>MULTI-TRAILER TRUCKS</u>			
5A-MT	1	0.01%	5
6A-MT	0	0.00%	0
7A-MT	0	0.00%	0

HEAVY VEHICLE TOTALS	198	2.00%	532

CLASSIFIED VEHICLES TOTALS	9878 (A)	100.00%	19891 (B)
UNCLASSIFIED VEHICLES TOTALS	0	0.00%	

AXLE CORRECTION FACTOR (A/C) = 0.993

ROADTUBE EQUIVALENT(B/2) = 9946 (C)

PEAK HOUR VOLUME : 400 2016/04/05 14:00	PEAK HOUR TRUCK VOLUME	% TOTAL PEAK HOUR VOLUME	24 HOUR TRUCK VOLUME	AADT	% OF AADT	HPMS K-FACTOR (PEAK/AADT) (ITEM 66)
SINGLE UNIT TRUCKS (TYPE 4-7)	9	(65A-1) 2.25%	90	4500	(65A-2) 2.00%	8.89%
COMBINATION (TYPE 8-13)	1	(65B-1) 0.25%	8		(65B-2) 0.18%	8.89%

Traffic Data Service

Traffic Station Sketch



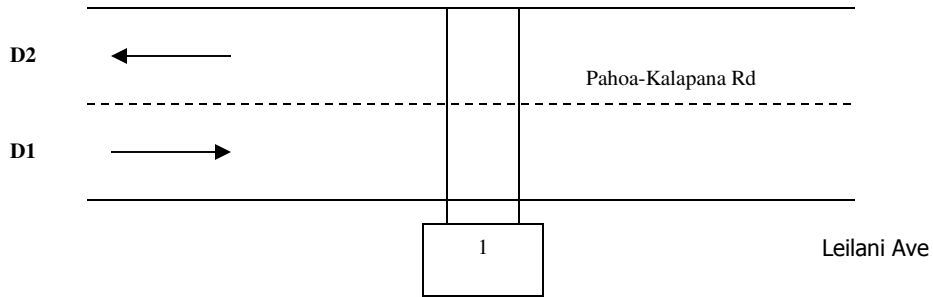
N

Section ID/Station #: B71013001316

Island: Hawaii

Area: Pahoa

Board of Water Supply tank



<u>Meter #</u>	<u>File Name</u>	<u>GPS</u>
1. bt39	D0623007_B71013001316	19.46607, -154.9411
2.	D0623008_B71013001316	

Station Description: Pahoa-Kalapana Rd: Board of Water Supply tank to Leilani Ave					
Survey Beginning Date/Time: 6/23/16@ 0000		Survey Ending Date/Time: 6/24/16@ 2400			
Survey Method:	Road Tube		Data Type:	Class	
Survey Crew:	LM			C1B	
Sketch Updated:	By:			SR	
Remarks:	1292				
FACILITY NAME	JURI	FUNC CLASS	AREA TYPE	NO.	ROUTE MILE
Pahoa-Kalapana Rd		7		0130	
D1= Direction to End D2= Direction to Begin		D1: Leilani Ave / end of rte (.83 mi past Royal Palm Dr) D2: Board of Water Supply tank / VOLCANO ROAD			

Run Date: 2017/08/03

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2016 Program Count - Summary

Site ID: B71013001316

Town: Hawaii
 Count Type: CLASS

DIR 1: +MP DIR 2: -MP Final AADT: 4500
 Counter Type: Tube Route No: 130

Location: Pahoehoe-Kalapana Road: Board of Water Supply Tank to Leilani Ave

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 06/23/2016															
12:00-12:15	5	3	8	06:00-06:15	8	22	30	12:00-12:15	37	52	89	06:00-06:15	44	17	61
12:15-12:30	0	5	5	06:15-06:30	7	20	27	12:15-12:30	45	52	97	06:15-06:30	38	32	70
12:30-12:45	4	2	6	06:30-06:45	11	33	44	12:30-12:45	50	42	92	06:30-06:45	36	25	61
12:45-01:00	4	2	6	06:45-07:00	9	36	45	12:45-01:00	46	41	87	06:45-07:00	38	23	61
01:00-01:15	1	1	2	07:00-07:15	16	40	56	01:00-01:15	32	28	60	07:00-07:15	35	22	57
01:15-01:30	1	2	3	07:15-07:30	13	37	50	01:15-01:30	40	44	84	07:15-07:30	29	15	44
01:30-01:45	0	4	4	07:30-07:45	15	38	53	01:30-01:45	44	36	80	07:30-07:45	27	22	49
01:45-02:00	0	5	5	07:45-08:00	25	49	74	01:45-02:00	43	33	76	07:45-08:00	29	22	51
02:00-02:15	0	1	1	08:00-08:15	28	32	60	02:00-02:15	41	54	95	08:00-08:15	41	13	54
02:15-02:30	0	1	1	08:15-08:30	24	42	66	02:15-02:30	44	40	84	08:15-08:30	39	6	45
02:30-02:45	0	0	0	08:30-08:45	14	53	67	02:30-02:45	43	42	85	08:30-08:45	30	11	41
02:45-03:00	0	1	1	08:45-09:00	29	52	81	02:45-03:00	45	35	80	08:45-09:00	17	6	23
03:00-03:15	2	1	3	09:00-09:15	38	37	75	03:00-03:15	45	27	72	09:00-09:15	19	6	25
03:15-03:30	0	5	5	09:15-09:30	25	50	75	03:15-03:30	50	43	93	09:15-09:30	22	9	31
03:30-03:45	0	3	3	09:30-09:45	32	36	68	03:30-03:45	46	43	89	09:30-09:45	19	8	27
03:45-04:00	0	3	3	09:45-10:00	34	61	95	03:45-04:00	54	37	91	09:45-10:00	12	7	19
04:00-04:15	0	2	2	10:00-10:15	33	48	81	04:00-04:15	44	43	87	10:00-10:15	14	8	22
04:15-04:30	0	4	4	10:15-10:30	35	43	78	04:15-04:30	45	41	86	10:15-10:30	9	8	17
04:30-04:45	1	2	3	10:30-10:45	43	37	80	04:30-04:45	59	33	92	10:30-10:45	7	7	14
04:45-05:00	0	7	7	10:45-11:00	38	53	91	04:45-05:00	47	33	80	10:45-11:00	5	1	6
05:00-05:15	1	10	11	11:00-11:15	33	35	68	05:00-05:15	54	25	79	11:00-11:15	5	7	12
05:15-05:30	2	9	11	11:15-11:30	39	43	82	05:15-05:30	43	37	80	11:15-11:30	4	6	10
05:30-05:45	1	11	12	11:30-11:45	45	47	92	05:30-05:45	62	28	90	11:30-11:45	3	4	7
05:45-06:00	5	21	26	11:45-12:00	41	39	80	05:45-06:00	38	31	69	11:45-12:00	5	1	6

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2
TWO DIRECTIONAL PEAK		TWO DIRECTIONAL PEAK		TWO DIRECTIONAL PEAK	
AM - PEAK HR TIME	08:00 AM to 09:00 AM		PM - PEAK HR TIME	03:15 PM to 04:15 PM	
AM - PEAK HR VOLUME	95	179	274	194	166
AM - K FACTOR (%)			5.98	7.86	
AM - D (%)	34.67	65.33	100.00	53.89	46.11
DIRECTIONAL PEAK		DIRECTIONAL PEAK		DIRECTIONAL PEAK	
AM - PEAK HR TIME	08:00 AM to 09:00 AM	08:00 AM to 09:00 AM	PM - PEAK HR TIME	04:45 PM to 05:45 PM	03:15 PM to 04:15 PM
AM - PEAK HR VOLUME	95	179	206	166	

AM PERIOD (00:00-12:00)	PM PERIOD (12:00-24:00)
TWO DIRECTIONAL PEAK	
AM - PEAK HR TIME	09:45 AM to 10:45 AM
AM - PEAK HR VOLUME	145
AM - K FACTOR (%)	7.29
AM - D (%)	43.41
TWO DIRECTIONAL PEAK	
PM - PEAK HR TIME	12:00 PM to 01:00 PM
PM - PEAK HR VOLUME	178
PM - K FACTOR (%)	7.97
PM - D (%)	48.77

NON-COMMUTER PERIOD (09:00-15:00)	6-HR, 12-HR, 24-HR PERIODS
TWO DIRECTIONAL PEAK	
PEAK HR TIME	12:00 PM to 01:00 PM
PEAK HR VOLUME	178
DIRECTIONAL PEAK	
PEAK HR TIME	12:00 PM to 01:00 PM
PEAK HR VOLUME	178
AM 6-HR PERIOD (06:00-12:00)	
AM 12-HR PERIOD (00:00-12:00)	
PM 6-HR PERIOD (12:00-18:00)	
PM 12-HR PERIOD (12:00-24:00)	
24 HOUR PERIOD	
D (%)	

Run Date: 2017/08/03

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2016 Program Count - Summary

Site ID: B71013001316

Town: Hawaii
 Count Type: CLASS

DIR 1: +MP DIR 2: -MP Final AADT: 4500
 Counter Type: Tube Route No: 130

Functional Class: RURAL:MAJOR COLLECTOR

Location: Pahoehoe-Kalapana Road: Board of Water Supply Tank to Leilani Ave

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 06/24/2016															
12:00-12:15	3	1	4	06:00-06:15	19	3	22	12:00-12:15	37	39	76	06:00-06:15	20	39	59
12:15-12:30	1	3	4	06:15-06:30	35	5	40	12:15-12:30	35	42	77	06:15-06:30	14	53	67
12:30-12:45	1	2	3	06:30-06:45	30	13	43	12:30-12:45	43	47	90	06:30-06:45	19	34	53
12:45-01:00	2	0	2	06:45-07:00	33	10	43	12:45-01:00	51	43	94	06:45-07:00	23	29	52
01:00-01:15	1	1	2	07:00-07:15	43	12	55	01:00-01:15	41	35	76	07:00-07:15	19	28	47
01:15-01:30	2	1	3	07:15-07:30	67	11	78	01:15-01:30	46	27	73	07:15-07:30	12	29	41
01:30-01:45	1	0	1	07:30-07:45	61	15	76	01:30-01:45	34	37	71	07:30-07:45	7	30	37
01:45-02:00	1	1	2	07:45-08:00	47	44	91	01:45-02:00	52	45	97	07:45-08:00	10	33	43
02:00-02:15	0	1	1	08:00-08:15	36	27	63	02:00-02:15	51	47	98	08:00-08:15	15	22	37
02:15-02:30	1	0	1	08:15-08:30	38	30	68	02:15-02:30	34	59	93	08:15-08:30	9	14	23
02:30-02:45	1	0	1	08:30-08:45	40	26	66	02:30-02:45	22	54	76	08:30-08:45	8	13	21
02:45-03:00	0	0	0	08:45-09:00	55	27	82	02:45-03:00	26	58	84	08:45-09:00	11	19	30
03:00-03:15	1	0	1	09:00-09:15	52	30	82	03:00-03:15	40	50	90	09:00-09:15	9	17	26
03:15-03:30	1	3	4	09:15-09:30	38	18	56	03:15-03:30	36	54	90	09:15-09:30	7	21	28
03:30-03:45	0	0	0	09:30-09:45	56	34	90	03:30-03:45	41	43	84	09:30-09:45	8	18	26
03:45-04:00	0	1	1	09:45-10:00	50	29	79	03:45-04:00	32	44	76	09:45-10:00	7	14	21
04:00-04:15	0	6	6	10:00-10:15	44	28	72	04:00-04:15	48	56	104	10:00-10:15	6	10	16
04:15-04:30	0	5	5	10:15-10:30	47	32	79	04:15-04:30	40	45	85	10:15-10:30	3	19	22
04:30-04:45	0	2	2	10:30-10:45	27	41	68	04:30-04:45	26	44	70	10:30-10:45	5	6	11
04:45-05:00	1	3	4	10:45-11:00	35	33	68	04:45-05:00	41	53	94	10:45-11:00	2	12	14
05:00-05:15	1	3	4	11:00-11:15	37	29	66	05:00-05:15	33	42	75	11:00-11:15	5	6	11
05:15-05:30	3	13	16	11:15-11:30	49	30	79	05:15-05:30	35	40	75	11:15-11:30	3	4	7
05:30-05:45	0	15	15	11:30-11:45	45	34	79	05:30-05:45	33	54	87	11:30-11:45	5	6	11
05:45-06:00	6	7	13	11:45-12:00	41	35	76	05:45-06:00	32	50	82	11:45-12:00	4	5	9

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2
TWO DIRECTIONAL PEAK		TWO DIRECTIONAL PEAK		TWO DIRECTIONAL PEAK	
AM - PEAK HR TIME	07:15 AM to 08:15 AM		PM - PEAK HR TIME	03:15 PM to 04:15 PM	
AM - PEAK HR VOLUME	211	97	308	157	197
AM - K FACTOR (%)			6.93		
AM - D (%)	68.51	31.49	100.00	44.35	55.65
DIRECTIONAL PEAK		DIRECTIONAL PEAK		DIRECTIONAL PEAK	
AM - PEAK HR TIME	07:00 AM to 08:00 AM	07:45 AM to 08:45 AM	PM - PEAK HR TIME	03:30 PM to 04:30 PM	04:00 PM to 05:00 PM
AM - PEAK HR VOLUME	218	127	161	198	

AM PERIOD (00:00-12:00)	PM PERIOD (12:00-24:00)
TWO DIRECTIONAL PEAK	
AM - PEAK HR TIME	09:30 AM to 10:30 AM
AM - PEAK HR VOLUME	197
AM - K FACTOR (%)	7.20
AM - D (%)	61.56
TWO DIRECTIONAL PEAK	
PM - PEAK HR TIME	01:45 PM to 02:45 PM
PM - PEAK HR VOLUME	159
PM - K FACTOR (%)	8.19
PM - D (%)	43.68

NON-COMMUTER PERIOD (09:00-15:00)	6-HR, 12-HR, 24-HR PERIODS
TWO DIRECTIONAL PEAK	
PEAK HR TIME	01:45 PM to 02:45 PM
PEAK HR VOLUME	159
DIRECTIONAL PEAK	
PEAK HR TIME	09:30 AM to 10:30 AM 02:00 PM to 03:00 PM
PEAK HR VOLUME	197
AM 6-HR PERIOD (06:00-12:00)	
AM 12-HR PERIOD (00:00-12:00)	
PM 6-HR PERIOD (12:00-18:00)	
PM 12-HR PERIOD (12:00-24:00)	
24 HOUR PERIOD	
D (%)	

Run Date: 2017/08/03

**Hawaii Department of Transportation
Highways Division
Highways Planning Survey Section
Vehicle Classification Data Summary
2016**

Site ID: B71013001316

Route No: 130

Date From: 2016/06/23 0:00

Town: Hawaii

Direction: +MP

Date To: 2016/06/24 23:45

Location: Pahoa-Kalapana Road: Board of Water Supply Tank to Leilani Ave

Functional Classification: 7 RURAL:MAJOR COLLECTOR
REPORT TOTALS - 48 HOURS RECORDED

	VOLUME	%	NUMBER OF AXLES
Cycles	11	0.12%	22
PC	6924	76.72%	13848
2A-4T	1943	21.53%	3886

LIGHT VEHICLE TOTALS	8878	98.37%	17756
<u>HEAVY VEHICLES</u>			
Bus	18	0.20%	45
<u>SINGLE UNIT TRUCK</u>			
2A-6T	88	0.98%	176
3A-SU	18	0.20%	54
4A-SU	0	0.00%	0
<u>SINGLE-TRAILER TRUCKS</u>			
4A-ST	20	0.22%	80
5A-ST	3	0.03%	15
6A-ST	0	0.00%	0
<u>MULTI-TRAILER TRUCKS</u>			
5A-MT	0	0.00%	0
6A-MT	0	0.00%	0
7A-MT	0	0.00%	0

HEAVY VEHICLE TOTALS	147	1.63%	370

CLASSIFIED VEHICLES TOTALS	9025 (A)	100.00%	18126 (B)
UNCLASSIFIED VEHICLES TOTALS	0	0.00%	

AXLE
CORRECTION
FACTOR (A/C) = 0.996

ROADTUBE
EQUIVALENT(B/2) = 9063 (C)

PEAK HOUR VOLUME : 365 2016/06/23 12:00	PEAK HOUR TRUCK VOLUME	% TOTAL PEAK HOUR VOLUME	24 HOUR TRUCK VOLUME	AADT	% OF AADT	HPMS K-FACTOR (PEAK/AADT) (ITEM 66)
SINGLE UNIT TRUCKS (TYPE 4-7)	4	(65A-1) 1.10%	61	4500	(65A-2) 1.36%	8.11%
COMBINATION (TYPE 8-13)	0	(65B-1) 0.00%	11		(65B-2) 0.24%	8.11%

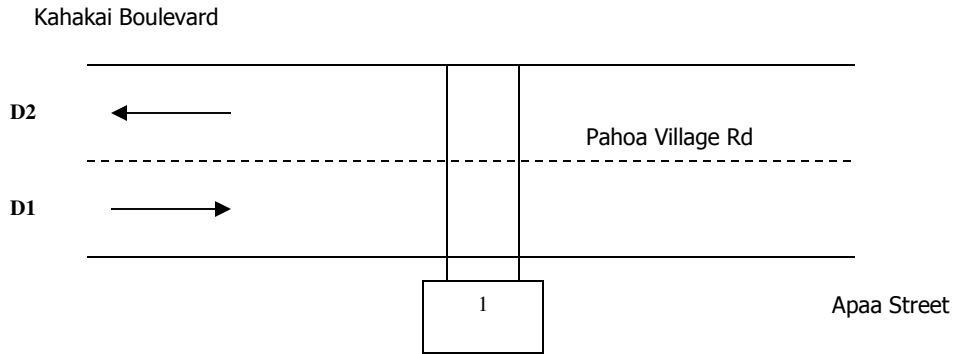
Traffic Data Service

Traffic Station Sketch



Section ID/Station #: B71013400013

Island: Hawaii
Area: Pahoia



Meter #	File Name	GPS
1. t054	D0504007_B71013400013 D0504008_B71013400013	19.50072, -154.9544

Station Description: Pahoia Village Road: Kahakai Boulevard to Apaa Street					
Survey Beginning Date/Time: 5/4/16 @ 0000			Survey Ending Date/Time: 5/5/16 @ 2400		
Survey Method:	Road Tube		Data Type:	Class	
Survey Crew:	LM			C1B	
Sketch Updated:	By:			SR	
Remarks:	923				
FACILITY NAME	JURI	FUNC CLASS	AREA TYPE	NO.	ROUTE MILE
Keaau-Pahoia Road		17		0134	
D1= Direction to End D2= Direction to Begin			D1: Apaa Street / Pahoia-Kalapana Rd (Rte 130) D2: Kahakai Boulevard / Keaau Pahoia Road		

Run Date: 2017/08/08

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2016 Program Count - Summary

Site ID: B71013400013
Functional Class: URBAN:COLLECTOR
Location: Pahoia Village Rd - Kahakai Blvd to Apaa St

Town: Hawaii **DIR 1: +MP** **DIR 2:-MP** **Final AADT: 7600**
Count Type: CLASS **Counter Type: Tube** **Route No: 134**

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 05/04/2016															
12:00-12:15	1	4	5	06:00-06:15	23	24	47	12:00-12:15	68	72	140	06:00-06:15	37	54	91
12:15-12:30	5	4	9	06:15-06:30	21	34	55	12:15-12:30	76	58	134	06:15-06:30	33	42	75
12:30-12:45	3	6	9	06:30-06:45	30	38	68	12:30-12:45	82	83	165	06:30-06:45	47	38	85
12:45-01:00	4	4	8	06:45-07:00	28	45	73	12:45-01:00	64	83	147	06:45-07:00	30	48	78
01:00-01:15	6	3	9	07:00-07:15	33	47	80	01:00-01:15	86	73	159	07:00-07:15	30	45	75
01:15-01:30	4	2	6	07:15-07:30	52	74	126	01:15-01:30	73	71	144	07:15-07:30	39	40	79
01:30-01:45	2	2	4	07:30-07:45	53	82	135	01:30-01:45	68	96	164	07:30-07:45	22	31	53
01:45-02:00	2	4	6	07:45-08:00	78	53	131	01:45-02:00	78	89	167	07:45-08:00	30	32	62
02:00-02:15	2	1	3	08:00-08:15	98	73	171	02:00-02:15	90	82	172	08:00-08:15	22	25	47
02:15-02:30	2	0	2	08:15-08:30	58	54	112	02:15-02:30	80	69	149	08:15-08:30	25	19	44
02:30-02:45	1	0	1	08:30-08:45	77	69	146	02:30-02:45	91	81	172	08:30-08:45	25	19	44
02:45-03:00	0	0	0	08:45-09:00	60	73	133	02:45-03:00	61	65	126	08:45-09:00	24	17	41
03:00-03:15	2	4	6	09:00-09:15	65	59	124	03:00-03:15	64	86	150	09:00-09:15	20	16	36
03:15-03:30	1	3	4	09:15-09:30	60	60	120	03:15-03:30	86	93	179	09:15-09:30	19	20	39
03:30-03:45	1	1	2	09:30-09:45	53	86	139	03:30-03:45	86	78	164	09:30-09:45	20	11	31
03:45-04:00	0	1	1	09:45-10:00	64	74	138	03:45-04:00	82	71	153	09:45-10:00	15	12	27
04:00-04:15	1	0	1	10:00-10:15	59	60	119	04:00-04:15	87	70	157	10:00-10:15	12	19	31
04:15-04:30	2	2	4	10:15-10:30	80	82	162	04:15-04:30	66	65	131	10:15-10:30	6	10	16
04:30-04:45	4	2	6	10:30-10:45	86	83	169	04:30-04:45	59	75	134	10:30-10:45	10	7	17
04:45-05:00	5	3	8	10:45-11:00	69	57	126	04:45-05:00	62	64	126	10:45-11:00	12	8	20
05:00-05:15	8	6	14	11:00-11:15	80	80	160	05:00-05:15	62	71	133	11:00-11:15	11	7	18
05:15-05:30	3	6	9	11:15-11:30	67	69	136	05:15-05:30	70	68	138	11:15-11:30	4	5	9
05:30-05:45	15	6	21	11:30-11:45	72	76	148	05:30-05:45	43	70	113	11:30-11:45	3	8	11
05:45-06:00	18	19	37	11:45-12:00	83	70	153	05:45-06:00	55	64	119	11:45-12:00	4	1	5

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2
TWO DIRECTIONAL PEAK		TWO DIRECTIONAL PEAK		TWO DIRECTIONAL PEAK	
AM - PEAK HR TIME	07:15 AM to 08:15 AM		PM - PEAK HR TIME	03:15 PM to 04:15 PM	
AM - PEAK HR VOLUME	281	282	563	341	312
AM - K FACTOR (%)	7.30		PM - K FACTOR (%)	8.46	
AM - D (%)	49.91	50.09	100.00	52.22	47.78
DIRECTIONAL PEAK		DIRECTIONAL PEAK		DIRECTIONAL PEAK	
AM - PEAK HR TIME	07:45 AM to 08:45 AM	07:15 AM to 08:15 AM	PM - PEAK HR TIME	03:15 PM to 04:15 PM	03:00 PM to 04:00 PM
AM - PEAK HR VOLUME	311	282	PM - PEAK HR VOLUME	341	328

AM PERIOD (00:00-12:00)	PM PERIOD (12:00-24:00)
TWO DIRECTIONAL PEAK	
AM - PEAK HR TIME	10:15 AM to 11:15 AM
AM - PEAK HR VOLUME	315
AM - K FACTOR (%)	8.00
AM - D (%)	51.05
TWO DIRECTIONAL PEAK	
PM - PEAK HR TIME	01:45 PM to 02:45 PM
PM - PEAK HR VOLUME	339
PM - K FACTOR (%)	8.55
PM - D (%)	51.36

NON-COMMUTER PERIOD (09:00-15:00)	6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	Total
TWO DIRECTIONAL PEAK		AM 6-HR PERIOD (06:00-12:00)		2,971
PEAK HR TIME	01:45 PM to 02:45 PM	1,449	1,522	3,146
PEAK HR VOLUME	339	321	660	3,536
DIRECTIONAL PEAK		AM 12-HR PERIOD (00:00-12:00)		4,570
PEAK HR TIME	01:45 PM to 02:45 PM	2,239	2,331	7,716
PEAK HR VOLUME	339	338	677	10,000
		PM 6-HR PERIOD (12:00-18:00)		4,570
		PM 12-HR PERIOD (12:00-24:00)		7,716
		24 HOUR PERIOD		10,000
		D (%)		48.99

Run Date: 2017/08/08

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2016 Program Count - Summary

Site ID: B71013400013
Functional Class: URBAN:COLLECTOR
Location: Pahoia Village Rd - Kahakai Blvd to Apaa St

Town: Hawaii **DIR 1:** +MP **DIR 2:**-MP **Final AADT:** 7600
Count Type: CLASS **Counter Type:** Tube **Route No:** 134

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 05/05/2016															
12:00-12:15	5	4	9	06:00-06:15	22	25	47	12:00-12:15	76	86	162	06:00-06:15	55	47	102
12:15-12:30	5	10	15	06:15-06:30	28	32	60	12:15-12:30	97	84	181	06:15-06:30	56	62	118
12:30-12:45	4	2	6	06:30-06:45	31	39	70	12:30-12:45	63	66	129	06:30-06:45	42	68	110
12:45-01:00	2	5	7	06:45-07:00	30	48	78	12:45-01:00	78	74	152	06:45-07:00	35	46	81
01:00-01:15	1	1	2	07:00-07:15	45	39	84	01:00-01:15	71	67	138	07:00-07:15	19	34	53
01:15-01:30	3	2	5	07:15-07:30	38	64	102	01:15-01:30	85	64	149	07:15-07:30	31	38	69
01:30-01:45	4	5	9	07:30-07:45	75	71	146	01:30-01:45	62	99	161	07:30-07:45	30	23	53
01:45-02:00	10	3	13	07:45-08:00	77	72	149	01:45-02:00	85	96	181	07:45-08:00	21	27	48
02:00-02:15	4	0	4	08:00-08:15	60	57	117	02:00-02:15	102	70	172	08:00-08:15	50	28	78
02:15-02:30	3	1	4	08:15-08:30	60	58	118	02:15-02:30	98	88	186	08:15-08:30	28	16	44
02:30-02:45	0	0	0	08:30-08:45	65	79	144	02:30-02:45	81	95	176	08:30-08:45	13	12	25
02:45-03:00	0	2	2	08:45-09:00	49	71	120	02:45-03:00	98	81	179	08:45-09:00	16	13	29
03:00-03:15	1	1	2	09:00-09:15	56	64	120	03:00-03:15	100	95	195	09:00-09:15	16	21	37
03:15-03:30	4	1	5	09:15-09:30	76	61	137	03:15-03:30	85	85	170	09:15-09:30	21	14	35
03:30-03:45	1	1	2	09:30-09:45	71	50	121	03:30-03:45	91	90	181	09:30-09:45	20	14	34
03:45-04:00	1	2	3	09:45-10:00	69	65	134	03:45-04:00	68	75	143	09:45-10:00	5	11	16
04:00-04:15	0	1	1	10:00-10:15	77	81	158	04:00-04:15	90	62	152	10:00-10:15	10	14	24
04:15-04:30	2	3	5	10:15-10:30	85	67	152	04:15-04:30	72	70	142	10:15-10:30	7	6	13
04:30-04:45	4	4	8	10:30-10:45	95	79	174	04:30-04:45	95	83	178	10:30-10:45	8	9	17
04:45-05:00	7	7	14	10:45-11:00	64	81	145	04:45-05:00	57	90	147	10:45-11:00	8	6	14
05:00-05:15	10	4	14	11:00-11:15	73	57	130	05:00-05:15	65	67	132	11:00-11:15	8	11	19
05:15-05:30	8	4	12	11:15-11:30	67	71	138	05:15-05:30	63	62	125	11:15-11:30	4	6	10
05:30-05:45	16	6	22	11:30-11:45	73	83	156	05:30-05:45	59	82	141	11:30-11:45	4	5	9
05:45-06:00	13	13	26	11:45-12:00	86	72	158	05:45-06:00	54	70	124	11:45-12:00	7	4	11

AM COMMUTER PERIOD (05:00-09:00)			PM COMMUTER PERIOD (15:00-19:00)		
DIR 1	DIR 2	TOTAL	DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK			TWO DIRECTIONAL PEAK		
AM - PEAK HR TIME 07:30 AM to 08:30 AM			PM - PEAK HR TIME 03:00 PM to 04:00 PM		
272	258	530	344	345	689
AM - K FACTOR (%) 6.63			PM - K FACTOR (%) 8.62		
51.32	48.68	100.00	49.93	50.07	100.00
DIRECTIONAL PEAK			DIRECTIONAL PEAK		
AM - PEAK HR TIME 07:30 AM to 08:30 AM 07:45 AM to 08:45 AM			PM - PEAK HR TIME 03:00 PM to 04:00 PM 03:00 PM to 04:00 PM		
272	266		344	345	

AM PERIOD (00:00-12:00)			PM PERIOD (12:00-24:00)		
DIR 1	DIR 2	TOTAL	DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK			TWO DIRECTIONAL PEAK		
AM - PEAK HR TIME 10:00 AM to 11:00 AM			PM - PEAK HR TIME 02:15 PM to 03:15 PM		
321	308	629	377	359	736
AM - K FACTOR (%) 7.87			PM - K FACTOR (%) 9.21		
51.03	48.97	100.00	51.22	48.78	100.00

NON-COMMUTER PERIOD (09:00-15:00)			6-HR, 12-HR, 24-HR PERIODS		
DIR 1	DIR 2	TOTAL	DIR 1	DIR 2	Total
TWO DIRECTIONAL PEAK			AM 6-HR PERIOD (06:00-12:00)		
PEAK HR TIME 01:45 PM to 02:45 PM			1,472 1,486 2,958		
366	349	715	AM 12-HR PERIOD (00:00-12:00) 1,580 1,568 3,148		
DIRECTIONAL PEAK			PM 6-HR PERIOD (12:00-18:00) 1,895 1,901 3,796		
PEAK HR TIME 02:00 PM to 03:00 PM 01:30 PM to 02:30 PM			PM 12-HR PERIOD (12:00-24:00) 2,409 2,436 4,845		
379	353		24 HOUR PERIOD 3,989 4,004 7,993		
			D (%) 49.91 50.09 100.00		

Run Date: 2017/08/08

Hawaii Department of Transportation
 Highways Division
 Highways Planning Survey Section
 Vehicle Classification Data Summary
 2016

Site ID: B71013400013

Route No: 134

Date From: 2016/05/04 0:00

Town: Hawaii

Direction: +MP

Date To: 2016/05/05 23:45

Location: Pahoa Village Rd - Kahakai Blvd to Apaa St

Functional Classification: 17 URBAN:COLLECTOR
 REPORT TOTALS - 48 HOURS RECORDED

	VOLUME	%	NUMBER OF AXLES
Cycles	149	0.95%	298
PC	10440	66.46%	20880
2A-4T	4860	30.94%	9720

LIGHT VEHICLE TOTALS	15449	98.35%	30898
HEAVY VEHICLES			
Bus	58	0.37%	145
SINGLE UNIT TRUCK			
2A-6T	122	0.78%	244
3A-SU	27	0.17%	81
4A-SU	4	0.03%	16
SINGLE-TRAILER TRUCKS			
4A-ST	17	0.11%	68
5A-ST	28	0.18%	140
6A-ST	3	0.02%	18
MULTI-TRAILER TRUCKS			
5A-MT	0	0.00%	0
6A-MT	0	0.00%	0
7A-MT	1	0.01%	7

HEAVY VEHICLE TOTALS	260	1.66%	719

CLASSIFIED VEHICLES TOTALS 15709 (A) 100.00% 31617 (B)
 UNCLASSIFIED VEHICLES TOTALS -0 -0.00%

AXLE CORRECTION FACTOR (A/C) = 0.994

ROADTUBE EQUIVALENT(B/2) = 15809 (C)

PEAK HOUR VOLUME : 713 2016/05/05 14:00	PEAK HOUR TRUCK VOLUME	% TOTAL PEAK HOUR VOLUME	24 HOUR TRUCK VOLUME	AADT	% OF AADT	HPMS K-FACTOR (PEAK/AADT) (ITEM 66)
SINGLE UNIT TRUCKS (TYPE 4-7)	12	(65A-1) 1.68%	105	7600	(65A-2) 1.38%	9.38%
COMBINATION (TYPE 8-13)	5	(65B-1) 0.70%	24		(65B-2) 0.32%	9.38%

Traffic Data Service

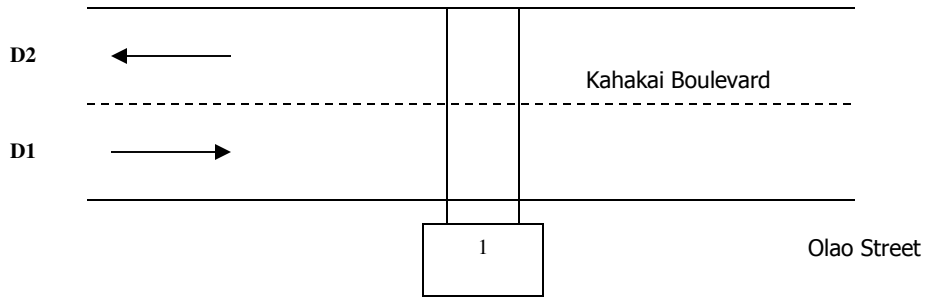
Traffic Station Sketch



Section ID/Station #: B7101380004

Island: Hawaii
Area: Pahoia

Auina Street



Meter #
1. BG52

File Name
D0504009_B7101380004
D0504010_B7101380004

GPS
19.50674, -154.9493

Station Description: Kahakai Boulevard: Auina Street to Olao Street					
Survey Beginning Date/Time: 5/4/16 @ 0000			Survey Ending Date/Time: 5/5/16 @ 2400		
Survey Method:	Road Tube		Data Type:	Class	
Survey Crew:	LM			C1B	
Sketch Updated:	By:			SR	
Remarks:					
FACILITY NAME	JURI	FUNC CLASS	AREA TYPE	NO.	ROUTE MILE
Kahakai Boulevard		17		0138	
D1= Direction to End D2= Direction to Begin			D1: Olao Street / Papio St D2: Auina Street / Keaau-Pahoia Road (Rte 130)		

Run Date: 2017/08/08

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2016 Program Count - Summary

Site ID: B71013800004

Functional Class: URBAN:COLLECTOR

Location: Kahakai Blvd - Auina St to Olao St

Town: Hawaii

Count Type: CLASS

DIR 1: +MP

DIR 2: -MP

Final AADT: 6300

Counter Type: Tube

Route No: 138

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 05/04/2016															
12:00-12:15	5	2	7	06:00-06:15	16	61	77	12:00-12:15	51	57	108	06:00-06:15	46	29	75
12:15-12:30	7	1	8	06:15-06:30	17	73	90	12:15-12:30	56	40	96	06:15-06:30	53	26	79
12:30-12:45	5	1	6	06:30-06:45	23	85	108	12:30-12:45	48	51	99	06:30-06:45	53	34	87
12:45-01:00	3	3	6	06:45-07:00	37	91	128	12:45-01:00	59	46	105	06:45-07:00	55	29	84
01:00-01:15	2	4	6	07:00-07:15	30	63	93	01:00-01:15	65	48	113	07:00-07:15	52	28	80
01:15-01:30	3	1	4	07:15-07:30	67	73	140	01:15-01:30	57	65	122	07:15-07:30	38	28	66
01:30-01:45	2	1	3	07:30-07:45	68	108	176	01:30-01:45	48	70	118	07:30-07:45	31	21	52
01:45-02:00	1	0	1	07:45-08:00	51	108	159	01:45-02:00	56	50	106	07:45-08:00	32	16	48
02:00-02:15	0	1	1	08:00-08:15	51	60	111	02:00-02:15	62	54	116	08:00-08:15	27	11	38
02:15-02:30	1	3	4	08:15-08:30	39	57	96	02:15-02:30	74	62	136	08:15-08:30	27	12	39
02:30-02:45	1	2	3	08:30-08:45	34	64	98	02:30-02:45	54	51	105	08:30-08:45	36	12	48
02:45-03:00	1	5	6	08:45-09:00	38	62	100	02:45-03:00	56	51	107	08:45-09:00	36	7	43
03:00-03:15	2	2	4	09:00-09:15	27	47	74	03:00-03:15	50	42	92	09:00-09:15	25	16	41
03:15-03:30	1	3	4	09:15-09:30	24	56	80	03:15-03:30	87	42	129	09:15-09:30	30	13	43
03:30-03:45	1	4	5	09:30-09:45	28	50	78	03:30-03:45	60	77	137	09:30-09:45	28	14	42
03:45-04:00	1	11	12	09:45-10:00	37	46	83	03:45-04:00	78	41	119	09:45-10:00	23	1	24
04:00-04:15	3	15	18	10:00-10:15	34	45	79	04:00-04:15	58	49	107	10:00-10:15	19	11	30
04:15-04:30	4	14	18	10:15-10:30	45	43	88	04:15-04:30	75	41	116	10:15-10:30	13	9	22
04:30-04:45	1	13	14	10:30-10:45	33	50	83	04:30-04:45	69	46	115	10:30-10:45	20	4	24
04:45-05:00	1	14	15	10:45-11:00	34	37	71	04:45-05:00	65	37	102	10:45-11:00	19	7	26
05:00-05:15	2	24	26	11:00-11:15	32	38	70	05:00-05:15	70	35	105	11:00-11:15	12	3	15
05:15-05:30	1	27	28	11:15-11:30	34	36	70	05:15-05:30	67	37	104	11:15-11:30	14	4	18
05:30-05:45	4	31	35	11:30-11:45	41	43	84	05:30-05:45	78	39	117	11:30-11:45	11	3	14
05:45-06:00	9	49	58	11:45-12:00	34	50	84	05:45-06:00	70	36	106	11:45-12:00	3	1	4

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2
TWO DIRECTIONAL PEAK		TWO DIRECTIONAL PEAK		TWO DIRECTIONAL PEAK	
AM - PEAK HR TIME	07:15 AM to 08:15 AM		PM - PEAK HR TIME	03:15 PM to 04:15 PM	
AM - PEAK HR VOLUME	237	349	PM - PEAK HR VOLUME	283	209
AM - K FACTOR (%)	9.25		PM - K FACTOR (%)	7.77	
AM - D (%)	40.44	59.56	PM - D (%)	57.52	42.48
DIRECTIONAL PEAK		DIRECTIONAL PEAK		DIRECTIONAL PEAK	
AM - PEAK HR TIME	07:15 AM to 08:15 AM	07:00 AM to 08:00 AM	PM - PEAK HR TIME	05:00 PM to 06:00 PM	03:15 PM to 04:15 PM
AM - PEAK HR VOLUME	237	352	PM - PEAK HR VOLUME	285	209

AM PERIOD (00:00-12:00)	PM PERIOD (12:00-24:00)
TWO DIRECTIONAL PEAK	
AM - PEAK HR TIME	07:15 AM to 08:15 AM
AM - PEAK HR VOLUME	237
AM - K FACTOR (%)	9.25
AM - D (%)	40.44
TWO DIRECTIONAL PEAK	
PM - PEAK HR TIME	03:15 PM to 04:15 PM
PM - PEAK HR VOLUME	283
PM - K FACTOR (%)	7.77
PM - D (%)	57.52

NON-COMMUTER PERIOD (09:00-15:00)	6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	Total
TWO DIRECTIONAL PEAK		AM 6-HR PERIOD (06:00-12:00)		2,320
PEAK HR TIME	01:30 PM to 02:30 PM	874	1,446	2,612
PEAK HR VOLUME	240	236	476	2,680
DIRECTIONAL PEAK		AM 12-HR PERIOD (00:00-12:00)		3,722
PEAK HR TIME	01:45 PM to 02:45 PM	01:15 PM to 02:15 PM	2,216	1,506
PEAK HR VOLUME	246	239	3,151	3,183
		PM 6-HR PERIOD (12:00-18:00)		6,334
		PM 12-HR PERIOD (12:00-24:00)		49.75
		24 HOUR PERIOD		50.25
		D (%)		100.00

Run Date: 2017/08/08

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2016 Program Count - Summary

Site ID: B71013800004

Functional Class: URBAN:COLLECTOR

Location: Kahakai Blvd - Auina St to Olao St

Town: Hawaii
 Count Type: CLASS

DIR 1: +MP DIR 2: -MP
 Counter Type: Tube

Final AADT: 6300
 Route No: 138

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 05/05/2016															
12:00-12:15	4	3	7	06:00-06:15	13	56	69	12:00-12:15	58	55	113	06:00-06:15	65	31	96
12:15-12:30	5	4	9	06:15-06:30	17	75	92	12:15-12:30	49	44	93	06:15-06:30	78	32	110
12:30-12:45	10	4	14	06:30-06:45	27	77	104	12:30-12:45	51	44	95	06:30-06:45	57	41	98
12:45-01:00	5	1	6	06:45-07:00	41	71	112	12:45-01:00	37	41	78	06:45-07:00	57	20	77
01:00-01:15	6	7	13	07:00-07:15	45	71	116	01:00-01:15	52	42	94	07:00-07:15	45	32	77
01:15-01:30	2	7	9	07:15-07:30	68	86	154	01:15-01:30	57	44	101	07:15-07:30	41	23	64
01:30-01:45	7	1	8	07:30-07:45	59	124	183	01:30-01:45	67	46	113	07:30-07:45	40	16	56
01:45-02:00	7	1	8	07:45-08:00	74	105	179	01:45-02:00	63	49	112	07:45-08:00	31	16	47
02:00-02:15	3	6	9	08:00-08:15	45	72	117	02:00-02:15	85	68	153	08:00-08:15	27	12	39
02:15-02:30	2	1	3	08:15-08:30	47	57	104	02:15-02:30	73	98	171	08:15-08:30	31	8	39
02:30-02:45	1	3	4	08:30-08:45	20	49	69	02:30-02:45	68	64	132	08:30-08:45	25	13	38
02:45-03:00	1	3	4	08:45-09:00	22	60	82	02:45-03:00	58	69	127	08:45-09:00	31	12	43
03:00-03:15	1	3	4	09:00-09:15	33	49	82	03:00-03:15	65	70	135	09:00-09:15	28	22	50
03:15-03:30	2	3	5	09:15-09:30	28	57	85	03:15-03:30	65	54	119	09:15-09:30	23	20	43
03:30-03:45	0	5	5	09:30-09:45	34	63	97	03:30-03:45	70	53	123	09:30-09:45	20	9	29
03:45-04:00	1	9	10	09:45-10:00	33	59	92	03:45-04:00	101	45	146	09:45-10:00	22	14	36
04:00-04:15	1	8	9	10:00-10:15	36	50	86	04:00-04:15	78	54	132	10:00-10:15	16	8	24
04:15-04:30	5	10	15	10:15-10:30	40	45	85	04:15-04:30	74	40	114	10:15-10:30	16	8	24
04:30-04:45	2	15	17	10:30-10:45	42	38	80	04:30-04:45	76	48	124	10:30-10:45	26	7	33
04:45-05:00	2	23	25	10:45-11:00	33	46	79	04:45-05:00	75	44	119	10:45-11:00	16	8	24
05:00-05:15	2	19	21	11:00-11:15	44	40	84	05:00-05:15	67	35	102	11:00-11:15	15	3	18
05:15-05:30	4	23	27	11:15-11:30	31	55	86	05:15-05:30	53	40	93	11:15-11:30	8	5	13
05:30-05:45	6	39	45	11:30-11:45	51	60	111	05:30-05:45	72	44	116	11:30-11:45	5	2	7
05:45-06:00	7	44	51	11:45-12:00	43	42	85	05:45-06:00	73	44	117	11:45-12:00	11	2	13

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2
TWO DIRECTIONAL PEAK		TWO DIRECTIONAL PEAK		TWO DIRECTIONAL PEAK	
AM - PEAK HR TIME	07:15 AM to 08:15 AM		PM - PEAK HR TIME	03:00 PM to 04:00 PM	
AM - PEAK HR VOLUME	246	387	633	301	222
AM - K FACTOR (%)	9.47		PM - K FACTOR (%)	7.83	
AM - D (%)	38.86	61.14	100.00	57.55	42.45
DIRECTIONAL PEAK		DIRECTIONAL PEAK		DIRECTIONAL PEAK	
AM - PEAK HR TIME	07:00 AM to 08:00 AM	07:15 AM to 08:15 AM	PM - PEAK HR TIME	03:45 PM to 04:45 PM	03:00 PM to 04:00 PM
AM - PEAK HR VOLUME	246	387	329	222	

AM PERIOD (00:00-12:00)	PM PERIOD (12:00-24:00)
TWO DIRECTIONAL PEAK	
AM - PEAK HR TIME	07:15 AM to 08:15 AM
AM - PEAK HR VOLUME	246
AM - K FACTOR (%)	9.47
AM - D (%)	38.86
TWO DIRECTIONAL PEAK	
PM - PEAK HR TIME	02:00 PM to 03:00 PM
PM - PEAK HR VOLUME	284
PM - K FACTOR (%)	8.73
PM - D (%)	48.71

NON-COMMUTER PERIOD (09:00-15:00)	6-HR, 12-HR, 24-HR PERIODS
TWO DIRECTIONAL PEAK	
PEAK HR TIME	02:00 PM to 03:00 PM
PEAK HR VOLUME	284
DIRECTIONAL PEAK	
PEAK HR TIME	01:45 PM to 02:45 PM
PEAK HR VOLUME	289
AM 6-HR PERIOD (06:00-12:00)	
AM 12-HR PERIOD (00:00-12:00)	
PM 6-HR PERIOD (12:00-18:00)	
PM 12-HR PERIOD (12:00-24:00)	
24 HOUR PERIOD	
D (%)	

Run Date: 2017/08/08

Hawaii Department of Transportation
 Highways Division
 Highways Planning Survey Section
 Vehicle Classification Data Summary
 2016

Site ID: B71013800004

Route No: 138

Date From: 2016/05/04 0:00

Town: Hawaii

Direction: +MP

Date To: 2016/05/05 23:45

Location: Kahakai Blvd - Auina St to Olao St

Functional Classification: 17 URBAN:COLLECTOR
 REPORT TOTALS - 48 HOURS RECORDED

	VOLUME	%	NUMBER OF AXLES
Cycles	72	0.55%	143
PC	9189	70.60%	18378
2A-4T	3554	27.31%	7108

LIGHT VEHICLE TOTALS	12815	98.46%	25629
HEAVY VEHICLES			
Bus	80	0.61%	200
SINGLE UNIT TRUCK			
2A-6T	76	0.58%	152
3A-SU	21	0.16%	63
4A-SU	2	0.02%	8
SINGLE-TRAILER TRUCKS			
4A-ST	6	0.05%	24
5A-ST	15	0.12%	75
6A-ST	0	0.00%	0
MULTI-TRAILER TRUCKS			
5A-MT	0	0.00%	0
6A-MT	0	0.00%	0
7A-MT	1	0.01%	7

HEAVY VEHICLE TOTALS	201	1.54%	529

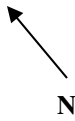
CLASSIFIED VEHICLES TOTALS 13016 (A) 100.00% 26158 (B)
 UNCLASSIFIED VEHICLES TOTALS -1 -0.00%

AXLE CORRECTION FACTOR (A/C) = 0.995

ROADTUBE EQUIVALENT(B/2) = 13079 (C)

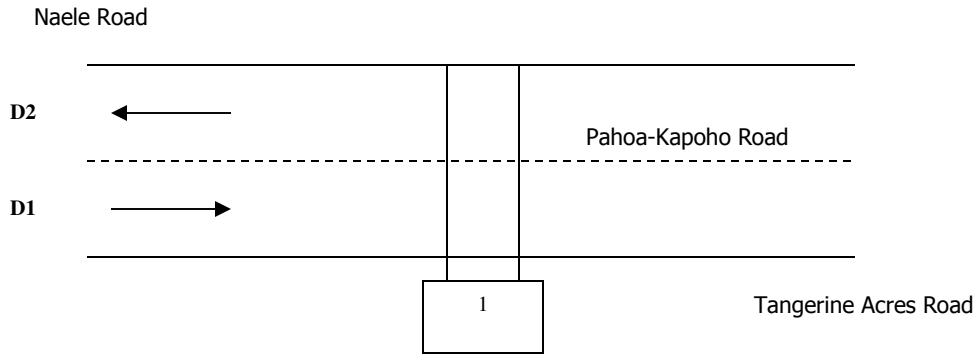
PEAK HOUR VOLUME : 632 2016/05/05 07:00	PEAK HOUR TRUCK VOLUME	% TOTAL PEAK HOUR VOLUME	24 HOUR TRUCK VOLUME	AADT	% OF AADT	HPMS K-FACTOR (PEAK/AADT) (ITEM 66)
SINGLE UNIT TRUCKS (TYPE 4-7)	8	(65A-1) 1.27%	89	6300	(65A-2) 1.41%	10.03%
COMBINATION (TYPE 8-13)	1	(65B-1) 0.16%	11		(65B-2) 0.17%	10.03%

Traffic Data Service
Traffic Station Sketch



Section ID/Station #: B71013200030

Island: Hawaii
Area: Hilo



<u>Meter #</u>	<u>File Name</u>	<u>GPS</u>
1. BJ65	D0504005_B71013200030 D0504006_B71013200030	19.49008, -154.9351

Station Description: Pahoa-Kapoho Road: Naele Road to Tangerine Acres Road					
Survey Beginning Date/Time: 5/4/16 @ 0000			Survey Ending Date/Time: 5/5/16 @ 2400		
Survey Method:	Road Tube	Data Type:	Class		
Survey Crew:	LM	C1B			
Sketch Updated:	By:			SR	
Remarks:					
FACILITY NAME	JURI	FUNC CLASS	AREA TYPE	ROUTE NO.	ROUTE MILE
Pahoa-Kapoho Road		17		0132	
D1= Direction to End D2= Direction to Begin		D1: Tangerine Acres Road / Kapoho-Kaimu Road (Rte 137) D2: Naele Road / Keeau-Pahoa Road (Rte 130)			

Run Date: 2017/08/08

**Hawaii Department of Transportation
Highways Division Highways Planning Survey Section**

2016 Program Count - Summary

Site ID: B71013200030

Functional Class: URBAN:COLLECTOR

Location: Pahoia-Kapoho Rd - Naele Rd to Tangerine Acres Rd

Town: Hawaii
Count Type: CLASS

DIR 1: +MP DIR 2:-MP Final AADT: 7100
Counter Type: Tube Route No: 132

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 05/04/2016															
12:00-12:15	1	8	9	06:00-06:15	14	43	57	12:00-12:15	76	80	156	06:00-06:15	78	42	120
12:15-12:30	6	3	9	06:15-06:30	31	51	82	12:15-12:30	68	63	131	06:15-06:30	67	45	112
12:30-12:45	5	3	8	06:30-06:45	28	47	75	12:30-12:45	66	55	121	06:30-06:45	66	34	100
12:45-01:00	4	5	9	06:45-07:00	20	67	87	12:45-01:00	63	63	126	06:45-07:00	51	48	99
01:00-01:15	1	3	4	07:00-07:15	37	60	97	01:00-01:15	65	61	126	07:00-07:15	46	44	90
01:15-01:30	4	2	6	07:15-07:30	50	72	122	01:15-01:30	63	63	126	07:15-07:30	52	37	89
01:30-01:45	2	1	3	07:30-07:45	51	125	176	01:30-01:45	66	69	135	07:30-07:45	41	19	60
01:45-02:00	0	1	1	07:45-08:00	53	97	150	01:45-02:00	70	59	129	07:45-08:00	33	31	64
02:00-02:15	3	4	7	08:00-08:15	56	78	134	02:00-02:15	84	70	154	08:00-08:15	35	19	54
02:15-02:30	0	0	0	08:15-08:30	45	55	100	02:15-02:30	76	71	147	08:15-08:30	37	26	63
02:30-02:45	3	3	6	08:30-08:45	59	67	126	02:30-02:45	86	64	150	08:30-08:45	34	26	60
02:45-03:00	1	3	4	08:45-09:00	42	58	100	02:45-03:00	77	66	143	08:45-09:00	35	30	65
03:00-03:15	1	5	6	09:00-09:15	47	55	102	03:00-03:15	68	74	142	09:00-09:15	21	14	35
03:15-03:30	1	3	4	09:15-09:30	40	54	94	03:15-03:30	88	67	155	09:15-09:30	26	11	37
03:30-03:45	0	4	4	09:30-09:45	36	60	96	03:30-03:45	73	63	136	09:30-09:45	21	14	35
03:45-04:00	2	5	7	09:45-10:00	37	41	78	03:45-04:00	66	75	141	09:45-10:00	20	15	35
04:00-04:15	1	4	5	10:00-10:15	49	38	87	04:00-04:15	76	61	137	10:00-10:15	31	13	44
04:15-04:30	1	8	9	10:15-10:30	55	71	126	04:15-04:30	70	66	136	10:15-10:30	15	10	25
04:30-04:45	4	8	12	10:30-10:45	48	61	109	04:30-04:45	79	55	134	10:30-10:45	17	9	26
04:45-05:00	4	8	12	10:45-11:00	48	54	102	04:45-05:00	82	60	142	10:45-11:00	17	8	25
05:00-05:15	1	8	9	11:00-11:15	46	57	103	05:00-05:15	64	59	123	11:00-11:15	13	3	16
05:15-05:30	8	14	22	11:15-11:30	59	57	116	05:15-05:30	76	51	127	11:15-11:30	15	5	20
05:30-05:45	9	33	42	11:30-11:45	47	49	96	05:30-05:45	86	48	134	11:30-11:45	7	6	13
05:45-06:00	15	31	46	11:45-12:00	70	54	124	05:45-06:00	83	47	130	11:45-12:00	5	7	12

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2	
TWO DIRECTIONAL PEAK		TWO DIRECTIONAL PEAK		TWO DIRECTIONAL PEAK		
AM - PEAK HR TIME	07:15 AM to 08:15 AM		PM - PEAK HR TIME	03:00 PM to 04:00 PM		
AM - PEAK HR VOLUME	210	372	582	295	279	574
AM - K FACTOR (%)	7.90		PM - K FACTOR (%)	7.80		
AM - D (%)	36.08	63.92	100.00	51.39	48.61	100.00
DIRECTIONAL PEAK		DIRECTIONAL PEAK		DIRECTIONAL PEAK		
AM - PEAK HR TIME	07:45 AM to 08:45 AM	07:15 AM to 08:15 AM	PM - PEAK HR TIME	05:15 PM to 06:15 PM	03:00 PM to 04:00 PM	
AM - PEAK HR VOLUME	213	372	PM - PEAK HR VOLUME	323	279	

AM PERIOD (00:00-12:00)	PM PERIOD (12:00-24:00)		
TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:15 AM to 08:15 AM		
AM - PEAK HR VOLUME	210	372	582
AM - K FACTOR (%)	7.90		
AM - D (%)	36.08	63.92	100.00
TWO DIRECTIONAL PEAK			
PM - PEAK HR TIME	02:00 PM to 03:00 PM		
PM - PEAK HR VOLUME	323	271	594
PM - K FACTOR (%)	8.07		
PM - D (%)	54.38	45.62	100.00

NON-COMMUTER PERIOD (09:00-15:00)	6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	Total		
TWO DIRECTIONAL PEAK		AM 6-HR PERIOD (06:00-12:00)				
PEAK HR TIME	02:00 PM to 03:00 PM	1,068	1,471	2,539		
PEAK HR VOLUME	323	271	594	1,145	1,638	2,783
DIRECTIONAL PEAK		PM 6-HR PERIOD (12:00-18:00)				
PEAK HR TIME	02:00 PM to 03:00 PM	02:00 PM to 03:00 PM	24 HOUR PERIOD	1,771	1,510	3,281
PEAK HR VOLUME	323	271	D (%)	2,554	2,026	4,580
				3,699	3,664	7,363
				50.24	49.76	100.00

Run Date: 2017/08/08

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2016 Program Count - Summary

Site ID: B71013200030

Functional Class: URBAN:COLLECTOR

Location: Pahoia-Kapoho Rd - Naele Rd to Tangerine Acres Rd

Town: Hawaii
 Count Type: CLASS

DIR 1: +MP DIR 2: -MP
 Counter Type: Tube

Final AADT: 7100
 Route No: 132

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 05/05/2016															
12:00-12:15	12	6	18	06:00-06:15	16	55	71	12:00-12:15	49	74	123	06:00-06:15	81	46	127
12:15-12:30	4	8	12	06:15-06:30	24	48	72	12:15-12:30	73	70	143	06:15-06:30	76	49	125
12:30-12:45	3	2	5	06:30-06:45	23	54	77	12:30-12:45	63	54	117	06:30-06:45	58	50	108
12:45-01:00	3	2	5	06:45-07:00	29	57	86	12:45-01:00	51	70	121	06:45-07:00	50	43	93
01:00-01:15	3	4	7	07:00-07:15	25	68	93	01:00-01:15	65	55	120	07:00-07:15	38	33	71
01:15-01:30	5	2	7	07:15-07:30	40	87	127	01:15-01:30	60	50	110	07:15-07:30	52	35	87
01:30-01:45	2	3	5	07:30-07:45	50	100	150	01:30-01:45	50	61	111	07:30-07:45	45	27	72
01:45-02:00	1	2	3	07:45-08:00	65	88	153	01:45-02:00	49	73	122	07:45-08:00	42	30	72
02:00-02:15	2	1	3	08:00-08:15	67	77	144	02:00-02:15	82	60	142	08:00-08:15	32	30	62
02:15-02:30	5	4	9	08:15-08:30	47	76	123	02:15-02:30	67	61	128	08:15-08:30	41	17	58
02:30-02:45	2	1	3	08:30-08:45	52	66	118	02:30-02:45	83	73	156	08:30-08:45	32	16	48
02:45-03:00	6	2	8	08:45-09:00	48	56	104	02:45-03:00	68	78	146	08:45-09:00	27	12	39
03:00-03:15	3	7	10	09:00-09:15	46	68	114	03:00-03:15	79	73	152	09:00-09:15	21	9	30
03:15-03:30	1	3	4	09:15-09:30	57	58	115	03:15-03:30	83	71	154	09:15-09:30	29	13	42
03:30-03:45	0	3	3	09:30-09:45	39	53	92	03:30-03:45	76	69	145	09:30-09:45	27	10	37
03:45-04:00	0	4	4	09:45-10:00	42	57	99	03:45-04:00	66	61	127	09:45-10:00	21	12	33
04:00-04:15	2	8	10	10:00-10:15	50	46	96	04:00-04:15	71	68	139	10:00-10:15	20	6	26
04:15-04:30	1	8	9	10:15-10:30	65	59	124	04:15-04:30	69	70	139	10:15-10:30	17	9	26
04:30-04:45	2	11	13	10:30-10:45	57	58	115	04:30-04:45	99	58	157	10:30-10:45	15	4	19
04:45-05:00	3	9	12	10:45-11:00	57	54	111	04:45-05:00	92	65	157	10:45-11:00	15	6	21
05:00-05:15	3	11	14	11:00-11:15	64	65	129	05:00-05:15	82	46	128	11:00-11:15	6	6	12
05:15-05:30	7	17	24	11:15-11:30	56	47	103	05:15-05:30	57	69	126	11:15-11:30	14	4	18
05:30-05:45	9	29	38	11:30-11:45	60	57	117	05:30-05:45	78	55	133	11:30-11:45	10	4	14
05:45-06:00	14	31	45	11:45-12:00	64	72	136	05:45-06:00	71	68	139	11:45-12:00	8	5	13

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2	
TWO DIRECTIONAL PEAK		TWO DIRECTIONAL PEAK		TWO DIRECTIONAL PEAK		
AM - PEAK HR TIME	07:15 AM to 08:15 AM		PM - PEAK HR TIME	04:00 PM to 05:00 PM		
AM - PEAK HR VOLUME	222	352	574	331	261	592
AM - K FACTOR (%)			7.73			7.97
AM - D (%)	38.68	61.32	100.00	55.91	44.09	100.00
DIRECTIONAL PEAK		DIRECTIONAL PEAK		DIRECTIONAL PEAK		
AM - PEAK HR TIME	07:45 AM to 08:45 AM	07:15 AM to 08:15 AM	PM - PEAK HR TIME	04:15 PM to 05:15 PM	03:00 PM to 04:00 PM	
AM - PEAK HR VOLUME	231	352	342	274		

AM PERIOD (00:00-12:00)	PM PERIOD (12:00-24:00)		
TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:15 AM to 08:15 AM		
AM - PEAK HR VOLUME	222	352	574
AM - K FACTOR (%)			7.73
AM - D (%)	38.68	61.32	100.00
TWO DIRECTIONAL PEAK			
PM - PEAK HR TIME	02:30 PM to 03:30 PM		
PM - PEAK HR VOLUME	313	295	608
PM - K FACTOR (%)			8.19
PM - D (%)	51.48	48.52	100.00

NON-COMMUTER PERIOD (09:00-15:00)	6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	Total		
TWO DIRECTIONAL PEAK		AM 6-HR PERIOD (06:00-12:00)		2,669		
PEAK HR TIME	02:00 PM to 03:00 PM	1,236	1,526	2,940		
PEAK HR VOLUME		1,683	1,704	3,235		
DIRECTIONAL PEAK		PM 6-HR PERIOD (12:00-18:00)		4,488		
PEAK HR TIME	02:00 PM to 03:00 PM	2,460	2,028	7,428		
PEAK HR VOLUME	300	273	572	3,696	3,732	100.00
		PM 12-HR PERIOD (12:00-24:00)		49.76	50.24	100.00
		24 HOUR PERIOD				
		D (%)				

Run Date: 2017/08/08

**Hawaii Department of Transportation
Highways Division
Highways Planning Survey Section
Vehicle Classification Data Summary
2016**

Site ID: B71013200030

Route No: 132

Date From: 2016/05/04 0:00

Town: Hawaii

Direction: +MP

Date To: 2016/05/05 23:45

Location: Pahoa-Kapoho Rd - Naele Rd to Tangerine Acres Rd

Functional Classification: 17 URBAN:COLLECTOR
REPORT TOTALS - 48 HOURS RECORDED

	VOLUME	%	NUMBER OF AXLES
Cycles	132	0.89%	263
PC	9676	65.42%	19352
2A-4T	4672	31.59%	9344

LIGHT VEHICLE TOTALS	14480	97.90%	28959
HEAVY VEHICLES			
Bus	130	0.88%	325
<u>SINGLE UNIT TRUCK</u>			
2A-6T	85	0.57%	170
3A-SU	51	0.34%	153
4A-SU	18	0.12%	72
<u>SINGLE-TRAILER TRUCKS</u>			
4A-ST	6	0.04%	24
5A-ST	15	0.10%	75
6A-ST	3	0.02%	18
<u>MULTI-TRAILER TRUCKS</u>			
5A-MT	1	0.01%	5
6A-MT	0	0.00%	0
7A-MT	2	0.01%	14

HEAVY VEHICLE TOTALS	311	2.10%	856

CLASSIFIED VEHICLES TOTALS	14791 (A)	100.00%	29815 (B)
UNCLASSIFIED VEHICLES TOTALS	0	0.00%	

AXLE
CORRECTION
FACTOR (A/C) = 0.992

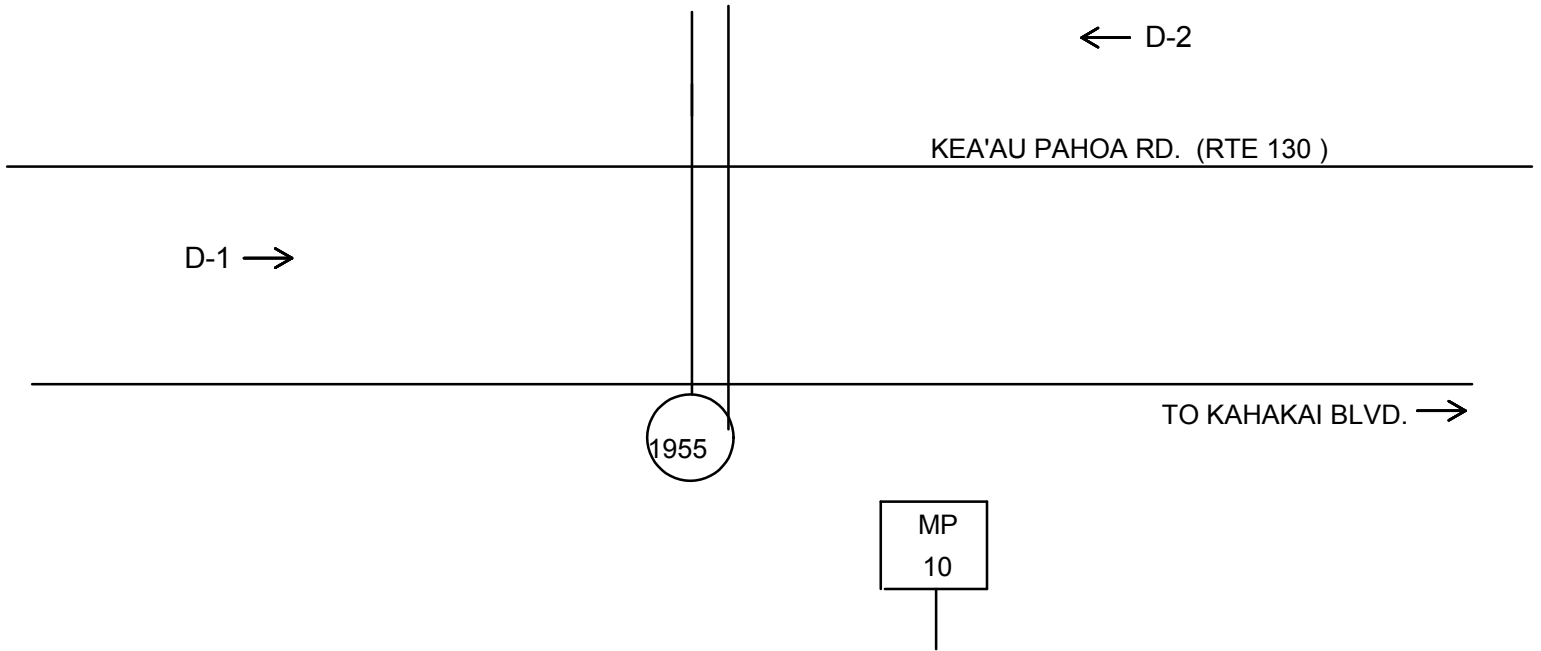
**ROADTUBE
EQUIVALENT(B/2) = 14908 (C)**

PEAK HOUR VOLUME : 594 2016/05/04 14:00	PEAK HOUR TRUCK VOLUME	% TOTAL PEAK HOUR VOLUME	24 HOUR TRUCK VOLUME	AADT	% OF AADT	HPMS K-FACTOR (PEAK/AADT) (ITEM 66)
SINGLE UNIT TRUCKS (TYPE 4-7)	19	(65A-1) 3.20%	142	7100	(65A-2) 2.00%	8.37%
COMBINATION (TYPE 8-13)	0	(65B-1) 0.00%	13		(65B-2) 0.18%	8.37%



ISLAND: HAWAII
 AREA: PAHOA

← TO WATER TANK RD.



Station No: B71 0130 00937

Station Location:			
Kea'au Pahoa Road between Kaluahine Street and Pahoa Village Road			
Station Mileage:	10.60	GPS Coord (Latitude):	19.51418
		GPS Coord (Longitude):	154.96330
Begin Survey (Date/Time):	4-4-16 0000	End Survey (Date/Time):	4-7-16 0000
Survey Method:	LOOP HOSE OTHER	Survey Type:	VOL CLASS SPEED OTHER
Survey Crew:	FIELD CREW	Module No.:	

HPMS DATA							
Segment Description:							
KEA'AU PAHOA ROAD - AINALOA BOULEVARD TO KAHAKAI BOULEVARD							
Segment Begin LRS	9.37	Segment End LRS	10.66	Length	1.29		
Facility Name	Juris	Func Class	Area Type	Route		D-1 = Direction to End of Route	
				No.	Mile	D-2 = Direction to Beginning of Route	
KEA'AU PAHOA ROAD	S	6	1	130	10.60	D-1	TOKAIMU-CHAIN OF CRATER ROAD
						D-2	TO VOLCANO ROAD

Sketch By: RG Date: 3/21/2016 SLD: 2005

Run Date: 2017/07/05

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2016 Program Count - Summary

Site ID: B71013000937

Functional Class: URBAN:MINOR ARTERIAL

Location: Keaau-Pahoa Road: Kaluahine St to Pahoa Village Rd

Town: Hawaii
 Count Type: CLASS

DIR 1: +MP DIR 2: -MP
 Counter Type: Tube

Final AADT: 13200
 Route No: 130

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 04/05/2016															
12:00-12:15	10	10	20	06:00-06:15	38	86	124	12:00-12:15	109	98	207	06:00-06:15	145	75	220
12:15-12:30	10	10	20	06:15-06:30	55	121	176	12:15-12:30	105	111	216	06:15-06:30	130	77	207
12:30-12:45	10	10	20	06:30-06:45	63	149	212	12:30-12:45	111	110	221	06:30-06:45	113	74	187
12:45-01:00	7	3	10	06:45-07:00	102	114	216	12:45-01:00	138	106	244	06:45-07:00	118	84	202
01:00-01:15	3	7	10	07:00-07:15	90	121	211	01:00-01:15	99	116	215	07:00-07:15	97	68	165
01:15-01:30	7	5	12	07:15-07:30	118	131	249	01:15-01:30	129	104	233	07:15-07:30	124	57	181
01:30-01:45	7	10	17	07:30-07:45	156	120	276	01:30-01:45	134	85	219	07:30-07:45	82	58	140
01:45-02:00	4	7	11	07:45-08:00	141	149	290	01:45-02:00	149	102	251	07:45-08:00	100	58	158
02:00-02:15	2	10	12	08:00-08:15	80	192	272	02:00-02:15	138	98	236	08:00-08:15	78	45	123
02:15-02:30	4	7	11	08:15-08:30	72	168	240	02:15-02:30	120	157	277	08:15-08:30	83	41	124
02:30-02:45	4	3	7	08:30-08:45	64	146	210	02:30-02:45	140	156	296	08:30-08:45	65	30	95
02:45-03:00	4	2	6	08:45-09:00	118	120	238	02:45-03:00	126	142	268	08:45-09:00	75	24	99
03:00-03:15	5	3	8	09:00-09:15	75	125	200	03:00-03:15	123	127	250	09:00-09:15	61	46	107
03:15-03:30	1	7	8	09:15-09:30	82	132	214	03:15-03:30	143	120	263	09:15-09:30	49	26	75
03:30-03:45	3	12	15	09:30-09:45	72	143	215	03:30-03:45	115	135	250	09:30-09:45	52	26	78
03:45-04:00	8	8	16	09:45-10:00	104	110	214	03:45-04:00	145	125	270	09:45-10:00	39	34	73
04:00-04:15	2	13	15	10:00-10:15	93	125	218	04:00-04:15	139	111	250	10:00-10:15	36	20	56
04:15-04:30	5	17	22	10:15-10:30	101	123	224	04:15-04:30	126	114	240	10:15-10:30	37	22	59
04:30-04:45	6	23	29	10:30-10:45	90	130	220	04:30-04:45	132	124	256	10:30-10:45	31	20	51
04:45-05:00	6	34	40	10:45-11:00	103	106	209	04:45-05:00	141	97	238	10:45-11:00	20	15	35
05:00-05:15	11	42	53	11:00-11:15	106	90	196	05:00-05:15	150	102	252	11:00-11:15	13	17	30
05:15-05:30	9	49	58	11:15-11:30	97	116	213	05:15-05:30	135	97	232	11:15-11:30	10	14	24
05:30-05:45	13	52	65	11:30-11:45	91	101	192	05:30-05:45	139	112	251	11:30-11:45	17	8	25
05:45-06:00	23	52	75	11:45-12:00	118	97	215	05:45-06:00	132	86	218	11:45-12:00	12	15	27

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2
TWO DIRECTIONAL PEAK		TWO DIRECTIONAL PEAK		TWO DIRECTIONAL PEAK	
AM - PEAK HR TIME	07:15 AM to 08:15 AM		PM - PEAK HR TIME	03:00 PM to 04:00 PM	
AM - PEAK HR VOLUME	495	592	PM - PEAK HR VOLUME	526	1033
AM - K FACTOR (%)	7.66		PM - K FACTOR (%)	7.28	
AM - D (%)	45.54	54.46	PM - D (%)	50.92	100.00
DIRECTIONAL PEAK		DIRECTIONAL PEAK		DIRECTIONAL PEAK	
AM - PEAK HR TIME	07:00 AM to 08:00 AM	07:45 AM to 08:45 AM	PM - PEAK HR TIME	04:45 PM to 05:45 PM	03:00 PM to 04:00 PM
AM - PEAK HR VOLUME	505	655	PM - PEAK HR VOLUME	565	507

AM PERIOD (00:00-12:00)	PM PERIOD (12:00-24:00)
TWO DIRECTIONAL PEAK	
AM - PEAK HR TIME	07:15 AM to 08:15 AM
AM - PEAK HR VOLUME	495
AM - K FACTOR (%)	7.66
AM - D (%)	45.54
TWO DIRECTIONAL PEAK	
PM - PEAK HR TIME	02:15 PM to 03:15 PM
PM - PEAK HR VOLUME	509
PM - K FACTOR (%)	7.68
PM - D (%)	46.65

NON-COMMUTER PERIOD (09:00-15:00)	6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	Total
TWO DIRECTIONAL PEAK		AM 6-HR PERIOD (06:00-12:00)		5,244
PEAK HR TIME	02:00 PM to 03:00 PM	AM 12-HR PERIOD (00:00-12:00)		5,804
PEAK HR VOLUME	524	PM 6-HR PERIOD (12:00-18:00)		5,853
DIRECTIONAL PEAK		PM 12-HR PERIOD (12:00-24:00)		8,394
PEAK HR TIME	01:15 PM to 02:15 PM	24 HOUR PERIOD		14,198
PEAK HR VOLUME	550	D (%)		100.00

Run Date: 2017/07/05

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2016 Program Count - Summary

Site ID: B71013000937

Town: Hawaii
 Count Type: CLASS

DIR 1: +MP DIR 2: -MP
 Counter Type: Tube

Final AADT: 13200
 Route No: 130

Location: Keaau-Pahoa Road: Kaluahine St to Pahoa Village Rd

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 04/06/2016															
12:00-12:15	14	7	21	06:00-06:15	40	99	139	12:00-12:15	84	130	214	06:00-06:15	87	57	144
12:15-12:30	9	11	20	06:15-06:30	56	107	163	12:15-12:30	91	101	192	06:15-06:30	143	60	203
12:30-12:45	9	4	13	06:30-06:45	74	171	245	12:30-12:45	101	124	225	06:30-06:45	112	43	155
12:45-01:00	8	9	17	06:45-07:00	98	142	240	12:45-01:00	127	92	219	06:45-07:00	46	34	80
01:00-01:15	7	5	12	07:00-07:15	97	112	209	01:00-01:15	120	107	227	07:00-07:15	101	29	130
01:15-01:30	5	11	16	07:15-07:30	142	124	266	01:15-01:30	135	102	237	07:15-07:30	80	30	110
01:30-01:45	5	3	8	07:30-07:45	171	99	270	01:30-01:45	112	128	240	07:30-07:45	85	33	118
01:45-02:00	5	1	6	07:45-08:00	118	97	215	01:45-02:00	119	114	233	07:45-08:00	83	30	113
02:00-02:15	4	6	10	08:00-08:15	80	119	199	02:00-02:15	142	88	230	08:00-08:15	123	39	162
02:15-02:30	2	6	8	08:15-08:30	93	115	208	02:15-02:30	19	94	113	08:15-08:30	75	35	110
02:30-02:45	3	5	8	08:30-08:45	89	126	215	02:30-02:45	25	119	144	08:30-08:45	64	48	112
02:45-03:00	4	5	9	08:45-09:00	96	86	182	02:45-03:00	63	80	143	08:45-09:00	52	48	100
03:00-03:15	1	2	3	09:00-09:15	88	144	232	03:00-03:15	68	61	129	09:00-09:15	62	37	99
03:15-03:30	1	7	8	09:15-09:30	93	132	225	03:15-03:30	117	79	196	09:15-09:30	35	51	86
03:30-03:45	1	13	14	09:30-09:45	82	158	240	03:30-03:45	60	106	166	09:30-09:45	50	41	91
03:45-04:00	7	10	17	09:45-10:00	105	84	189	03:45-04:00	66	65	131	09:45-10:00	27	48	75
04:00-04:15	3	15	18	10:00-10:15	83	141	224	04:00-04:15	89	69	158	10:00-10:15	26	28	54
04:15-04:30	4	15	19	10:15-10:30	102	124	226	04:15-04:30	80	53	133	10:15-10:30	30	41	71
04:30-04:45	3	21	24	10:30-10:45	77	115	192	04:30-04:45	78	57	135	10:30-10:45	38	29	67
04:45-05:00	9	34	43	10:45-11:00	88	113	201	04:45-05:00	56	149	205	10:45-11:00	30	25	55
05:00-05:15	13	26	39	11:00-11:15	109	97	206	05:00-05:15	66	68	134	11:00-11:15	17	33	50
05:15-05:30	10	41	51	11:15-11:30	93	103	196	05:15-05:30	62	56	118	11:15-11:30	7	15	22
05:30-05:45	18	62	80	11:30-11:45	71	89	160	05:30-05:45	90	63	153	11:30-11:45	11	18	29
05:45-06:00	20	63	83	11:45-12:00	95	133	228	05:45-06:00	79	70	149	11:45-12:00	12	18	30

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2
TWO DIRECTIONAL PEAK			TWO DIRECTIONAL PEAK		
AM - PEAK HR TIME	06:45 AM to 07:45 AM		PM - PEAK HR TIME	03:15 PM to 04:15 PM	
AM - PEAK HR VOLUME	508	477	985	332	319
AM - K FACTOR (%)			8.14		5.38
AM - D (%)	51.57	48.43	100.00	51.00	49.00
DIRECTIONAL PEAK			DIRECTIONAL PEAK		
AM - PEAK HR TIME	07:00 AM to 08:00 AM	06:30 AM to 07:30 AM	PM - PEAK HR TIME	05:45 PM to 06:45 PM	04:45 PM to 05:45 PM
AM - PEAK HR VOLUME	528	549	421	336	

AM PERIOD (00:00-12:00)	PM PERIOD (12:00-24:00)
TWO DIRECTIONAL PEAK	
AM - PEAK HR TIME	06:45 AM to 07:45 AM
AM - PEAK HR VOLUME	508
AM - K FACTOR (%)	8.14
AM - D (%)	51.57
PM - PEAK HR TIME	01:15 PM to 02:15 PM
PM - PEAK HR VOLUME	508
PM - K FACTOR (%)	7.76
PM - D (%)	54.04

NON-COMMUTER PERIOD (09:00-15:00)	6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	Total
TWO DIRECTIONAL PEAK				
PEAK HR TIME	01:15 PM to 02:15 PM			
PEAK HR VOLUME	508	432	940	
DIRECTIONAL PEAK				
PEAK HR TIME	01:15 PM to 02:15 PM	09:00 AM to 10:00 AM		
PEAK HR VOLUME	508	518		
	AM 6-HR PERIOD (06:00-12:00)	2,240	2,830	5,070
	AM 12-HR PERIOD (00:00-12:00)	2,405	3,212	5,617
	PM 6-HR PERIOD (12:00-18:00)	2,049	2,175	4,224
	PM 12-HR PERIOD (12:00-24:00)	3,445	3,045	6,490
	24 HOUR PERIOD	5,850	6,257	12,107
	D (%)	48.32	51.68	100.00

Run Date: 2017/07/05

Hawaii Department of Transportation
Highways Division
Highways Planning Survey Section

Vehicle Classification Data Summary
2016

Site ID: B71013000937

Route No: 130

Date From: 2016/04/05 0:00

Town: Hawaii

Direction: +MP

Date To: 2016/04/06 23:45

Location: Keaau-Pahoa Road: Kaluahine St to Pahoa Village Rd

Functional Classification: 16 URBAN:MINOR ARTERIAL
REPORT TOTALS - 48 HOURS RECORDED

	VOLUME	%	NUMBER OF AXLES
Cycles	195	0.74%	389
PC	21042	79.99%	42084
2A-4T	2728	10.37%	5456

LIGHT VEHICLE TOTALS	23965	91.10%	47929
HEAVY VEHICLES			
Bus	1124	4.27%	2810
SINGLE UNIT TRUCK			
2A-6T	595	2.26%	1190
3A-SU	154	0.59%	462
4A-SU	13	0.05%	52
SINGLE-TRAILER TRUCKS			
4A-ST	316	1.20%	1264
5A-ST	61	0.23%	305
6A-ST	5	0.02%	30
MULTI-TRAILER TRUCKS			
5A-MT	67	0.25%	335
6A-MT	1	0.00%	6
7A-MT	4	0.02%	28

HEAVY VEHICLE TOTALS	2340	8.90%	6482

CLASSIFIED VEHICLES TOTALS 26305 (A) 100.00% 54411 (B)
UNCLASSIFIED VEHICLES TOTALS 0 0.00%

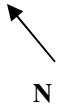
AXLE CORRECTION FACTOR (A/C) = 0.967

ROADTUBE EQUIVALENT(B/2) = 27206 (C)

PEAK HOUR VOLUME : 1077 2016/04/05 14:00	PEAK HOUR TRUCK VOLUME	% TOTAL PEAK HOUR VOLUME	24 HOUR TRUCK VOLUME	AADT	% OF AADT	HPMS K-FACTOR (PEAK/AADT) (ITEM 66)
SINGLE UNIT TRUCKS (TYPE 4-7)	112	(65A-1) 10.40%	943	13200	(65A-2) 7.14%	8.16%
COMBINATION (TYPE 8-13)	26	(65B-1) 2.41%	227		(65B-2) 1.72%	8.16%

Traffic Data Service

Traffic Station Sketch



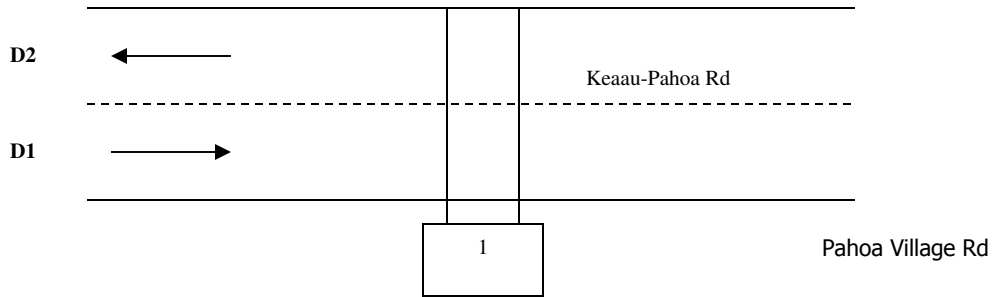
N

Section ID/Station #: B71013000937

Island: Hawaii

Area: Paho

Kaluahine St



<u>Meter #</u>	<u>File Name</u>	<u>GPS</u>
1. w542	D0623005_B71013000937	19.51418, -154.9633
2.	D0623006_B71013000937	

Station Description: Keaau-Paho Rd: Kaluahine St to Paho Village Rd					
Survey Beginning Date/Time: 6/23/16@ 0000			Survey Ending Date/Time: 6/24/16@ 2400		
Survey Method:	Road Tube	Data Type:	Class		
Survey Crew:	LM			C1B	
Sketch Updated:	By:			SR	
Remarks:	1295				
FACILITY NAME	JURI	FUNC CLASS	AREA TYPE	ROUTE NO.	MILE
Keaau-Paho Rd		16		0130	
D1= Direction to End D2= Direction to Begin		D1: Paho Village Rd/end of rte (.83 mi past Royal Palm Dr) D2: Kaluahine St / VOLCANO ROAD			

Run Date: 2017/08/03

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2016 Program Count - Summary

Site ID: B71013000937

Functional Class: URBAN:MINOR ARTERIAL

Location: Keaau-Pahoa Road: Kaluahine St to Pahoa Village Rd

Town: Hawaii
 Count Type: CLASS

DIR 1: +MP DIR 2:-MP Final AADT: 13200
 Counter Type: Tube Route No: 130

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 06/23/2016															
12:00-12:15	9	14	23	06:00-06:15	47	76	123	12:00-12:15	111	126	237	06:00-06:15	126	90	216
12:15-12:30	19	8	27	06:15-06:30	44	108	152	12:15-12:30	123	142	265	06:15-06:30	126	78	204
12:30-12:45	19	18	37	06:30-06:45	88	114	202	12:30-12:45	119	126	245	06:30-06:45	102	87	189
12:45-01:00	7	8	15	06:45-07:00	69	104	173	12:45-01:00	115	109	224	06:45-07:00	94	79	173
01:00-01:15	10	9	19	07:00-07:15	54	108	162	01:00-01:15	102	100	202	07:00-07:15	93	61	154
01:15-01:30	5	7	12	07:15-07:30	81	109	190	01:15-01:30	120	95	215	07:15-07:30	95	59	154
01:30-01:45	4	15	19	07:30-07:45	91	112	203	01:30-01:45	122	130	252	07:30-07:45	74	54	128
01:45-02:00	3	9	12	07:45-08:00	100	102	202	01:45-02:00	117	122	239	07:45-08:00	84	43	127
02:00-02:15	5	4	9	08:00-08:15	98	98	196	02:00-02:15	141	121	262	08:00-08:15	72	45	117
02:15-02:30	4	7	11	08:15-08:30	79	128	207	02:15-02:30	134	122	256	08:15-08:30	71	41	112
02:30-02:45	2	6	8	08:30-08:45	86	120	206	02:30-02:45	141	117	258	08:30-08:45	54	42	96
02:45-03:00	4	4	8	08:45-09:00	111	111	222	02:45-03:00	125	119	244	08:45-09:00	67	38	105
03:00-03:15	1	5	6	09:00-09:15	100	124	224	03:00-03:15	133	125	258	09:00-09:15	50	30	80
03:15-03:30	3	12	15	09:15-09:30	102	126	228	03:15-03:30	162	115	277	09:15-09:30	49	48	97
03:30-03:45	6	6	12	09:30-09:45	102	111	213	03:30-03:45	130	121	251	09:30-09:45	43	25	68
03:45-04:00	5	15	20	09:45-10:00	103	116	219	03:45-04:00	129	134	263	09:45-10:00	42	22	64
04:00-04:15	2	14	16	10:00-10:15	87	111	198	04:00-04:15	132	116	248	10:00-10:15	27	27	54
04:15-04:30	4	17	21	10:15-10:30	113	119	232	04:15-04:30	176	113	289	10:15-10:30	29	33	62
04:30-04:45	8	30	38	10:30-10:45	108	130	238	04:30-04:45	151	123	274	10:30-10:45	35	16	51
04:45-05:00	10	34	44	10:45-11:00	114	122	236	04:45-05:00	131	107	238	10:45-11:00	25	12	37
05:00-05:15	13	43	56	11:00-11:15	108	137	245	05:00-05:15	133	100	233	11:00-11:15	13	15	28
05:15-05:30	7	38	45	11:15-11:30	124	128	252	05:15-05:30	154	99	253	11:15-11:30	13	12	25
05:30-05:45	23	53	76	11:30-11:45	101	125	226	05:30-05:45	142	82	224	11:30-11:45	21	15	36
05:45-06:00	28	68	96	11:45-12:00	97	113	210	05:45-06:00	114	89	203	11:45-12:00	14	10	24

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2
TWO DIRECTIONAL PEAK		TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	08:00 AM to 09:00 AM		PM - PEAK HR TIME	03:45 PM to 04:45 PM	
AM - PEAK HR VOLUME	374	457	PM - PEAK HR VOLUME	588	486
AM - K FACTOR (%)	5.97		PM - K FACTOR (%)	7.72	
AM - D (%)	45.01	54.99	PM - D (%)	54.75	45.25
DIRECTIONAL PEAK		DIRECTIONAL PEAK			
AM - PEAK HR TIME	08:00 AM to 09:00 AM	08:00 AM to 09:00 AM	PM - PEAK HR TIME	04:15 PM to 05:15 PM	03:00 PM to 04:00 PM
AM - PEAK HR VOLUME	374	457	PM - PEAK HR VOLUME	591	495

AM PERIOD (00:00-12:00)	PM PERIOD (12:00-24:00)
TWO DIRECTIONAL PEAK	
AM - PEAK HR TIME	10:30 AM to 11:30 AM
AM - PEAK HR VOLUME	454
AM - K FACTOR (%)	6.98
AM - D (%)	46.76
TWO DIRECTIONAL PEAK	
PM - PEAK HR TIME	03:45 PM to 04:45 PM
PM - PEAK HR VOLUME	588
PM - K FACTOR (%)	7.72
PM - D (%)	54.75

NON-COMMUTER PERIOD (09:00-15:00)	6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	Total
TWO DIRECTIONAL PEAK				
PEAK HR TIME	02:00 PM to 03:00 PM			
PEAK HR VOLUME	541	479	1020	
DIRECTIONAL PEAK				
PEAK HR TIME	02:00 PM to 03:00 PM	10:30 AM to 11:30 AM		
PEAK HR VOLUME	541	517		
AM 6-HR PERIOD (06:00-12:00)		2,207	2,752	4,959
AM 12-HR PERIOD (00:00-12:00)		2,408	3,196	5,604
PM 6-HR PERIOD (12:00-18:00)		3,157	2,753	5,910
PM 12-HR PERIOD (12:00-24:00)		4,576	3,735	8,311
24 HOUR PERIOD		6,984	6,931	13,915
D (%)		50.19	49.81	100.00

Run Date: 2017/08/03

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2016 Program Count - Summary

Site ID: B71013000937

Functional Class: URBAN:MINOR ARTERIAL

Location: Keaau-Pahoa Road: Kaluahine St to Pahoa Village Rd

Town: Hawaii
 Count Type: CLASS

DIR 1: +MP DIR 2: -MP Final AADT: 13200
 Counter Type: Tube Route No: 130

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 06/24/2016															
12:00-12:15	10	8	18	06:00-06:15	39	79	118	12:00-12:15	109	143	252	06:00-06:15	172	111	283
12:15-12:30	14	5	19	06:15-06:30	61	98	159	12:15-12:30	120	134	254	06:15-06:30	88	109	197
12:30-12:45	17	7	24	06:30-06:45	72	126	198	12:30-12:45	114	133	247	06:30-06:45	116	92	208
12:45-01:00	5	7	12	06:45-07:00	62	124	186	12:45-01:00	155	130	285	06:45-07:00	105	71	176
01:00-01:15	3	9	12	07:00-07:15	50	105	155	01:00-01:15	118	118	236	07:00-07:15	101	87	188
01:15-01:30	7	4	11	07:15-07:30	81	117	198	01:15-01:30	121	131	252	07:15-07:30	116	54	170
01:30-01:45	7	7	14	07:30-07:45	94	93	187	01:30-01:45	119	114	233	07:30-07:45	83	53	136
01:45-02:00	5	3	8	07:45-08:00	105	91	196	01:45-02:00	132	107	239	07:45-08:00	89	65	154
02:00-02:15	4	4	8	08:00-08:15	106	117	223	02:00-02:15	155	119	274	08:00-08:15	75	45	120
02:15-02:30	2	3	5	08:15-08:30	93	131	224	02:15-02:30	160	102	262	08:15-08:30	84	44	128
02:30-02:45	4	6	10	08:30-08:45	95	142	237	02:30-02:45	133	127	260	08:30-08:45	81	49	130
02:45-03:00	6	5	11	08:45-09:00	112	119	231	02:45-03:00	151	133	284	08:45-09:00	64	48	112
03:00-03:15	3	8	11	09:00-09:15	97	117	214	03:00-03:15	135	112	247	09:00-09:15	60	38	98
03:15-03:30	4	6	10	09:15-09:30	91	149	240	03:15-03:30	155	126	281	09:15-09:30	75	48	123
03:30-03:45	5	2	7	09:30-09:45	105	124	229	03:30-03:45	120	130	250	09:30-09:45	69	46	115
03:45-04:00	4	16	20	09:45-10:00	103	128	231	03:45-04:00	143	131	274	09:45-10:00	56	40	96
04:00-04:15	4	13	17	10:00-10:15	124	128	252	04:00-04:15	164	134	298	10:00-10:15	55	33	88
04:15-04:30	5	17	22	10:15-10:30	92	139	231	04:15-04:30	147	114	261	10:15-10:30	81	22	103
04:30-04:45	14	22	36	10:30-10:45	112	128	240	04:30-04:45	160	125	285	10:30-10:45	38	29	67
04:45-05:00	6	32	38	10:45-11:00	95	118	213	04:45-05:00	130	139	269	10:45-11:00	31	18	49
05:00-05:15	7	30	37	11:00-11:15	102	127	229	05:00-05:15	149	131	280	11:00-11:15	27	21	48
05:15-05:30	12	37	49	11:15-11:30	121	127	248	05:15-05:30	168	113	281	11:15-11:30	21	19	40
05:30-05:45	15	50	65	11:30-11:45	128	113	241	05:30-05:45	152	113	265	11:30-11:45	16	17	33
05:45-06:00	28	65	93	11:45-12:00	121	122	243	05:45-06:00	130	125	255	11:45-12:00	28	14	42

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2
TWO DIRECTIONAL PEAK		TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	08:00 AM to 09:00 AM		PM - PEAK HR TIME	03:45 PM to 04:45 PM	
AM - PEAK HR VOLUME	406	509	915	614	504
AM - K FACTOR (%)			6.14		
AM - D (%)	44.37	55.63	100.00	54.92	45.08
DIRECTIONAL PEAK		DIRECTIONAL PEAK			
AM - PEAK HR TIME	08:00 AM to 09:00 AM	08:00 AM to 09:00 AM	PM - PEAK HR TIME	05:15 PM to 06:15 PM	03:15 PM to 04:15 PM
AM - PEAK HR VOLUME	406	509	622	521	

AM PERIOD (00:00-12:00)	PM PERIOD (12:00-24:00)		
TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	11:00 AM to 12:00 PM		
AM - PEAK HR VOLUME	472	489	961
AM - K FACTOR (%)			6.45
AM - D (%)	49.12	50.88	100.00
TWO DIRECTIONAL PEAK		TWO DIRECTIONAL PEAK	
PM - PEAK HR TIME	03:45 PM to 04:45 PM		
PM - PEAK HR VOLUME	614	504	1118
PM - K FACTOR (%)			7.50
PM - D (%)	54.92	45.08	100.00

NON-COMMUTER PERIOD (09:00-15:00)	6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	Total			
TWO DIRECTIONAL PEAK							
PEAK HR TIME	02:00 PM to 03:00 PM		AM 6-HR PERIOD (06:00-12:00)	2,261	2,862	5,123	
PEAK HR VOLUME	599	481	1080	AM 12-HR PERIOD (00:00-12:00)	2,452	3,228	5,680
DIRECTIONAL PEAK				PM 6-HR PERIOD (12:00-18:00)	3,340	2,984	6,324
PEAK HR TIME	02:00 PM to 03:00 PM	12:00 PM to 01:00 PM	PM 12-HR PERIOD (12:00-24:00)	5,071	4,157	9,228	
PEAK HR VOLUME	599	540	24 HOUR PERIOD	7,523	7,385	14,908	
		D (%)		50.46	49.54	100.00	

Run Date: 2017/08/03

**Hawaii Department of Transportation
Highways Division
Highways Planning Survey Section
Vehicle Classification Data Summary
2016**

Site ID: B71013000937

Route No: 130

Date From: 2016/06/23 0:00

Town: Hawaii

Direction: +MP

Date To: 2016/06/24 23:45

Location: Keaau-Pahoa Road: Kaluahine St to Pahoa Village Rd

Functional Classification: 16 URBAN:MINOR ARTERIAL
REPORT TOTALS - 48 HOURS RECORDED

	VOLUME	%	NUMBER OF AXLES
Cycles	63	0.22%	127
PC	18598	64.52%	37196
2A-4T	9411	32.65%	18822
<hr style="border-top: 1px dashed black;"/>			
LIGHT VEHICLE TOTALS	28072	97.40%	56145
<u>HEAVY VEHICLES</u>			
Bus	91	0.32%	227
<u>SINGLE UNIT TRUCK</u>			
2A-6T	489	1.70%	978
3A-SU	80	0.28%	240
4A-SU	5	0.02%	20
<u>SINGLE-TRAILER TRUCKS</u>			
4A-ST	72	0.25%	288
5A-ST	9	0.03%	45
6A-ST	0	0.00%	0
<u>MULTI-TRAILER TRUCKS</u>			
5A-MT	1	0.00%	5
6A-MT	2	0.01%	12
7A-MT	1	0.00%	7
<hr style="border-top: 1px dashed black;"/>			
HEAVY VEHICLE TOTALS	750	2.60%	1822

CLASSIFIED VEHICLES TOTALS	28822 (A)	100.00%	57967 (B)
UNCLASSIFIED VEHICLES TOTALS	1	0.00%	

AXLE
CORRECTION
FACTOR (A/C) = 0.994

ROADTUBE
EQUIVALENT(B/2) = 28984 (C)

PEAK HOUR VOLUME : 1113 2016/06/24 16:00	PEAK HOUR TRUCK VOLUME	% TOTAL PEAK HOUR VOLUME	24 HOUR TRUCK VOLUME	AADT	% OF AADT	HPMS K-FACTOR (PEAK/AADT) (ITEM 66)
SINGLE UNIT TRUCKS (TYPE 4-7)	21	(65A-1) 1.89%	332	13200	(65A-2) 2.52%	8.43%
COMBINATION (TYPE 8-13)	2	(65B-1) 0.18%	42		(65B-2) 0.32%	8.43%

2017 HDOT Volumes

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State of Hawaii, Department of Transportation, Highways Division 15 Minute Volume Report

Run Date: 01-FEB-21

Site ID: B71013400013
Functional Class: URBAN:COLLECTOR
Location:

Town: Hawaii
Count Type: CLASS
DATE: 26-JUL-17

DIR 1: +MP
Counter Type: Tube

DIR 2: -MP

Final AADT: 7300
Route No: 134

AM COMMUTER PERIOD (05:00-09:00)

TWO DIRECTIONAL PEAK

	DIR 1	DIR 2	TOTAL
AM - PEAK HR TIME	08:00 AM to 09:00 AM		
AM - PEAK HR VOLUME	160	147	307
AM - K FACTOR(%)			4.13
AM - D(%)	52.12	47.88	100

DIRECTIONAL PEAK

	08:00 AM to 09:00 AM	08:00 AM to 09:00 AM
AM - PEAK HR TIME	AM	AM
AM - PEAK HR VOLUME	160	147

PM COMMUTER PERIOD (15:00-19:00)

TWO DIRECTIONAL PEAK

	DIR 1	DIR 2	TOTAL
PM - PEAK HR TIME	3:00 PM to 4:00 PM		
PM - PEAK HR VOLUME	310	334	644
PM - K FACTOR(%)			8.66
PM - D(%)	48.14	51.86	100

DIRECTIONAL PEAK

	4:15 PM to 5:15 PM	3:15 PM to 4:15 PM
PM - PEAK HR TIME	PM	PM
PM - PEAK HR VOLUME	314	335

AM PERIOD (00:00-12:00)

TWO DIRECTIONAL PEAK

	DIR 1	DIR 2	TOTAL
AM - PEAK HR TIME	10:45 AM to 11:45 AM		
AM - PEAK HR VOLUME	287	287	570
AM - K FACTOR(%)			7.67
AM - D(%)	52.12	47.88	100

PM PERIOD (12:00-24:00)

TWO DIRECTIONAL PEAK

	DIR 1	DIR 2	TOTAL
PM - PEAK HR TIME	0:45 PM to 1:45 PM		
PM - PEAK HR VOLUME	380	380	707
PM - K FACTOR(%)			9.51
PM - D(%)	48.14	51.86	100

NON COMMUTER PERIOD (09:00-15:00)

TWO DIRECTIONAL PEAK

	DIR 1	DIR 2	TOTAL
PEAK HR TIME	0:45 PM to 1:45 PM		
PEAK HR VOLUME	380	327	707

DIRECTIONAL PEAK

	0:45 PM to 1:45 PM	0:30 PM to 1:30 PM
PEAK HR TIME	PM	PM
PEAK HR VOLUME	380	341

6-HR, 12-HR, 24-HR PERIODS

	DIR 1	DIR 2	TOTAL
AM 6-HR PERIOD (06:00-12:00)	1,033	1,030	2,063
AM 12-HR PERIOD (00:00-12:00)	1,072	1,088	2,160
PM 6-HR PERIOD (12:00-18:00)	1,935	1,890	3,825
PM 12-HR PERIOD (12:00-24:00)	2,679	2,597	5,276
24-HR PERIOD (12:00-24:00)	3,751	3,685	7,436
D%	50.44	49.56	100

TIME	DIR 1	DIR 2	TOTAL	TIME	DIR 1	DIR 2	TOTAL	TIME	DIR 1	DIR 2	TOTAL	TIME	DIR 1	DIR 2	TOTAL
- AM				- AM				- PM				- PM			
12:00				06:00				12:00				06:00			
-	9	7	16	-	0	10	10	-	60	71	131	-	67	58	125
12:15				06:15				12:15				06:15			

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12:15				06:15				12:15				06:15			
-	8	7	15	-	4	5	9	-	75	69	144	-	68	58	126
12:30				06:30				12:30				06:30			
12:30	3	5	8	06:30	5	8	13	12:30	80	90	170	06:30	79	76	155
12:45				06:45				12:45				06:45			
12:45	0	2	2	06:45	9	16	25	12:45	87	90	177	06:45	66	51	117
01:00				07:00				01:00				07:00			
01:00	0	3	3	07:00	15	13	28	01:00	93	85	178	07:00	65	55	120
01:15				07:15				01:15				07:15			
01:15	0	1	1	07:15	16	22	38	01:15	95	76	171	07:15	64	46	110
01:30				07:30				01:30				07:30			
01:30	0	0	0	07:30	19	30	49	01:30	105	76	181	07:30	42	48	90
01:45				07:45				01:45				07:45			
01:45	2	1	3	07:45	33	30	63	01:45	83	94	177	07:45	34	34	68
02:00				08:00				02:00				08:00			
02:00	2	0	2	08:00	33	26	59	02:00	85	69	154	08:00	36	24	60
02:15				08:15				02:15				08:15			
02:15	1	3	4	08:15	41	41	82	02:15	83	86	169	08:15	24	25	49
02:30				08:30				02:30				08:30			
02:30	0	1	1	08:30	46	49	95	02:30	88	77	165	08:30	27	33	60
02:45				08:45				02:45				08:45			
02:45	1	2	3	08:45	40	31	71	02:45	74	83	157	08:45	31	28	59
03:00				09:00				03:00				09:00			
03:00	1	3	4	09:00	46	47	93	03:00	82	76	158	09:00	17	28	45
03:15				09:15				03:15				09:15			
03:15	2	1	3	09:15	37	55	92	03:15	74	88	162	09:15	13	32	45
03:30				09:30				03:30				09:30			
03:30	0	1	1	09:30	71	62	133	03:30	73	82	155	09:30	20	20	40
03:45				09:45				03:45				09:45			

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03:45	-	0	1	1	09:45	-	81	58	139	03:45	-	81	88	169	09:45	-	17	19	36
04:00	-	0	0	0	10:00	-	61	66	127	04:00	-	71	77	148	10:00	-	11	12	23
04:15	-	1	1	2	10:15	-	62	52	114	04:15	-	80	68	148	10:15	-	17	12	29
04:30	-	0	2	2	10:30	-	58	58	116	04:30	-	80	69	149	10:30	-	14	9	23
04:45	-	0	0	0	10:45	-	78	63	141	04:45	-	77	82	159	10:45	-	5	6	11
05:00	-	1	4	5	11:00	-	66	86	152	05:00	-	77	66	143	11:00	-	4	6	10
05:15	-	2	3	5	11:15	-	75	70	145	05:15	-	78	77	155	11:15	-	7	9	16
05:30	-	4	2	6	11:30	-	68	64	132	05:30	-	76	76	152	11:30	-	9	13	22
05:45	-	2	8	10	11:45	-	69	68	137	05:45	-	78	75	153	11:45	-	7	5	12
06:00	-				12:00	-				06:00	-				12:00	-			



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State of Hawaii, Department of Transportation, Highways Division 15 Minute Volume Report

Run Date: 01-FEB-21

Site ID: B71013400013
Functional Class: URBAN:COLLECTOR
Location:

Town: Hawaii
Count Type: CLASS
DATE: 27-JUL-17

DIR 1: +MP
Counter Type: Tube

DIR 2: -MP

Final AADT: 7300
Route No: 134

AM COMMUTER PERIOD (05:00-09:00)				PM COMMUTER PERIOD (15:00-19:00)			
	DIR 1	DIR 2	TOTAL		DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	08:00 AM to 09:00 AM			PM - PEAK HR TIME	3:00 PM to 4:00 PM		
AM - PEAK HR VOLUME	167	150	317	PM - PEAK HR VOLUME	329	319	648
AM - K FACTOR(%)			4.31	PM - K FACTOR(%)			8.81
AM - D(%)	52.68	47.32	100	PM - D(%)	50.77	49.23	100
DIRECTIONAL PEAK				DIRECTIONAL PEAK			
AM - PEAK HR TIME	08:00 AM to 09:00 AM		08:00 AM to 09:00 AM	PM - PEAK HR TIME	4:15 PM to 5:15 PM		3:00 PM to 4:00 PM
AM - PEAK HR VOLUME	167	150		PM - PEAK HR VOLUME	337	319	
AM PERIOD (00:00-12:00)				PM PERIOD (12:00-24:00)			
	DIR 1	DIR 2	TOTAL		DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	11:00 AM to 12:00 PM			PM - PEAK HR TIME	2:15 PM to 3:15 PM		
AM - PEAK HR VOLUME	296	296	594	PM - PEAK HR VOLUME	335	337	665
AM - K FACTOR(%)			8.07	PM - K FACTOR(%)			9.04
AM - D(%)	52.68	47.32	100	PM - D(%)	50.77	49.23	100
NON COMMUTER PERIOD (09:00-15:00)				6-HR, 12-HR, 24-HR PERIODS			
	DIR 1	DIR 2	TOTAL		DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				AM 6-HR PERIOD (06:00-12:00)			
PEAK HR TIME	12:00 PM to 1:00 PM			AM 12-HR PERIOD (00:00-12:00)	1,074	1,096	2,170
PEAK HR VOLUME	322	339	661	PM 6-HR PERIOD (12:00-18:00)	1,867	1,872	3,739
DIRECTIONAL PEAK				PM 12-HR PERIOD (12:00-24:00)			
PEAK HR TIME	12:00 PM to 1:00 PM		0:15 PM to 1:15 PM	24-HR PERIOD (12:00-24:00)	3,669	3,690	7,359
PEAK HR VOLUME	322	345		D%	49.86	50.14	100

TIME	DIR1	DIR 2	TOTAL	TIME	DIR1	DIR 2	TOTAL	TIME	DIR1	DIR 2	TOTAL	TIME	DIR1	DIR 2	TOTAL
- AM				- AM				- PM				- PM			
12:00				06:00				12:00				06:00			
-	5	3	8	-	1	9	10	-	85	80	165	-	68	62	130
12:15				06:15				12:15				06:15			

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12:15	-	7	3	10	06:15	-	7	6	13	12:15	-	80	96	176	06:15	-	64	64	128
12:30	-	5	12	17	06:30	-	2	11	13	12:30	-	77	77	154	06:30	-	67	61	128
12:45	-	5	2	7	06:45	-	7	10	17	12:45	-	80	86	166	06:45	-	74	56	130
01:00	-	3	3	6	07:00	-	13	16	29	01:00	-	52	86	138	07:00	-	50	60	110
01:15	-	2	1	3	07:15	-	14	20	34	01:15	-	76	74	150	07:15	-	48	34	82
01:30	-	1	3	4	07:30	-	32	25	57	01:30	-	88	72	160	07:30	-	35	35	70
01:45	-	1	2	3	07:45	-	29	34	63	01:45	-	81	89	170	07:45	-	50	49	99
02:00	-	2	2	4	08:00	-	39	28	67	02:00	-	63	88	151	08:00	-	29	24	53
02:15	-	0	4	4	08:15	-	40	35	75	02:15	-	87	91	178	08:15	-	31	33	64
02:30	-	6	0	6	08:30	-	44	34	78	02:30	-	86	71	157	08:30	-	27	35	62
02:45	-	2	2	4	08:45	-	44	53	97	02:45	-	73	89	162	08:45	-	34	31	65
03:00	-	1	2	3	09:00	-	45	52	97	03:00	-	89	79	168	09:00	-	14	24	38
03:15	-	3	1	4	09:15	-	49	51	100	03:15	-	84	83	167	09:15	-	17	17	34
03:30	-	1	1	2	09:30	-	52	59	111	03:30	-	83	76	159	09:30	-	13	26	39
03:45	-				09:45	-				03:45	-				09:45	-			

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03:45				09:45				03:45				09:45			
-	2	5	7	-	79	50	129	-	73	81	154	-	10	29	39
04:00				10:00				04:00				10:00			
04:00				10:00				04:00				10:00			
-	1	3	4	-	56	66	122	-	70	74	144	-	28	13	41
04:15				10:15				04:15				10:15			
04:15				10:15				04:15				10:15			
-	4	0	4	-	54	44	98	-	82	69	151	-	10	10	20
04:30				10:30				04:30				10:30			
04:30				10:30				04:30				10:30			
-	1	1	2	-	46	69	115	-	83	81	164	-	11	13	24
04:45				10:45				04:45				10:45			
04:45				10:45				04:45				10:45			
-	3	1	4	-	64	55	119	-	75	81	156	-	15	17	32
05:00				11:00				05:00				11:00			
05:00				11:00				05:00				11:00			
-	0	6	6	-	80	74	154	-	97	78	175	-	12	6	18
05:15				11:15				05:15				11:15			
05:15				11:15				05:15				11:15			
-	0	5	5	-	61	78	139	-	61	62	123	-	8	11	19
05:30				11:30				05:30				11:30			
05:30				11:30				05:30				11:30			
-	4	3	7	-	87	70	157	-	73	55	128	-	9	6	15
05:45				11:45				05:45				11:45			
05:45				11:45				05:45				11:45			
-	2	6	8	-	68	76	144	-	69	54	123	-	4	6	10
06:00				12:00				06:00				12:00			



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**State of Hawaii, Department of Transportation,
Highways Division
15 Minute Volume Report**

Run Date: 01-FEB-21

Site ID: B71013200030
Functional Class: URBAN:COLLECTOR
Location:

Town: Hawaii
Count Type: CLASS
DATE: 26-JUL-17

DIR 1: +MP
Counter Type: Tube

DIR 2: -MP

Final AADT: 7100
Route No: 132

AM COMMUTER PERIOD (05:00-09:00)

TWO DIRECTIONAL PEAK

	DIR 1	DIR 2	TOTAL
AM - PEAK HR TIME	08:00 AM to 09:00 AM		
AM - PEAK HR VOLUME	147	229	376
AM - K FACTOR(%)			5.13
AM - D(%)	39.1	60.9	100

DIRECTIONAL PEAK

	08:00 AM to 09:00 AM	08:00 AM to 09:00 AM
AM - PEAK HR TIME		
AM - PEAK HR VOLUME	147	229

PM COMMUTER PERIOD (15:00-19:00)

TWO DIRECTIONAL PEAK

	DIR 1	DIR 2	TOTAL
PM - PEAK HR TIME	3:00 PM to 4:00 PM		
PM - PEAK HR VOLUME	307	279	586
PM - K FACTOR(%)			7.99
PM - D(%)	52.39	47.61	100

DIRECTIONAL PEAK

	6:00 PM to 7:00 PM	3:00 PM to 4:00 PM
PM - PEAK HR TIME		
PM - PEAK HR VOLUME	335	279

AM PERIOD (00:00-12:00)

TWO DIRECTIONAL PEAK

	DIR 1	DIR 2	TOTAL
AM - PEAK HR TIME	10:30 AM to 11:30 AM		
AM - PEAK HR VOLUME	232	232	488
AM - K FACTOR(%)			6.65
AM - D(%)	39.1	60.9	100

PM PERIOD (12:00-24:00)

TWO DIRECTIONAL PEAK

	DIR 1	DIR 2	TOTAL
PM - PEAK HR TIME	3:00 PM to 4:00 PM		
PM - PEAK HR VOLUME	307	335	586
PM - K FACTOR(%)			7.99
PM - D(%)	52.39	47.61	100

NON COMMUTER PERIOD (09:00-15:00)

TWO DIRECTIONAL PEAK

	DIR 1	DIR 2	TOTAL
PEAK HR TIME	1:15 PM to 2:15 PM		
PEAK HR VOLUME	268	263	531

DIRECTIONAL PEAK

	1:45 PM to 2:45 PM	09:45 AM to 10:45 AM
PEAK HR TIME		
PEAK HR VOLUME	277	299

6-HR, 12-HR, 24-HR PERIODS

	DIR 1	DIR 2	TOTAL
AM 6-HR PERIOD (06:00-12:00)	856	1,244	2,100
AM 12-HR PERIOD (00:00-12:00)	956	1,339	2,295
PM 6-HR PERIOD (12:00-18:00)	1,638	1,545	3,183
PM 12-HR PERIOD (12:00-24:00)	2,718	2,320	5,038
24-HR PERIOD (12:00-24:00)	3,674	3,659	7,333
D%	50.1	49.9	100

TIME	DIR 1	DIR 2	TOTAL	TIME	DIR 1	DIR 2	TOTAL	TIME	DIR 1	DIR 2	TOTAL	TIME	DIR 1	DIR 2	TOTAL
- AM				- AM				- PM				- PM			
12:00				06:00				12:00				06:00			
-	14	1	15	-	5	12	17	-	57	65	122	-	81	50	131
12:15				06:15				12:15				06:15			

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12:15				06:15				12:15				06:15			
-	10	4	14	-	9	16	25	-	63	66	129	-	71	69	140
12:30				06:30				12:30				06:30			
12:30				06:30				12:30				06:30			
-	6	3	9	-	7	26	33	-	62	61	123	-	98	72	170
12:45				06:45				12:45				06:45			
12:45				06:45				12:45				06:45			
-	5	4	9	-	10	21	31	-	64	73	137	-	85	50	135
01:00				07:00				01:00				07:00			
01:00				07:00				01:00				07:00			
-	9	3	12	-	12	39	51	-	53	52	105	-	65	57	122
01:15				07:15				01:15				07:15			
01:15				07:15				01:15				07:15			
-	5	3	8	-	25	42	67	-	69	67	136	-	66	57	123
01:30				07:30				01:30				07:30			
01:30				07:30				01:30				07:30			
-	6	0	6	-	29	38	67	-	49	73	122	-	48	49	97
01:45				07:45				01:45				07:45			
01:45				07:45				01:45				07:45			
-	5	5	10	-	28	46	74	-	84	66	150	-	56	28	84
02:00				08:00				02:00				08:00			
02:00				08:00				02:00				08:00			
-	4	1	5	-	24	53	77	-	66	57	123	-	57	46	103
02:15				08:15				02:15				08:15			
02:15				08:15				02:15				08:15			
-	4	4	8	-	40	56	96	-	62	57	119	-	49	44	93
02:30				08:30				02:30				08:30			
02:30				08:30				02:30				08:30			
-	0	3	3	-	42	66	108	-	65	56	121	-	45	53	98
02:45				08:45				02:45				08:45			
02:45				08:45				02:45				08:45			
-	4	2	6	-	41	54	95	-	58	62	120	-	47	49	96
03:00				09:00				03:00				09:00			
03:00				09:00				03:00				09:00			
-	0	4	4	-	37	63	100	-	78	70	148	-	49	18	67
03:15				09:15				03:15				09:15			
03:15				09:15				03:15				09:15			
-	1	0	1	-	28	61	89	-	84	68	152	-	41	21	62
03:30				09:30				03:30				09:30			
03:30				09:30				03:30				09:30			
-	0	2	2	-	54	56	110	-	75	71	146	-	34	17	51
03:45				09:45				03:45				09:45			

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03:45				09:45				03:45				09:45			
-	1	1	2	-	46	83	129	-	70	70	140	-	19	17	36
04:00				10:00				04:00				10:00			
04:00	1	5	6	10:00	39	72	111	04:00	77	51	128	10:00	31	17	48
-				-				-				-			
04:15				10:15				04:15				10:15			
04:15	1	3	4	10:15	33	61	94	04:15	59	63	122	10:15	27	13	40
-				-				-				-			
04:30				10:30				04:30				10:30			
04:30	3	6	9	10:30	56	83	139	04:30	66	77	143	10:30	30	10	40
-				-				-				-			
04:45				10:45				04:45				10:45			
04:45	2	4	6	10:45	63	59	122	04:45	57	68	125	10:45	16	7	23
-				-				-				-			
05:00				11:00				05:00				11:00			
05:00	4	11	15	11:00	52	63	115	05:00	74	52	126	11:00	24	9	33
-				-				-				-			
05:15				11:15				05:15				11:15			
05:15	3	8	11	11:15	61	51	112	05:15	92	77	169	11:15	14	6	20
-				-				-				-			
05:30				11:30				05:30				11:30			
05:30	5	11	16	11:30	54	55	109	05:30	71	66	137	11:30	19	6	25
-				-				-				-			
05:45				11:45				05:45				11:45			
05:45	7	7	14	11:45	61	68	129	05:45	83	57	140	11:45	8	10	18
-				-				-				-			
06:00				12:00				06:00				12:00			



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State of Hawaii, Department of Transportation, Highways Division 15 Minute Volume Report

Run Date: 01-FEB-21

Site ID: B71013200030
Functional Class: URBAN:COLLECTOR
Location:

Town: Hawaii
Count Type: CLASS
DATE: 27-JUL-17

DIR 1: +MP
Counter Type: Tube

DIR 2: -MP

Final AADT: 7100
Route No: 132

AM COMMUTER PERIOD (05:00-09:00)				PM COMMUTER PERIOD (15:00-19:00)			
	DIR 1	DIR 2	TOTAL		DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	08:00 AM to 09:00 AM			PM - PEAK HR TIME	4:00 PM to 5:00 PM		
AM - PEAK HR VOLUME	134	226	360	PM - PEAK HR VOLUME	295	283	578
AM - K FACTOR(%)			5.07	PM - K FACTOR(%)			8.13
AM - D(%)	37.22	62.78	100	PM - D(%)	51.04	48.96	100
DIRECTIONAL PEAK				DIRECTIONAL PEAK			
AM - PEAK HR TIME	08:00 AM to 09:00 AM			PM - PEAK HR TIME	5:45 PM to 6:45 PM	4:00 PM to 5:00 PM	
AM - PEAK HR VOLUME	134	226		PM - PEAK HR VOLUME	318	283	
AM PERIOD (00:00-12:00)				PM PERIOD (12:00-24:00)			
	DIR 1	DIR 2	TOTAL		DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	09:30 AM to 10:30 AM			PM - PEAK HR TIME	4:00 PM to 5:00 PM		
AM - PEAK HR VOLUME	183	189	438	PM - PEAK HR VOLUME	295	318	578
AM - K FACTOR(%)			6.16	PM - K FACTOR(%)			8.13
AM - D(%)	37.22	62.78	100	PM - D(%)	51.04	48.96	100
NON COMMUTER PERIOD (09:00-15:00)				6-HR, 12-HR, 24-HR PERIODS			
	DIR 1	DIR 2	TOTAL		DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				AM 6-HR PERIOD (06:00-12:00)			
PEAK HR TIME	2:00 PM to 3:00 PM			AM 12-HR PERIOD (00:00-12:00)	931	1,307	2,238
PEAK HR VOLUME	277	240	517	PM 6-HR PERIOD (12:00-18:00)	1,654	1,473	3,127
DIRECTIONAL PEAK				PM 12-HR PERIOD (12:00-24:00)			
PEAK HR TIME	2:00 PM to 3:00 PM			24-HR PERIOD (12:00-24:00)	3,590	3,517	7,107
PEAK HR VOLUME	277	268		D%	50.51	49.49	100

TIME	DIR 1	DIR 2	TOTAL	TIME	DIR 1	DIR 2	TOTAL	TIME	DIR 1	DIR 2	TOTAL	TIME	DIR 1	DIR 2	TOTAL
- AM				- AM				- PM				- PM			
12:00				06:00				12:00				06:00			
-	7	9	16	-	3	11	14	-	55	65	120	-	69	61	130
12:15				06:15				12:15				06:15			

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12:15				06:15				12:15				06:15			
-	9	2	11	-	2	26	28	-	66	73	139	-	80	66	146
12:30				06:30				12:30				06:30			
12:30	7	4	11	06:30	7	20	27	12:30	60	69	129	06:30	80	65	145
-				-				-				-			
12:45				06:45				12:45				06:45			
12:45	7	5	12	06:45	12	32	44	12:45	61	53	114	06:45	84	44	128
-				-				-				-			
01:00				07:00				01:00				07:00			
01:00	8	2	10	07:00	22	36	58	01:00	51	70	121	07:00	60	47	107
-				-				-				-			
01:15				07:15				01:15				07:15			
01:15	13	3	16	07:15	23	42	65	01:15	60	68	128	07:15	57	37	94
-				-				-				-			
01:30				07:30				01:30				07:30			
01:30	5	1	6	07:30	25	40	65	01:30	67	53	120	07:30	54	66	120
-				-				-				-			
01:45				07:45				01:45				07:45			
01:45	6	4	10	07:45	27	50	77	01:45	54	56	110	07:45	52	53	105
-				-				-				-			
02:00				08:00				02:00				08:00			
02:00	5	2	7	08:00	19	59	78	02:00	58	72	130	08:00	61	45	106
-				-				-				-			
02:15				08:15				02:15				08:15			
02:15	2	1	3	08:15	36	51	87	02:15	67	66	133	08:15	47	57	104
-				-				-				-			
02:30				08:30				02:30				08:30			
02:30	3	0	3	08:30	46	55	101	02:30	69	46	115	08:30	31	34	65
-				-				-				-			
02:45				08:45				02:45				08:45			
02:45	3	1	4	08:45	33	61	94	02:45	83	56	139	08:45	41	22	63
-				-				-				-			
03:00				09:00				03:00				09:00			
03:00	2	6	8	09:00	44	64	108	03:00	72	51	123	09:00	35	20	55
-				-				-				-			
03:15				09:15				03:15				09:15			
03:15	8	1	9	09:15	45	57	102	03:15	73	56	129	09:15	26	30	56
-				-				-				-			
03:30				09:30				03:30				09:30			
03:30	1	3	4	09:30	44	67	111	03:30	77	65	142	09:30	40	17	57
-				-				-				-			
03:45				09:45				03:45				09:45			

HDOT RIMS Traffic Station Analyzer (v45)

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03:45	-	3	2	5	09:45	-	45	68	113	03:45	-	87	58	145	09:45	-	30	17	47
04:00	-	5	0	5	10:00	-	43	59	102	04:00	-	72	68	140	10:00	-	29	12	41
04:15	-	4	3	7	10:15	-	51	61	112	04:15	-	68	76	144	10:15	-	20	8	28
04:30	-	10	6	16	10:30	-	41	59	100	04:30	-	62	67	129	10:30	-	17	10	27
04:45	-	9	3	12	10:45	-	49	64	113	04:45	-	93	72	165	10:45	-	22	5	27
05:00	-	2	12	14	11:00	-	48	61	109	05:00	-	70	62	132	11:00	-	23	6	29
05:15	-	5	5	10	11:15	-	44	49	93	05:15	-	68	52	120	11:15	-	17	7	24
05:30	-	4	10	14	11:30	-	45	60	105	05:30	-	72	51	123	11:30	-	10	6	16
05:45	-	3	9	12	11:45	-	46	61	107	05:45	-	89	48	137	11:45	-	20	2	22
06:00					12:00					06:00					12:00				



HDOT RIMS Traffic Station Analyzer (v45)

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2018 HDOT Volumes

HDOT RIMS Traffic Station Analyzer (v45)

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State of Hawaii, Department of Transportation, Highways Division 15 Minute Volume Report

Run Date: 01-FEB-21

Site ID: B71013001088
Functional Class: URBAN:MINOR ARTERIAL
Location:

Town: Hawaii
Count Type: CLASS
DATE: 19-SEP-18

DIR 1: +MP
Counter Type: Tube

DIR 2: -MP
Final AADT: 6400
Route No: 130

AM COMMUTER PERIOD (05:00-09:00)				PM COMMUTER PERIOD (15:00-19:00)			
	DIR 1	DIR 2	TOTAL		DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:15 AM to 08:15 AM			PM - PEAK HR TIME	3:15 PM to 4:15 PM		
AM - PEAK HR VOLUME	295	293	588	PM - PEAK HR VOLUME	283	251	534
AM - K FACTOR(%)			8.89	PM - K FACTOR(%)			8.07
AM - D(%)	50.17	49.83	100	PM - D(%)	53	47	100
DIRECTIONAL PEAK				DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:15 AM to 08:15 AM	07:15 AM to 08:15 AM		PM - PEAK HR TIME	4:00 PM to 5:00 PM	3:00 PM to 4:00 PM	
AM - PEAK HR VOLUME	295	293		PM - PEAK HR VOLUME	290	255	
AM PERIOD (00:00-12:00)				PM PERIOD (12:00-24:00)			
	DIR 1	DIR 2	TOTAL		DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:15 AM to 08:15 AM			PM - PEAK HR TIME	2:00 PM to 3:00 PM		
AM - PEAK HR VOLUME	295	295	588	PM - PEAK HR VOLUME	243	290	537
AM - K FACTOR(%)			8.89	PM - K FACTOR(%)			8.12
AM - D(%)	50.17	49.83	100	PM - D(%)	53	47	100
NON COMMUTER PERIOD (09:00-15:00)				6-HR, 12-HR, 24-HR PERIODS			
	DIR 1	DIR 2	TOTAL		DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				AM 6-HR PERIOD (06:00-12:00)			
PEAK HR TIME	2:00 PM to 3:00 PM			AM 12-HR PERIOD (00:00-12:00)	1,121	1,365	2,486
PEAK HR VOLUME	243	294	537	PM 6-HR PERIOD (12:00-18:00)	1,483	1,351	2,834
DIRECTIONAL PEAK				PM 12-HR PERIOD (12:00-24:00)			
PEAK HR TIME	1:45 PM to 2:45 PM	2:00 PM to 3:00 PM		24-HR PERIOD (12:00-24:00)	3,256	3,360	6,616
PEAK HR VOLUME	256	294		D%	49.21	50.79	100

TIME	DIR1	DIR 2	TOTAL	TIME	DIR1	DIR 2	TOTAL	TIME	DIR1	DIR 2	TOTAL	TIME	DIR1	DIR 2	TOTAL
- AM				- AM				- PM				- PM			
12:00				06:00				12:00				06:00			
-	4	2	6	-	14	52	66	-	52	41	93	-	79	30	109
12:15				06:15				12:15				06:15			

HDOT RIMS Traffic Station Analyzer (v45)

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RS

12:15	-	1	7	8	06:15	-	16	49	65	12:15	-	51	60	111	06:15	-	67	47	114
12:30	-	5	2	7	06:30	-	23	59	82	12:30	-	52	47	99	06:30	-	59	47	106
12:45	-	5	1	6	06:45	-	37	43	80	12:45	-	53	47	100	06:45	-	63	25	88
01:00	-	1	5	6	07:00	-	43	49	92	01:00	-	45	42	87	07:00	-	45	35	80
01:15	-	1	1	2	07:15	-	51	61	112	01:15	-	55	50	105	07:15	-	33	30	63
01:30	-	2	2	4	07:30	-	89	80	169	01:30	-	44	48	92	07:30	-	41	37	78
01:45	-	2	0	2	07:45	-	85	88	173	01:45	-	73	47	120	07:45	-	24	32	56
02:00	-	1	0	1	08:00	-	70	64	134	02:00	-	68	80	148	08:00	-	35	30	65
02:15	-	0	0	0	08:15	-	45	60	105	02:15	-	61	75	136	08:15	-	28	26	54
02:30	-	0	2	2	08:30	-	40	41	81	02:30	-	54	69	123	08:30	-	14	38	52
02:45	-	1	2	3	08:45	-	58	39	97	02:45	-	60	70	130	08:45	-	26	20	46
03:00	-	2	1	3	09:00	-	30	48	78	03:00	-	65	62	127	09:00	-	18	47	65
03:15	-	1	4	5	09:15	-	38	53	91	03:15	-	75	67	142	09:15	-	17	30	47
03:30	-	0	6	6	09:30	-	47	55	102	03:30	-	63	62	125	09:30	-	27	31	58
03:45	-				09:45	-				03:45	-				09:45	-			

HDOT RIMS Traffic Station Analyzer (v45)

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03:45				09:45				03:45				09:45			
-	0	3	3	-	38	57	95	-	65	64	129	-	10	15	25
04:00				10:00				04:00				10:00			
04:00	0	4	4	10:00	33	40	73	04:00	80	58	138	10:00	9	34	43
-				-				-				-			
04:15				10:15				04:15				10:15			
04:15	2	5	7	10:15	42	42	84	04:15	65	56	121	10:15	8	25	33
-				-				-				-			
04:30				10:30				04:30				10:30			
04:30	1	6	7	10:30	37	35	72	04:30	62	62	124	10:30	8	16	24
-				-				-				-			
04:45				10:45				04:45				10:45			
04:45	2	10	12	10:45	50	39	89	04:45	83	45	128	10:45	11	12	23
-				-				-				-			
05:00				11:00				05:00				11:00			
05:00	6	16	22	11:00	48	36	84	05:00	74	59	133	11:00	13	8	21
-				-				-				-			
05:15				11:15				05:15				11:15			
05:15	2	13	15	11:15	38	38	76	05:15	60	51	111	11:15	6	15	21
-				-				-				-			
05:30				11:30				05:30				11:30			
05:30	6	18	24	11:30	47	53	100	05:30	62	42	104	11:30	3	8	11
-				-				-				-			
05:45				11:45				05:45				11:45			
05:45	13	20	33	11:45	44	54	98	05:45	61	47	108	11:45	8	6	14
-				-				-				-			
06:00				12:00				06:00				12:00			



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HDOT RIMS Traffic Station Analyzer (v45)

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RS

State of Hawaii, Department of Transportation, Highways Division 15 Minute Volume Report

Run Date: 01-FEB-21

Site ID: B71013001316
Functional Class: RURAL:MAJOR COLLECTOR
Location:

Town: Hawaii
Count Type: CLASS
DATE: 18-SEP-18

DIR 1: +MP
Counter Type: Tube

DIR 2: -MP

Final AADT: 4000
Route No: 130

AM COMMUTER PERIOD (05:00-09:00)				PM COMMUTER PERIOD (15:00-19:00)			
	DIR 1	DIR 2	TOTAL		DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:30 AM to 08:30 AM			PM - PEAK HR TIME	3:45 PM to 4:45 PM		
AM - PEAK HR VOLUME	114	140	254	PM - PEAK HR VOLUME	200	128	328
AM - K FACTOR(%)			7.1	PM - K FACTOR(%)			9.16
AM - D(%)	44.88	55.12	100	PM - D(%)	60.98	39.02	100
DIRECTIONAL PEAK				DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:45 AM to 08:45 AM	07:15 AM to 08:15 AM		PM - PEAK HR TIME	3:45 PM to 4:45 PM	3:30 PM to 4:30 PM	
AM - PEAK HR VOLUME	124	142		PM - PEAK HR VOLUME	200	134	
AM PERIOD (00:00-12:00)				PM PERIOD (12:00-24:00)			
	DIR 1	DIR 2	TOTAL		DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	10:30 AM to 11:30 AM			PM - PEAK HR TIME	3:45 PM to 4:45 PM		
AM - PEAK HR VOLUME	152	153	258	PM - PEAK HR VOLUME	200	200	328
AM - K FACTOR(%)			7.21	PM - K FACTOR(%)			9.16
AM - D(%)	44.88	55.12	100	PM - D(%)	60.98	39.02	100
NON COMMUTER PERIOD (09:00-15:00)				6-HR, 12-HR, 24-HR PERIODS			
	DIR 1	DIR 2	TOTAL		DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				AM 6-HR PERIOD (06:00-12:00)			
PEAK HR TIME	1:45 PM to 2:45 PM			AM 12-HR PERIOD (00:00-12:00)	700	644	1,344
PEAK HR VOLUME	192	113	305	PM 6-HR PERIOD (12:00-18:00)	1,011	653	1,664
DIRECTIONAL PEAK				PM 12-HR PERIOD (12:00-24:00)			
PEAK HR TIME	1:30 PM to 2:30 PM	2:00 PM to 3:00 PM		24-HR PERIOD (12:00-24:00)	2,058	1,521	3,579
PEAK HR VOLUME	196	114		D%	57.5	42.5	100

TIME	DIR1	DIR 2	TOTAL	TIME	DIR1	DIR 2	TOTAL	TIME	DIR1	DIR 2	TOTAL	TIME	DIR1	DIR 2	TOTAL
- AM				- AM				- PM				- PM			
12:00				06:00				12:00				06:00			
-	2	1	3	-	5	15	20	-	32	25	57	-	37	31	68
12:15				06:15				12:15				06:15			

HDOT RIMS Traffic Station Analyzer (v45)

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12:15	-	0	0	0	06:15	-	9	18	27	12:15	-	33	25	58	06:15	-	34	28	62
12:30	-	0	1	1	06:30	-	16	22	38	12:30	-	35	26	61	06:30	-	24	28	52
12:45	-	1	3	4	06:45	-	17	22	39	12:45	-	35	23	58	06:45	-	18	33	51
01:00	-	0	0	0	07:00	-	15	18	33	01:00	-	46	16	62	07:00	-	36	25	61
01:15	-	3	0	3	07:15	-	13	25	38	01:15	-	37	26	63	07:15	-	28	10	38
01:30	-	1	0	1	07:30	-	18	48	66	01:30	-	44	26	70	07:30	-	12	6	18
01:45	-	0	0	0	07:45	-	29	38	67	01:45	-	60	23	83	07:45	-	12	11	23
02:00	-	0	0	0	08:00	-	34	31	65	02:00	-	44	28	72	08:00	-	18	6	24
02:15	-	1	1	2	08:15	-	33	23	56	02:15	-	48	30	78	08:15	-	20	12	32
02:30	-	1	1	2	08:30	-	28	27	55	02:30	-	40	32	72	08:30	-	15	6	21
02:45	-	0	1	1	08:45	-	28	31	59	02:45	-	52	24	76	08:45	-	7	4	11
03:00	-	0	0	0	09:00	-	29	35	64	03:00	-	54	23	77	09:00	-	17	0	17
03:15	-	0	0	0	09:15	-	36	15	51	03:15	-	40	30	70	09:15	-	5	3	8
03:30	-	0	0	0	09:30	-	35	21	56	03:30	-	33	36	69	09:30	-	13	1	14
03:45	-				09:45	-				03:45	-				09:45	-			

HDOT RIMS Traffic Station Analyzer (v45)

Log Out



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03:45	-	0	1	1	09:45	-	40	21	61	03:45	-	57	30	87	09:45	-	9	4	13
04:00	-	0	3	3	10:00	-	32	25	57	04:00	-	44	35	79	10:00	-	11	8	19
04:15	-	0	1	1	10:15	-	28	25	53	04:15	-	48	33	81	10:15	-	7	2	9
04:30	-	2	2	4	10:30	-	43	28	71	04:30	-	51	30	81	10:30	-	4	2	6
04:45	-	2	4	6	10:45	-	39	30	69	04:45	-	35	28	63	10:45	-	3	2	5
05:00	-	1	4	5	11:00	-	32	22	54	05:00	-	28	24	52	11:00	-	2	0	2
05:15	-	1	6	7	11:15	-	38	26	64	05:15	-	45	27	72	11:15	-	4	0	4
05:30	-	1	2	3	11:30	-	44	21	65	05:30	-	35	28	63	11:30	-	4	1	5
05:45	-	5	6	11	11:45	-	38	20	58	05:45	-	35	25	60	11:45	-	7	1	8
06:00					12:00					06:00					12:00				



HDOT RIMS Traffic Station Analyzer (v45)

Log Out



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HDOT RIMS Traffic Station Analyzer (v45)

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State of Hawaii, Department of Transportation, Highways Division 15 Minute Volume Report

Run Date: 01-FEB-21

Site ID: B71013001316
Functional Class: RURAL:MAJOR COLLECTOR
Location:

Town: Hawaii
Count Type: CLASS
DATE: 19-SEP-18

DIR 1: +MP
Counter Type: Tube

DIR 2: -MP
Final AADT: 4000
Route No: 130

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	TOTAL	PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:30 AM to 08:30 AM			PM - PEAK HR TIME	3:15 PM to 4:15 PM		
AM - PEAK HR VOLUME	109	161	270	PM - PEAK HR VOLUME	256	132	388
AM - K FACTOR(%)			6.25	PM - K FACTOR(%)			8.98
AM - D(%)	40.37	59.63	100	PM - D(%)	65.98	34.02	100
DIRECTIONAL PEAK				DIRECTIONAL PEAK			
AM - PEAK HR TIME	08:00 AM to 09:00 AM	07:15 AM to 08:15 AM		PM - PEAK HR TIME	3:15 PM to 4:15 PM	3:30 PM to 4:30 PM	
AM - PEAK HR VOLUME	118	171		PM - PEAK HR VOLUME	256	143	
AM PERIOD (00:00-12:00)	DIR 1	DIR 2	TOTAL	PM PERIOD (12:00-24:00)	DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	09:00 AM to 11:20 AM			PM - PEAK HR TIME	3:15 PM to 4:15 PM		
AM - PEAK HR VOLUME	140	162	277	PM - PEAK HR VOLUME	256	256	388
AM - K FACTOR(%)			6.41	PM - K FACTOR(%)			8.98
AM - D(%)	40.37	59.63	100	PM - D(%)	65.98	34.02	100
NON COMMUTER PERIOD (09:00-15:00)	DIR 1	DIR 2	TOTAL	6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				AM 6-HR PERIOD (06:00-12:00)			
PEAK HR TIME	1:45 PM to 2:45 PM			AM 12-HR PERIOD (00:00-12:00)	718	744	1,462
PEAK HR VOLUME	199	88	287	PM 6-HR PERIOD (12:00-18:00)	1,217	586	1,803
DIRECTIONAL PEAK				PM 12-HR PERIOD (12:00-24:00)			
PEAK HR TIME	2:00 PM to 3:00 PM	09:00 AM to 11:20 AM		24-HR PERIOD (12:00-24:00)	2,441	1,880	4,321
PEAK HR VOLUME	200	137		D%	56.49	43.51	100

TIME	DIR1	DIR2	TOTAL	TIME	DIR1	DIR2	TOTAL	TIME	DIR1	DIR2	TOTAL	TIME	DIR1	DIR2	TOTAL
- AM				- AM				- PM				- PM			
12:00				06:00				12:00				06:00			
-	3	2	5	-	8	13	21	-	43	9	52	-	56	19	75
12:15				06:15				12:15				06:15			

HDOT RIMS Traffic Station Analyzer (v45)

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12:15				06:15				12:15				06:15			
-	0	2	2	-	8	22	30	-	27	16	43	-	50	34	84
12:30				06:30				12:30				06:30			
12:30	1	0	1	06:30	15	17	32	12:30	47	6	53	06:30	56	33	89
-				-				-				-			
12:45				06:45				12:45				06:45			
12:45	0	3	3	06:45	15	23	38	12:45	45	4	49	06:45	44	19	63
-				-				-				-			
01:00				07:00				01:00				07:00			
01:00	1	2	3	07:00	19	28	47	01:00	38	16	54	07:00	49	24	73
-				-				-				-			
01:15				07:15				01:15				07:15			
01:15	0	1	1	07:15	14	39	53	01:15	46	13	59	07:15	33	30	63
-				-				-				-			
01:30				07:30				01:30				07:30			
01:30	1	0	1	07:30	24	55	79	01:30	38	18	56	07:30	33	26	59
-				-				-				-			
01:45				07:45				01:45				07:45			
01:45	1	0	1	07:45	22	44	66	01:45	51	24	75	07:45	18	21	39
-				-				-				-			
02:00				08:00				02:00				08:00			
02:00	2	0	2	08:00	36	33	69	02:00	51	17	68	08:00	22	20	42
-				-				-				-			
02:15				08:15				02:15				08:15			
02:15	0	0	0	08:15	27	29	56	02:15	48	21	69	08:15	21	33	54
-				-				-				-			
02:30				08:30				02:30				08:30			
02:30	1	0	1	08:30	30	33	63	02:30	49	26	75	08:30	14	29	43
-				-				-				-			
02:45				08:45				02:45				08:45			
02:45	1	0	1	08:45	25	26	51	02:45	52	21	73	08:45	19	27	46
-				-				-				-			
03:00				09:00				03:00				09:00			
03:00	2	1	3	09:00	29	31	60	03:00	56	31	87	09:00	11	39	50
-				-				-				-			
03:15				09:15				03:15				09:15			
03:15	0	0	0	09:15	29	35	64	03:15	65	27	92	09:15	11	21	32
-				-				-				-			
03:30				09:30				03:30				09:30			
03:30	0	1	1	09:30	36	36	72	03:30	49	41	90	09:30	17	28	45
-				-				-				-			
03:45				09:45				03:45				09:45			

HDOT RIMS Traffic Station Analyzer (v45)

[Log Out](#)



RS

03:45	-	0	1	1	09:45	-	46	35	81	03:45	-	72	32	104	09:45	-	8	26	34
04:00	-	0	4	4	10:00	-	37	21	58	04:00	-	70	32	102	10:00	-	7	27	34
04:15	-	3	2	5	10:15	-	31	19	50	04:15	-	45	38	83	10:15	-	6	27	33
04:30	-	0	5	5	10:30	-	37	21	58	04:30	-	45	41	86	10:30	-	7	14	21
04:45	-	0	3	3	10:45	-	46	25	71	04:45	-	60	29	89	10:45	-	8	12	20
05:00	-	3	8	11	11:00	-	37	20	57	05:00	-	65	21	86	11:00	-	6	10	16
05:15	-	1	7	8	11:15	-	31	25	56	05:15	-	51	37	88	11:15	-	2	16	18
05:30	-	6	8	14	11:30	-	48	37	85	05:30	-	59	35	94	11:30	-	3	9	12
05:45	-	9	10	19	11:45	-	33	17	50	05:45	-	45	31	76	11:45	-	5	6	11
06:00					12:00					06:00					12:00				



HDOT RIMS Traffic Station Analyzer (v45)

release 45 [Set Screen Reader Mode On](#)

[Log Out](#)



RS

HDOT RIMS Traffic Station Analyzer (v45)

Log Out



RS

State of Hawaii, Department of Transportation, Highways Division 15 Minute Volume Report

Run Date: 01-FEB-21

Site ID: B71013000937
Functional Class: URBAN:MINOR ARTERIAL
Location:

Town: Hawaii
Count Type: CLASS
DATE: 18-SEP-18
DIR 1: +MP
Counter Type: Tube

DIR 2: -MP
Final AADT: 15000
Route No: 130

AM COMMUTER PERIOD (05:00-09:00)				PM COMMUTER PERIOD (15:00-19:00)			
	DIR 1	DIR 2	TOTAL		DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:15 AM to 08:15 AM			PM - PEAK HR TIME	3:00 PM to 4:00 PM		
AM - PEAK HR VOLUME	740	502	1,242	PM - PEAK HR VOLUME	604	537	1,141
AM - K FACTOR(%)			8.53	PM - K FACTOR(%)			7.84
AM - D(%)	59.58	40.42	100	PM - D(%)	52.94	47.06	100
DIRECTIONAL PEAK				DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:15 AM to 08:15 AM	07:45 AM to 08:45 AM		PM - PEAK HR TIME	4:30 PM to 5:30 PM	3:30 PM to 4:30 PM	
AM - PEAK HR VOLUME	740	577		PM - PEAK HR VOLUME	651	546	
AM PERIOD (00:00-12:00)				PM PERIOD (12:00-24:00)			
	DIR 1	DIR 2	TOTAL		DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:15 AM to 08:15 AM			PM - PEAK HR TIME	2:15 PM to 3:15 PM		
AM - PEAK HR VOLUME	740	740	1,242	PM - PEAK HR VOLUME	560	651	1,199
AM - K FACTOR(%)			8.53	PM - K FACTOR(%)			8.24
AM - D(%)	59.58	40.42	100	PM - D(%)	52.94	47.06	100
NON COMMUTER PERIOD (09:00-15:00)				6-HR, 12-HR, 24-HR PERIODS			
	DIR 1	DIR 2	TOTAL		DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				AM 6-HR PERIOD (06:00-12:00)			
PEAK HR TIME	2:00 PM to 3:00 PM			AM 12-HR PERIOD (00:00-12:00)	2,689	2,793	5,482
PEAK HR VOLUME	532	642	1,174	PM 6-HR PERIOD (12:00-18:00)	3,301	2,917	6,218
DIRECTIONAL PEAK				PM 12-HR PERIOD (12:00-24:00)			
PEAK HR TIME	1:15 PM to 2:15 PM	2:00 PM to 3:00 PM		24-HR PERIOD (12:00-24:00)	7,610	6,943	14,553
PEAK HR VOLUME	565	642		D%	52.29	47.71	100

TIME	DIR1	DIR 2	TOTAL	TIME	DIR1	DIR 2	TOTAL	TIME	DIR1	DIR 2	TOTAL	TIME	DIR1	DIR 2	TOTAL
- AM				- AM				- PM				- PM			
12:00				06:00				12:00				06:00			
-	11	6	17	-	35	101	136	-	98	110	208	-	141	94	235
12:15				06:15				12:15				06:15			

HDOT RIMS Traffic Station Analyzer (v45)

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RS

12:15				06:15				12:15				06:15			
-	9	1	10	-	45	161	206	-	105	110	215	-	138	93	231
12:30				06:30				12:30				06:30			
12:30	9	2	11	06:30	81	129	210	12:30	108	124	232	06:30	123	78	201
-				-				-				-			
12:45				06:45				12:45				06:45			
12:45	7	2	9	06:45	116	111	227	12:45	116	109	225	06:45	120	92	212
-				-				-				-			
01:00				07:00				01:00				07:00			
01:00	5	7	12	07:00	123	92	215	01:00	106	95	201	07:00	111	79	190
-				-				-				-			
01:15				07:15				01:15				07:15			
01:15	7	8	15	07:15	179	79	258	01:15	124	114	238	07:15	117	50	167
-				-				-				-			
01:30				07:30				01:30				07:30			
01:30	1	2	3	07:30	220	102	322	01:30	153	104	257	07:30	57	50	107
-				-				-				-			
01:45				07:45				01:45				07:45			
01:45	0	4	4	07:45	201	151	352	01:45	145	103	248	07:45	67	32	99
-				-				-				-			
02:00				08:00				02:00				08:00			
02:00	4	4	8	08:00	140	170	310	02:00	143	133	276	08:00	68	34	102
-				-				-				-			
02:15				08:15				02:15				08:15			
02:15	3	1	4	08:15	128	129	257	02:15	108	184	292	08:15	64	36	100
-				-				-				-			
02:30				08:30				02:30				08:30			
02:30	4	2	6	08:30	87	127	214	02:30	113	171	284	08:30	43	36	79
-				-				-				-			
02:45				08:45				02:45				08:45			
02:45	4	3	7	08:45	93	106	199	02:45	168	154	322	08:45	42	23	65
-				-				-				-			
03:00				09:00				03:00				09:00			
03:00	1	6	7	09:00	96	114	210	03:00	171	130	301	09:00	73	16	89
-				-				-				-			
03:15				09:15				03:15				09:15			
03:15	5	7	12	09:15	96	112	208	03:15	129	133	262	09:15	50	23	73
-				-				-				-			
03:30				09:30				03:30				09:30			
03:30	8	7	15	09:30	89	104	193	03:30	149	159	308	09:30	31	24	55
-				-				-				-			
03:45				09:45				03:45				09:45			

HDOT RIMS Traffic Station Analyzer (v45)

[Log Out](#)



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03:45	-	7	10	17	09:45	-	110	110	220	03:45	-	155	115	270	09:45	-	35	15	50
04:00	-	9	17	26	10:00	-	95	107	202	04:00	-	144	120	264	10:00	-	40	19	59
04:15	-	5	13	18	10:15	-	92	124	216	04:15	-	127	152	279	10:15	-	24	17	41
04:30	-	9	27	36	10:30	-	95	107	202	04:30	-	146	112	258	10:30	-	29	17	46
04:45	-	18	30	48	10:45	-	113	130	243	04:45	-	174	95	269	10:45	-	16	13	29
05:00	-	9	49	58	11:00	-	110	109	219	05:00	-	165	100	265	11:00	-	14	6	20
05:15	-	8	44	52	11:15	-	117	97	214	05:15	-	166	101	267	11:15	-	19	7	26
05:30	-	12	45	57	11:30	-	119	108	227	05:30	-	143	94	237	11:30	-	17	7	24
05:45	-	21	66	87	11:45	-	109	113	222	05:45	-	145	95	240	11:45	-	5	9	14
06:00					12:00					06:00					12:00				



HDOT RIMS Traffic Station Analyzer (v45)

release 45 [Set Screen Reader Mode On](#)

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RS

HDOT RIMS Traffic Station Analyzer (v45)

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RS

State of Hawaii, Department of Transportation, Highways Division 15 Minute Volume Report

Run Date: 01-FEB-21

Site ID: B71013000937
Functional Class: URBAN:MINOR ARTERIAL
Location:

Town: Hawaii
Count Type: CLASS
DATE: 19-SEP-18
DIR 1: +MP
Counter Type: Tube

DIR 2: -MP
Final AADT: 15000
Route No: 130

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	TOTAL	PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:15 AM to 08:15 AM			PM - PEAK HR TIME	4:15 PM to 5:15 PM		
AM - PEAK HR VOLUME	768	543	1,311	PM - PEAK HR VOLUME	690	455	1,145
AM - K FACTOR(%)			8.87	PM - K FACTOR(%)			7.74
AM - D(%)	58.58	41.42	100	PM - D(%)	60.26	39.74	100
DIRECTIONAL PEAK				DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:15 AM to 08:15 AM	07:45 AM to 08:45 AM		PM - PEAK HR TIME	4:15 PM to 5:15 PM	3:00 PM to 4:00 PM	
AM - PEAK HR VOLUME	768	596		PM - PEAK HR VOLUME	690	507	
AM PERIOD (00:00-12:00)	DIR 1	DIR 2	TOTAL	PM PERIOD (12:00-24:00)	DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:15 AM to 08:15 AM			PM - PEAK HR TIME	4:15 PM to 5:15 PM		
AM - PEAK HR VOLUME	768	768	1,311	PM - PEAK HR VOLUME	690	690	1,145
AM - K FACTOR(%)			8.87	PM - K FACTOR(%)			7.74
AM - D(%)	58.58	41.42	100	PM - D(%)	60.26	39.74	100
NON COMMUTER PERIOD (09:00-15:00)	DIR 1	DIR 2	TOTAL	6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				AM 6-HR PERIOD (06:00-12:00)			
PEAK HR TIME	2:00 PM to 3:00 PM			AM 12-HR PERIOD (00:00-12:00)	2,804	3,226	6,030
PEAK HR VOLUME	510	600	1,110	PM 6-HR PERIOD (12:00-18:00)	3,308	2,896	6,204
DIRECTIONAL PEAK				PM 12-HR PERIOD (12:00-24:00)			
PEAK HR TIME	1:15 PM to 2:15 PM	2:00 PM to 3:00 PM		24-HR PERIOD (12:00-24:00)	7,484	7,302	14,786
PEAK HR VOLUME	522	600		D%	50.62	49.38	100

TIME	DIR1	DIR 2	TOTAL	TIME	DIR1	DIR 2	TOTAL	TIME	DIR1	DIR 2	TOTAL	TIME	DIR1	DIR 2	TOTAL
- AM				- AM				- PM				- PM			
12:00				06:00				12:00				06:00			
-	12	2	14	-	38	117	155	-	107	116	223	-	161	92	253
12:15				06:15				12:15				06:15			

HDOT RIMS Traffic Station Analyzer (v45)

[Log Out](#)



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12:15				06:15				12:15				06:15			
-	9	7	16	-	47	150	197	-	114	110	224	-	154	87	241
12:30				06:30				12:30				06:30			
12:30				06:30				12:30				06:30			
-	13	5	18	-	78	142	220	-	120	136	256	-	101	92	193
12:45				06:45				12:45				06:45			
12:45				06:45				12:45				06:45			
-	8	8	16	-	112	96	208	-	115	92	207	-	100	100	200
01:00				07:00				01:00				07:00			
01:00				07:00				01:00				07:00			
-	1	6	7	-	124	103	227	-	121	109	230	-	100	61	161
01:15				07:15				01:15				07:15			
01:15				07:15				01:15				07:15			
-	7	6	13	-	194	106	300	-	124	132	256	-	80	80	160
01:30				07:30				01:30				07:30			
01:30				07:30				01:30				07:30			
-	4	6	10	-	215	114	329	-	127	126	253	-	70	66	136
01:45				07:45				01:45				07:45			
01:45				07:45				01:45				07:45			
-	2	5	7	-	197	151	348	-	128	107	235	-	68	47	115
02:00				08:00				02:00				08:00			
02:00				08:00				02:00				08:00			
-	6	3	9	-	162	172	334	-	143	124	267	-	48	49	97
02:15				08:15				02:15				08:15			
02:15				08:15				02:15				08:15			
-	3	1	4	-	95	156	251	-	116	169	285	-	63	41	104
02:30				08:30				02:30				08:30			
02:30				08:30				02:30				08:30			
-	2	2	4	-	103	117	220	-	127	154	281	-	46	66	112
02:45				08:45				02:45				08:45			
02:45				08:45				02:45				08:45			
-	3	6	9	-	101	124	225	-	124	153	277	-	47	30	77
03:00				09:00				03:00				09:00			
03:00				09:00				03:00				09:00			
-	2	4	6	-	78	117	195	-	130	121	251	-	54	42	96
03:15				09:15				03:15				09:15			
03:15				09:15				03:15				09:15			
-	5	6	11	-	89	129	218	-	125	138	263	-	41	49	90
03:30				09:30				03:30				09:30			
03:30				09:30				03:30				09:30			
-	5	7	12	-	108	115	223	-	140	114	254	-	43	45	88
03:45				09:45				03:45				09:45			

HDOT RIMS Traffic Station Analyzer (v45)

[Log Out](#)



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03:45				09:45				03:45				09:45			
-	6	9	15	-	81	113	194	-	155	134	289	-	38	31	69
04:00				10:00				04:00				10:00			
04:00	4	13	17	10:00	95	108	203	04:00	150	113	263	10:00	23	44	67
-				-				-				-			
04:15				10:15				04:15				10:15			
04:15	4	14	18	10:15	96	96	192	04:15	174	101	275	10:15	26	43	69
-				-				-				-			
04:30				10:30				04:30				10:30			
04:30	6	22	28	10:30	83	107	190	04:30	155	138	293	10:30	26	35	61
-				-				-				-			
04:45				10:45				04:45				10:45			
04:45	7	29	36	10:45	112	109	221	04:45	206	89	295	10:45	22	16	38
-				-				-				-			
05:00				11:00				05:00				11:00			
05:00	10	38	48	11:00	103	87	190	05:00	155	127	282	11:00	24	12	36
-				-				-				-			
05:15				11:15				05:15				11:15			
05:15	15	46	61	11:15	93	114	207	05:15	150	92	242	11:15	18	21	39
-				-				-				-			
05:30				11:30				05:30				11:30			
05:30	20	57	77	11:30	64	108	172	05:30	148	107	255	11:30	10	23	33
-				-				-				-			
05:45				11:45				05:45				11:45			
05:45	18	52	70	11:45	164	121	285	05:45	154	94	248	11:45	9	8	17
-				-				-				-			
06:00				12:00				06:00				12:00			



HDOT RIMS Traffic Station Analyzer (v45)

release 45 [Set Screen Reader Mode On](#)

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[RS](#)

HDOT RIMS Traffic Station Analyzer (v45)

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RS

State of Hawaii, Department of Transportation, Highways Division 15 Minute Volume Report

Run Date: 01-FEB-21

Site ID: B71013001088
Functional Class: URBAN:MINOR ARTERIAL
Location:

Town: Hawaii
Count Type: CLASS
DATE: 18-SEP-18

DIR 1: +MP
Counter Type: Tube

DIR 2: -MP

Final AADT: 6400
Route No: 130

AM COMMUTER PERIOD (05:00-09:00)				PM COMMUTER PERIOD (15:00-19:00)			
	DIR 1	DIR 2	TOTAL		DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:30 AM to 08:30 AM			PM - PEAK HR TIME	3:00 PM to 4:00 PM		
AM - PEAK HR VOLUME	291	288	579	PM - PEAK HR VOLUME	250	246	496
AM - K FACTOR(%)			9.67	PM - K FACTOR(%)			8.29
AM - D(%)	50.26	49.74	100	PM - D(%)	50.4	49.6	100
DIRECTIONAL PEAK				DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:30 AM to 08:30 AM	07:30 AM to 08:30 AM		PM - PEAK HR TIME	3:00 PM to 4:00 PM	3:00 PM to 4:00 PM	
AM - PEAK HR VOLUME	291	288		PM - PEAK HR VOLUME	250	246	

AM PERIOD (00:00-12:00)				PM PERIOD (12:00-24:00)			
	DIR 1	DIR 2	TOTAL		DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:30 AM to 08:30 AM			PM - PEAK HR TIME	1:45 PM to 2:45 PM		
AM - PEAK HR VOLUME	291	291	579	PM - PEAK HR VOLUME	287	287	557
AM - K FACTOR(%)			9.67	PM - K FACTOR(%)			9.31
AM - D(%)	50.26	49.74	100	PM - D(%)	50.4	49.6	100

NON COMMUTER PERIOD (09:00-15:00)				6-HR, 12-HR, 24-HR PERIODS			
	DIR 1	DIR 2	TOTAL		DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				AM 6-HR PERIOD (06:00-12:00)			
PEAK HR TIME	1:45 PM to 2:45 PM			AM 12-HR PERIOD (00:00-12:00)	1,045	1,362	2,407
PEAK HR VOLUME	287	270	557	PM 6-HR PERIOD (12:00-18:00)	1,368	1,288	2,656
DIRECTIONAL PEAK				PM 12-HR PERIOD (12:00-24:00)			
PEAK HR TIME	1:45 PM to 2:45 PM	2:00 PM to 3:00 PM		24-HR PERIOD (12:00-24:00)	2,956	3,029	5,985
PEAK HR VOLUME	287	279		D%	49.39	50.61	100

TIME	DIR1	DIR 2	TOTAL	TIME	DIR1	DIR 2	TOTAL	TIME	DIR1	DIR 2	TOTAL	TIME	DIR1	DIR 2	TOTAL
- AM				- AM				- PM				- PM			
12:00				06:00				12:00				06:00			
-	3	1	4	-	11	45	56	-	47	58	105	-	54	47	101
12:15				06:15				12:15				06:15			

HDOT RIMS Traffic Station Analyzer (v45)

[Log Out](#)



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12:15				06:15				12:15				06:15			
-	0	1	1	-	19	55	74	-	37	48	85	-	51	38	89
12:30				06:30				12:30				06:30			
12:30	4	2	6	06:30	25	65	90	12:30	43	46	89	06:30	40	38	78
12:45				06:45				12:45				06:45			
12:45	1	1	2	06:45	26	45	71	12:45	44	47	91	06:45	38	50	88
01:00				07:00				01:00				07:00			
01:00	2	4	6	07:00	38	45	83	01:00	46	42	88	07:00	48	38	86
01:15				07:15				01:15				07:15			
01:15	3	1	4	07:15	46	52	98	01:15	40	42	82	07:15	33	23	56
01:30				07:30				01:30				07:30			
01:30	1	1	2	07:30	82	73	155	01:30	52	59	111	07:30	28	22	50
01:45				07:45				01:45				07:45			
01:45	1	0	1	07:45	82	87	169	01:45	71	49	120	07:45	20	12	32
02:00				08:00				02:00				08:00			
02:00	0	0	0	08:00	75	74	149	02:00	72	71	143	08:00	34	18	52
02:15				08:15				02:15				08:15			
02:15	2	1	3	08:15	52	54	106	02:15	72	71	143	08:15	29	13	42
02:30				08:30				02:30				08:30			
02:30	1	1	2	08:30	39	42	81	02:30	72	79	151	08:30	21	9	30
02:45				08:45				02:45				08:45			
02:45	1	2	3	08:45	30	53	83	02:45	59	58	117	08:45	15	12	27
03:00				09:00				03:00				09:00			
03:00	0	2	2	09:00	27	49	76	03:00	69	52	121	09:00	18	9	27
03:15				09:15				03:15				09:15			
03:15	1	2	3	09:15	47	39	86	03:15	55	71	126	09:15	13	7	20
03:30				09:30				03:30				09:30			
03:30	0	3	3	09:30	26	47	73	03:30	64	61	125	09:30	21	7	28
03:45				09:45				03:45				09:45			

HDOT RIMS Traffic Station Analyzer (v45)

[Log Out](#)



RS

03:45	-	1	3	4	09:45	-	39	50	89	03:45	-	62	62	124	09:45	-	17	8	25
04:00	-	0	6	6	10:00	-	37	34	71	04:00	-	56	50	106	10:00	-	17	13	30
04:15	-	1	5	6	10:15	-	27	44	71	04:15	-	55	68	123	10:15	-	10	5	15
04:30	-	1	6	7	10:30	-	55	48	103	04:30	-	65	46	111	10:30	-	9	4	13
04:45	-	3	13	16	10:45	-	43	48	91	04:45	-	54	46	100	10:45	-	4	1	5
05:00	-	5	13	18	11:00	-	40	63	103	05:00	-	48	40	88	11:00	-	7	1	8
05:15	-	3	16	19	11:15	-	43	40	83	05:15	-	59	38	97	11:15	-	4	1	5
05:30	-	5	16	21	11:30	-	51	44	95	05:30	-	60	47	107	11:30	-	5	1	6
05:45	-	10	23	33	11:45	-	36	43	79	05:45	-	66	37	103	11:45	-	7	2	9
06:00					12:00					06:00					12:00				



HDOT RIMS Traffic Station Analyzer (v45)

release 45 [Set Screen Reader Mode On](#)

[Log Out](#)



RS

2019 HDOT Volumes

HDOT RIMS Traffic Station Analyzer (v45)

Log Out



RS

State of Hawaii, Department of Transportation, Highways Division 15 Minute Volume Report

Run Date: 01-FEB-21

Site ID: B71013001316
Functional Class: RURAL:MAJOR COLLECTOR
Location:

Town: Hawaii
Count Type: CLASS
DATE: 17-OCT-19

DIR 1: +MP
Counter Type: Tube

DIR 2: -MP

Final AADT: 5600
Route No: 130

AM COMMUTER PERIOD (05:00-09:00)				PM COMMUTER PERIOD (15:00-19:00)			
	DIR 1	DIR 2	TOTAL		DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:30 to 08:30 AM			PM - PEAK HR TIME	04:00 to 05:00 PM		
AM - PEAK HR VOLUME	157	259	416	PM - PEAK HR VOLUME	257	198	455
AM - K FACTOR(%)			7.66	PM - K FACTOR(%)			8.38
AM - D(%)	37.74	62.26	100	PM -D(%)	56.48	43.52	100
DIRECTIONAL PEAK				DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:45 to 08:45 AM	07:15 to 08:15 AM		PM - PEAK HR TIME	03:30 to 04:30 PM	04:00 to 05:00 PM	
AM - PEAK HR VOLUME	182	265		PM - PEAK HR VOLUME	262	198	

AM PERIOD (00:00-12:00)				PM PERIOD (12:00-24:00)			
	DIR 1	DIR 2	TOTAL		DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:30 to 08:30 AM			PM - PEAK HR TIME	04:00 to 05:00 PM		
AM - PEAK HR VOLUME	157	259	416	PM - PEAK HR VOLUME	257	198	455
AM - K FACTOR(%)			7.66	PM - K FACTOR(%)			8.38
AM - D(%)	37.74	62.26	100	PM -D(%)	56.48	43.52	100

NON COMMUTER PERIOD (09:00-15:00)				6-HR, 12-HR, 24-HR PERIODS			
	DIR 1	DIR 2	TOTAL		DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				AM 6-HR PERIOD (06:00-12:00)			
PEAK HR TIME	01:45 to 02:45 PM			AM 12-HR PERIOD (00:00-12:00)	793	1,205	1,998
PEAK HR VOLUME	228	217	445	PM 6-HR PERIOD (12:00-18:00)	825	1,300	2,125
DIRECTIONAL PEAK				PM 12-HR PERIOD (12:00-24:00)			
PEAK HR TIME	02:15 to 03:15 PM	09:00 to 10:00 AM		24-HR PERIOD (12:00-24:00)	1,373	1,152	2,525
PEAK HR VOLUME	252	226		D%	1,878	1,429	3,307
					2,703	2,729	5,432
					49.76	50.24	100

TIME	DIR1	DIR 2	TOTAL	TIME	DIR1	DIR 2	TOTAL	TIME	DIR1	DIR 2	TOTAL	TIME	DIR1	DIR 2	TOTAL
- AM				- AM				- PM				- PM			
12:00				06:00				12:00				06:00			
-	1	5	6	-	4	24	28	-	49	44	93	-	57	29	86
12:15				06:15				12:15				06:15			
-	1	4	5	-	6	31	37	-	58	55	113	-	51	36	87
12:30				06:30				12:30				06:30			

HDOT RIMS Traffic Station Analyzer (v45)

Log Out



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12:30				06:30				12:30				06:30			
-	4	2	6	-	17	38	55	-	49	53	102	-	44	28	72
12:45				06:45				12:45				06:45			
12:45				06:45				12:45				06:45			
-	1	1	2	-	13	34	47	-	54	49	103	-	42	23	65
01:00				07:00				01:00				07:00			
01:00				07:00				01:00				07:00			
-	1	0	1	-	22	51	73	-	48	63	111	-	38	20	58
01:15				07:15				01:15				07:15			
01:15				07:15				01:15				07:15			
-	0	2	2	-	20	53	73	-	50	54	104	-	34	13	47
01:30				07:30				01:30				07:30			
01:30				07:30				01:30				07:30			
-	0	1	1	-	27	77	104	-	39	53	92	-	29	6	35
01:45				07:45				01:45				07:45			
01:45				07:45				01:45				07:45			
-	1	1	2	-	40	71	111	-	59	54	113	-	26	7	33
02:00				08:00				02:00				08:00			
02:00				08:00				02:00				08:00			
-	2	1	3	-	40	64	104	-	41	61	102	-	25	15	40
02:15				08:15				02:15				08:15			
02:15				08:15				02:15				08:15			
-	5	1	6	-	50	47	97	-	76	49	125	-	23	11	34
02:30				08:30				02:30				08:30			
02:30				08:30				02:30				08:30			
-	1	2	3	-	52	48	100	-	52	53	105	-	17	8	25
02:45				08:45				02:45				08:45			
02:45				08:45				02:45				08:45			
-	2	0	2	-	37	53	90	-	56	36	92	-	23	3	26
03:00				09:00				03:00				09:00			
03:00				09:00				03:00				09:00			
-	0	1	1	-	35	51	86	-	68	54	122	-	11	6	17
03:15				09:15				03:15				09:15			
03:15				09:15				03:15				09:15			
-	2	3	5	-	23	62	85	-	57	49	106	-	14	6	20
03:30				09:30				03:30				09:30			
03:30				09:30				03:30				09:30			
-	1	2	3	-	29	60	89	-	65	46	111	-	11	4	15
03:45				09:45				03:45				09:45			
03:45				09:45				03:45				09:45			
-	0	2	2	-	40	53	93	-	57	38	95	-	9	10	19
04:00				10:00				04:00				10:00			

HDOT RIMS Traffic Station Analyzer (v45)

[Log Out](#)



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04:00				10:00				04:00				10:00			
-	0	2	2	-	38	51	89	-	77	46	123	-	6	12	18
04:15				10:15				04:15				10:15			
04:15	1	5	6	10:15	42	52	94	04:15	63	52	115	10:15	7	7	14
-				-				-				-			
04:30				10:30				04:30				10:30			
04:30	1	5	6	10:30	43	46	89	04:30	61	50	111	10:30	9	18	27
-				-				-				-			
04:45				10:45				04:45				10:45			
04:45	1	7	8	10:45	52	51	103	04:45	56	50	106	10:45	5	9	14
-				-				-				-			
05:00				11:00				05:00				11:00			
05:00	0	13	13	11:00	49	49	98	05:00	68	35	103	11:00	9	1	10
-				-				-				-			
05:15				11:15				05:15				11:15			
05:15	2	10	12	11:15	34	58	92	05:15	59	31	90	11:15	4	4	8
-				-				-				-			
05:30				11:30				05:30				11:30			
05:30	2	12	14	11:30	42	40	82	05:30	59	49	108	11:30	7	1	8
-				-				-				-			
05:45				11:45				05:45				11:45			
05:45	3	13	16	11:45	38	41	79	05:45	52	28	80	11:45	4	-	4
-				-				-				-			
06:00				12:00				06:00				12:00			



HDOT RIMS Traffic Station Analyzer (v45)

[Log Out](#)



RS

HDOT RIMS Traffic Station Analyzer (v45)

Log Out



RS

State of Hawaii, Department of Transportation, Highways Division 15 Minute Volume Report

Run Date: 01-FEB-21

Site ID: B71013200030
Functional Class: URBAN:COLLECTOR
Location:

Town: Hawaii
Count Type: CLASS
DATE: 16-OCT-19

DIR 1: +MP
Counter Type: Tube

DIR 2: -MP

Final AADT: 4900
Route No: 132

AM COMMUTER PERIOD (05:00-09:00)				PM COMMUTER PERIOD (15:00-19:00)			
	DIR 1	DIR 2	TOTAL		DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:15 to 08:15 AM			PM - PEAK HR TIME	04:30 to 05:30 PM		
AM - PEAK HR VOLUME	170	242	412	PM - PEAK HR VOLUME	254	180	434
AM - K FACTOR(%)			8.02	PM - K FACTOR(%)			8.45
AM - D(%)	41.26	58.74	100	PM -D(%)	58.53	41.47	100
DIRECTIONAL PEAK				DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:30 to 08:30 AM	07:00 to 08:00 AM		PM - PEAK HR TIME	04:45 to 05:45 PM	03:00 to 04:00 PM	
AM - PEAK HR VOLUME	174	254		PM - PEAK HR VOLUME	255	204	

AM PERIOD (00:00-12:00)				PM PERIOD (12:00-24:00)			
	DIR 1	DIR 2	TOTAL		DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:15 to 08:15 AM			PM - PEAK HR TIME	04:30 to 05:30 PM		
AM - PEAK HR VOLUME	170	242	412	PM - PEAK HR VOLUME	254	180	434
AM - K FACTOR(%)			8.02	PM - K FACTOR(%)			8.45
AM - D(%)	41.26	58.74	100	PM -D(%)	58.53	41.47	100

NON COMMUTER PERIOD (09:00-15:00)				6-HR, 12-HR, 24-HR PERIODS			
	DIR 1	DIR 2	TOTAL		DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				AM 6-HR PERIOD (06:00-12:00)			
PEAK HR TIME	02:45 to 03:45 PM			AM 12-HR PERIOD (00:00-12:00)	758	1,062	1,820
PEAK HR VOLUME	192	193	385	PM 6-HR PERIOD (12:00-18:00)	846	1,184	2,030
DIRECTIONAL PEAK				PM 12-HR PERIOD (12:00-24:00)			
PEAK HR TIME	02:00 to 03:00 PM	01:30 to 02:30 PM		24-HR PERIOD (12:00-24:00)	1,216	1,071	2,287
PEAK HR VOLUME	199	200		D%	1,726	1,379	3,105
					2,572	2,563	5,135
					50.09	49.91	100

TIME	DIR1	DIR 2	TOTAL	TIME	DIR1	DIR 2	TOTAL	TIME	DIR1	DIR 2	TOTAL	TIME	DIR1	DIR 2	TOTAL
- AM				- AM				- PM				- PM			
12:00				06:00				12:00				06:00			
-	7	2	9	-	20	49	69	-	42	35	77	-	55	36	91
12:15				06:15				12:15				06:15			
12:15				06:15				12:15				06:15			
-	5	3	8	-	33	48	81	-	47	34	81	-	46	30	76
12:30				06:30				12:30				06:30			

HDOT RIMS Traffic Station Analyzer (v45)

[Log Out](#)



RS

12:30				06:30				12:30				06:30			
-	6	2	8	-	18	50	68	-	37	51	88	-	49	26	75
12:45				06:45				12:45				06:45			
12:45	6	0	6	06:45	24	47	71	12:45	43	49	92	06:45	36	22	58
01:00				07:00				01:00				07:00			
01:00	0	0	0	07:00	22	54	76	01:00	54	50	104	07:00	28	13	41
01:15				07:15				01:15				07:15			
01:15	0	0	0	07:15	30	60	90	01:15	39	41	80	07:15	28	16	44
01:30				07:30				01:30				07:30			
01:30	6	2	8	07:30	42	74	116	01:30	39	45	84	07:30	27	13	40
01:45				07:45				01:45				07:45			
01:45	0	1	1	07:45	44	66	110	01:45	33	51	84	07:45	29	20	49
02:00				08:00				02:00				08:00			
02:00	3	5	8	08:00	54	42	96	02:00	53	62	115	08:00	18	17	35
02:15				08:15				02:15				08:15			
02:15	0	1	1	08:15	34	46	80	02:15	53	42	95	08:15	23	12	35
02:30				08:30				02:30				08:30			
02:30	0	2	2	08:30	31	34	65	02:30	48	37	85	08:30	13	18	31
02:45				08:45				02:45				08:45			
02:45	1	1	2	08:45	21	52	73	02:45	45	32	77	08:45	21	13	34
03:00				09:00				03:00				09:00			
03:00	1	1	2	09:00	38	42	80	03:00	40	53	93	09:00	17	10	27
03:15				09:15				03:15				09:15			
03:15	1	4	5	09:15	36	45	81	03:15	57	60	117	09:15	16	13	29
03:30				09:30				03:30				09:30			
03:30	0	0	0	09:30	20	37	57	03:30	50	48	98	09:30	16	6	22
03:45				09:45				03:45				09:45			
03:45	1	4	5	09:45	26	30	56	03:45	64	43	107	09:45	10	6	16
04:00				10:00				04:00				10:00			

HDOT RIMS Traffic Station Analyzer (v45)

[Log Out](#)



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04:00				10:00				04:00				10:00			
-	1	3	4	-	25	37	62	-	57	42	99	-	16	4	20
04:15				10:15				04:15				10:15			
04:15	0	10	10	10:15	33	29	62	04:15	64	34	98	10:15	16	4	20
-				-				-				-			
04:30				10:30				04:30				10:30			
04:30	4	7	11	10:30	35	37	72	04:30	43	50	93	10:30	9	7	16
-				-				-				-			
04:45				10:45				04:45				10:45			
04:45	4	9	13	10:45	33	28	61	04:45	66	43	109	10:45	16	5	21
-				-				-				-			
05:00				11:00				05:00				11:00			
05:00	6	11	17	11:00	25	35	60	05:00	71	52	123	11:00	4	6	10
-				-				-				-			
05:15				11:15				05:15				11:15			
05:15	6	16	22	11:15	39	43	82	05:15	74	35	109	11:15	9	0	9
-				-				-				-			
05:30				11:30				05:30				11:30			
05:30	9	13	22	11:30	29	33	62	05:30	44	39	83	11:30	6	5	11
-				-				-				-			
05:45				11:45				05:45				11:45			
05:45	21	25	46	11:45	46	44	90	05:45	53	43	96	11:45	2	6	8
-				-				-				-			
06:00				12:00				06:00				12:00			



HDOT RIMS Traffic Station Analyzer (v45)

[Log Out](#)



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HDOT RIMS Traffic Station Analyzer (v45)

Log Out



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State of Hawaii, Department of Transportation, Highways Division 15 Minute Volume Report

Run Date: 01-FEB-21

Site ID: B71013200030
Functional Class: URBAN:COLLECTOR
Location:

Town: Hawaii
Count Type: CLASS
DATE: 17-OCT-19

DIR 1: +MP
Counter Type: Tube

DIR 2: -MP

Final AADT: 4900
Route No: 132

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	TOTAL	PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:15 to 08:15 AM			PM - PEAK HR TIME	05:00 to 06:00 PM		
AM - PEAK HR VOLUME	179	247	426	PM - PEAK HR VOLUME	249	161	410
AM - K FACTOR(%)			8.37	PM - K FACTOR(%)			8.06
AM - D(%)	42.02	57.98	100	PM -D(%)	60.73	39.27	100
DIRECTIONAL PEAK				DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:30 to 08:30 AM	07:00 to 08:00 AM		PM - PEAK HR TIME	05:00 to 06:00 PM	03:00 to 04:00 PM	
AM - PEAK HR VOLUME	189	247		PM - PEAK HR VOLUME	249	195	

AM PERIOD (00:00-12:00)	DIR 1	DIR 2	TOTAL	PM PERIOD (12:00-24:00)	DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:15 to 08:15 AM			PM - PEAK HR TIME	01:30 to 02:30 PM		
AM - PEAK HR VOLUME	179	247	426	PM - PEAK HR VOLUME	211	204	415
AM - K FACTOR(%)			8.37	PM - K FACTOR(%)			8.15
AM - D(%)	42.02	57.98	100	PM -D(%)	60.73	39.27	100

NON COMMUTER PERIOD (09:00-15:00)	DIR 1	DIR 2	TOTAL	6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				AM 6-HR PERIOD (06:00-12:00)			
PEAK HR TIME	01:30 to 02:30 PM			AM 12-HR PERIOD (00:00-12:00)	796	1,083	1,879
PEAK HR VOLUME	211	204	415	PM 6-HR PERIOD (12:00-18:00)	893	1,217	2,110
DIRECTIONAL PEAK				PM 12-HR PERIOD (12:00-24:00)			
PEAK HR TIME	01:45 to 02:45 PM	01:30 to 02:30 PM		24-HR PERIOD (12:00-24:00)	1,145	1,002	2,147
PEAK HR VOLUME	221	204		D%	1,648	1,332	2,980
					2,541	2,549	5,090
					49.92	50.08	100

TIME - AM	DIR1	DIR 2	TOTAL	TIME - AM	DIR1	DIR 2	TOTAL	TIME - PM	DIR1	DIR 2	TOTAL	TIME - PM	DIR1	DIR 2	TOTAL
12:00				06:00				12:00				06:00			
-	6	1	7	-	26	49	75	-	35	29	64	-	47	46	93
12:15				06:15				12:15				06:15			
-	5	2	7	-	28	53	81	-	32	30	62	-	35	35	70
12:30				06:30				12:30				06:30			

HDOT RIMS Traffic Station Analyzer (v45)

[Log Out](#)



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12:30				06:30				12:30				06:30			
-	4	3	7	-	23	44	67	-	28	45	73	-	44	27	71
12:45				06:45				12:45				06:45			
12:45				06:45				12:45				06:45			
-	4	2	6	-	23	40	63	-	30	25	55	-	50	28	78
01:00				07:00				01:00				07:00			
01:00				07:00				01:00				07:00			
-	5	0	5	-	22	57	79	-	36	45	81	-	37	16	53
01:15				07:15				01:15				07:15			
01:15				07:15				01:15				07:15			
-	0	4	4	-	29	58	87	-	41	36	77	-	22	23	45
01:30				07:30				01:30				07:30			
01:30				07:30				01:30				07:30			
-	2	0	2	-	40	63	103	-	43	56	99	-	25	14	39
01:45				07:45				01:45				07:45			
01:45				07:45				01:45				07:45			
-	4	3	7	-	53	69	122	-	51	55	106	-	17	12	29
02:00				08:00				02:00				08:00			
02:00				08:00				02:00				08:00			
-	4	4	8	-	57	57	114	-	63	53	116	-	18	16	34
02:15				08:15				02:15				08:15			
02:15				08:15				02:15				08:15			
-	2	2	4	-	39	46	85	-	54	40	94	-	24	17	41
02:30				08:30				02:30				08:30			
02:30				08:30				02:30				08:30			
-	2	2	4	-	29	30	59	-	53	41	94	-	18	15	33
02:45				08:45				02:45				08:45			
02:45				08:45				02:45				08:45			
-	0	0	0	-	28	50	78	-	46	43	89	-	17	10	27
03:00				09:00				03:00				09:00			
03:00				09:00				03:00				09:00			
-	2	1	3	-	33	34	67	-	53	53	106	-	16	10	26
03:15				09:15				03:15				09:15			
03:15				09:15				03:15				09:15			
-	0	4	4	-	35	40	75	-	49	62	111	-	12	11	23
03:30				09:30				03:30				09:30			
03:30				09:30				03:30				09:30			
-	2	4	6	-	31	33	64	-	51	41	92	-	14	3	17
03:45				09:45				03:45				09:45			
03:45				09:45				03:45				09:45			
-	0	2	2	-	20	40	60	-	39	39	78	-	22	3	25
04:00				10:00				04:00				10:00			

HDOT RIMS Traffic Station Analyzer (v45)

[Log Out](#)



RS

04:00				10:00				04:00				10:00			
-	2	3	5	-	29	45	74	-	43	36	79	-	19	11	30
04:15				10:15				04:15				10:15			
04:15	1	8	9	10:15	32	44	76	04:15	46	35	81	10:15	12	2	14
-				-				-				-			
04:30				10:30				04:30				10:30			
04:30	6	9	15	10:30	41	35	76	04:30	42	47	89	10:30	12	7	19
-				-				-				-			
04:45				10:45				04:45				10:45			
04:45	3	10	13	10:45	38	47	85	04:45	61	30	91	10:45	11	4	15
-				-				-				-			
05:00				11:00				05:00				11:00			
05:00	4	9	13	11:00	33	39	72	05:00	62	48	110	11:00	11	4	15
-				-				-				-			
05:15				11:15				05:15				11:15			
05:15	7	12	19	11:15	32	37	69	05:15	58	45	103	11:15	5	6	11
-				-				-				-			
05:30				11:30				05:30				11:30			
05:30	11	17	28	11:30	38	40	78	05:30	61	39	100	11:30	11	5	16
-				-				-				-			
05:45				11:45				05:45				11:45			
05:45	21	32	53	11:45	37	33	70	05:45	68	29	97	11:45	4	5	9
-				-				-				-			
06:00				12:00				06:00				12:00			



HDOT RIMS Traffic Station Analyzer (v45)

[Log Out](#)



RS

HDOT RIMS Traffic Station Analyzer (v45)

**State of Hawaii, Department of Transportation,
Highways Division
15 Minute Volume Report**

Run Date: 01-FEB-21

Site ID: B71013400013
Functional Class: URBAN:COLLECTOR
Location:

Town: Hawaii
Count Type: CLASS
DATE: 16-OCT-19

DIR 1: +MP
Counter Type: Tube

DIR 2: -MP
Final AADT: 7500
Route No: 134

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	TOTAL	PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:30 to 08:30 AM			PM - PEAK HR TIME	03:00 to 04:00 PM		
AM - PEAK HR VOLUME	313	291	604	PM - PEAK HR VOLUME	343	334	677
AM - K FACTOR(%)			7.8	PM - K FACTOR(%)			8.74
AM - D(%)	51.82	48.18	100	PM -D(%)	50.66	49.34	100
DIRECTIONAL PEAK				DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:30 to 08:30 AM	07:30 to 08:30 AM		PM - PEAK HR TIME	03:00 to 04:00 PM	03:30 to 04:30 PM	
AM - PEAK HR VOLUME	313	291		PM - PEAK HR VOLUME	343	343	

AM PERIOD (00:00-12:00)	DIR 1	DIR 2	TOTAL	PM PERIOD (12:00-24:00)	DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	11:45 to 12:45 PM			PM - PEAK HR TIME	01:45 to 02:45 PM		
AM - PEAK HR VOLUME	300	330	630	PM - PEAK HR VOLUME	424	400	824
AM - K FACTOR(%)			8.14	PM - K FACTOR(%)			10.64
AM - D(%)	51.82	48.18	100	PM -D(%)	50.66	49.34	100

NON COMMUTER PERIOD (09:00-15:00)	DIR 1	DIR 2	TOTAL	6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				AM 6-HR PERIOD (06:00-12:00)	1,460	1,375	2,835
PEAK HR TIME	01:45 to 02:45 PM			AM 12-HR PERIOD (00:00-12:00)	1,512	1,450	2,962
PEAK HR VOLUME	424	400	824	PM 6-HR PERIOD (12:00-18:00)	1,975	1,995	3,970
DIRECTIONAL PEAK				PM 12-HR PERIOD (12:00-24:00)	2,394	2,388	4,782
PEAK HR TIME	01:45 to 02:45 PM	02:00 to 03:00 PM		24-HR PERIOD (12:00-24:00)	3,906	3,838	7,744
PEAK HR VOLUME	424	409		D%	50.44	49.56	100

TIME - AM	DIR1	DIR 2	TOTAL	TIME - AM	DIR1	DIR 2	TOTAL	TIME - PM	DIR1	DIR 2	TOTAL	TIME - PM	DIR1	DIR 2	TOTAL
12:00				06:00				12:00				06:00			
-	4	3	7	-	14	17	31	-	78	79	157	-	47	49	96
12:15				06:15				12:15				06:15			
-	1	0	1	-	17	25	42	-	83	82	165	-	60	42	102
12:30				06:30				12:30				06:30			

HDOT RIMS Traffic Station Analyzer (v45)

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12:30				06:30				12:30				06:30			
-	0	1	1	-	29	30	59	-	67	96	163	-	39	29	68
12:45				06:45				12:45				06:45			
12:45	4	1	5	06:45	42	35	77	12:45	106	65	171	06:45	36	39	75
01:00				07:00				01:00				07:00			
01:00	1	2	3	07:00	50	34	84	01:00	78	90	168	07:00	31	22	53
01:15				07:15				01:15				07:15			
01:15	1	1	2	07:15	54	34	88	01:15	76	99	175	07:15	21	21	42
01:30				07:30				01:30				07:30			
01:30	0	0	0	07:30	88	59	147	01:30	72	89	161	07:30	13	14	27
01:45				07:45				01:45				07:45			
01:45	0	0	0	07:45	80	88	168	01:45	105	90	195	07:45	16	13	29
02:00				08:00				02:00				08:00			
02:00	1	0	1	08:00	84	94	178	02:00	94	98	192	08:00	14	27	41
02:15				08:15				02:15				08:15			
02:15	0	5	5	08:15	61	50	111	02:15	104	109	213	08:15	23	10	33
02:30				08:30				02:30				08:30			
02:30	2	1	3	08:30	56	51	107	02:30	121	103	224	08:30	10	14	24
02:45				08:45				02:45				08:45			
02:45	1	1	2	08:45	62	60	122	02:45	89	99	188	08:45	10	11	21
03:00				09:00				03:00				09:00			
03:00	2	0	2	09:00	77	56	133	03:00	88	78	166	09:00	17	17	34
03:15				09:15				03:15				09:15			
03:15	0	1	1	09:15	68	57	125	03:15	86	85	171	09:15	12	16	28
03:30				09:30				03:30				09:30			
03:30	0	0	0	09:30	53	61	114	03:30	76	91	167	09:30	9	12	21
03:45				09:45				03:45				09:45			
03:45	2	1	3	09:45	86	57	143	03:45	93	80	173	09:45	7	12	19
04:00				10:00				04:00				10:00			

HDOT RIMS Traffic Station Analyzer (v45)

[Log Out](#)



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04:00	-	1	2	3	10:00	-	66	71	137	04:00	-	80	84	164	10:00	-	11	10	21
04:15	-	1	5	6	10:15	-	75	82	157	04:15	-	70	88	158	10:15	-	10	13	23
04:30	-	4	7	11	10:30	-	77	58	135	04:30	-	89	84	173	10:30	-	10	7	17
04:45	-	3	5	8	10:45	-	58	74	132	04:45	-	73	66	139	10:45	-	8	6	14
05:00	-	3	5	8	11:00	-	73	70	143	05:00	-	68	63	131	11:00	-	7	2	9
05:15	-	2	13	15	11:15	-	65	73	138	05:15	-	68	53	121	11:15	-	3	3	6
05:30	-	11	9	20	11:30	-	53	66	119	05:30	-	63	65	128	11:30	-	4	0	4
05:45	-	8	12	20	11:45	-	72	73	145	05:45	-	48	59	107	11:45	-	1	4	5
06:00					12:00					06:00					12:00				



HDOT RIMS Traffic Station Analyzer (v45)

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HDOT RIMS Traffic Station Analyzer (v45)

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State of Hawaii, Department of Transportation, Highways Division 15 Minute Volume Report

Run Date: 01-FEB-21

Site ID: B71013400013
Functional Class: URBAN:COLLECTOR
Location:

Town: Hawaii
Count Type: CLASS
DATE: 17-OCT-19

DIR 1: +MP
Counter Type: Tube

DIR 2: -MP

Final AADT: 7500
Route No: 134

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	TOTAL	PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:30 to 08:30 AM			PM - PEAK HR TIME	03:15 to 04:15 PM		
AM - PEAK HR VOLUME	326	273	599	PM - PEAK HR VOLUME	329	349	678
AM - K FACTOR(%)			7.69	PM - K FACTOR(%)			8.71
AM - D(%)	54.42	45.58	100	PM -D(%)	48.53	51.47	100
DIRECTIONAL PEAK				DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:30 to 08:30 AM	07:30 to 08:30 AM		PM - PEAK HR TIME	03:00 to 04:00 PM	03:15 to 04:15 PM	
AM - PEAK HR VOLUME	326	273		PM - PEAK HR VOLUME	336	349	

AM PERIOD (00:00-12:00)	DIR 1	DIR 2	TOTAL	PM PERIOD (12:00-24:00)	DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	11:00 to 12:00 PM			PM - PEAK HR TIME	02:00 to 03:00 PM		
AM - PEAK HR VOLUME	272	328	600	PM - PEAK HR VOLUME	372	410	782
AM - K FACTOR(%)			7.71	PM - K FACTOR(%)			10.04
AM - D(%)	54.42	45.58	100	PM -D(%)	48.53	51.47	100

NON COMMUTER PERIOD (09:00-15:00)	DIR 1	DIR 2	TOTAL	6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				AM 6-HR PERIOD (06:00-12:00)	1,496	1,455	2,951
PEAK HR TIME	02:00 to 03:00 PM			AM 12-HR PERIOD (00:00-12:00)	1,561	1,555	3,116
PEAK HR VOLUME	372	410	782	PM 6-HR PERIOD (12:00-18:00)	1,904	1,913	3,817
DIRECTIONAL PEAK				PM 12-HR PERIOD (12:00-24:00)	2,323	2,346	4,669
PEAK HR TIME	02:00 to 03:00 PM	02:00 to 03:00 PM		24-HR PERIOD (12:00-24:00)	3,884	3,901	7,785
PEAK HR VOLUME	372	410		D%	49.89	50.11	100

TIME - AM	DIR1	DIR 2	TOTAL	TIME - AM	DIR1	DIR 2	TOTAL	TIME - PM	DIR1	DIR 2	TOTAL	TIME - PM	DIR1	DIR 2	TOTAL
12:00				06:00				12:00				06:00			
-	6	2	8	-	11	22	33	-	79	75	154	-	47	55	102
12:15				06:15				12:15				06:15			
-	3	4	7	-	30	25	55	-	77	66	143	-	46	48	94
12:30				06:30				12:30				06:30			

HDOT RIMS Traffic Station Analyzer (v45)

Log Out



RS

12:30				06:30				12:30				06:30			
-	0	3	3	-	29	24	53	-	55	84	139	-	36	48	84
12:45				06:45				12:45				06:45			
12:45	3	1	4	06:45	54	33	87	12:45	66	74	140	06:45	34	31	65
01:00				07:00				01:00				07:00			
01:00	3	1	4	07:00	52	39	91	01:00	74	73	147	07:00	27	36	63
01:15				07:15				01:15				07:15			
01:15	1	6	7	07:15	53	29	82	01:15	82	80	162	07:15	27	20	47
01:30				07:30				01:30				07:30			
01:30	0	3	3	07:30	87	62	149	01:30	100	60	160	07:30	15	26	41
01:45				07:45				01:45				07:45			
01:45	1	2	3	07:45	94	75	169	01:45	82	75	157	07:45	18	17	35
02:00				08:00				02:00				08:00			
02:00	3	1	4	08:00	79	72	151	02:00	100	116	216	08:00	19	26	45
02:15				08:15				02:15				08:15			
02:15	2	4	6	08:15	66	64	130	02:15	77	111	188	08:15	17	17	34
02:30				08:30				02:30				08:30			
02:30	0	4	4	08:30	70	60	130	02:30	98	93	191	08:30	13	8	21
02:45				08:45				02:45				08:45			
02:45	7	1	8	08:45	70	62	132	02:45	97	90	187	08:45	18	10	28
03:00				09:00				03:00				09:00			
03:00	0	4	4	09:00	47	59	106	03:00	83	61	144	09:00	8	22	30
03:15				09:15				03:15				09:15			
03:15	0	1	1	09:15	59	67	126	03:15	90	87	177	09:15	8	11	19
03:30				09:30				03:30				09:30			
03:30	2	3	5	09:30	77	68	145	03:30	90	97	187	09:30	10	7	17
03:45				09:45				03:45				09:45			
03:45	2	0	2	09:45	81	66	147	03:45	73	75	148	09:45	21	14	35
04:00				10:00				04:00				10:00			

HDOT RIMS Traffic Station Analyzer (v45)

[Log Out](#)



RS

04:00				10:00				04:00				10:00			
-	0	5	5	-	55	76	131	-	76	90	166	-	11	10	21
04:15				10:15				04:15				10:15			
04:15	2	5	7	10:15	83	64	147	04:15	80	74	154	10:15	9	5	14
-				-				-				-			
04:30				10:30				04:30				10:30			
04:30	7	3	10	10:30	65	85	150	04:30	76	78	154	10:30	9	4	13
-				-				-				-			
04:45				10:45				04:45				10:45			
04:45	2	6	8	10:45	62	75	137	04:45	79	58	137	10:45	4	5	9
-				-				-				-			
05:00				11:00				05:00				11:00			
05:00	4	14	18	11:00	66	91	157	05:00	68	93	161	11:00	6	6	12
-				-				-				-			
05:15				11:15				05:15				11:15			
05:15	3	13	16	11:15	72	74	146	05:15	69	79	148	11:15	8	3	11
-				-				-				-			
05:30				11:30				05:30				11:30			
05:30	5	7	12	11:30	69	74	143	05:30	84	68	152	11:30	6	2	8
-				-				-				-			
05:45				11:45				05:45				11:45			
05:45	9	7	16	11:45	65	89	154	05:45	49	56	105	11:45	2	2	4
-				-				-				-			
06:00				12:00				06:00				12:00			



HDOT RIMS Traffic Station Analyzer (v45)

[Log Out](#)



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HDOT RIMS Traffic Station Analyzer (v45)

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State of Hawaii, Department of Transportation, Highways Division 15 Minute Volume Report

Run Date: 01-FEB-21

Site ID: B71013000937
Functional Class: URBAN:MINOR ARTERIAL
Location:

Town: Hawaii
Count Type: CLASS
DATE: 16-OCT-19

DIR 1: +MP
Counter Type: Tube

DIR 2: -MP

Final AADT: 16200
Route No: 130

AM COMMUTER PERIOD (05:00-09:00)				PM COMMUTER PERIOD (15:00-19:00)			
	DIR 1	DIR 2	TOTAL		DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:15 to 08:15 AM			PM - PEAK HR TIME	03:15 to 04:15 PM		
AM - PEAK HR VOLUME	709	700	1,409	PM - PEAK HR VOLUME	707	689	1,396
AM - K FACTOR(%)			8.29	PM - K FACTOR(%)			8.22
AM - D(%)	50.32	49.68	100	PM -D(%)	50.64	49.36	100
DIRECTIONAL PEAK				DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:30 to 08:30 AM	07:00 to 08:00 AM		PM - PEAK HR TIME	03:00 to 04:00 PM	04:00 to 05:00 PM	
AM - PEAK HR VOLUME	722	713		PM - PEAK HR VOLUME	730	756	

AM PERIOD (00:00-12:00)				PM PERIOD (12:00-24:00)			
	DIR 1	DIR 2	TOTAL		DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:15 to 08:15 AM			PM - PEAK HR TIME	01:45 to 02:45 PM		
AM - PEAK HR VOLUME	709	700	1,409	PM - PEAK HR VOLUME	670	747	1,417
AM - K FACTOR(%)			8.29	PM - K FACTOR(%)			8.34
AM - D(%)	50.32	49.68	100	PM -D(%)	50.64	49.36	100

NON COMMUTER PERIOD (09:00-15:00)				6-HR, 12-HR, 24-HR PERIODS			
	DIR 1	DIR 2	TOTAL		DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				AM 6-HR PERIOD (06:00-12:00)			
PEAK HR TIME	01:45 to 02:45 PM			AM 12-HR PERIOD (00:00-12:00)	3,317	2,815	6,132
PEAK HR VOLUME	670	747	1,417	PM 6-HR PERIOD (12:00-18:00)	3,728	3,006	6,734
DIRECTIONAL PEAK				PM 12-HR PERIOD (12:00-24:00)			
PEAK HR TIME	02:45 to 03:45 PM	01:45 to 02:45 PM		24-HR PERIOD (12:00-24:00)	3,598	4,030	7,628
PEAK HR VOLUME	723	747		D%	4,756	5,502	10,258
					8,484	8,508	16,992
					49.93	50.07	100

TIME	DIR1	DIR 2	TOTAL	TIME	DIR1	DIR 2	TOTAL	TIME	DIR1	DIR 2	TOTAL	TIME	DIR1	DIR 2	TOTAL
- AM				- AM				- PM				- PM			
12:00				06:00				12:00				06:00			
-	5	14	19	-	108	54	162	-	127	116	243	-	94	153	247
12:15				06:15				12:15				06:15			
-	3	8	11	-	156	62	218	-	125	125	250	-	106	154	260
12:30				06:30				12:30				06:30			

HDOT RIMS Traffic Station Analyzer (v45)

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RS

12:30				06:30				12:30				06:30			
-	6	5	11	-	137	93	230	-	144	170	314	-	83	143	226
12:45				06:45				12:45				06:45			
12:45				06:45				12:45				06:45			
-	2	6	8	-	123	134	257	-	122	174	296	-	85	138	223
01:00				07:00				01:00				07:00			
01:00				07:00				01:00				07:00			
-	3	5	8	-	127	132	259	-	149	159	308	-	56	108	164
01:15				07:15				01:15				07:15			
01:15				07:15				01:15				07:15			
-	5	7	12	-	139	175	314	-	142	129	271	-	72	91	163
01:30				07:30				01:30				07:30			
01:30				07:30				01:30				07:30			
-	4	4	8	-	166	185	351	-	152	153	305	-	66	66	132
01:45				07:45				01:45				07:45			
01:45				07:45				01:45				07:45			
-	2	5	7	-	195	221	416	-	165	193	358	-	58	69	127
02:00				08:00				02:00				08:00			
02:00				08:00				02:00				08:00			
-	5	6	11	-	209	119	328	-	160	177	337	-	38	59	97
02:15				08:15				02:15				08:15			
02:15				08:15				02:15				08:15			
-	10	1	11	-	152	113	265	-	196	180	376	-	51	55	106
02:30				08:30				02:30				08:30			
02:30				08:30				02:30				08:30			
-	4	4	8	-	135	102	237	-	149	197	346	-	41	64	105
02:45				08:45				02:45				08:45			
02:45				08:45				02:45				08:45			
-	5	3	8	-	132	97	229	-	176	161	337	-	51	64	115
03:00				09:00				03:00				09:00			
03:00				09:00				03:00				09:00			
-	2	2	4	-	138	121	259	-	179	153	332	-	48	47	95
03:15				09:15				03:15				09:15			
03:15				09:15				03:15				09:15			
-	6	1	7	-	123	93	216	-	181	167	348	-	35	38	73
03:30				09:30				03:30				09:30			
03:30				09:30				03:30				09:30			
-	12	5	17	-	135	100	235	-	187	160	347	-	49	31	80
03:45				09:45				03:45				09:45			
03:45				09:45				03:45				09:45			
-	17	5	22	-	119	137	256	-	183	170	353	-	38	32	70
04:00				10:00				04:00				10:00			

HDOT RIMS Traffic Station Analyzer (v45)

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04:00				10:00				04:00				10:00			
-	10	2	12	-	134	112	246	-	156	192	348	-	44	28	72
04:15				10:15				04:15				10:15			
04:15				10:15				04:15				10:15			
-	25	4	29	-	120	100	220	-	135	194	329	-	28	29	57
04:30				10:30				04:30				10:30			
04:30				10:30				04:30				10:30			
-	32	10	42	-	127	107	234	-	148	185	333	-	32	27	59
04:45				10:45				04:45				10:45			
04:45				10:45				04:45				10:45			
-	29	3	32	-	134	108	242	-	136	185	321	-	26	22	48
05:00				11:00				05:00				11:00			
05:00				11:00				05:00				11:00			
-	44	7	51	-	133	120	253	-	128	176	304	-	19	12	31
05:15				11:15				05:15				11:15			
05:15				11:15				05:15				11:15			
-	55	24	79	-	118	94	212	-	115	171	286	-	19	22	41
05:30				11:30				05:30				11:30			
05:30				11:30				05:30				11:30			
-	50	22	72	-	122	114	236	-	126	156	282	-	10	13	23
05:45				11:45				05:45				11:45			
05:45				11:45				05:45				11:45			
-	75	38	113	-	135	122	257	-	117	187	304	-	9	7	16
06:00				12:00				06:00				12:00			



HDOT RIMS Traffic Station Analyzer (v45)

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HDOT RIMS Traffic Station Analyzer (v45)

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RS

**State of Hawaii, Department of Transportation,
Highways Division
15 Minute Volume Report**

Run Date: 01-FEB-21

Site ID: B71013000937

Functional Class: URBAN:MINOR ARTERIAL

Location:

Town: Hawaii

Count Type: CLASS

DATE: 17-OCT-19

DIR 1: +MP

Counter Type: Tube

DIR 2: -MP

Final AADT: 16200

Route No: 130

AM COMMUTER PERIOD (05:00-09:00)

	DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:15 to 08:15 AM		
AM - PEAK HR VOLUME	677	740	1,417
AM - K FACTOR(%)			8.43
AM - D(%)	47.78	52.22	100
DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:30 to 08:30 AM	07:15 to 08:15 AM	
AM - PEAK HR VOLUME	727	740	

PM COMMUTER PERIOD (15:00-19:00)

	DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK			
PM - PEAK HR TIME	03:15 to 04:15 PM		
PM - PEAK HR VOLUME	652	686	1,338
PM - K FACTOR(%)			7.96
PM - D(%)	48.73	51.27	100
DIRECTIONAL PEAK			
PM - PEAK HR TIME	03:00 to 04:00 PM	04:45 to 05:45 PM	
PM - PEAK HR VOLUME	661	709	

AM PERIOD (00:00-12:00)

	DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:15 to 08:15 AM		
AM - PEAK HR VOLUME	677	740	1,417
AM - K FACTOR(%)			8.43
AM - D(%)	47.78	52.22	100

PM PERIOD (12:00-24:00)

	DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK			
PM - PEAK HR TIME	01:45 to 02:45 PM		
PM - PEAK HR VOLUME	746	710	1,456
PM - K FACTOR(%)			8.66
PM - D(%)	48.73	51.27	100

NON COMMUTER PERIOD (09:00-15:00)

	DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK			
PEAK HR TIME	01:45 to 02:45 PM		
PEAK HR VOLUME	746	710	1,456
DIRECTIONAL PEAK			
PEAK HR TIME	02:00 to 03:00 PM	02:30 to 03:30 PM	
PEAK HR VOLUME	772	720	

6-HR, 12-HR, 24-HR PERIODS

	DIR 1	DIR 2	TOTAL
AM 6-HR PERIOD (06:00-12:00)	3,427	2,964	6,391
AM 12-HR PERIOD (00:00-12:00)	3,866	3,178	7,044
PM 6-HR PERIOD (12:00-18:00)	3,577	3,812	7,389
PM 12-HR PERIOD (12:00-24:00)	4,579	5,194	9,773
24-HR PERIOD (12:00-24:00)	8,445	8,372	16,817
D%	50.22	49.78	100

TIME	DIR 1	DIR 2	TOTAL	TIME	DIR 1	DIR 2	TOTAL	TIME	DIR 1	DIR 2	TOTAL	TIME	DIR 1	DIR 2	TOTAL
- AM				- AM				- PM				- PM			
12:00				06:00				12:00				06:00			
-	4	16	20	-	124	60	184	-	137	116	253	-	120	118	238
12:15				06:15				12:15				06:15			
-	8	10	18	-	142	74	216	-	119	113	232	-	124	138	262
12:30				06:30				12:30				06:30			

HDOT RIMS Traffic Station Analyzer (v45)

Log Out



RS

12:30				06:30				12:30				06:30			
-	9	8	17	-	144	113	257	-	143	108	251	-	82	126	208
12:45				06:45				12:45				06:45			
12:45				06:45				12:45				06:45			
-	5	4	9	-	106	141	247	-	123	119	242	-	70	127	197
01:00				07:00				01:00				07:00			
01:00				07:00				01:00				07:00			
-	1	4	5	-	131	126	257	-	130	130	260	-	73	93	166
01:15				07:15				01:15				07:15			
01:15				07:15				01:15				07:15			
-	6	4	10	-	132	186	318	-	147	123	270	-	52	92	144
01:30				07:30				01:30				07:30			
01:30				07:30				01:30				07:30			
-	8	6	14	-	165	216	381	-	124	173	297	-	43	77	120
01:45				07:45				01:45				07:45			
01:45				07:45				01:45				07:45			
-	8	5	13	-	187	196	383	-	136	205	341	-	45	45	90
02:00				08:00				02:00				08:00			
02:00				08:00				02:00				08:00			
-	8	5	13	-	193	142	335	-	192	165	357	-	40	63	103
02:15				08:15				02:15				08:15			
02:15				08:15				02:15				08:15			
-	9	5	14	-	182	123	305	-	206	149	355	-	43	52	95
02:30				08:30				02:30				08:30			
02:30				08:30				02:30				08:30			
-	7	2	9	-	141	116	257	-	212	191	403	-	28	57	85
02:45				08:45				02:45				08:45			
02:45				08:45				02:45				08:45			
-	4	9	13	-	127	110	237	-	162	177	339	-	29	42	71
03:00				09:00				03:00				09:00			
03:00				09:00				03:00				09:00			
-	5	6	11	-	141	127	268	-	164	175	339	-	36	42	78
03:15				09:15				03:15				09:15			
03:15				09:15				03:15				09:15			
-	6	2	8	-	139	93	232	-	169	177	346	-	32	50	82
03:30				09:30				03:30				09:30			
03:30				09:30				03:30				09:30			
-	11	4	15	-	133	113	246	-	169	164	333	-	19	39	58
03:45				09:45				03:45				09:45			
03:45				09:45				03:45				09:45			
-	13	6	19	-	123	114	237	-	159	155	314	-	31	54	85
04:00				10:00				04:00				10:00			

HDOT RIMS Traffic Station Analyzer (v45)

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04:00	-	15	6	21	10:00	-	130	97	227	04:00	-	155	190	345	10:00	-	24	28	52
04:15	-	29	4	33	10:15	-	156	114	270	04:15	-	133	154	287	10:15	-	24	31	55
04:30	-	29	13	42	10:30	-	151	115	266	04:30	-	169	149	318	10:30	-	21	21	42
04:45	-	33	7	40	10:45	-	138	97	235	04:45	-	127	181	308	10:45	-	16	23	39
05:00	-	36	16	52	11:00	-	132	106	238	05:00	-	141	183	324	11:00	-	13	15	28
05:15	-	60	14	74	11:15	-	128	132	260	05:15	-	124	186	310	11:15	-	16	21	37
05:30	-	56	16	72	11:30	-	132	130	262	05:30	-	127	159	286	11:30	-	11	17	28
05:45	-	69	42	111	11:45	-	150	123	273	05:45	-	109	170	279	11:45	-	10	11	21
06:00					12:00					06:00					12:00				



HDOT RIMS Traffic Station Analyzer (v45)

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HDOT RIMS Traffic Station Analyzer (v45)

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State of Hawaii, Department of Transportation, Highways Division 15 Minute Volume Report

Run Date: 01-FEB-21

Site ID: B71013001088
Functional Class: URBAN:MINOR ARTERIAL
Location:

Town: Hawaii
Count Type: CLASS
DATE: 16-OCT-19

DIR 1: +MP
Counter Type: Tube

DIR 2: -MP

Final AADT: 8500
Route No: 130

AM COMMUTER PERIOD (05:00-09:00)				PM COMMUTER PERIOD (15:00-19:00)			
	DIR 1	DIR 2	TOTAL		DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:15 to 08:15 AM			PM - PEAK HR TIME	03:00 to 04:00 PM		
AM - PEAK HR VOLUME	471	484	955	PM - PEAK HR VOLUME	350	355	705
AM - K FACTOR(%)			10.62	PM - K FACTOR(%)			7.84
AM - D(%)	49.32	50.68	100	PM -D(%)	49.65	50.35	100
DIRECTIONAL PEAK				DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:15 to 08:15 AM	07:15 to 08:15 AM		PM - PEAK HR TIME	04:15 to 05:15 PM	03:00 to 04:00 PM	
AM - PEAK HR VOLUME	471	484		PM - PEAK HR VOLUME	374	355	

AM PERIOD (00:00-12:00)				PM PERIOD (12:00-24:00)			
	DIR 1	DIR 2	TOTAL		DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:15 to 08:15 AM			PM - PEAK HR TIME	02:00 to 03:00 PM		
AM - PEAK HR VOLUME	471	484	955	PM - PEAK HR VOLUME	440	449	889
AM - K FACTOR(%)			10.62	PM - K FACTOR(%)			9.88
AM - D(%)	49.32	50.68	100	PM -D(%)	49.65	50.35	100

NON COMMUTER PERIOD (09:00-15:00)				6-HR, 12-HR, 24-HR PERIODS			
	DIR 1	DIR 2	TOTAL		DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				AM 6-HR PERIOD (06:00-12:00)			
PEAK HR TIME	02:00 to 03:00 PM			AM 12-HR PERIOD (00:00-12:00)	1,487	1,757	3,244
PEAK HR VOLUME	440	449	889	PM 6-HR PERIOD (12:00-18:00)	1,584	1,923	3,507
DIRECTIONAL PEAK				PM 12-HR PERIOD (12:00-24:00)			
PEAK HR TIME	02:00 to 03:00 PM	02:00 to 03:00 PM		24-HR PERIOD (12:00-24:00)	2,096	1,862	3,958
PEAK HR VOLUME	440	449		D%	2,894	2,593	5,487
					4,478	4,516	8,994
					49.79	50.21	100

TIME	DIR1	DIR 2	TOTAL	TIME	DIR1	DIR 2	TOTAL	TIME	DIR1	DIR 2	TOTAL	TIME	DIR1	DIR 2	TOTAL
- AM				- AM				- PM				- PM			
12:00				06:00				12:00				06:00			
-	5	3	8	-	29	56	85	-	57	58	115	-	91	55	146
12:15				06:15				12:15				06:15			
12:15				06:15				12:15				06:15			
-	7	2	9	-	31	62	93	-	74	72	146	-	97	49	146
12:30				06:30				12:30				06:30			

HDOT RIMS Traffic Station Analyzer (v45)

[Log Out](#)



RS

12:30				06:30				12:30				06:30			
-	3	3	6	-	20	73	93	-	60	84	144	-	73	47	120
12:45				06:45				12:45				06:45			
12:45				06:45				12:45				06:45			
-	5	0	5	-	59	64	123	-	80	52	132	-	67	54	121
01:00				07:00				01:00				07:00			
01:00				07:00				01:00				07:00			
-	1	2	3	-	66	79	145	-	83	76	159	-	55	37	92
01:15				07:15				01:15				07:15			
01:15				07:15				01:15				07:15			
-	1	2	3	-	98	97	195	-	56	74	130	-	44	40	84
01:30				07:30				01:30				07:30			
01:30				07:30				01:30				07:30			
-	5	2	7	-	134	122	256	-	96	72	168	-	47	31	78
01:45				07:45				01:45				07:45			
01:45				07:45				01:45				07:45			
-	1	1	2	-	147	149	296	-	93	66	159	-	33	41	74
02:00				08:00				02:00				08:00			
02:00				08:00				02:00				08:00			
-	4	2	6	-	92	116	208	-	112	160	272	-	33	24	57
02:15				08:15				02:15				08:15			
02:15				08:15				02:15				08:15			
-	1	3	4	-	65	79	144	-	120	98	218	-	30	37	67
02:30				08:30				02:30				08:30			
02:30				08:30				02:30				08:30			
-	0	2	2	-	58	57	115	-	110	106	216	-	28	36	64
02:45				08:45				02:45				08:45			
02:45				08:45				02:45				08:45			
-	0	3	3	-	59	71	130	-	98	85	183	-	34	31	65
03:00				09:00				03:00				09:00			
03:00				09:00				03:00				09:00			
-	1	0	1	-	58	60	118	-	87	83	170	-	31	46	77
03:15				09:15				03:15				09:15			
03:15				09:15				03:15				09:15			
-	2	3	5	-	45	67	112	-	89	95	184	-	14	27	41
03:30				09:30				03:30				09:30			
03:30				09:30				03:30				09:30			
-	0	6	6	-	57	56	113	-	77	96	173	-	18	28	46
03:45				09:45				03:45				09:45			
03:45				09:45				03:45				09:45			
-	2	6	8	-	45	61	106	-	97	81	178	-	15	23	38
04:00				10:00				04:00				10:00			

HDOT RIMS Traffic Station Analyzer (v45)

[Log Out](#)



RS

04:00				10:00				04:00				10:00			
-	4	3	7	-	53	83	136	-	85	73	158	-	15	33	48
04:15				10:15				04:15				10:15			
04:15	3	9	12	10:15	52	60	112	04:15	99	55	154	10:15	19	19	38
-				-				-				-			
04:30				10:30				04:30				10:30			
04:30	2	10	12	10:30	47	65	112	04:30	79	75	154	10:30	12	21	33
-				-				-				-			
04:45				10:45				04:45				10:45			
04:45	3	11	14	10:45	61	57	118	04:45	91	59	150	10:45	14	24	38
-				-				-				-			
05:00				11:00				05:00				11:00			
05:00	5	18	23	11:00	59	49	108	05:00	105	75	180	11:00	4	12	16
-				-				-				-			
05:15				11:15				05:15				11:15			
05:15	10	24	34	11:15	47	57	104	05:15	80	60	140	11:15	15	7	22
-				-				-				-			
05:30				11:30				05:30				11:30			
05:30	11	22	33	11:30	52	57	109	05:30	66	47	113	11:30	4	4	8
-				-				-				-			
05:45				11:45				05:45				11:45			
05:45	21	29	50	11:45	53	60	113	05:45	102	60	162	11:45	5	5	10
-				-				-				-			
06:00				12:00				06:00				12:00			



HDOT RIMS Traffic Station Analyzer (v45)

[Log Out](#)



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HDOT RIMS Traffic Station Analyzer (v45)

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State of Hawaii, Department of Transportation, Highways Division 15 Minute Volume Report

Run Date: 01-FEB-21

Site ID: B71013001088
Functional Class: URBAN:MINOR ARTERIAL
Location:

Town: Hawaii
Count Type: CLASS
DATE: 17-OCT-19

DIR 1: +MP
Counter Type: Tube

DIR 2: -MP

Final AADT: 8500
Route No: 130

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	TOTAL	PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:15 to 08:15 AM			PM - PEAK HR TIME	03:00 to 04:00 PM		
AM - PEAK HR VOLUME	493	498	991	PM - PEAK HR VOLUME	292	342	634
AM - K FACTOR(%)			11.52	PM - K FACTOR(%)			7.37
AM - D(%)	49.75	50.25	100	PM -D(%)	46.06	53.94	100
DIRECTIONAL PEAK				DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:15 to 08:15 AM	07:15 to 08:15 AM		PM - PEAK HR TIME	05:00 to 06:00 PM	03:00 to 04:00 PM	
AM - PEAK HR VOLUME	493	498		PM - PEAK HR VOLUME	341	342	

AM PERIOD (00:00-12:00)	DIR 1	DIR 2	TOTAL	PM PERIOD (12:00-24:00)	DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:15 to 08:15 AM			PM - PEAK HR TIME	01:45 to 02:45 PM		
AM - PEAK HR VOLUME	493	498	991	PM - PEAK HR VOLUME	415	441	856
AM - K FACTOR(%)			11.52	PM - K FACTOR(%)			9.95
AM - D(%)	49.75	50.25	100	PM -D(%)	46.06	53.94	100

NON COMMUTER PERIOD (09:00-15:00)	DIR 1	DIR 2	TOTAL	6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				AM 6-HR PERIOD (06:00-12:00)	1,578	1,823	3,401
PEAK HR TIME	01:45 to 02:45 PM			AM 12-HR PERIOD (00:00-12:00)	1,677	1,992	3,669
PEAK HR VOLUME	415	441	856	PM 6-HR PERIOD (12:00-18:00)	1,896	1,862	3,758
DIRECTIONAL PEAK				PM 12-HR PERIOD (12:00-24:00)	2,606	2,325	4,931
PEAK HR TIME	01:45 to 02:45 PM	02:00 to 03:00 PM		24-HR PERIOD (12:00-24:00)	4,283	4,317	8,600
PEAK HR VOLUME	415	448		D%	49.8	50.2	100

TIME - AM	DIR1	DIR 2	TOTAL	TIME - AM	DIR1	DIR 2	TOTAL	TIME - PM	DIR1	DIR 2	TOTAL	TIME - PM	DIR1	DIR 2	TOTAL
12:00				06:00				12:00				06:00			
-	4	1	5	-	29	63	92	-	62	59	121	-	75	53	128
12:15				06:15				12:15				06:15			
-	6	5	11	-	25	72	97	-	58	60	118	-	53	48	101
12:30				06:30				12:30				06:30			

HDOT RIMS Traffic Station Analyzer (v45)

[Log Out](#)



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12:30				06:30				12:30				06:30			
-	4	4	8	-	39	65	104	-	57	70	127	-	64	55	119
12:45				06:45				12:45				06:45			
12:45				06:45				12:45				06:45			
-	3	2	5	-	62	52	114	-	77	52	129	-	61	35	96
01:00				07:00				01:00				07:00			
01:00				07:00				01:00				07:00			
-	5	1	6	-	60	78	138	-	45	78	123	-	56	29	85
01:15				07:15				01:15				07:15			
01:15				07:15				01:15				07:15			
-	1	3	4	-	92	94	186	-	55	69	124	-	37	15	52
01:30				07:30				01:30				07:30			
01:30				07:30				01:30				07:30			
-	1	2	3	-	141	127	268	-	85	66	151	-	46	18	64
01:45				07:45				01:45				07:45			
01:45				07:45				01:45				07:45			
-	3	3	6	-	152	150	302	-	98	75	173	-	34	19	53
02:00				08:00				02:00				08:00			
02:00				08:00				02:00				08:00			
-	3	6	9	-	108	127	235	-	93	150	243	-	34	22	56
02:15				08:15				02:15				08:15			
02:15				08:15				02:15				08:15			
-	2	5	7	-	91	90	181	-	125	118	243	-	23	24	47
02:30				08:30				02:30				08:30			
02:30				08:30				02:30				08:30			
-	1	3	4	-	74	60	134	-	99	98	197	-	30	14	44
02:45				08:45				02:45				08:45			
02:45				08:45				02:45				08:45			
-	0	0	0	-	51	63	114	-	90	82	172	-	22	13	35
03:00				09:00				03:00				09:00			
03:00				09:00				03:00				09:00			
-	4	1	5	-	61	58	119	-	73	100	173	-	20	20	40
03:15				09:15				03:15				09:15			
03:15				09:15				03:15				09:15			
-	1	4	5	-	51	68	119	-	71	93	164	-	29	12	41
03:30				09:30				03:30				09:30			
03:30				09:30				03:30				09:30			
-	1	3	4	-	49	69	118	-	76	69	145	-	13	9	22
03:45				09:45				03:45				09:45			
03:45				09:45				03:45				09:45			
-	1	4	5	-	37	57	94	-	72	80	152	-	25	8	33
04:00				10:00				04:00				10:00			

HDOT RIMS Traffic Station Analyzer (v45)

[Log Out](#)



RS

04:00				10:00				04:00				10:00			
-	2	4	6	-	54	67	121	-	86	68	154	-	15	9	24
04:15				10:15				04:15				10:15			
04:15	0	10	10	10:15	56	84	140	04:15	85	63	148	10:15	15	11	26
-				-				-				-			
04:30				10:30				04:30				10:30			
04:30	6	9	15	10:30	59	67	126	04:30	63	91	154	10:30	11	18	29
-				-				-				-			
04:45				10:45				04:45				10:45			
04:45	3	14	17	10:45	56	77	133	04:45	85	59	144	10:45	11	12	23
-				-				-				-			
05:00				11:00				05:00				11:00			
05:00	6	11	17	11:00	68	49	117	05:00	91	69	160	11:00	12	7	19
-				-				-				-			
05:15				11:15				05:15				11:15			
05:15	11	16	27	11:15	46	59	105	05:15	79	66	145	11:15	9	5	14
-				-				-				-			
05:30				11:30				05:30				11:30			
05:30	9	24	33	11:30	65	67	132	05:30	83	74	157	11:30	11	4	15
-				-				-				-			
05:45				11:45				05:45				11:45			
05:45	22	34	56	11:45	52	60	112	05:45	88	53	141	11:45	4	3	7
-				-				-				-			
06:00				12:00				06:00				12:00			



HDOT RIMS Traffic Station Analyzer (v45)

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State of Hawaii, Department of Transportation, Highways Division 15 Minute Volume Report

Run Date: 01-FEB-21

Site ID: B71013001316
Functional Class: RURAL:MAJOR COLLECTOR
Location:

Town: Hawaii
Count Type: CLASS
DATE: 16-OCT-19

DIR 1: +MP
Counter Type: Tube

DIR 2: -MP

Final AADT: 5600
Route No: 130

AM COMMUTER PERIOD (05:00-09:00)				PM COMMUTER PERIOD (15:00-19:00)			
	DIR 1	DIR 2	TOTAL		DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:15 to 08:15 AM			PM - PEAK HR TIME	03:00 to 04:00 PM		
AM - PEAK HR VOLUME	128	264	392	PM - PEAK HR VOLUME	318	213	531
AM - K FACTOR(%)			6.33	PM - K FACTOR(%)			8.57
AM - D(%)	32.65	67.35	100	PM -D(%)	59.89	40.11	100
DIRECTIONAL PEAK				DIRECTIONAL PEAK			
AM - PEAK HR TIME	08:00 to 09:00 AM	07:15 to 08:15 AM		PM - PEAK HR TIME	03:00 to 04:00 PM	03:00 to 04:00 PM	
AM - PEAK HR VOLUME	159	264		PM - PEAK HR VOLUME	318	213	

AM PERIOD (00:00-12:00)				PM PERIOD (12:00-24:00)			
	DIR 1	DIR 2	TOTAL		DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	09:45 to 10:45 AM			PM - PEAK HR TIME	02:30 to 03:30 PM		
AM - PEAK HR VOLUME	170	230	400	PM - PEAK HR VOLUME	349	220	569
AM - K FACTOR(%)			6.46	PM - K FACTOR(%)			9.18
AM - D(%)	32.65	67.35	100	PM -D(%)	59.89	40.11	100

NON COMMUTER PERIOD (09:00-15:00)				6-HR, 12-HR, 24-HR PERIODS			
	DIR 1	DIR 2	TOTAL		DIR 1	DIR 2	TOTAL
TWO DIRECTIONAL PEAK				AM 6-HR PERIOD (06:00-12:00)			
PEAK HR TIME	02:30 to 03:30 PM			AM 12-HR PERIOD (00:00-12:00)	818	1,197	2,015
PEAK HR VOLUME	349	220	569	PM 6-HR PERIOD (12:00-18:00)	845	1,286	2,131
DIRECTIONAL PEAK				PM 12-HR PERIOD (12:00-24:00)			
PEAK HR TIME	02:30 to 03:30 PM	09:30 to 10:30 AM		24-HR PERIOD (12:00-24:00)	1,620	1,197	2,817
PEAK HR VOLUME	349	230		D%	2,253	1,811	4,064
					3,098	3,097	6,195
					50.01	49.99	100

TIME	DIR1	DIR 2	TOTAL	TIME	DIR1	DIR 2	TOTAL	TIME	DIR1	DIR 2	TOTAL	TIME	DIR1	DIR 2	TOTAL
- AM				- AM				- PM				- PM			
12:00				06:00				12:00				06:00			
-	0	1	1	-	6	25	31	-	49	53	102	-	86	34	120
12:15				06:15				12:15				06:15			
12:15				06:15				12:15				06:15			
-	1	2	3	-	8	41	49	-	35	64	99	-	77	34	111
12:30				06:30				12:30				06:30			

HDOT RIMS Traffic Station Analyzer (v45)

[Log Out](#)



RS

12:30	-	3	0	3	06:30	-	7	41	48	12:30	-	36	57	93	06:30	-	54	40	94
12:45	-	1	0	1	06:45	-	22	48	70	12:45	-	58	53	111	06:45	-	68	40	108
01:00	-	2	2	4	07:00	-	23	43	66	01:00	-	77	48	125	07:00	-	54	31	85
01:15	-	0	2	2	07:15	-	24	69	93	01:15	-	46	56	102	07:15	-	32	33	65
01:30	-	1	0	1	07:30	-	22	77	99	01:30	-	52	56	108	07:30	-	34	35	69
01:45	-	1	0	1	07:45	-	24	66	90	01:45	-	55	59	114	07:45	-	40	23	63
02:00	-	2	2	4	08:00	-	58	52	110	02:00	-	57	58	115	08:00	-	21	19	40
02:15	-	3	0	3	08:15	-	39	53	92	02:15	-	73	38	111	08:15	-	30	29	59
02:30	-	0	3	3	08:30	-	37	47	84	02:30	-	99	54	153	08:30	-	14	27	41
02:45	-	0	1	1	08:45	-	25	42	67	02:45	-	81	58	139	08:45	-	23	31	54
03:00	-	0	0	0	09:00	-	49	44	93	03:00	-	78	61	139	09:00	-	25	35	60
03:15	-	0	2	2	09:15	-	43	43	86	03:15	-	91	47	138	09:15	-	14	29	43
03:30	-	2	2	4	09:30	-	36	49	85	03:30	-	77	60	137	09:30	-	8	30	38
03:45	-	1	3	4	09:45	-	43	68	111	03:45	-	72	45	117	09:45	-	7	29	36
04:00	-	-	-	-	10:00	-	-	-	-	04:00	-	-	-	-	10:00	-	-	-	-

HDOT RIMS Traffic Station Analyzer (v45)

[Log Out](#)



RS

04:00				10:00				04:00				10:00			
-	1	1	2	-	45	66	111	-	72	33	105	-	6	34	40
04:15				10:15				04:15				10:15			
04:15	2	3	5	10:15	30	47	77	04:15	78	57	135	10:15	9	23	32
-				-				-				-			
04:30				10:30				04:30				10:30			
04:30	0	5	5	10:30	52	49	101	04:30	74	50	124	10:30	5	22	27
-				-				-				-			
04:45				10:45				04:45				10:45			
04:45	1	9	10	10:45	45	50	95	04:45	77	32	109	10:45	5	14	19
-				-				-				-			
05:00				11:00				05:00				11:00			
05:00	2	9	11	11:00	48	40	88	05:00	72	40	112	11:00	6	7	13
-				-				-				-			
05:15				11:15				05:15				11:15			
05:15	0	16	16	11:15	48	43	91	05:15	82	51	133	11:15	9	10	19
-				-				-				-			
05:30				11:30				05:30				11:30			
05:30	3	13	16	11:30	49	39	88	05:30	64	32	96	11:30	3	0	3
-				-				-				-			
05:45				11:45				05:45				11:45			
05:45	1	13	14	11:45	35	55	90	05:45	65	35	100	11:45	3	5	8
-				-				-				-			
06:00				12:00				06:00				12:00			



HDOT RIMS Traffic Station Analyzer (v45)

[Log Out](#)

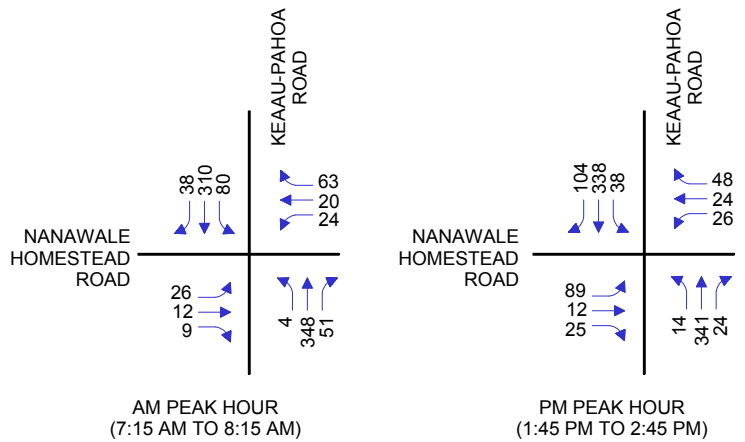
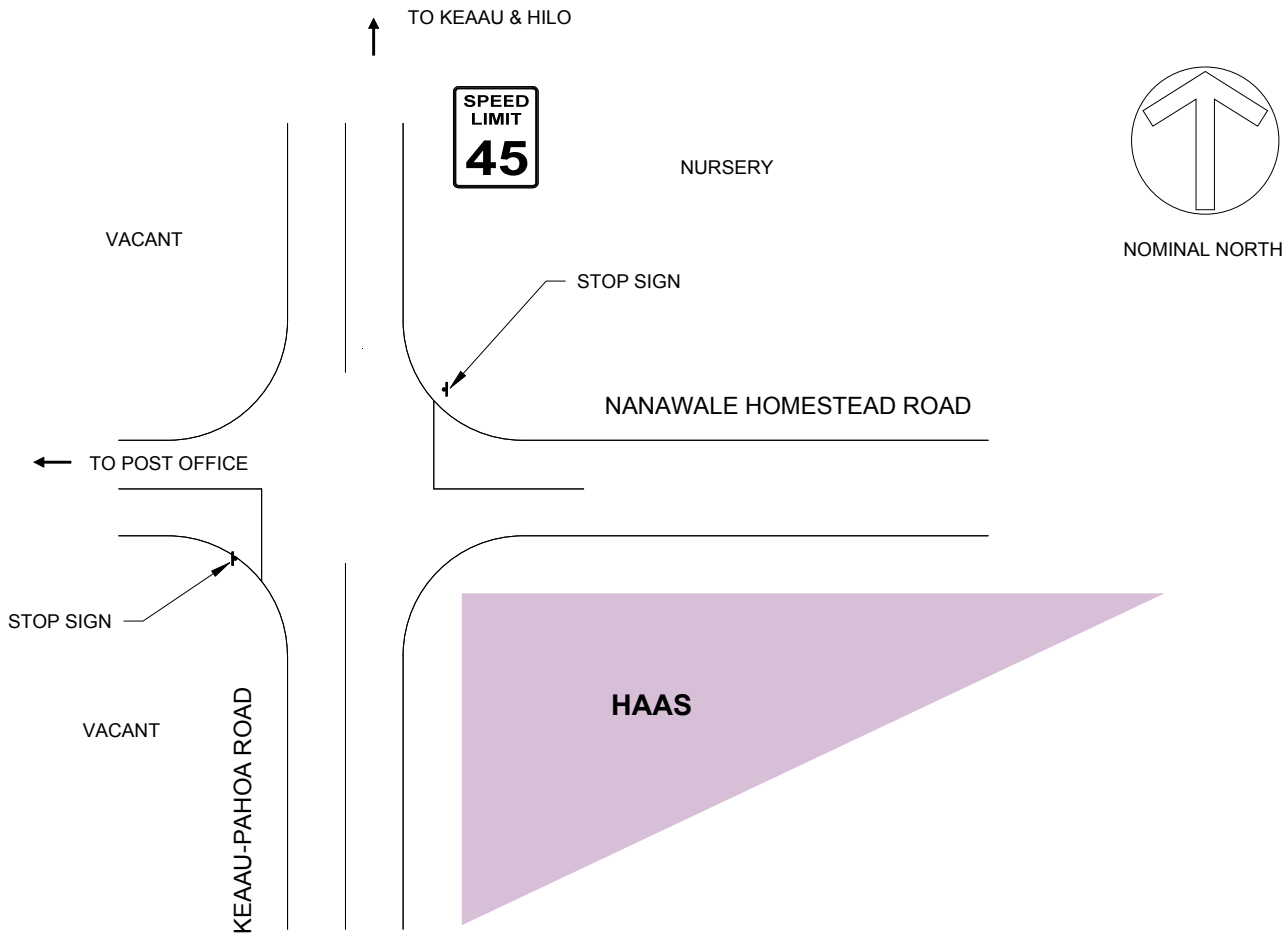


RS



APPENDIX B
TRAFFIC COUNT DATA
Previous Traffic Studies

Pages from the Hawaii Academy of Arts & Science New Century Public Charger School Traffic Impact Assessment Report, dated October 24, 2010



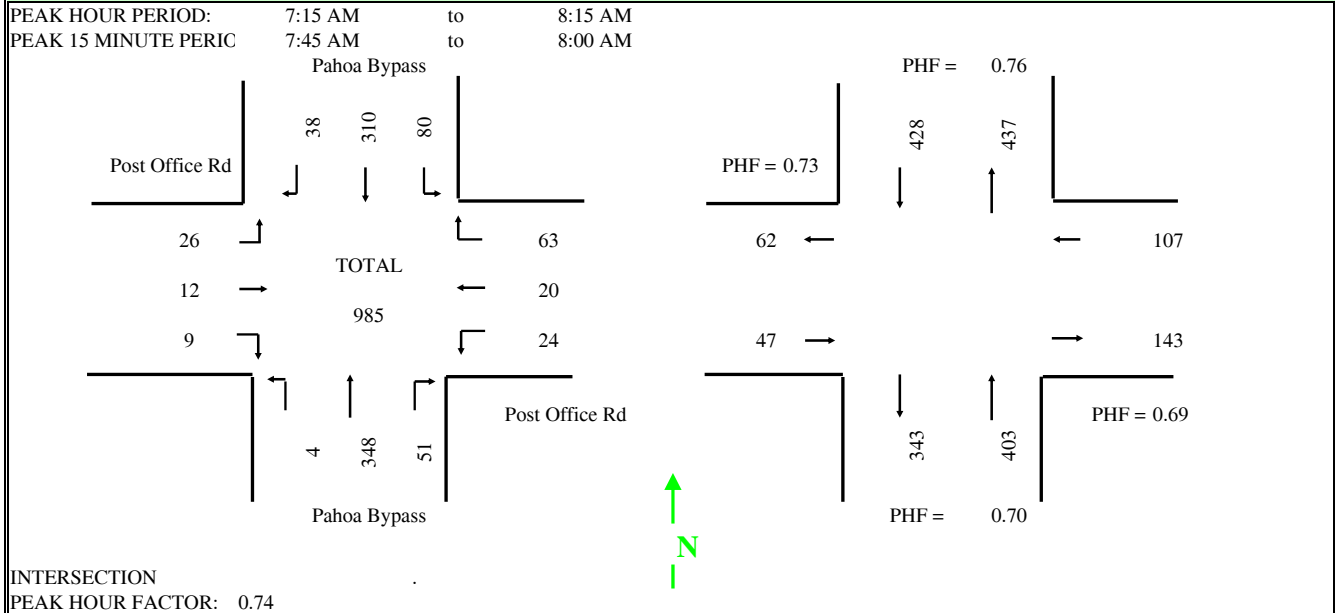
2010 PEAK HOUR TRAFFIC VOLUMES

NOTE:
TRAFFIC COUNTS WERE PERFORMED THURSDAY,
MAY 20, 2010.

Attachment B
SCHEMATIC DRAWING OF EXISTING CONDITIONS
KEAAU-PAHOA ROAD AT NANAWALE HOMESTEAD ROAD

INTERSECTION TURNING MOVEMENT SUMMARY

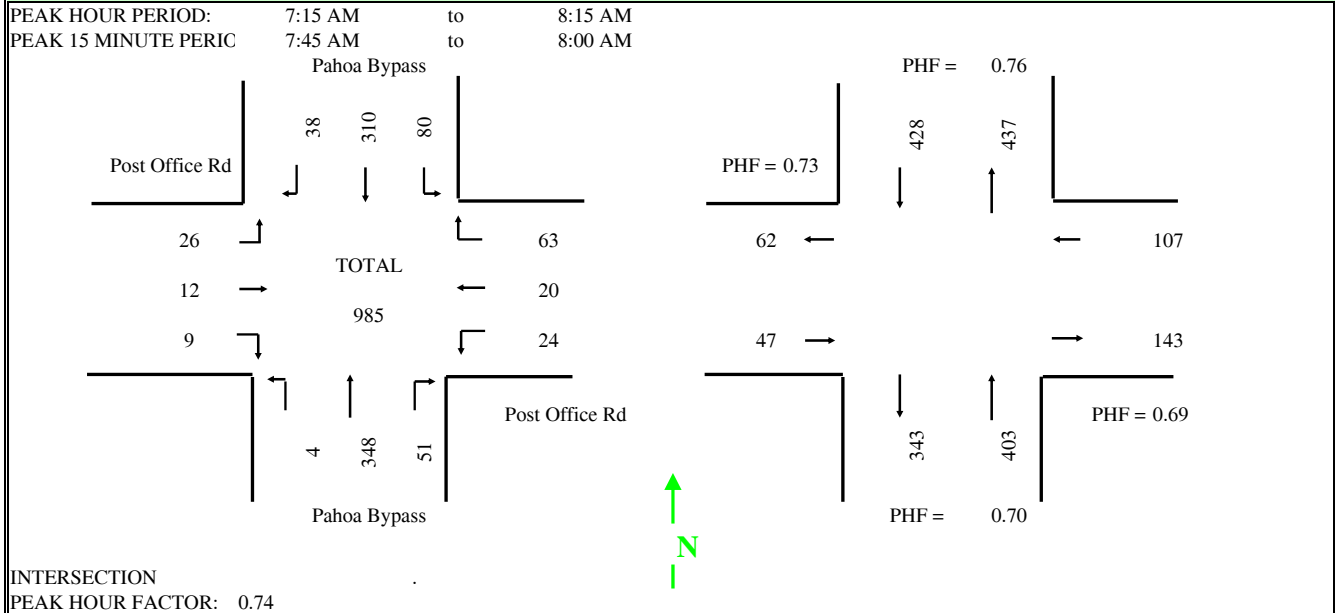
INTERSECTION: Pahoia Bypass Road + Post Office Road **TIME:** 6:30 AM to 9:00 AM
JURISDICTION: **DATE:** 5-20-10, Thu
PROJECT TITLE: **PROJECT NO:**



RUNNING COUNTS	Post Office Rd Eastbound			Post Office Rd Westbound			Pahoia Bypass Northbound			Pahoia Bypass Southbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Period End	A	B	C	D	E	F	G	H	I	J	K	L	TOTAL
6:45 AM	4	0	0	0	0	1	0	75	3	4	41	1	129
7:00 AM	15	3	2	0	0	4	2	166	5	7	97	8	309
7:15 AM	24	3	5	2	2	8	3	242	12	15	149	13	478
7:30 AM	31	4	6	6	4	18	3	331	22	29	217	21	692
7:45 AM	33	8	8	9	10	31	4	412	29	48	334	26	952
8:00 AM	38	13	12	16	17	56	7	522	59	82	418	45	1285
8:15 AM	50	15	14	26	22	71	7	590	63	95	459	51	1463
8:30 AM	58	15	16	26	22	76	8	657	66	97	521	58	1620
8:45 AM	75	17	18	26	23	86	10	714	68	101	583	69	1790
9:00 AM	95	20	19	27	25	88	11	790	69	104	629	85	1962
PERIOD COUNTS													
Period End	A	B	C	D	E	F	G	H	I	J	K	L	TOTAL
6:45 AM	4	0	0	0	0	1	0	75	3	4	41	1	129
7:00 AM	11	3	2	0	0	3	2	91	2	3	56	7	180
7:15 AM	9	0	3	2	2	4	1	76	7	8	52	5	169
7:30 AM	7	1	1	4	2	10	0	89	10	14	68	8	214
7:45 AM	2	4	2	3	6	13	1	81	7	19	117	5	260
8:00 AM	5	5	4	7	7	25	3	110	30	34	84	19	333
8:15 AM	12	2	2	10	5	15	0	68	4	13	41	6	178
8:30 AM	8	0	2	0	0	5	1	67	3	2	62	7	157
8:45 AM	17	2	2	0	1	10	2	57	2	4	62	11	170
9:00 AM	20	3	1	1	2	2	1	76	1	3	46	16	172
HOURLY TOTALS													
Beginning At	A	B	C	D	E	F	G	H	I	J	K	L	TOTAL
6:30 AM	31	4	6	6	4	18	3	331	22	29	217	21	692
6:45 AM	29	8	8	9	10	30	4	337	26	44	293	25	823
7:00 AM	23	10	10	16	17	52	5	356	54	75	321	37	976
7:15 AM	26	12	9	24	20	63	4	348	51	80	310	38	985
7:30 AM	27	11	10	20	18	58	5	326	44	68	304	37	928
7:45 AM	42	9	10	17	13	55	6	302	39	53	249	43	838
8:00 AM	57	7	7	11	8	32	4	268	10	22	211	40	677

INTERSECTION TURNING MOVEMENT SUMMARY

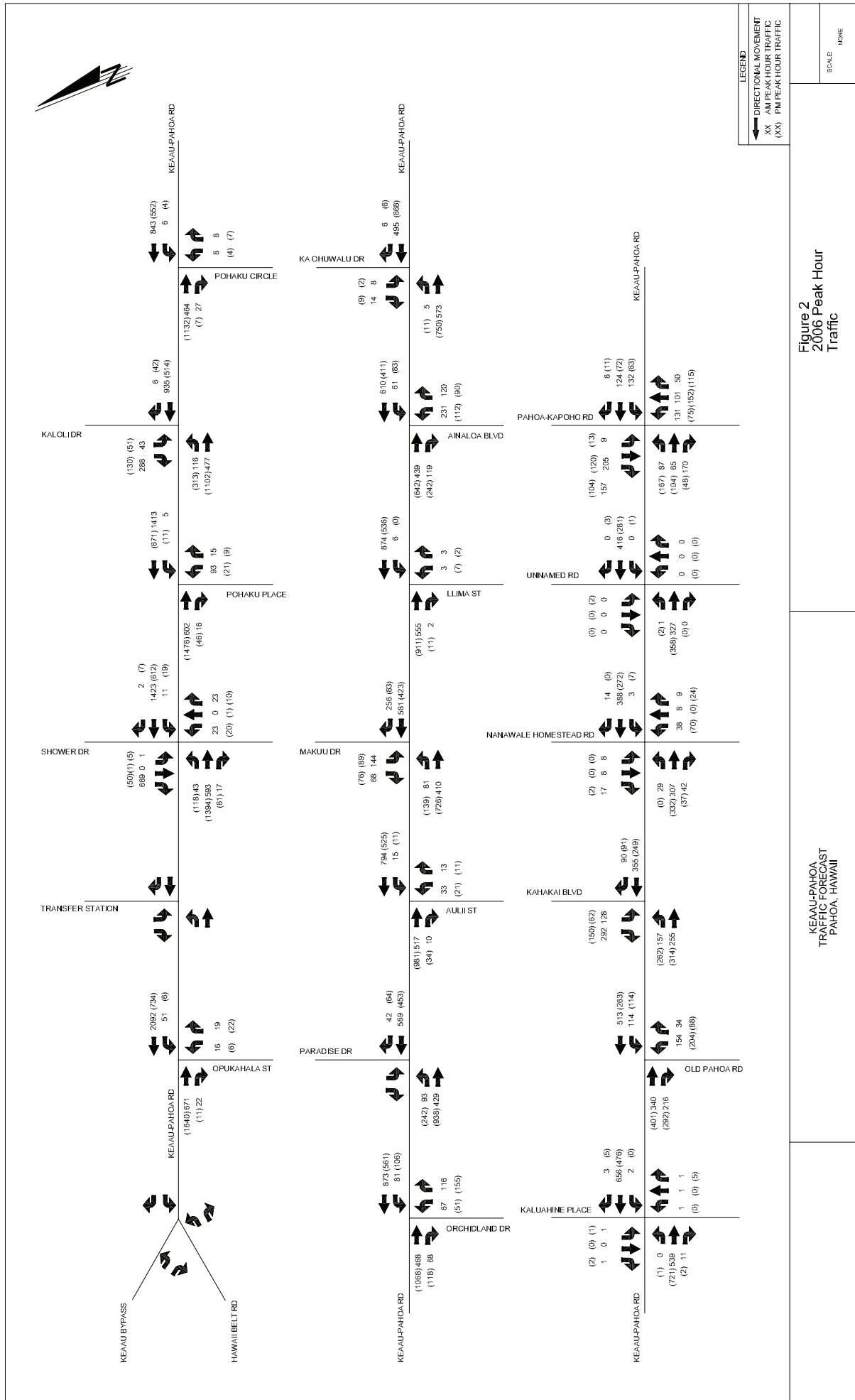
INTERSECTION: Pahoia Bypass Road + Post Office Road **TIME:** 6:30 AM to 9:00 AM
JURISDICTION: **DATE:** 5-20-10, Thu
PROJECT TITLE: **PROJECT NO:**



RUNNING COUNTS	Post Office Rd Eastbound			Post Office Rd Westbound			Pahoia Bypass Northbound			Pahoia Bypass Southbound			TOTAL
	A Left	B Thru	C Right	D Left	E Thru	F Right	G Left	H Thru	I Right	J Left	K Thru	L Right	
Period End	A	B	C	D	E	F	G	H	I	J	K	L	TOTAL
6:45 AM	4	0	0	0	0	1	0	75	3	4	41	1	129
7:00 AM	15	3	2	0	0	4	2	166	5	7	97	8	309
7:15 AM	24	3	5	2	2	8	3	242	12	15	149	13	478
7:30 AM	31	4	6	6	4	18	3	331	22	29	217	21	692
7:45 AM	33	8	8	9	10	31	4	412	29	48	334	26	952
8:00 AM	38	13	12	16	17	56	7	522	59	82	418	45	1285
8:15 AM	50	15	14	26	22	71	7	590	63	95	459	51	1463
8:30 AM	58	15	16	26	22	76	8	657	66	97	521	58	1620
8:45 AM	75	17	18	26	23	86	10	714	68	101	583	69	1790
9:00 AM	95	20	19	27	25	88	11	790	69	104	629	85	1962
PERIOD COUNTS													
Period End	A	B	C	D	E	F	G	H	I	J	K	L	TOTAL
6:45 AM	4	0	0	0	0	1	0	75	3	4	41	1	129
7:00 AM	11	3	2	0	0	3	2	91	2	3	56	7	180
7:15 AM	9	0	3	2	2	4	1	76	7	8	52	5	169
7:30 AM	7	1	1	4	2	10	0	89	10	14	68	8	214
7:45 AM	2	4	2	3	6	13	1	81	7	19	117	5	260
8:00 AM	5	5	4	7	7	25	3	110	30	34	84	19	333
8:15 AM	12	2	2	10	5	15	0	68	4	13	41	6	178
8:30 AM	8	0	2	0	0	5	1	67	3	2	62	7	157
8:45 AM	17	2	2	0	1	10	2	57	2	4	62	11	170
9:00 AM	20	3	1	1	2	2	1	76	1	3	46	16	172
HOURLY TOTALS													
Beginning At	A	B	C	D	E	F	G	H	I	J	K	L	TOTAL
6:30 AM	31	4	6	6	4	18	3	331	22	29	217	21	692
6:45 AM	29	8	8	9	10	30	4	337	26	44	293	25	823
7:00 AM	23	10	10	16	17	52	5	356	54	75	321	37	976
7:15 AM	26	12	9	24	20	63	4	348	51	80	310	38	985
7:30 AM	27	11	10	20	18	58	5	326	44	68	304	37	928
7:45 AM	42	9	10	17	13	55	6	302	39	53	249	43	838
8:00 AM	57	7	7	11	8	32	4	268	10	22	211	40	677

Pages from the Keaau-Pahoa Road Improvements Technical Report, dated January 2011

Figure 1-2: Existing Year (2006) Peak Hour Traffic Volumes on Kea'au-Pāhoā Road



Pages from the Pahoia Park Master Plan Traffic Impact Analysis Report, dated December 23, 2013

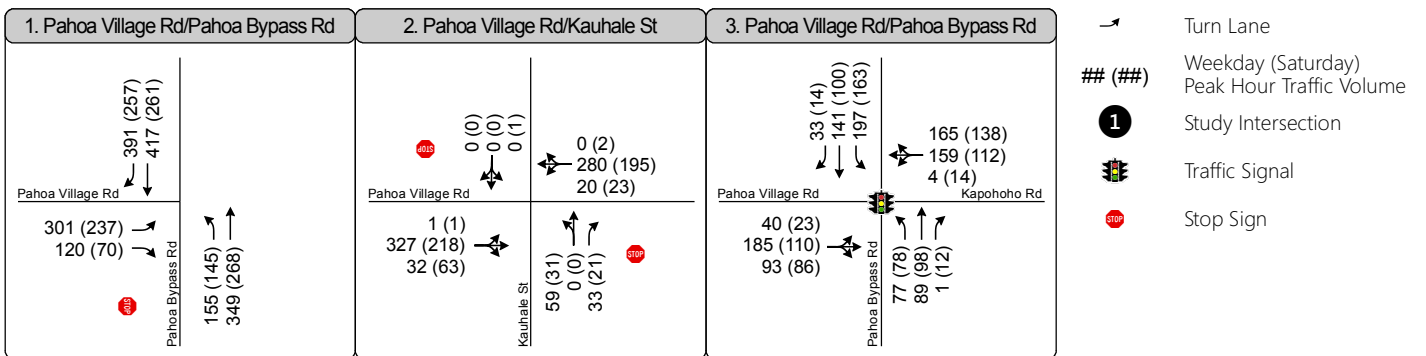


Figure 4.
Peak Hour Traffic Volumes and Lane Configurations - Existing Conditions

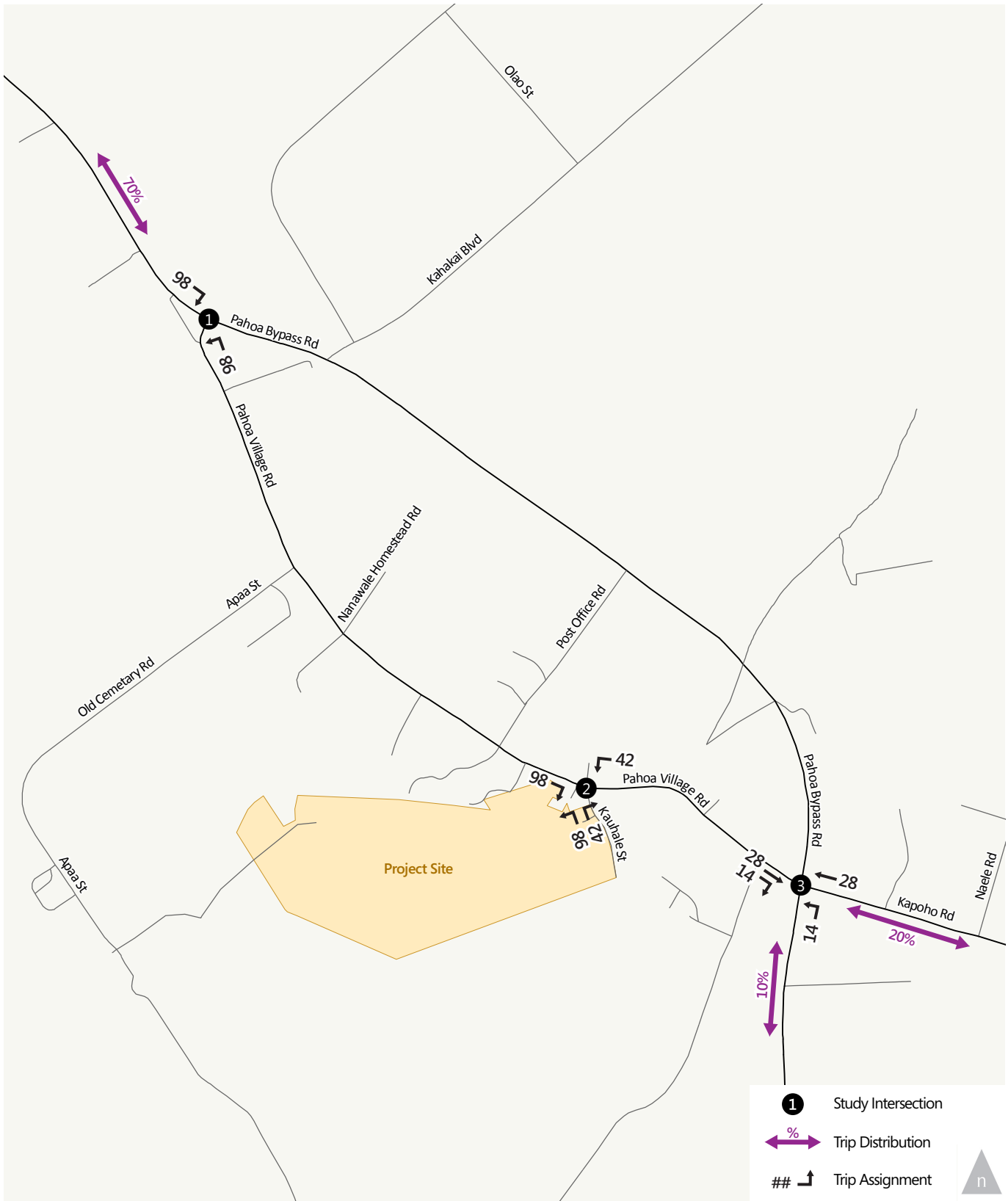
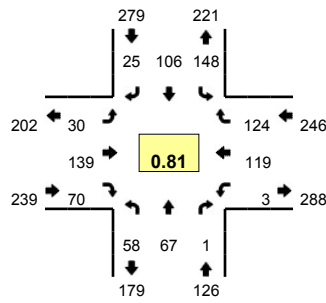


Figure 6.

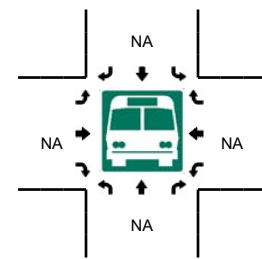
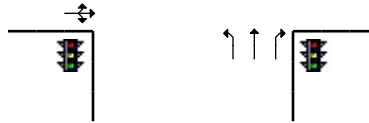
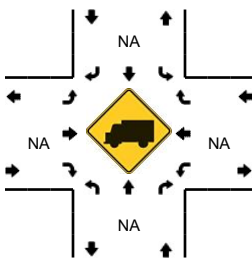
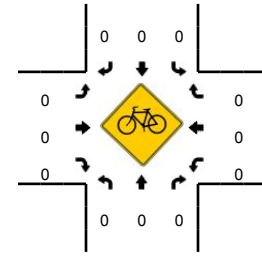
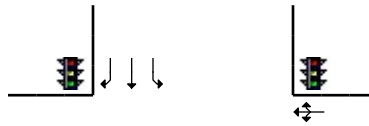
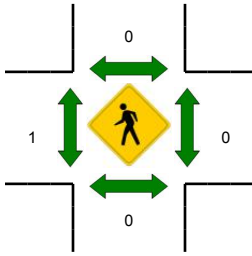
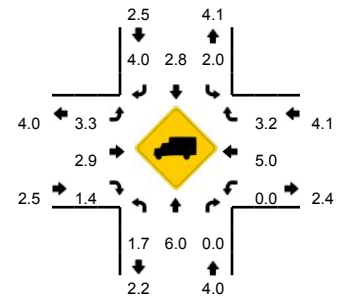
**Proposed Project Trip Distribution and Assignment
Typical Use**

LOCATION: State Rte 130 -- Hwy 132
CITY/STATE: Pahoia, HI

QC JOB #: 11088201
DATE: Thu, Jul 18 2013



Peak-Hour: 3:00 PM -- 4:00 PM
Peak 15-Min: 3:45 PM -- 4:00 PM



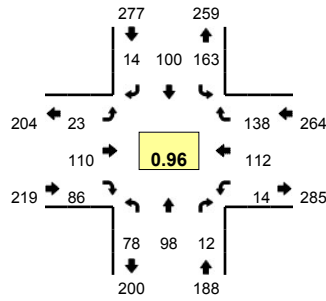
15-Min Count Period Beginning At	State Rte 130 (Northbound)				State Rte 130 (Southbound)				Hwy 132 (Eastbound)				Hwy 132 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
2:00 PM	14	23	2	0	40	22	3	0	7	27	20	0	1	24	33	0	216	
2:15 PM	24	30	2	0	34	18	4	0	8	29	12	0	6	26	30	0	223	
2:30 PM	14	21	2	0	42	27	6	0	12	23	18	0	0	21	29	0	215	
2:45 PM	13	12	2	0	24	20	6	0	7	32	11	0	4	32	25	0	188	842
3:00 PM	14	22	0	0	42	24	8	0	6	36	10	0	0	25	19	0	206	832
3:15 PM	19	12	0	0	28	28	6	0	7	35	18	0	1	31	23	0	208	817
3:30 PM	14	10	0	0	38	18	5	0	7	30	20	0	1	27	32	0	202	804
3:45 PM	11	23	1	0	40	36	6	0	10	38	22	0	1	36	50	0	274	890

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	44	92	4	0	160	144	24	0	40	152	88	0	4	144	200	0	1096
Heavy Trucks	0	12	0	0	0	4	0	0	4	0	0	0	0	4	12	0	36
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Railroad																	
Stopped Buses																	

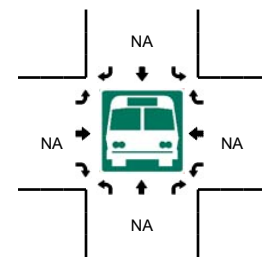
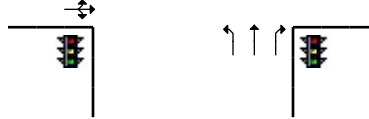
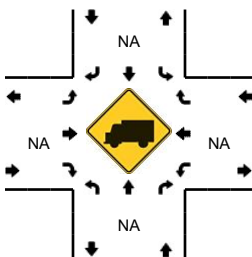
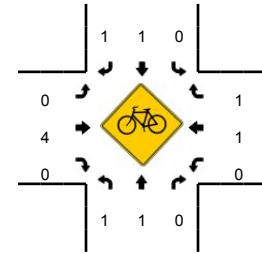
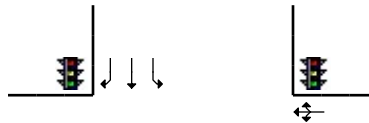
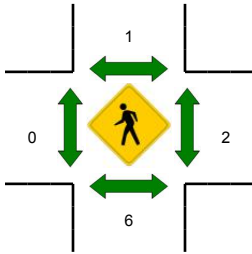
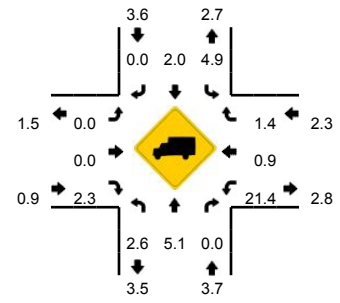
Comments:

LOCATION: State Rte 130 -- Hwy 132
CITY/STATE: Pahoia, HI

QC JOB #: 11088202
DATE: Sat, Jul 20 2013



Peak-Hour: 11:15 AM -- 12:15 PM
Peak 15-Min: 12:00 PM -- 12:15 PM



15-Min Count Period Beginning At	State Rte 130 (Northbound)				State Rte 130 (Southbound)				Hwy 132 (Eastbound)				Hwy 132 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
10:00 AM	14	21	3	0	37	22	5	0	5	21	19	0	1	28	34	0	210	
10:15 AM	26	32	3	0	40	17	4	0	4	29	14	0	2	28	31	0	230	
10:30 AM	20	20	4	0	38	18	2	0	6	19	16	0	3	28	27	0	201	
10:45 AM	19	28	0	0	40	23	3	0	10	27	19	0	3	30	25	0	227	868
11:00 AM	14	22	1	0	43	13	3	0	6	27	16	0	2	33	32	0	212	870
11:15 AM	22	21	2	0	44	24	1	0	7	32	17	0	2	27	24	0	223	863
11:30 AM	18	25	3	0	28	32	3	0	5	26	26	0	6	26	43	0	241	903
11:45 AM	18	35	4	0	34	19	4	0	4	24	25	0	4	29	37	0	237	913
12:00 PM	20	17	3	0	57	25	6	0	7	28	18	0	2	30	34	0	247	948
12:15 PM	10	21	6	0	38	19	2	0	7	32	21	0	5	25	27	0	213	938
12:30 PM	17	22	1	0	43	18	3	0	4	28	18	0	4	46	38	0	242	939
12:45 PM	21	24	3	0	31	26	2	0	3	27	16	0	3	34	41	0	231	933
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	80	68	12	0	228	100	24	0	28	112	72	0	8	120	136	0	988	
Heavy Trucks	0	0	0	0	16	0	0	0	0	0	4	0	0	0	4	0	24	
Pedestrians		8				0				0				0			8	
Bicycles	1	1	0		0	1	1		0	2	0		0	0	0		6	
Railroad																		
Stopped Buses																		

Comments:



APPENDIX C

LOS WORKSHEETS

Intersection						
Int Delay, s/veh	4.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	128	292	362	90	157	333
Future Vol, veh/h	128	292	362	90	157	333
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	Yield	-	None
Storage Length	0	100	-	300	315	-
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	139	317	393	98	171	362

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1097	-	0	0	393
Stage 1	393	-	-	-	-
Stage 2	704	-	-	-	-
Critical Hdwy	6.42	-	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	2.218
Pot Cap-1 Maneuver	236	0	-	-	1166
Stage 1	682	0	-	-	-
Stage 2	490	0	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	201	-	-	-	1166
Mov Cap-2 Maneuver	320	-	-	-	-
Stage 1	682	-	-	-	-
Stage 2	418	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	24.6	0	2.8
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	-	320	1166
HCM Lane V/C Ratio	-	-	0.435	0.146
HCM Control Delay (s)	-	-	24.6	0
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	2.1	0.5

Intersection												
Int Delay, s/veh	5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕				↕		↕			↕	
Traffic Vol, veh/h	26	18	9	0	0	165	4	353	79	124	314	38
Future Vol, veh/h	26	18	9	0	0	165	4	353	79	124	314	38
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	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
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	28	20	10	0	0	179	4	384	86	135	341	41

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1157	1110	362	-	-	427	382	0	0	470	0	0
Stage 1	632	632	-	-	-	-	-	-	-	-	-	-
Stage 2	525	478	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	-	-	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	173	209	683	0	0	628	1176	-	-	1092	-	-
Stage 1	468	474	-	0	0	-	-	-	-	-	-	-
Stage 2	536	556	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	108	175	683	-	-	628	1176	-	-	1092	-	-
Mov Cap-2 Maneuver	108	175	-	-	-	-	-	-	-	-	-	-
Stage 1	466	399	-	-	-	-	-	-	-	-	-	-
Stage 2	381	553	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	43.6		13		0.1		2.3	
HCM LOS	E		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1176	-	-	149	628	1092	-	-
HCM Lane V/C Ratio	0.004	-	-	0.387	0.286	0.123	-	-
HCM Control Delay (s)	8.1	0	-	43.6	13	8.8	0	-
HCM Lane LOS	A	A	-	E	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	1.7	1.2	0.4	-	-

HCM 6th Signalized Intersection Summary
 3: Pahoia Bypass Rd. & Pahoia Village Rd./Pahoia Kapoho Rd.

Existing AM
 03/09/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↖	↗	↖	↖	↗
Traffic Volume (veh/h)	131	101	50	9	205	157	132	173	6	87	91	170
Future Volume (veh/h)	131	101	50	9	205	157	132	173	6	87	91	170
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	142	110	54	10	223	171	143	188	7	95	99	185
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	197	144	59	51	316	236	626	798	676	616	773	655
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.07	0.43	0.43	0.05	0.41	0.41
Sat Flow, veh/h	418	457	187	16	1002	747	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	306	0	0	404	0	0	143	188	7	95	99	185
Grp Sat Flow(s),veh/h/ln	1062	0	0	1766	0	0	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	6.4	0.0	0.0	0.0	0.0	0.0	3.7	5.2	0.2	2.4	2.7	6.3
Cycle Q Clear(g_c), s	23.2	0.0	0.0	16.8	0.0	0.0	3.7	5.2	0.2	2.4	2.7	6.3
Prop In Lane	0.46		0.18	0.02		0.42	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	400	0	0	602	0	0	626	798	676	616	773	655
V/C Ratio(X)	0.77	0.00	0.00	0.67	0.00	0.00	0.23	0.24	0.01	0.15	0.13	0.28
Avail Cap(c_a), veh/h	423	0	0	633	0	0	1297	798	676	1311	773	655
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.0	0.0	0.0	24.7	0.0	0.0	11.9	14.8	13.4	11.7	14.7	15.8
Incr Delay (d2), s/veh	7.6	0.0	0.0	2.5	0.0	0.0	0.1	0.7	0.0	0.0	0.3	1.1
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	6.5	0.0	0.0	6.9	0.0	0.0	1.3	2.2	0.1	0.9	1.1	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.6	0.0	0.0	27.2	0.0	0.0	12.0	15.5	13.4	11.7	15.1	16.9
LnGrp LOS	C	A	A	C	A	A	B	B	B	B	B	B
Approach Vol, veh/h		306			404			338			379	
Approach Delay, s/veh		34.6			27.2			14.0			15.1	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	41.1		31.6	9.5	40.0		31.6				
Change Period (Y+Rc), s	4.0	6.5		6.0	4.0	6.5		6.0				
Max Green Setting (Gmax), s	36.0	31.5		27.0	36.0	33.5		27.0				
Max Q Clear Time (g_c+I1), s	4.4	7.2		25.2	5.7	8.3		18.8				
Green Ext Time (p_c), s	0.0	0.5		0.4	0.0	0.4		1.5				
Intersection Summary												
HCM 6th Ctrl Delay				22.5								
HCM 6th LOS				C								

Intersection						
Int Delay, s/veh	3.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	62	150	354	116	262	431
Future Vol, veh/h	62	150	354	116	262	431
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	Yield	-	None
Storage Length	0	100	-	300	315	-
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	67	163	385	126	285	468

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1423	-	0	0	385
Stage 1	385	-	-	-	-
Stage 2	1038	-	-	-	-
Critical Hdwy	6.42	-	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	2.218
Pot Cap-1 Maneuver	150	0	-	-	1173
Stage 1	688	0	-	-	-
Stage 2	341	0	-	-	-
Platoon blocked, %		-	-	-	-
Mov Cap-1 Maneuver	114	-	-	-	1173
Mov Cap-2 Maneuver	209	-	-	-	-
Stage 1	688	-	-	-	-
Stage 2	258	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	30.2	0	3.4
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	209	-	1173
HCM Lane V/C Ratio	-	-	0.322	-	0.243
HCM Control Delay (s)	-	-	30.2	0	9.1
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	1.3	-	1

Intersection												
Int Delay, s/veh	11.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕				↕		↕			↕	
Traffic Vol, veh/h	89	18	25	0	0	151	14	346	37	59	343	104
Future Vol, veh/h	89	18	25	0	0	151	14	346	37	59	343	104
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	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
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	97	20	27	0	0	164	15	376	40	64	373	113

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1066	1004	430	-	-	396	486	0	0	416	0	0
Stage 1	558	558	-	-	-	-	-	-	-	-	-	-
Stage 2	508	446	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	-	-	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	200	242	625	0	0	653	1077	-	-	1143	-	-
Stage 1	514	512	-	0	0	-	-	-	-	-	-	-
Stage 2	547	574	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	139	219	625	-	-	653	1077	-	-	1143	-	-
Mov Cap-2 Maneuver	139	219	-	-	-	-	-	-	-	-	-	-
Stage 1	505	472	-	-	-	-	-	-	-	-	-	-
Stage 2	402	564	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	83.5		12.4		0.3		1	
HCM LOS	F		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1077	-	-	173	653	1143	-	-
HCM Lane V/C Ratio	0.014	-	-	0.829	0.251	0.056	-	-
HCM Control Delay (s)	8.4	0	-	83.5	12.4	8.3	0	-
HCM Lane LOS	A	A	-	F	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	5.7	1	0.2	-	-

HCM 6th Signalized Intersection Summary
 3: Pahoia Bypass Rd. & Pahoia Village Rd./Pahoia Kapoho Rd.

Existing PM
 03/09/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↖	↗	↖	↖	↗
Traffic Volume (veh/h)	40	213	107	4	187	165	91	106	1	197	169	33
Future Volume (veh/h)	40	213	107	4	187	165	91	106	1	197	169	33
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	43	232	116	4	203	179	99	115	1	214	184	36
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	84	285	133	50	249	216	657	784	664	748	849	719
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.06	0.42	0.42	0.09	0.45	0.45
Sat Flow, veh/h	116	1063	497	5	926	805	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	391	0	0	386	0	0	99	115	1	214	184	36
Grp Sat Flow(s),veh/h/ln	1676	0	0	1736	0	0	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	0.9	0.0	0.0	0.0	0.0	0.0	2.2	2.9	0.0	5.0	4.5	1.0
Cycle Q Clear(g_c), s	16.6	0.0	0.0	15.7	0.0	0.0	2.2	2.9	0.0	5.0	4.5	1.0
Prop In Lane	0.11		0.30	0.01		0.46	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	503	0	0	514	0	0	657	784	664	748	849	719
V/C Ratio(X)	0.78	0.00	0.00	0.75	0.00	0.00	0.15	0.15	0.00	0.29	0.22	0.05
Avail Cap(c_a), veh/h	651	0	0	670	0	0	1407	784	664	1436	849	719
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.0	0.0	0.0	25.9	0.0	0.0	9.6	13.5	12.7	10.2	12.4	11.5
Incr Delay (d2), s/veh	4.3	0.0	0.0	3.2	0.0	0.0	0.0	0.4	0.0	0.1	0.6	0.1
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	7.0	0.0	0.0	6.5	0.0	0.0	0.7	1.2	0.0	1.7	1.8	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.3	0.0	0.0	29.1	0.0	0.0	9.7	13.9	12.7	10.3	13.0	11.6
LnGrp LOS	C	A	A	C	A	A	A	B	B	B	B	B
Approach Vol, veh/h		391			386			215				434
Approach Delay, s/veh		30.3			29.1			11.9				11.6
Approach LOS		C			C			B				B
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	38.0		26.2	8.4	40.6		26.2				
Change Period (Y+Rc), s	4.0	6.5		6.0	4.0	6.5		6.0				
Max Green Setting (Gmax), s	36.0	31.5		27.0	36.0	33.5		27.0				
Max Q Clear Time (g_c+I1), s	7.0	4.9		18.6	4.2	6.5		17.7				
Green Ext Time (p_c), s	0.0	0.3		1.6	0.0	0.5		1.5				
Intersection Summary												
HCM 6th Ctrl Delay				21.5								
HCM 6th LOS				C								

Intersection						
Int Delay, s/veh	4.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	128	292	391	90	157	353
Future Vol, veh/h	128	292	391	90	157	353
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	Yield	-	None
Storage Length	0	100	-	300	315	-
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	139	317	425	98	171	384

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1151	-	0	0	425
Stage 1	425	-	-	-	-
Stage 2	726	-	-	-	-
Critical Hdwy	6.42	-	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	2.218
Pot Cap-1 Maneuver	219	0	-	-	1134
Stage 1	659	0	-	-	-
Stage 2	479	0	-	-	-
Platoon blocked, %		-	-	-	-
Mov Cap-1 Maneuver	186	-	-	-	1134
Mov Cap-2 Maneuver	307	-	-	-	-
Stage 1	659	-	-	-	-
Stage 2	407	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	26.1	0	2.7
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	-	307	1134
HCM Lane V/C Ratio	-	-	0.453	0.15
HCM Control Delay (s)	-	-	26.1	0
HCM Lane LOS	-	-	D	A
HCM 95th %tile Q(veh)	-	-	2.2	0.5

Intersection												
Int Delay, s/veh	5.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕				↕		↕			↕	
Traffic Vol, veh/h	26	18	9	0	0	165	4	382	79	124	333	38
Future Vol, veh/h	26	18	9	0	0	165	4	382	79	124	333	38
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	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
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	28	20	10	0	0	179	4	415	86	135	362	41

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1209	1162	383	-	-	458	403	0	0	501	0	0
Stage 1	653	653	-	-	-	-	-	-	-	-	-	-
Stage 2	556	509	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	-	-	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	160	195	664	0	0	603	1156	-	-	1063	-	-
Stage 1	456	464	-	0	0	-	-	-	-	-	-	-
Stage 2	515	538	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	98	162	664	-	-	603	1156	-	-	1063	-	-
Mov Cap-2 Maneuver	98	162	-	-	-	-	-	-	-	-	-	-
Stage 1	454	387	-	-	-	-	-	-	-	-	-	-
Stage 2	360	535	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	49.6		13.5		0.1		2.2	
HCM LOS	E		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1156	-	-	136	603	1063	-	-
HCM Lane V/C Ratio	0.004	-	-	0.424	0.297	0.127	-	-
HCM Control Delay (s)	8.1	0	-	49.6	13.5	8.9	0	-
HCM Lane LOS	A	A	-	E	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	1.9	1.2	0.4	-	-

HCM 6th Signalized Intersection Summary
 3: Pahoia Bypass Rd. & Pahoia Village Rd./Pahoia Kapoho Rd.

Base Year 2026 AM
 03/09/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↖	↗	↖	↖	↗
Traffic Volume (veh/h)	131	101	50	9	205	157	132	185	6	87	106	170
Future Volume (veh/h)	131	101	50	9	205	157	132	185	6	87	106	170
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	142	110	54	10	223	171	143	201	7	95	115	185
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	197	144	59	51	316	236	614	798	676	606	773	655
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.07	0.43	0.43	0.05	0.41	0.41
Sat Flow, veh/h	418	457	187	16	1002	747	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	306	0	0	404	0	0	143	201	7	95	115	185
Grp Sat Flow(s),veh/h/ln	1062	0	0	1766	0	0	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	6.4	0.0	0.0	0.0	0.0	0.0	3.7	5.6	0.2	2.4	3.1	6.3
Cycle Q Clear(g_c), s	23.2	0.0	0.0	16.8	0.0	0.0	3.7	5.6	0.2	2.4	3.1	6.3
Prop In Lane	0.46		0.18	0.02		0.42	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	400	0	0	602	0	0	614	798	676	606	773	655
V/C Ratio(X)	0.77	0.00	0.00	0.67	0.00	0.00	0.23	0.25	0.01	0.16	0.15	0.28
Avail Cap(c_a), veh/h	423	0	0	633	0	0	1285	798	676	1300	773	655
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.0	0.0	0.0	24.7	0.0	0.0	11.9	14.9	13.4	11.7	14.9	15.8
Incr Delay (d2), s/veh	7.6	0.0	0.0	2.5	0.0	0.0	0.1	0.8	0.0	0.0	0.4	1.1
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	6.5	0.0	0.0	6.9	0.0	0.0	1.3	2.4	0.1	0.9	1.3	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.6	0.0	0.0	27.2	0.0	0.0	12.0	15.7	13.4	11.8	15.3	16.9
LnGrp LOS	C	A	A	C	A	A	B	B	B	B	B	B
Approach Vol, veh/h		306			404			351				395
Approach Delay, s/veh		34.6			27.2			14.1				15.2
Approach LOS		C			C			B				B
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	41.1		31.6	9.5	40.0		31.6				
Change Period (Y+Rc), s	4.0	6.5		6.0	4.0	6.5		6.0				
Max Green Setting (Gmax), s	36.0	31.5		27.0	36.0	33.5		27.0				
Max Q Clear Time (g_c+I1), s	4.4	7.6		25.2	5.7	8.3		18.8				
Green Ext Time (p_c), s	0.0	0.5		0.4	0.0	0.5		1.5				
Intersection Summary												
HCM 6th Ctrl Delay				22.4								
HCM 6th LOS				C								

Intersection						
Int Delay, s/veh	3.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	62	150	379	116	262	463
Future Vol, veh/h	62	150	379	116	262	463
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	Yield	-	None
Storage Length	0	100	-	300	315	-
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	67	163	412	126	285	503

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1485	-	0	0	412
Stage 1	412	-	-	-	-
Stage 2	1073	-	-	-	-
Critical Hdwy	6.42	-	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	2.218
Pot Cap-1 Maneuver	137	0	-	-	1147
Stage 1	669	0	-	-	-
Stage 2	328	0	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	103	-	-	-	1147
Mov Cap-2 Maneuver	199	-	-	-	-
Stage 1	669	-	-	-	-
Stage 2	247	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	32.1	0	3.3
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	199	-	1147
HCM Lane V/C Ratio	-	-	0.339	-	0.248
HCM Control Delay (s)	-	-	32.1	0	9.2
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	1.4	-	1

Intersection												
Int Delay, s/veh	13.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕				↕		↕			↕	
Traffic Vol, veh/h	89	18	25	0	0	151	14	371	37	59	370	104
Future Vol, veh/h	89	18	25	0	0	151	14	371	37	59	370	104
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	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
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	97	20	27	0	0	164	15	403	40	64	402	113

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1122	1060	459	-	-	423	515	0	0	443	0	0
Stage 1	587	587	-	-	-	-	-	-	-	-	-	-
Stage 2	535	473	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	-	-	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	183	224	602	0	0	631	1051	-	-	1117	-	-
Stage 1	496	497	-	0	0	-	-	-	-	-	-	-
Stage 2	529	558	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	125	202	602	-	-	631	1051	-	-	1117	-	-
Mov Cap-2 Maneuver	125	202	-	-	-	-	-	-	-	-	-	-
Stage 1	487	456	-	-	-	-	-	-	-	-	-	-
Stage 2	384	547	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	107.6		12.7		0.3		0.9	
HCM LOS	F		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1051	-	-	157	631	1117	-	-
HCM Lane V/C Ratio	0.014	-	-	0.914	0.26	0.057	-	-
HCM Control Delay (s)	8.5	0	-	107.6	12.7	8.4	0	-
HCM Lane LOS	A	A	-	F	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	6.5	1	0.2	-	-

HCM 6th Signalized Intersection Summary
 3: Pahoia Bypass Rd. & Pahoia Village Rd./Pahoia Kapoho Rd.

Base Year 2026 PM
 03/09/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↖	↗	↖	↖	↗
Traffic Volume (veh/h)	40	245	123	4	219	165	107	121	1	197	184	33
Future Volume (veh/h)	40	245	123	4	219	165	107	121	1	197	184	33
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	43	266	134	4	238	179	116	132	1	214	200	36
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	80	314	149	48	295	219	619	751	636	707	817	692
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.06	0.40	0.40	0.09	0.44	0.44
Sat Flow, veh/h	102	1066	507	4	1002	744	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	443	0	0	421	0	0	116	132	1	214	200	36
Grp Sat Flow(s),veh/h/ln	1675	0	0	1750	0	0	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	2.1	0.0	0.0	0.0	0.0	0.0	2.8	3.6	0.0	5.4	5.3	1.0
Cycle Q Clear(g_c), s	19.8	0.0	0.0	17.7	0.0	0.0	2.8	3.6	0.0	5.4	5.3	1.0
Prop In Lane	0.10		0.30	0.01		0.43	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	543	0	0	562	0	0	619	751	636	707	817	692
V/C Ratio(X)	0.82	0.00	0.00	0.75	0.00	0.00	0.19	0.18	0.00	0.30	0.24	0.05
Avail Cap(c_a), veh/h	624	0	0	647	0	0	1331	751	636	1356	817	692
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.3	0.0	0.0	25.8	0.0	0.0	10.9	15.1	14.1	11.5	13.9	12.7
Incr Delay (d2), s/veh	7.2	0.0	0.0	4.1	0.0	0.0	0.1	0.5	0.0	0.1	0.7	0.1
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	8.7	0.0	0.0	7.5	0.0	0.0	1.0	1.5	0.0	1.9	2.2	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.5	0.0	0.0	29.8	0.0	0.0	10.9	15.6	14.1	11.5	14.7	12.9
LnGrp LOS	C	A	A	C	A	A	B	B	B	B	B	B
Approach Vol, veh/h		443			421			249			450	
Approach Delay, s/veh		33.5			29.8			13.4			13.0	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.4	38.0		29.1	8.6	40.8		29.1				
Change Period (Y+Rc), s	4.0	6.5		6.0	4.0	6.5		6.0				
Max Green Setting (Gmax), s	36.0	31.5		27.0	36.0	33.5		27.0				
Max Q Clear Time (g_c+I1), s	7.4	5.6		21.8	4.8	7.3		19.7				
Green Ext Time (p_c), s	0.0	0.3		1.3	0.0	0.5		1.4				
Intersection Summary												
HCM 6th Ctrl Delay				23.4								
HCM 6th LOS				C								

Intersection						
Int Delay, s/veh	4.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	128	292	411	90	157	371
Future Vol, veh/h	128	292	411	90	157	371
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	Yield	-	None
Storage Length	0	100	-	300	315	-
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	139	317	447	98	171	403

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1192	-	0	0	447
Stage 1	447	-	-	-	-
Stage 2	745	-	-	-	-
Critical Hdwy	6.42	-	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	2.218
Pot Cap-1 Maneuver	207	0	-	-	1113
Stage 1	644	0	-	-	-
Stage 2	469	0	-	-	-
Platoon blocked, %		-	-	-	-
Mov Cap-1 Maneuver	175	-	-	-	1113
Mov Cap-2 Maneuver	297	-	-	-	-
Stage 1	644	-	-	-	-
Stage 2	397	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	27.4	0	2.6
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	-	297	1113
HCM Lane V/C Ratio	-	-	0.468	0.153
HCM Control Delay (s)	-	-	27.4	0
HCM Lane LOS	-	-	D	A
HCM 95th %tile Q(veh)	-	-	2.4	0.5

Intersection												
Int Delay, s/veh	5.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕				↕		↕			↕	
Traffic Vol, veh/h	26	18	9	0	0	165	4	401	79	124	350	38
Future Vol, veh/h	26	18	9	0	0	165	4	401	79	124	350	38
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	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
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	28	20	10	0	0	179	4	436	86	135	380	41

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1248	1201	401	-	-	479	421	0	0	522	0	0
Stage 1	671	671	-	-	-	-	-	-	-	-	-	-
Stage 2	577	530	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	-	-	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	150	185	649	0	0	587	1138	-	-	1044	-	-
Stage 1	446	455	-	0	0	-	-	-	-	-	-	-
Stage 2	502	527	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	90	153	649	-	-	587	1138	-	-	1044	-	-
Mov Cap-2 Maneuver	90	153	-	-	-	-	-	-	-	-	-	-
Stage 1	444	378	-	-	-	-	-	-	-	-	-	-
Stage 2	347	524	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	55.6		13.8		0.1		2.2	
HCM LOS	F		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1138	-	-	126	587	1044	-	-
HCM Lane V/C Ratio	0.004	-	-	0.457	0.306	0.129	-	-
HCM Control Delay (s)	8.2	0	-	55.6	13.8	9	0	-
HCM Lane LOS	A	A	-	F	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	2	1.3	0.4	-	-

HCM 6th Signalized Intersection Summary
 3: Pahoia Bypass Rd. & Pahoia Village Rd./Pahoia Kapoho Rd.

Base Year 2031 AM
 03/09/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↖	↗	↖	↖	↗
Traffic Volume (veh/h)	131	101	50	9	205	157	132	194	6	87	111	170
Future Volume (veh/h)	131	101	50	9	205	157	132	194	6	87	111	170
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	142	110	54	10	223	171	143	211	7	95	121	185
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	197	144	59	51	316	236	609	798	676	597	773	655
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.07	0.43	0.43	0.05	0.41	0.41
Sat Flow, veh/h	418	457	187	16	1002	747	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	306	0	0	404	0	0	143	211	7	95	121	185
Grp Sat Flow(s),veh/h/ln	1062	0	0	1766	0	0	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	6.4	0.0	0.0	0.0	0.0	0.0	3.7	5.9	0.2	2.4	3.3	6.3
Cycle Q Clear(g_c), s	23.2	0.0	0.0	16.8	0.0	0.0	3.7	5.9	0.2	2.4	3.3	6.3
Prop In Lane	0.46		0.18	0.02		0.42	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	400	0	0	602	0	0	609	798	676	597	773	655
V/C Ratio(X)	0.77	0.00	0.00	0.67	0.00	0.00	0.23	0.26	0.01	0.16	0.16	0.28
Avail Cap(c_a), veh/h	423	0	0	633	0	0	1281	798	676	1292	773	655
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.0	0.0	0.0	24.7	0.0	0.0	11.9	15.0	13.4	11.8	14.9	15.8
Incr Delay (d2), s/veh	7.6	0.0	0.0	2.5	0.0	0.0	0.1	0.8	0.0	0.0	0.4	1.1
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	6.5	0.0	0.0	6.9	0.0	0.0	1.3	2.5	0.1	0.9	1.4	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.6	0.0	0.0	27.2	0.0	0.0	12.0	15.8	13.4	11.8	15.3	16.9
LnGrp LOS	C	A	A	C	A	A	B	B	B	B	B	B
Approach Vol, veh/h		306			404			361				401
Approach Delay, s/veh		34.6			27.2			14.3				15.2
Approach LOS		C			C			B				B
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	41.1		31.6	9.5	40.0		31.6				
Change Period (Y+Rc), s	4.0	6.5		6.0	4.0	6.5		6.0				
Max Green Setting (Gmax), s	36.0	31.5		27.0	36.0	33.5		27.0				
Max Q Clear Time (g_c+I1), s	4.4	7.9		25.2	5.7	8.3		18.8				
Green Ext Time (p_c), s	0.0	0.5		0.4	0.0	0.5		1.5				
Intersection Summary												
HCM 6th Ctrl Delay				22.3								
HCM 6th LOS				C								

Intersection						
Int Delay, s/veh	3.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	62	150	398	116	262	486
Future Vol, veh/h	62	150	398	116	262	486
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	Yield	-	None
Storage Length	0	100	-	300	315	-
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	67	163	433	126	285	528

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1531	-	0	0	433
Stage 1	433	-	-	-	-
Stage 2	1098	-	-	-	-
Critical Hdwy	6.42	-	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	2.218
Pot Cap-1 Maneuver	129	0	-	-	1127
Stage 1	654	0	-	-	-
Stage 2	319	0	-	-	-
Platoon blocked, %		-	-	-	-
Mov Cap-1 Maneuver	96	-	-	-	1127
Mov Cap-2 Maneuver	191	-	-	-	-
Stage 1	654	-	-	-	-
Stage 2	238	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	33.8	0	3.2
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	191	-	1127
HCM Lane V/C Ratio	-	-	0.353	-	0.253
HCM Control Delay (s)	-	-	33.8	0	9.3
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	1.5	-	1

Intersection												
Int Delay, s/veh	15.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕				↕		↕			↕	
Traffic Vol, veh/h	89	18	25	0	0	151	14	389	37	59	389	104
Future Vol, veh/h	89	18	25	0	0	151	14	389	37	59	389	104
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	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
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	97	20	27	0	0	164	15	423	40	64	423	113

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1163	1101	480	-	-	443	536	0	0	463	0	0
Stage 1	608	608	-	-	-	-	-	-	-	-	-	-
Stage 2	555	493	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	-	-	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	172	212	586	0	0	615	1032	-	-	1098	-	-
Stage 1	483	486	-	0	0	-	-	-	-	-	-	-
Stage 2	516	547	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	116	190	586	-	-	615	1032	-	-	1098	-	-
Mov Cap-2 Maneuver	116	190	-	-	-	-	-	-	-	-	-	-
Stage 1	473	445	-	-	-	-	-	-	-	-	-	-
Stage 2	371	536	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	130.3		13		0.3		0.9	
HCM LOS	F		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1032	-	-	146	615	1098	-	-
HCM Lane V/C Ratio	0.015	-	-	0.983	0.267	0.058	-	-
HCM Control Delay (s)	8.5	0	-	130.3	13	8.5	0	-
HCM Lane LOS	A	A	-	F	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	7.2	1.1	0.2	-	-

HCM 6th Signalized Intersection Summary
 3: Pahoia Bypass Rd. & Pahoia Village Rd./Pahoia Kapoho Rd.

Base Year 2031 PM
 03/09/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↖	↗	↖	↖	↗
Traffic Volume (veh/h)	40	245	123	4	219	165	107	127	1	197	193	33
Future Volume (veh/h)	40	245	123	4	219	165	107	127	1	197	193	33
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	43	266	134	4	238	179	116	138	1	214	210	36
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	80	314	149	48	295	219	611	751	636	701	817	692
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.06	0.40	0.40	0.09	0.44	0.44
Sat Flow, veh/h	102	1066	507	4	1002	744	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	443	0	0	421	0	0	116	138	1	214	210	36
Grp Sat Flow(s),veh/h/ln	1675	0	0	1750	0	0	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	2.1	0.0	0.0	0.0	0.0	0.0	2.8	3.7	0.0	5.4	5.6	1.0
Cycle Q Clear(g_c), s	19.8	0.0	0.0	17.7	0.0	0.0	2.8	3.7	0.0	5.4	5.6	1.0
Prop In Lane	0.10		0.30	0.01		0.43	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	543	0	0	562	0	0	611	751	636	701	817	692
V/C Ratio(X)	0.82	0.00	0.00	0.75	0.00	0.00	0.19	0.18	0.00	0.31	0.26	0.05
Avail Cap(c_a), veh/h	624	0	0	647	0	0	1323	751	636	1351	817	692
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.3	0.0	0.0	25.8	0.0	0.0	10.9	15.2	14.1	11.5	14.0	12.7
Incr Delay (d2), s/veh	7.2	0.0	0.0	4.1	0.0	0.0	0.1	0.5	0.0	0.1	0.8	0.1
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	8.7	0.0	0.0	7.5	0.0	0.0	1.0	1.6	0.0	1.9	2.3	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.5	0.0	0.0	29.8	0.0	0.0	11.0	15.7	14.1	11.6	14.8	12.9
LnGrp LOS	C	A	A	C	A	A	B	B	B	B	B	B
Approach Vol, veh/h		443			421			255			460	
Approach Delay, s/veh		33.5			29.8			13.6			13.1	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.4	38.0		29.1	8.6	40.8		29.1				
Change Period (Y+Rc), s	4.0	6.5		6.0	4.0	6.5		6.0				
Max Green Setting (Gmax), s	36.0	31.5		27.0	36.0	33.5		27.0				
Max Q Clear Time (g_c+I1), s	7.4	5.7		21.8	4.8	7.6		19.7				
Green Ext Time (p_c), s	0.0	0.3		1.3	0.0	0.6		1.4				
Intersection Summary												
HCM 6th Ctrl Delay				23.4								
HCM 6th LOS				C								

Intersection						
Int Delay, s/veh	4.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	128	292	453	90	157	409
Future Vol, veh/h	128	292	453	90	157	409
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	Yield	-	None
Storage Length	0	100	-	300	315	-
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	139	317	492	98	171	445

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1279	-	0	0	492
Stage 1	492	-	-	-	-
Stage 2	787	-	-	-	-
Critical Hdwy	6.42	-	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	2.218
Pot Cap-1 Maneuver	183	0	-	-	1071
Stage 1	615	0	-	-	-
Stage 2	449	0	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	154	-	-	-	1071
Mov Cap-2 Maneuver	278	-	-	-	-
Stage 1	615	-	-	-	-
Stage 2	377	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	30.3	0	2.5
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	278	-	1071
HCM Lane V/C Ratio	-	-	0.5	-	0.159
HCM Control Delay (s)	-	-	30.3	0	9
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	2.6	-	0.6

Intersection												
Int Delay, s/veh	5.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕				↕		↕			↕	
Traffic Vol, veh/h	26	18	9	0	0	165	4	442	79	124	386	38
Future Vol, veh/h	26	18	9	0	0	165	4	442	79	124	386	38
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	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
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	28	20	10	0	0	179	4	480	86	135	420	41

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1332	1285	441	-	-	523	461	0	0	566	0	0
Stage 1	711	711	-	-	-	-	-	-	-	-	-	-
Stage 2	621	574	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	-	-	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	131	165	616	0	0	554	1100	-	-	1006	-	-
Stage 1	424	436	-	0	0	-	-	-	-	-	-	-
Stage 2	475	503	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	76	134	616	-	-	554	1100	-	-	1006	-	-
Mov Cap-2 Maneuver	76	134	-	-	-	-	-	-	-	-	-	-
Stage 1	422	357	-	-	-	-	-	-	-	-	-	-
Stage 2	320	500	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	71.3		14.6		0.1		2.1	
HCM LOS	F		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1100	-	-	108	554	1006	-	-
HCM Lane V/C Ratio	0.004	-	-	0.533	0.324	0.134	-	-
HCM Control Delay (s)	8.3	0	-	71.3	14.6	9.1	0	-
HCM Lane LOS	A	A	-	F	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	2.5	1.4	0.5	-	-

HCM 6th Signalized Intersection Summary
 3: Pahoia Bypass Rd. & Pahoia Village Rd./Pahoia Kapoho Rd.

Base Year 2041 AM
 03/09/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↖	↗	↖	↖	↗
Traffic Volume (veh/h)	131	101	50	9	205	157	132	214	6	87	121	170
Future Volume (veh/h)	131	101	50	9	205	157	132	214	6	87	121	170
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	142	110	54	10	223	171	143	233	7	95	132	185
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	197	144	59	51	316	236	601	798	676	579	773	655
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.07	0.43	0.43	0.05	0.41	0.41
Sat Flow, veh/h	418	457	187	16	1002	747	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	306	0	0	404	0	0	143	233	7	95	132	185
Grp Sat Flow(s),veh/h/ln	1062	0	0	1766	0	0	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	6.4	0.0	0.0	0.0	0.0	0.0	3.7	6.6	0.2	2.4	3.6	6.3
Cycle Q Clear(g_c), s	23.2	0.0	0.0	16.8	0.0	0.0	3.7	6.6	0.2	2.4	3.6	6.3
Prop In Lane	0.46		0.18	0.02		0.42	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	400	0	0	602	0	0	601	798	676	579	773	655
V/C Ratio(X)	0.77	0.00	0.00	0.67	0.00	0.00	0.24	0.29	0.01	0.16	0.17	0.28
Avail Cap(c_a), veh/h	423	0	0	633	0	0	1272	798	676	1274	773	655
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.0	0.0	0.0	24.7	0.0	0.0	12.0	15.2	13.4	11.8	15.0	15.8
Incr Delay (d2), s/veh	7.6	0.0	0.0	2.5	0.0	0.0	0.1	0.9	0.0	0.0	0.5	1.1
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	6.5	0.0	0.0	6.9	0.0	0.0	1.3	2.8	0.1	0.9	1.5	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.6	0.0	0.0	27.2	0.0	0.0	12.0	16.1	13.4	11.9	15.5	16.9
LnGrp LOS	C	A	A	C	A	A	B	B	B	B	B	B
Approach Vol, veh/h		306			404			383				412
Approach Delay, s/veh		34.6			27.2			14.6				15.3
Approach LOS		C			C			B				B
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	41.1		31.6	9.5	40.0		31.6				
Change Period (Y+Rc), s	4.0	6.5		6.0	4.0	6.5		6.0				
Max Green Setting (Gmax), s	36.0	31.5		27.0	36.0	33.5		27.0				
Max Q Clear Time (g_c+I1), s	4.4	8.6		25.2	5.7	8.3		18.8				
Green Ext Time (p_c), s	0.0	0.6		0.4	0.0	0.5		1.5				
Intersection Summary												
HCM 6th Ctrl Delay				22.2								
HCM 6th LOS				C								

Intersection						
Int Delay, s/veh	3.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	62	150	439	116	262	536
Future Vol, veh/h	62	150	439	116	262	536
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	Yield	-	None
Storage Length	0	100	-	300	315	-
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	67	163	477	126	285	583

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1630	-	0	0	477
Stage 1	477	-	-	-	-
Stage 2	1153	-	-	-	-
Critical Hdwy	6.42	-	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	2.218
Pot Cap-1 Maneuver	112	0	-	-	1085
Stage 1	624	0	-	-	-
Stage 2	301	0	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	83	-	-	-	1085
Mov Cap-2 Maneuver	177	-	-	-	-
Stage 1	624	-	-	-	-
Stage 2	222	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	37.3	0	3.1
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	177	-	1085
HCM Lane V/C Ratio	-	-	0.381	-	0.262
HCM Control Delay (s)	-	-	37.3	0	9.5
HCM Lane LOS	-	-	E	A	A
HCM 95th %tile Q(veh)	-	-	1.6	-	1.1

Intersection												
Int Delay, s/veh	20.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕				↕		↕			↕	
Traffic Vol, veh/h	89	18	25	0	0	151	14	429	37	59	429	104
Future Vol, veh/h	89	18	25	0	0	151	14	429	37	59	429	104
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	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
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	97	20	27	0	0	164	15	466	40	64	466	113

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1249	1187	523	-	-	486	579	0	0	506	0	0
Stage 1	651	651	-	-	-	-	-	-	-	-	-	-
Stage 2	598	536	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	-	-	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	150	188	554	0	0	581	995	-	-	1059	-	-
Stage 1	457	465	-	0	0	-	-	-	-	-	-	-
Stage 2	489	523	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	99	167	554	-	-	581	995	-	-	1059	-	-
Mov Cap-2 Maneuver	99	167	-	-	-	-	-	-	-	-	-	-
Stage 1	447	423	-	-	-	-	-	-	-	-	-	-
Stage 2	343	512	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	193.5	13.6	0.3	0.9
HCM LOS	F	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	995	-	-	125	581	1059	-
HCM Lane V/C Ratio	0.015	-	-	1.148	0.282	0.061	-
HCM Control Delay (s)	8.7	0	-	193.5	13.6	8.6	0
HCM Lane LOS	A	A	-	F	B	A	A
HCM 95th %tile Q(veh)	0	-	-	8.6	1.2	0.2	-

HCM 6th Signalized Intersection Summary
 3: Pahoia Bypass Rd. & Pahoia Village Rd./Pahoia Kapoho Rd.

Base Year 2041 PM
 03/09/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↖	↗	↖	↖	↗
Traffic Volume (veh/h)	40	245	123	4	219	165	107	139	1	197	212	33
Future Volume (veh/h)	40	245	123	4	219	165	107	139	1	197	212	33
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	43	266	134	4	238	179	116	151	1	214	230	36
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	80	314	149	48	295	219	595	751	636	690	817	692
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.06	0.40	0.40	0.09	0.44	0.44
Sat Flow, veh/h	102	1066	507	4	1002	744	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	443	0	0	421	0	0	116	151	1	214	230	36
Grp Sat Flow(s),veh/h/ln	1675	0	0	1750	0	0	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	2.1	0.0	0.0	0.0	0.0	0.0	2.8	4.1	0.0	5.4	6.2	1.0
Cycle Q Clear(g_c), s	19.8	0.0	0.0	17.7	0.0	0.0	2.8	4.1	0.0	5.4	6.2	1.0
Prop In Lane	0.10		0.30	0.01		0.43	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	543	0	0	562	0	0	595	751	636	690	817	692
V/C Ratio(X)	0.82	0.00	0.00	0.75	0.00	0.00	0.20	0.20	0.00	0.31	0.28	0.05
Avail Cap(c_a), veh/h	624	0	0	647	0	0	1307	751	636	1339	817	692
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.3	0.0	0.0	25.8	0.0	0.0	11.0	15.3	14.1	11.5	14.2	12.7
Incr Delay (d2), s/veh	7.2	0.0	0.0	4.1	0.0	0.0	0.1	0.6	0.0	0.1	0.9	0.1
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	8.7	0.0	0.0	7.5	0.0	0.0	1.0	1.8	0.0	1.9	2.6	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.5	0.0	0.0	29.8	0.0	0.0	11.0	15.9	14.1	11.6	15.1	12.9
LnGrp LOS	C	A	A	C	A	A	B	B	B	B	B	B
Approach Vol, veh/h		443			421			268			480	
Approach Delay, s/veh		33.5			29.8			13.8			13.3	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.4	38.0		29.1	8.6	40.8		29.1				
Change Period (Y+Rc), s	4.0	6.5		6.0	4.0	6.5		6.0				
Max Green Setting (Gmax), s	36.0	31.5		27.0	36.0	33.5		27.0				
Max Q Clear Time (g_c+I1), s	7.4	6.1		21.8	4.8	8.2		19.7				
Green Ext Time (p_c), s	0.0	0.4		1.3	0.0	0.6		1.4				
Intersection Summary												
HCM 6th Ctrl Delay				23.3								
HCM 6th LOS				C								

Intersection						
Int Delay, s/veh	4.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	128	292	336	90	157	381
Future Vol, veh/h	128	292	336	90	157	381
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	Yield	-	None
Storage Length	0	100	-	300	315	-
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	139	317	365	98	171	414

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1121	-	0	0	365
Stage 1	365	-	-	-	-
Stage 2	756	-	-	-	-
Critical Hdwy	6.42	-	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	2.218
Pot Cap-1 Maneuver	228	0	-	-	1194
Stage 1	702	0	-	-	-
Stage 2	464	0	-	-	-
Platoon blocked, %		-	-	-	-
Mov Cap-1 Maneuver	195	-	-	-	1194
Mov Cap-2 Maneuver	310	-	-	-	-
Stage 1	702	-	-	-	-
Stage 2	398	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	25.7	0	2.5
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	310	-	1194
HCM Lane V/C Ratio	-	-	0.449	-	0.143
HCM Control Delay (s)	-	-	25.7	0	8.5
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	2.2	-	0.5

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	26	19	9	0	0	66	33	426	50	79	406	38
Future Vol, veh/h	26	19	9	0	0	66	33	426	50	79	406	38
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	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	75	75	-	-
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	28	21	10	0	0	72	36	463	54	86	441	41

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1232	1223	462	-	-	463	482	0	0	517	0	0
Stage 1	634	634	-	-	-	-	-	-	-	-	-	-
Stage 2	598	589	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	-	-	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	154	179	600	0	0	599	1081	-	-	1049	-	-
Stage 1	467	473	-	0	0	-	-	-	-	-	-	-
Stage 2	489	495	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	123	157	600	-	-	599	1081	-	-	1049	-	-
Mov Cap-2 Maneuver	123	157	-	-	-	-	-	-	-	-	-	-
Stage 1	445	434	-	-	-	-	-	-	-	-	-	-
Stage 2	410	472	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	41.7		11.8		0.5		1.3	
HCM LOS	E		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1081	-	-	155	599	1049	-	-
HCM Lane V/C Ratio	0.033	-	-	0.379	0.12	0.082	-	-
HCM Control Delay (s)	8.4	0	-	41.7	11.8	8.7	-	-
HCM Lane LOS	A	A	-	E	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1.6	0.4	0.3	-	-

HCM 6th Signalized Intersection Summary
 3: Pahoia Bypass Rd. & Pahoia Village Rd./Pahoia Kapoho Rd.

Future Year 2026 AM
 Alternative 1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↖	↗	↖	↖	↗
Traffic Volume (veh/h)	135	101	50	9	205	171	132	194	6	87	153	170
Future Volume (veh/h)	135	101	50	9	205	171	132	194	6	87	153	170
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	147	110	54	10	223	186	143	211	7	95	166	185
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	199	141	58	50	315	256	566	785	665	585	758	643
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.07	0.42	0.42	0.05	0.41	0.41
Sat Flow, veh/h	412	432	177	16	965	783	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	311	0	0	419	0	0	143	211	7	95	166	185
Grp Sat Flow(s),veh/h/ln	1022	0	0	1763	0	0	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	7.3	0.0	0.0	0.0	0.0	0.0	3.8	6.1	0.2	2.5	4.8	6.5
Cycle Q Clear(g_c), s	25.0	0.0	0.0	17.7	0.0	0.0	3.8	6.1	0.2	2.5	4.8	6.5
Prop In Lane	0.47		0.17	0.02		0.44	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	398	0	0	621	0	0	566	785	665	585	758	643
V/C Ratio(X)	0.78	0.00	0.00	0.67	0.00	0.00	0.25	0.27	0.01	0.16	0.22	0.29
Avail Cap(c_a), veh/h	398	0	0	621	0	0	1221	785	665	1266	758	643
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.4	0.0	0.0	24.7	0.0	0.0	12.6	15.7	14.0	12.3	16.0	16.5
Incr Delay (d2), s/veh	9.5	0.0	0.0	2.8	0.0	0.0	0.1	0.8	0.0	0.0	0.7	1.1
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	6.9	0.0	0.0	7.3	0.0	0.0	1.4	2.6	0.1	0.9	2.1	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.9	0.0	0.0	27.5	0.0	0.0	12.7	16.5	14.0	12.4	16.7	17.7
LnGrp LOS	D	A	A	C	A	A	B	B	B	B	B	B
Approach Vol, veh/h		311			419			361				446
Approach Delay, s/veh		36.9			27.5			15.0				16.2
Approach LOS		D			C			B				B
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	41.2		33.0	9.6	40.0		33.0				
Change Period (Y+Rc), s	4.0	6.5		6.0	4.0	6.5		6.0				
Max Green Setting (Gmax), s	36.0	31.5		27.0	36.0	33.5		27.0				
Max Q Clear Time (g_c+I1), s	4.5	8.1		27.0	5.8	8.5		19.7				
Green Ext Time (p_c), s	0.0	0.5		0.0	0.0	0.6		1.4				
Intersection Summary												
HCM 6th Ctrl Delay				23.2								
HCM 6th LOS				C								

Intersection						
Int Delay, s/veh	1.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘↙		↑	↗↘	↘↙	↑
Traffic Vol, veh/h	47	73	445	55	73	342
Future Vol, veh/h	47	73	445	55	73	342
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	Yield	-	None
Storage Length	0	-	-	300	170	-
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	51	79	484	60	79	372

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1014	-	0	0	484
Stage 1	484	-	-	-	-
Stage 2	530	-	-	-	-
Critical Hdwy	6.42	-	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	2.218
Pot Cap-1 Maneuver	264	0	-	-	1079
Stage 1	620	0	-	-	-
Stage 2	590	0	-	-	-
Platoon blocked, %		-	-	-	-
Mov Cap-1 Maneuver	245	-	-	-	1079
Mov Cap-2 Maneuver	376	-	-	-	-
Stage 1	620	-	-	-	-
Stage 2	547	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.1	0	1.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	376	1079
HCM Lane V/C Ratio	-	-	0.136	0.074
HCM Control Delay (s)	-	-	16.1	8.6
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.5	0.2

Intersection						
Int Delay, s/veh	3.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	62	150	320	116	262	481
Future Vol, veh/h	62	150	320	116	262	481
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	Yield	-	None
Storage Length	0	100	-	300	315	-
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	67	163	348	126	285	523

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1441	-	0	0	348
Stage 1	348	-	-	-	-
Stage 2	1093	-	-	-	-
Critical Hdwy	6.42	-	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	2.218
Pot Cap-1 Maneuver	146	0	-	-	1211
Stage 1	715	0	-	-	-
Stage 2	321	0	-	-	-
Platoon blocked, %		-	-	-	-
Mov Cap-1 Maneuver	112	-	-	-	1211
Mov Cap-2 Maneuver	202	-	-	-	-
Stage 1	715	-	-	-	-
Stage 2	246	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	31.5	0	3.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	202	-	1211
HCM Lane V/C Ratio	-	-	0.334	-	0.235
HCM Control Delay (s)	-	-	31.5	0	8.9
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	1.4	-	0.9

Intersection												
Int Delay, s/veh	11.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔				↑		↑	↑	↑	↑	
Traffic Vol, veh/h	89	19	25	0	0	50	50	413	24	38	409	104
Future Vol, veh/h	89	19	25	0	0	50	50	413	24	38	409	104
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	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	75	75	-	-
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	97	21	27	0	0	54	54	449	26	41	445	113

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1181	1167	502	-	-	449	558	0	0	475	0	0
Stage 1	584	584	-	-	-	-	-	-	-	-	-	-
Stage 2	597	583	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	-	-	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	167	194	569	0	0	610	1013	-	-	1087	-	-
Stage 1	498	498	-	0	0	-	-	-	-	-	-	-
Stage 2	490	499	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	140	173	569	-	-	610	1013	-	-	1087	-	-
Mov Cap-2 Maneuver	140	173	-	-	-	-	-	-	-	-	-	-
Stage 1	462	479	-	-	-	-	-	-	-	-	-	-
Stage 2	414	463	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	91.4		11.5		0.9		0.6	
HCM LOS	F		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1013	-	-	168	610	1087	-	-
HCM Lane V/C Ratio	0.054	-	-	0.861	0.089	0.038	-	-
HCM Control Delay (s)	8.8	0	-	91.4	11.5	8.4	-	-
HCM Lane LOS	A	A	-	F	B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	6	0.3	0.1	-	-

HCM 6th Signalized Intersection Summary
 3: Pahoia Bypass Rd. & Pahoia Village Rd./Pahoia Kapoho Rd.

Future Year 2026 PM
 Alternative 1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↖	↗	↖	↖	↗
Traffic Volume (veh/h)	42	245	123	4	219	174	107	127	1	197	240	33
Future Volume (veh/h)	42	245	123	4	219	174	107	127	1	197	240	33
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	46	266	134	4	238	189	116	138	1	214	261	36
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	83	313	148	47	292	229	566	745	631	697	812	688
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.06	0.40	0.40	0.09	0.43	0.43
Sat Flow, veh/h	109	1046	496	4	977	767	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	446	0	0	431	0	0	116	138	1	214	261	36
Grp Sat Flow(s),veh/h/ln	1651	0	0	1748	0	0	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	2.2	0.0	0.0	0.0	0.0	0.0	2.8	3.8	0.0	5.5	7.3	1.0
Cycle Q Clear(g_c), s	20.4	0.0	0.0	18.3	0.0	0.0	2.8	3.8	0.0	5.5	7.3	1.0
Prop In Lane	0.10		0.30	0.01		0.44	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	544	0	0	568	0	0	566	745	631	697	812	688
V/C Ratio(X)	0.82	0.00	0.00	0.76	0.00	0.00	0.21	0.19	0.00	0.31	0.32	0.05
Avail Cap(c_a), veh/h	613	0	0	641	0	0	1273	745	631	1340	812	688
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.4	0.0	0.0	25.9	0.0	0.0	11.3	15.5	14.3	11.7	14.7	12.9
Incr Delay (d2), s/veh	7.8	0.0	0.0	4.5	0.0	0.0	0.1	0.5	0.0	0.1	1.0	0.1
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	8.9	0.0	0.0	7.8	0.0	0.0	1.0	1.6	0.0	2.0	3.1	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.1	0.0	0.0	30.4	0.0	0.0	11.3	16.0	14.3	11.8	15.8	13.1
LnGrp LOS	C	A	A	C	A	A	B	B	B	B	B	B
Approach Vol, veh/h		446			431			255			511	
Approach Delay, s/veh		34.1			30.4			13.9			13.9	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.5	38.0		29.6	8.6	40.9		29.6				
Change Period (Y+Rc), s	4.0	6.5		6.0	4.0	6.5		6.0				
Max Green Setting (Gmax), s	36.0	31.5		27.0	36.0	33.5		27.0				
Max Q Clear Time (g_c+I1), s	7.5	5.8		22.4	4.8	9.3		20.3				
Green Ext Time (p_c), s	0.0	0.3		1.2	0.0	0.7		1.4				
Intersection Summary												
HCM 6th Ctrl Delay				23.7								
HCM 6th LOS				C								

Intersection						
Int Delay, s/veh	1.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘↗		↑	↗↘	↘↗	↑
Traffic Vol, veh/h	56	78	312	31	39	395
Future Vol, veh/h	56	78	312	31	39	395
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	Yield	-	None
Storage Length	0	-	-	300	170	-
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	61	85	339	34	42	429

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	852	-	0	0	339
Stage 1	339	-	-	-	-
Stage 2	513	-	-	-	-
Critical Hdwy	6.42	-	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	2.218
Pot Cap-1 Maneuver	330	0	-	-	1220
Stage 1	722	0	-	-	-
Stage 2	601	0	-	-	-
Platoon blocked, %		-	-	-	-
Mov Cap-1 Maneuver	319	-	-	-	1220
Mov Cap-2 Maneuver	436	-	-	-	-
Stage 1	722	-	-	-	-
Stage 2	581	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.6	0	0.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	436	1220
HCM Lane V/C Ratio	-	-	0.14	0.035
HCM Control Delay (s)	-	-	14.6	8.1
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.5	0.1

Intersection						
Int Delay, s/veh	4.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	128	292	367	90	157	427
Future Vol, veh/h	128	292	367	90	157	427
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	Yield	-	None
Storage Length	0	100	-	300	315	-
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	139	317	399	98	171	464

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1205	-	0	0	399
Stage 1	399	-	-	-	-
Stage 2	806	-	-	-	-
Critical Hdwy	6.42	-	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	2.218
Pot Cap-1 Maneuver	203	0	-	-	1160
Stage 1	678	0	-	-	-
Stage 2	439	0	-	-	-
Platoon blocked, %		-	-	-	-
Mov Cap-1 Maneuver	173	-	-	-	1160
Mov Cap-2 Maneuver	289	-	-	-	-
Stage 1	678	-	-	-	-
Stage 2	374	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	28.5	0	2.3
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	289	-	1160
HCM Lane V/C Ratio	-	-	0.481	-	0.147
HCM Control Delay (s)	-	-	28.5	0	8.6
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	2.5	-	0.5

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	26	20	9	0	0	72	33	450	53	84	446	38
Future Vol, veh/h	26	20	9	0	0	72	33	450	53	84	446	38
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	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	75	75	-	-
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	28	22	10	0	0	78	36	489	58	91	485	41

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1317	1307	506	-	-	489	526	0	0	547	0	0
Stage 1	688	688	-	-	-	-	-	-	-	-	-	-
Stage 2	629	619	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	-	-	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	134	160	566	0	0	579	1041	-	-	1022	-	-
Stage 1	436	447	-	0	0	-	-	-	-	-	-	-
Stage 2	470	480	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	104	138	566	-	-	579	1041	-	-	1022	-	-
Mov Cap-2 Maneuver	104	138	-	-	-	-	-	-	-	-	-	-
Stage 1	414	407	-	-	-	-	-	-	-	-	-	-
Stage 2	386	456	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	51.9		12.2		0.5		1.3	
HCM LOS	F		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1041	-	-	134	579	1022	-	-
HCM Lane V/C Ratio	0.034	-	-	0.446	0.135	0.089	-	-
HCM Control Delay (s)	8.6	0	-	51.9	12.2	8.9	-	-
HCM Lane LOS	A	A	-	F	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	2	0.5	0.3	-	-

HCM 6th Signalized Intersection Summary
 3: Pahoia Bypass Rd. & Pahoia Village Rd./Pahoia Kapoho Rd.

Future Year 2031 AM
 Alternative 1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↖	↗	↖	↖	↗
Traffic Volume (veh/h)	138	101	50	9	205	185	132	212	6	87	167	170
Future Volume (veh/h)	138	101	50	9	205	185	132	212	6	87	167	170
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	150	110	54	10	223	201	143	230	7	95	182	185
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	194	134	55	50	305	267	555	785	665	570	758	643
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.07	0.42	0.42	0.05	0.41	0.41
Sat Flow, veh/h	397	411	168	15	933	818	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	314	0	0	434	0	0	143	230	7	95	182	185
Grp Sat Flow(s),veh/h/ln	975	0	0	1766	0	0	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	8.0	0.0	0.0	0.0	0.0	0.0	3.8	6.7	0.2	2.5	5.3	6.5
Cycle Q Clear(g_c), s	26.6	0.0	0.0	18.6	0.0	0.0	3.8	6.7	0.2	2.5	5.3	6.5
Prop In Lane	0.48		0.17	0.02		0.46	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	383	0	0	622	0	0	555	785	665	570	758	643
V/C Ratio(X)	0.82	0.00	0.00	0.70	0.00	0.00	0.26	0.29	0.01	0.17	0.24	0.29
Avail Cap(c_a), veh/h	383	0	0	622	0	0	1210	785	665	1250	758	643
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.1	0.0	0.0	25.0	0.0	0.0	12.7	15.9	14.0	12.4	16.2	16.5
Incr Delay (d2), s/veh	13.1	0.0	0.0	3.4	0.0	0.0	0.1	0.9	0.0	0.1	0.7	1.1
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	7.5	0.0	0.0	7.7	0.0	0.0	1.4	2.9	0.1	0.9	2.3	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.2	0.0	0.0	28.4	0.0	0.0	12.7	16.8	14.0	12.4	16.9	17.7
LnGrp LOS	D	A	A	C	A	A	B	B	B	B	B	B
Approach Vol, veh/h		314			434			380				462
Approach Delay, s/veh		41.2			28.4			15.2				16.3
Approach LOS		D			C			B				B
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	41.2		33.0	9.6	40.0		33.0				
Change Period (Y+Rc), s	4.0	6.5		6.0	4.0	6.5		6.0				
Max Green Setting (Gmax), s	36.0	31.5		27.0	36.0	33.5		27.0				
Max Q Clear Time (g_c+I1), s	4.5	8.7		28.6	5.8	8.5		20.6				
Green Ext Time (p_c), s	0.0	0.6		0.0	0.0	0.6		1.4				
Intersection Summary												
HCM 6th Ctrl Delay				24.2								
HCM 6th LOS				C								

Intersection						
Int Delay, s/veh	1.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑	↑	↑	↑
Traffic Vol, veh/h	56	78	457	78	96	359
Future Vol, veh/h	56	78	457	78	96	359
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	Yield	-	None
Storage Length	0	-	-	300	170	-
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	61	85	497	85	104	390

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1095	-	0	0	497
Stage 1	497	-	-	-	-
Stage 2	598	-	-	-	-
Critical Hdwy	6.42	-	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	2.218
Pot Cap-1 Maneuver	236	0	-	-	1067
Stage 1	611	0	-	-	-
Stage 2	549	0	-	-	-
Platoon blocked, %		-	-	-	-
Mov Cap-1 Maneuver	213	-	-	-	1067
Mov Cap-2 Maneuver	345	-	-	-	-
Stage 1	611	-	-	-	-
Stage 2	496	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.7	0	1.8
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	345	1067
HCM Lane V/C Ratio	-	-	0.176	0.098
HCM Control Delay (s)	-	-	17.7	8.7
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.6	0.3

Intersection						
Int Delay, s/veh	3.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	62	150	356	116	262	521
Future Vol, veh/h	62	150	356	116	262	521
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	Yield	-	None
Storage Length	0	100	-	300	315	-
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	67	163	387	126	285	566

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1523	-	0	0	387
Stage 1	387	-	-	-	-
Stage 2	1136	-	-	-	-
Critical Hdwy	6.42	-	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	2.218
Pot Cap-1 Maneuver	130	0	-	-	1171
Stage 1	686	0	-	-	-
Stage 2	306	0	-	-	-
Platoon blocked, %		-	-	-	-
Mov Cap-1 Maneuver	98	-	-	-	1171
Mov Cap-2 Maneuver	189	-	-	-	-
Stage 1	686	-	-	-	-
Stage 2	232	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	34.2	0	3
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	189	-	1171
HCM Lane V/C Ratio	-	-	0.357	-	0.243
HCM Control Delay (s)	-	-	34.2	0	9.1
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	1.5	-	1

Intersection												
Int Delay, s/veh	14.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↔				↕		↕	↕	↕	↕	
Traffic Vol, veh/h	89	20	25	0	0	56	50	442	25	40	443	104
Future Vol, veh/h	89	20	25	0	0	56	50	442	25	40	443	104
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	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	75	75	-	-
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	97	22	27	0	0	61	54	480	27	43	482	113

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1257	1240	539	-	-	480	595	0	0	507	0	0
Stage 1	625	625	-	-	-	-	-	-	-	-	-	-
Stage 2	632	615	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	-	-	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	148	175	542	0	0	586	981	-	-	1058	-	-
Stage 1	473	477	-	0	0	-	-	-	-	-	-	-
Stage 2	468	482	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	121	155	542	-	-	586	981	-	-	1058	-	-
Mov Cap-2 Maneuver	121	155	-	-	-	-	-	-	-	-	-	-
Stage 1	437	457	-	-	-	-	-	-	-	-	-	-
Stage 2	387	445	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	131.9		11.9		0.9		0.6	
HCM LOS	F		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	981	-	-	147	586	1058	-	-
HCM Lane V/C Ratio	0.055	-	-	0.991	0.104	0.041	-	-
HCM Control Delay (s)	8.9	0	-	131.9	11.9	8.5	-	-
HCM Lane LOS	A	A	-	F	B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	7.3	0.3	0.1	-	-

HCM 6th Signalized Intersection Summary
 3: Pahoia Bypass Rd. & Pahoia Village Rd./Pahoia Kapoho Rd.

Future Year 2031 PM
 Alternative 1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↖	↗	↖	↖	↗
Traffic Volume (veh/h)	44	245	123	4	219	183	107	139	1	197	263	33
Future Volume (veh/h)	44	245	123	4	219	183	107	139	1	197	263	33
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	48	266	134	4	238	199	116	151	1	214	286	36
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	84	312	148	47	288	238	543	740	627	682	809	685
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.06	0.40	0.40	0.09	0.43	0.43
Sat Flow, veh/h	113	1030	488	4	954	788	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	448	0	0	441	0	0	116	151	1	214	286	36
Grp Sat Flow(s),veh/h/ln	1631	0	0	1746	0	0	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	2.1	0.0	0.0	0.0	0.0	0.0	2.8	4.2	0.0	5.5	8.2	1.1
Cycle Q Clear(g_c), s	21.0	0.0	0.0	18.9	0.0	0.0	2.8	4.2	0.0	5.5	8.2	1.1
Prop In Lane	0.11		0.30	0.01		0.45	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	543	0	0	574	0	0	543	740	627	682	809	685
V/C Ratio(X)	0.82	0.00	0.00	0.77	0.00	0.00	0.21	0.20	0.00	0.31	0.35	0.05
Avail Cap(c_a), veh/h	603	0	0	637	0	0	1245	740	627	1320	809	685
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.4	0.0	0.0	26.0	0.0	0.0	11.5	15.8	14.5	11.9	15.1	13.1
Incr Delay (d2), s/veh	8.3	0.0	0.0	5.0	0.0	0.0	0.1	0.6	0.0	0.1	1.2	0.1
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	0.0	8.1	0.0	0.0	1.0	1.8	0.0	2.0	3.5	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.7	0.0	0.0	31.0	0.0	0.0	11.6	16.4	14.5	12.0	16.4	13.3
LnGrp LOS	C	A	A	C	A	A	B	B	B	B	B	B
Approach Vol, veh/h		448			441			268			536	
Approach Delay, s/veh		34.7			31.0			14.3			14.4	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.5	38.0		30.1	8.6	40.9		30.1				
Change Period (Y+Rc), s	4.0	6.5		6.0	4.0	6.5		6.0				
Max Green Setting (Gmax), s	36.0	31.5		27.0	36.0	33.5		27.0				
Max Q Clear Time (g_c+I1), s	7.5	6.2		23.0	4.8	10.2		20.9				
Green Ext Time (p_c), s	0.0	0.4		1.1	0.0	0.8		1.3				
Intersection Summary												
HCM 6th Ctrl Delay				24.1								
HCM 6th LOS				C								

Intersection						
Int Delay, s/veh	1.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘↘		↑	↗	↘	↑
Traffic Vol, veh/h	70	89	320	46	54	414
Future Vol, veh/h	70	89	320	46	54	414
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	Yield	-	None
Storage Length	0	-	-	300	170	-
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	76	97	348	50	59	450

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	916	-	0	0	348
Stage 1	348	-	-	-	-
Stage 2	568	-	-	-	-
Critical Hdwy	6.42	-	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	2.218
Pot Cap-1 Maneuver	302	0	-	-	1211
Stage 1	715	0	-	-	-
Stage 2	567	0	-	-	-
Platoon blocked, %		-	-	-	-
Mov Cap-1 Maneuver	287	-	-	-	1211
Mov Cap-2 Maneuver	407	-	-	-	-
Stage 1	715	-	-	-	-
Stage 2	539	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.9	0	0.9
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	407	1211
HCM Lane V/C Ratio	-	-	0.187	0.048
HCM Control Delay (s)	-	-	15.9	8.1
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.7	0.2

Intersection						
Int Delay, s/veh	4.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	128	292	409	90	157	465
Future Vol, veh/h	128	292	409	90	157	465
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	Yield	-	None
Storage Length	0	100	-	300	315	-
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	139	317	445	98	171	505

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1292	-	0	0	445
Stage 1	445	-	-	-	-
Stage 2	847	-	-	-	-
Critical Hdwy	6.42	-	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	2.218
Pot Cap-1 Maneuver	180	0	-	-	1115
Stage 1	646	0	-	-	-
Stage 2	420	0	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	152	-	-	-	1115
Mov Cap-2 Maneuver	271	-	-	-	-
Stage 1	646	-	-	-	-
Stage 2	356	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	31.5	0	2.2
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	-	271	1115
HCM Lane V/C Ratio	-	-	0.513	0.153
HCM Control Delay (s)	-	-	31.5	0
HCM Lane LOS	-	-	D	A
HCM 95th %tile Q(veh)	-	-	2.7	0.5

Intersection												
Int Delay, s/veh	4.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↔				↕		↕	↕	↕	↕	
Traffic Vol, veh/h	26	20	9	0	0	72	33	491	53	84	482	38
Future Vol, veh/h	26	20	9	0	0	72	33	491	53	84	482	38
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	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	75	75	-	-
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	28	22	10	0	0	78	36	534	58	91	524	41

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1401	1391	545	-	-	534	565	0	0	592	0	0
Stage 1	727	727	-	-	-	-	-	-	-	-	-	-
Stage 2	674	664	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	-	-	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	118	142	538	0	0	546	1007	-	-	984	-	-
Stage 1	415	429	-	0	0	-	-	-	-	-	-	-
Stage 2	444	458	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	90	122	538	-	-	546	1007	-	-	984	-	-
Mov Cap-2 Maneuver	90	122	-	-	-	-	-	-	-	-	-	-
Stage 1	393	390	-	-	-	-	-	-	-	-	-	-
Stage 2	360	433	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	64.2		12.7		0.5		1.3	
HCM LOS	F		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1007	-	-	117	546	984	-	-
HCM Lane V/C Ratio	0.036	-	-	0.511	0.143	0.093	-	-
HCM Control Delay (s)	8.7	0	-	64.2	12.7	9	-	-
HCM Lane LOS	A	A	-	F	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	2.4	0.5	0.3	-	-

HCM 6th Signalized Intersection Summary
 3: Pahoia Bypass Rd. & Pahoia Village Rd./Pahoia Kapoho Rd.

Future Year 2041 AM
 Alternative 1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↖	↗	↖	↖	↗
Traffic Volume (veh/h)	138	101	50	9	205	185	132	232	6	87	177	170
Future Volume (veh/h)	138	101	50	9	205	185	132	232	6	87	177	170
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	150	110	54	10	223	201	143	252	7	95	192	185
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	194	134	55	50	305	267	548	785	665	552	758	643
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.07	0.42	0.42	0.05	0.41	0.41
Sat Flow, veh/h	397	411	168	15	933	818	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	314	0	0	434	0	0	143	252	7	95	192	185
Grp Sat Flow(s),veh/h/ln	975	0	0	1766	0	0	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	8.0	0.0	0.0	0.0	0.0	0.0	3.8	7.5	0.2	2.5	5.6	6.5
Cycle Q Clear(g_c), s	26.6	0.0	0.0	18.6	0.0	0.0	3.8	7.5	0.2	2.5	5.6	6.5
Prop In Lane	0.48		0.17	0.02		0.46	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	383	0	0	622	0	0	548	785	665	552	758	643
V/C Ratio(X)	0.82	0.00	0.00	0.70	0.00	0.00	0.26	0.32	0.01	0.17	0.25	0.29
Avail Cap(c_a), veh/h	383	0	0	622	0	0	1203	785	665	1232	758	643
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.1	0.0	0.0	25.0	0.0	0.0	12.7	16.1	14.0	12.5	16.3	16.5
Incr Delay (d2), s/veh	13.1	0.0	0.0	3.4	0.0	0.0	0.1	1.1	0.0	0.1	0.8	1.1
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	7.5	0.0	0.0	7.7	0.0	0.0	1.4	3.2	0.1	0.9	2.4	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.2	0.0	0.0	28.4	0.0	0.0	12.8	17.2	14.0	12.5	17.1	17.7
LnGrp LOS	D	A	A	C	A	A	B	B	B	B	B	B
Approach Vol, veh/h		314			434			402				472
Approach Delay, s/veh		41.2			28.4			15.5				16.4
Approach LOS		D			C			B				B
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	41.2		33.0	9.6	40.0		33.0				
Change Period (Y+Rc), s	4.0	6.5		6.0	4.0	6.5		6.0				
Max Green Setting (Gmax), s	36.0	31.5		27.0	36.0	33.5		27.0				
Max Q Clear Time (g_c+I1), s	4.5	9.5		28.6	5.8	8.5		20.6				
Green Ext Time (p_c), s	0.0	0.6		0.0	0.0	0.7		1.4				
Intersection Summary												
HCM 6th Ctrl Delay				24.2								
HCM 6th LOS				C								

Intersection						
Int Delay, s/veh	1.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑	↑	↑	↑
Traffic Vol, veh/h	56	78	477	78	96	395
Future Vol, veh/h	56	78	477	78	96	395
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	Yield	-	None
Storage Length	0	-	-	300	170	-
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	61	85	518	85	104	429

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1155	-	0	0	518
Stage 1	518	-	-	-	-
Stage 2	637	-	-	-	-
Critical Hdwy	6.42	-	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	2.218
Pot Cap-1 Maneuver	218	0	-	-	1048
Stage 1	598	0	-	-	-
Stage 2	527	0	-	-	-
Platoon blocked, %		-	-	-	-
Mov Cap-1 Maneuver	196	-	-	-	1048
Mov Cap-2 Maneuver	329	-	-	-	-
Stage 1	598	-	-	-	-
Stage 2	475	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.4	0	1.7
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	329	1048
HCM Lane V/C Ratio	-	-	0.185	0.1
HCM Control Delay (s)	-	-	18.4	8.8
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.7	0.3

Intersection						
Int Delay, s/veh	3.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	62	150	397	116	262	571
Future Vol, veh/h	62	150	397	116	262	571
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	Yield	-	None
Storage Length	0	100	-	300	315	-
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	67	163	432	126	285	621

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1623	-	0	0	432
Stage 1	432	-	-	-	-
Stage 2	1191	-	-	-	-
Critical Hdwy	6.42	-	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	2.218
Pot Cap-1 Maneuver	113	0	-	-	1128
Stage 1	655	0	-	-	-
Stage 2	288	0	-	-	-
Platoon blocked, %		-	-	-	-
Mov Cap-1 Maneuver	84	-	-	-	1128
Mov Cap-2 Maneuver	174	-	-	-	-
Stage 1	655	-	-	-	-
Stage 2	215	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	38.2	0	2.9
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	174	-	1128
HCM Lane V/C Ratio	-	-	0.387	-	0.252
HCM Control Delay (s)	-	-	38.2	0	9.3
HCM Lane LOS	-	-	E	A	A
HCM 95th %tile Q(veh)	-	-	1.7	-	1

Intersection												
Int Delay, s/veh	19.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕				↕		↕	↕	↕	↕	
Traffic Vol, veh/h	89	20	25	0	0	56	50	482	25	40	483	104
Future Vol, veh/h	89	20	25	0	0	56	50	482	25	40	483	104
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	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	75	75	-	-
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	97	22	27	0	0	61	54	524	27	43	525	113

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1344	1327	582	-	-	524	638	0	0	551	0	0
Stage 1	668	668	-	-	-	-	-	-	-	-	-	-
Stage 2	676	659	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	-	-	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	129	155	513	0	0	553	946	-	-	1019	-	-
Stage 1	448	456	-	0	0	-	-	-	-	-	-	-
Stage 2	443	461	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	104	136	513	-	-	553	946	-	-	1019	-	-
Mov Cap-2 Maneuver	104	136	-	-	-	-	-	-	-	-	-	-
Stage 1	411	437	-	-	-	-	-	-	-	-	-	-
Stage 2	362	423	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	191.8		12.3		0.8		0.6	
HCM LOS	F		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	946	-	-	127	553	1019	-	-
HCM Lane V/C Ratio	0.057	-	-	1.147	0.11	0.043	-	-
HCM Control Delay (s)	9	0	-	191.8	12.3	8.7	-	-
HCM Lane LOS	A	A	-	F	B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	8.6	0.4	0.1	-	-

HCM 6th Signalized Intersection Summary
 3: Pahoia Bypass Rd. & Pahoia Village Rd./Pahoia Kapoho Rd.

Future Year 2041 PM
 Alternative 1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↖	↗	↖	↖	↗
Traffic Volume (veh/h)	44	245	123	4	219	183	107	151	1	197	282	33
Future Volume (veh/h)	44	245	123	4	219	183	107	151	1	197	282	33
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	48	266	134	4	238	199	116	164	1	214	307	36
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	84	312	148	47	288	238	527	740	627	671	809	685
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.06	0.40	0.40	0.09	0.43	0.43
Sat Flow, veh/h	113	1030	488	4	954	788	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	448	0	0	441	0	0	116	164	1	214	307	36
Grp Sat Flow(s),veh/h/ln	1631	0	0	1746	0	0	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	2.1	0.0	0.0	0.0	0.0	0.0	2.8	4.6	0.0	5.5	8.9	1.1
Cycle Q Clear(g_c), s	21.0	0.0	0.0	18.9	0.0	0.0	2.8	4.6	0.0	5.5	8.9	1.1
Prop In Lane	0.11		0.30	0.01		0.45	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	543	0	0	574	0	0	527	740	627	671	809	685
V/C Ratio(X)	0.82	0.00	0.00	0.77	0.00	0.00	0.22	0.22	0.00	0.32	0.38	0.05
Avail Cap(c_a), veh/h	603	0	0	637	0	0	1229	740	627	1308	809	685
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.4	0.0	0.0	26.0	0.0	0.0	11.6	15.9	14.5	11.9	15.3	13.1
Incr Delay (d2), s/veh	8.3	0.0	0.0	5.0	0.0	0.0	0.1	0.7	0.0	0.1	1.4	0.1
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	0.0	8.1	0.0	0.0	1.0	2.0	0.0	2.0	3.8	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.7	0.0	0.0	31.0	0.0	0.0	11.7	16.6	14.5	12.0	16.7	13.3
LnGrp LOS	C	A	A	C	A	A	B	B	B	B	B	B
Approach Vol, veh/h		448			441			281			557	
Approach Delay, s/veh		34.7			31.0			14.6			14.7	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.5	38.0		30.1	8.6	40.9		30.1				
Change Period (Y+Rc), s	4.0	6.5		6.0	4.0	6.5		6.0				
Max Green Setting (Gmax), s	36.0	31.5		27.0	36.0	33.5		27.0				
Max Q Clear Time (g_c+I1), s	7.5	6.6		23.0	4.8	10.9		20.9				
Green Ext Time (p_c), s	0.0	0.4		1.1	0.0	0.8		1.3				
Intersection Summary												
HCM 6th Ctrl Delay				24.0								
HCM 6th LOS				C								

Intersection						
Int Delay, s/veh	1.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑	↑	↑	↑
Traffic Vol, veh/h	70	89	332	46	54	454
Future Vol, veh/h	70	89	332	46	54	454
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	Yield	-	None
Storage Length	0	-	-	300	170	-
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	76	97	361	50	59	493

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	972	-	0	0	361
Stage 1	361	-	-	-	-
Stage 2	611	-	-	-	-
Critical Hdwy	6.42	-	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	2.218
Pot Cap-1 Maneuver	280	0	-	-	1198
Stage 1	705	0	-	-	-
Stage 2	542	0	-	-	-
Platoon blocked, %		-	-	-	-
Mov Cap-1 Maneuver	266	-	-	-	1198
Mov Cap-2 Maneuver	388	-	-	-	-
Stage 1	705	-	-	-	-
Stage 2	515	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.5	0	0.9
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	388	1198
HCM Lane V/C Ratio	-	-	0.196	0.049
HCM Control Delay (s)	-	-	16.5	8.2
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.7	0.2

Intersection												
Int Delay, s/veh	3.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	26	20	9	0	0	72	33	491	53	84	482	38
Future Vol, veh/h	26	20	9	0	0	72	33	491	53	84	482	38
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	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	75	-	-	-	-	0	-	-	75	75	-	-
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	28	22	10	0	0	78	36	534	58	91	524	41

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1401	1391	545	-	-	534	565	0	0	592	0	0
Stage 1	727	727	-	-	-	-	-	-	-	-	-	-
Stage 2	674	664	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	-	-	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	118	142	538	0	0	546	1007	-	-	984	-	-
Stage 1	415	429	-	0	0	-	-	-	-	-	-	-
Stage 2	444	458	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	90	122	538	-	-	546	1007	-	-	984	-	-
Mov Cap-2 Maneuver	90	122	-	-	-	-	-	-	-	-	-	-
Stage 1	393	390	-	-	-	-	-	-	-	-	-	-
Stage 2	360	433	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	46.7		12.7		0.5		1.3	
HCM LOS	E		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1007	-	-	90	161	546	984	-	-
HCM Lane V/C Ratio	0.036	-	-	0.314	0.196	0.143	0.093	-	-
HCM Control Delay (s)	8.7	0	-	62.3	32.7	12.7	9	-	-
HCM Lane LOS	A	A	-	F	D	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1.2	0.7	0.5	0.3	-	-

Intersection												
Int Delay, s/veh	11.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	89	20	25	0	0	56	50	482	25	40	483	104
Future Vol, veh/h	89	20	25	0	0	56	50	482	25	40	483	104
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	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	75	-	-	-	-	0	-	-	75	75	-	-
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	97	22	27	0	0	61	54	524	27	43	525	113

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1344	1327	582	-	-	524	638	0	0	551	0	0
Stage 1	668	668	-	-	-	-	-	-	-	-	-	-
Stage 2	676	659	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	-	-	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	129	155	513	0	0	553	946	-	-	1019	-	-
Stage 1	448	456	-	0	0	-	-	-	-	-	-	-
Stage 2	443	461	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	104	136	513	-	-	553	946	-	-	1019	-	-
Mov Cap-2 Maneuver	104	136	-	-	-	-	-	-	-	-	-	-
Stage 1	411	437	-	-	-	-	-	-	-	-	-	-
Stage 2	362	423	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	104.8		12.3		0.8		0.6	
HCM LOS	F		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	946	-	-	104	230	553	1019	-	-
HCM Lane V/C Ratio	0.057	-	-	0.93	0.213	0.11	0.043	-	-
HCM Control Delay (s)	9	0	-	145.3	24.8	12.3	8.7	-	-
HCM Lane LOS	A	A	-	F	C	B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	5.6	0.8	0.4	0.1	-	-

Intersection						
Int Delay, s/veh	4.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	128	292	403	90	157	384
Future Vol, veh/h	128	292	403	90	157	384
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	Yield	-	None
Storage Length	0	100	-	300	315	-
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	139	317	438	98	171	417

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1197	-	0	0	438
Stage 1	438	-	-	-	-
Stage 2	759	-	-	-	-
Critical Hdwy	6.42	-	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	2.218
Pot Cap-1 Maneuver	205	0	-	-	1122
Stage 1	651	0	-	-	-
Stage 2	462	0	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	174	-	-	-	1122
Mov Cap-2 Maneuver	295	-	-	-	-
Stage 1	651	-	-	-	-
Stage 2	392	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	27.6	0	2.5
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	295	-	1122
HCM Lane V/C Ratio	-	-	0.472	-	0.152
HCM Control Delay (s)	-	-	27.6	0	8.8
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	2.4	-	0.5

Intersection												
Int Delay, s/veh	6.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕	↕	↕	↕	
Traffic Vol, veh/h	26	23	9	43	33	110	4	382	99	155	333	38
Future Vol, veh/h	26	23	9	43	33	110	4	382	99	155	333	38
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	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	75	-	-	0	75	-	-
Veh in Median Storage, #	-	0	-	-	1	-	-	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	28	25	10	47	36	120	4	415	108	168	362	41

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1274	1250	383	1159	1162	415	403	0	0	523	0	0
Stage 1	719	719	-	423	423	-	-	-	-	-	-	-
Stage 2	555	531	-	736	739	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	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	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	144	173	664	173	195	637	1156	-	-	1043	-	-
Stage 1	420	433	-	609	588	-	-	-	-	-	-	-
Stage 2	516	526	-	411	424	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	92	144	664	130	163	637	1156	-	-	1043	-	-
Mov Cap-2 Maneuver	92	144	-	239	268	-	-	-	-	-	-	-
Stage 1	418	363	-	606	585	-	-	-	-	-	-	-
Stage 2	391	523	-	316	356	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	58.5		17.8		0.1		2.7	
HCM LOS	F		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1156	-	-	127	251	637	1043	-	-
HCM Lane V/C Ratio	0.004	-	-	0.496	0.329	0.188	0.162	-	-
HCM Control Delay (s)	8.1	0	-	58.5	26.2	12	9.1	-	-
HCM Lane LOS	A	A	-	F	D	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	2.3	1.4	0.7	0.6	-	-

HCM 6th Signalized Intersection Summary
 3: Pahoia Bypass Rd. & Pahoia Village Rd./Pahoia Kapoho Rd.

Future Year 2026 AM
 Alternative 2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↖	↗	↖	↖	↗
Traffic Volume (veh/h)	134	101	50	9	205	168	132	192	6	87	111	170
Future Volume (veh/h)	134	101	50	9	205	168	132	192	6	87	111	170
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	146	110	54	10	223	183	143	209	7	95	121	185
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	199	142	58	50	316	252	601	787	667	589	761	645
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.07	0.42	0.42	0.05	0.41	0.41
Sat Flow, veh/h	413	437	179	16	972	776	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	310	0	0	416	0	0	143	209	7	95	121	185
Grp Sat Flow(s),veh/h/ln	1030	0	0	1763	0	0	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	7.1	0.0	0.0	0.0	0.0	0.0	3.8	6.0	0.2	2.4	3.4	6.4
Cycle Q Clear(g_c), s	24.7	0.0	0.0	17.5	0.0	0.0	3.8	6.0	0.2	2.4	3.4	6.4
Prop In Lane	0.47		0.17	0.02		0.44	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	399	0	0	617	0	0	601	787	667	589	761	645
V/C Ratio(X)	0.78	0.00	0.00	0.67	0.00	0.00	0.24	0.27	0.01	0.16	0.16	0.29
Avail Cap(c_a), veh/h	403	0	0	623	0	0	1259	787	667	1272	761	645
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.3	0.0	0.0	24.7	0.0	0.0	12.4	15.5	13.9	12.2	15.5	16.4
Incr Delay (d2), s/veh	9.1	0.0	0.0	2.8	0.0	0.0	0.1	0.8	0.0	0.0	0.4	1.1
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	6.8	0.0	0.0	7.2	0.0	0.0	1.4	2.6	0.1	0.9	1.4	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.4	0.0	0.0	27.4	0.0	0.0	12.5	16.4	13.9	12.3	15.9	17.5
LnGrp LOS	D	A	A	C	A	A	B	B	B	B	B	B
Approach Vol, veh/h		310			416			359			401	
Approach Delay, s/veh		36.4			27.4			14.8			15.8	
Approach LOS		D			C			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	41.2		32.7	9.6	40.0		32.7				
Change Period (Y+Rc), s	4.0	6.5		6.0	4.0	6.5		6.0				
Max Green Setting (Gmax), s	36.0	31.5		27.0	36.0	33.5		27.0				
Max Q Clear Time (g_c+I1), s	4.4	8.0		26.7	5.8	8.4		19.5				
Green Ext Time (p_c), s	0.0	0.5		0.1	0.0	0.5		1.4				
Intersection Summary												
HCM 6th Ctrl Delay				23.1								
HCM 6th LOS				C								

Intersection						
Int Delay, s/veh	3.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	62	150	395	116	262	481
Future Vol, veh/h	62	150	395	116	262	481
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	Yield	-	None
Storage Length	0	100	-	300	315	-
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	67	163	429	126	285	523

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1522	-	0	0	429
Stage 1	429	-	-	-	-
Stage 2	1093	-	-	-	-
Critical Hdwy	6.42	-	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	2.218
Pot Cap-1 Maneuver	130	0	-	-	1130
Stage 1	657	0	-	-	-
Stage 2	321	0	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	97	-	-	-	1130
Mov Cap-2 Maneuver	193	-	-	-	-
Stage 1	657	-	-	-	-
Stage 2	240	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	33.3	0	3.3
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	193	-	1130
HCM Lane V/C Ratio	-	-	0.349	-	0.252
HCM Control Delay (s)	-	-	33.3	0	9.3
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	1.5	-	1

Intersection												
Int Delay, s/veh	17.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕	↕	↕	↕	
Traffic Vol, veh/h	89	24	25	50	44	90	14	371	49	77	370	104
Future Vol, veh/h	89	24	25	50	44	90	14	371	49	77	370	104
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	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	75	-	-	0	75	-	-
Veh in Median Storage, #	-	0	-	-	1	-	-	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	97	26	27	54	48	98	15	403	53	84	402	113

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1160	1113	459	1086	1116	403	515	0	0	456	0	0
Stage 1	627	627	-	433	433	-	-	-	-	-	-	-
Stage 2	533	486	-	653	683	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	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	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	172	208	602	194	208	647	1051	-	-	1105	-	-
Stage 1	471	476	-	601	582	-	-	-	-	-	-	-
Stage 2	531	551	-	456	449	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	119	188	602	154	188	647	1051	-	-	1105	-	-
Mov Cap-2 Maneuver	119	188	-	270	296	-	-	-	-	-	-	-
Stage 1	462	440	-	590	571	-	-	-	-	-	-	-
Stage 2	405	541	-	378	415	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	132.9		18.3		0.3		1.2	
HCM LOS	F		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1051	-	-	150	282	647	1105	-	-
HCM Lane V/C Ratio	0.014	-	-	1	0.362	0.151	0.076	-	-
HCM Control Delay (s)	8.5	0	-	132.9	24.8	11.6	8.5	-	-
HCM Lane LOS	A	A	-	F	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	7.5	1.6	0.5	0.2	-	-

HCM 6th Signalized Intersection Summary
 3: Pahoia Bypass Rd. & Pahoia Village Rd./Pahoia Kapoho Rd.

Future Year 2026 PM
 Alternative 2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↖	↗	↖	↖	↗
Traffic Volume (veh/h)	42	245	123	4	219	171	107	125	1	197	193	33
Future Volume (veh/h)	42	245	123	4	219	171	107	125	1	197	193	33
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	46	266	134	4	238	186	116	136	1	214	210	36
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	83	313	148	47	294	227	607	745	632	699	813	689
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.06	0.40	0.40	0.09	0.43	0.43
Sat Flow, veh/h	109	1048	497	4	985	760	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	446	0	0	428	0	0	116	136	1	214	210	36
Grp Sat Flow(s),veh/h/ln	1654	0	0	1749	0	0	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	2.3	0.0	0.0	0.0	0.0	0.0	2.8	3.7	0.0	5.5	5.7	1.0
Cycle Q Clear(g_c), s	20.4	0.0	0.0	18.1	0.0	0.0	2.8	3.7	0.0	5.5	5.7	1.0
Prop In Lane	0.10		0.30	0.01		0.43	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	544	0	0	568	0	0	607	745	632	699	813	689
V/C Ratio(X)	0.82	0.00	0.00	0.75	0.00	0.00	0.19	0.18	0.00	0.31	0.26	0.05
Avail Cap(c_a), veh/h	614	0	0	642	0	0	1314	745	632	1342	813	689
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.4	0.0	0.0	25.8	0.0	0.0	11.1	15.4	14.3	11.7	14.2	12.9
Incr Delay (d2), s/veh	7.7	0.0	0.0	4.3	0.0	0.0	0.1	0.5	0.0	0.1	0.8	0.1
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	8.9	0.0	0.0	7.7	0.0	0.0	1.0	1.6	0.0	2.0	2.4	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.1	0.0	0.0	30.2	0.0	0.0	11.2	16.0	14.3	11.8	15.0	13.1
LnGrp LOS	C	A	A	C	A	A	B	B	B	B	B	B
Approach Vol, veh/h		446			428			253			460	
Approach Delay, s/veh		34.1			30.2			13.7			13.3	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.5	38.0		29.6	8.6	40.8		29.6				
Change Period (Y+Rc), s	4.0	6.5		6.0	4.0	6.5		6.0				
Max Green Setting (Gmax), s	36.0	31.5		27.0	36.0	33.5		27.0				
Max Q Clear Time (g_c+I1), s	7.5	5.7		22.4	4.8	7.7		20.1				
Green Ext Time (p_c), s	0.0	0.3		1.2	0.0	0.6		1.4				
Intersection Summary												
HCM 6th Ctrl Delay				23.8								
HCM 6th LOS				C								

Intersection						
Int Delay, s/veh	4.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	128	292	435	90	157	433
Future Vol, veh/h	128	292	435	90	157	433
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	Yield	-	None
Storage Length	0	100	-	300	315	-
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	139	317	473	98	171	471

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1286	-	0	0	473
Stage 1	473	-	-	-	-
Stage 2	813	-	-	-	-
Critical Hdwy	6.42	-	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	2.218
Pot Cap-1 Maneuver	181	0	-	-	1089
Stage 1	627	0	-	-	-
Stage 2	436	0	-	-	-
Platoon blocked, %		-	-	-	-
Mov Cap-1 Maneuver	153	-	-	-	1089
Mov Cap-2 Maneuver	275	-	-	-	-
Stage 1	627	-	-	-	-
Stage 2	368	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	30.8	0	2.4
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	275	-	1089
HCM Lane V/C Ratio	-	-	0.506	-	0.157
HCM Control Delay (s)	-	-	30.8	0	8.9
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	2.7	-	0.6

Intersection												
Int Delay, s/veh	9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕	↕	↕	↕	
Traffic Vol, veh/h	26	27	9	47	37	122	4	401	118	186	350	38
Future Vol, veh/h	26	27	9	47	37	122	4	401	118	186	350	38
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	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	75	-	-	0	75	-	-
Veh in Median Storage, #	-	0	-	-	1	-	-	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	28	29	10	51	40	133	4	436	128	202	380	41

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1400	1377	401	1268	1269	436	421	0	0	564	0	0
Stage 1	805	805	-	444	444	-	-	-	-	-	-	-
Stage 2	595	572	-	824	825	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	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	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	118	145	649	145	168	620	1138	-	-	1008	-	-
Stage 1	376	395	-	593	575	-	-	-	-	-	-	-
Stage 2	491	504	-	367	387	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	68	115	649	97	134	620	1138	-	-	1008	-	-
Mov Cap-2 Maneuver	68	115	-	199	235	-	-	-	-	-	-	-
Stage 1	374	316	-	590	572	-	-	-	-	-	-	-
Stage 2	357	501	-	262	310	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	99.2		21.2		0.1		3.1	
HCM LOS	F		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1138	-	-	98	213	620	1008	-	-
HCM Lane V/C Ratio	0.004	-	-	0.688	0.429	0.214	0.201	-	-
HCM Control Delay (s)	8.2	0	-	99.2	34	12.4	9.5	-	-
HCM Lane LOS	A	A	-	F	D	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	3.5	2	0.8	0.7	-	-

HCM 6th Signalized Intersection Summary
 3: Pahoia Bypass Rd. & Pahoia Village Rd./Pahoia Kapoho Rd.

Future Year 2031 AM
 Alternative 2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↖	↗	↖	↖	↗
Traffic Volume (veh/h)	136	101	50	9	205	178	132	207	6	87	120	170
Future Volume (veh/h)	136	101	50	9	205	178	132	207	6	87	120	170
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	148	110	54	10	223	193	143	225	7	95	130	185
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	196	139	57	50	310	261	593	785	665	574	758	643
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.07	0.42	0.42	0.05	0.41	0.41
Sat Flow, veh/h	405	424	173	16	949	799	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	312	0	0	426	0	0	143	225	7	95	130	185
Grp Sat Flow(s),veh/h/ln	1002	0	0	1764	0	0	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	7.6	0.0	0.0	0.0	0.0	0.0	3.8	6.6	0.2	2.5	3.7	6.5
Cycle Q Clear(g_c), s	25.7	0.0	0.0	18.1	0.0	0.0	3.8	6.6	0.2	2.5	3.7	6.5
Prop In Lane	0.47		0.17	0.02		0.45	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	392	0	0	621	0	0	593	785	665	574	758	643
V/C Ratio(X)	0.80	0.00	0.00	0.69	0.00	0.00	0.24	0.29	0.01	0.17	0.17	0.29
Avail Cap(c_a), veh/h	392	0	0	621	0	0	1248	785	665	1254	758	643
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.7	0.0	0.0	24.8	0.0	0.0	12.5	15.8	14.0	12.4	15.7	16.5
Incr Delay (d2), s/veh	10.8	0.0	0.0	3.1	0.0	0.0	0.1	0.9	0.0	0.0	0.5	1.1
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	7.1	0.0	0.0	7.5	0.0	0.0	1.4	2.8	0.1	0.9	1.6	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.5	0.0	0.0	27.9	0.0	0.0	12.6	16.7	14.0	12.4	16.2	17.7
LnGrp LOS	D	A	A	C	A	A	B	B	B	B	B	B
Approach Vol, veh/h		312			426			375				410
Approach Delay, s/veh		38.5			27.9			15.1				16.0
Approach LOS		D			C			B				B
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	41.2		33.0	9.6	40.0		33.0				
Change Period (Y+Rc), s	4.0	6.5		6.0	4.0	6.5		6.0				
Max Green Setting (Gmax), s	36.0	31.5		27.0	36.0	33.5		27.0				
Max Q Clear Time (g_c+I1), s	4.5	8.6		27.7	5.8	8.5		20.1				
Green Ext Time (p_c), s	0.0	0.6		0.0	0.0	0.5		1.4				
Intersection Summary												
HCM 6th Ctrl Delay				23.7								
HCM 6th LOS				C								

Intersection						
Int Delay, s/veh	3.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	62	150	429	116	262	522
Future Vol, veh/h	62	150	429	116	262	522
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	Yield	-	None
Storage Length	0	100	-	300	315	-
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	67	163	466	126	285	567

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1603	-	0	0	466
Stage 1	466	-	-	-	-
Stage 2	1137	-	-	-	-
Critical Hdwy	6.42	-	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	2.218
Pot Cap-1 Maneuver	116	0	-	-	1095
Stage 1	632	0	-	-	-
Stage 2	306	0	-	-	-
Platoon blocked, %		-	-	-	-
Mov Cap-1 Maneuver	86	-	-	-	1095
Mov Cap-2 Maneuver	180	-	-	-	-
Stage 1	632	-	-	-	-
Stage 2	226	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	36.5	0	3.2
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	180	-	1095
HCM Lane V/C Ratio	-	-	0.374	-	0.26
HCM Control Delay (s)	-	-	36.5	0	9.4
HCM Lane LOS	-	-	E	A	A
HCM 95th %tile Q(veh)	-	-	1.6	-	1

Intersection												
Int Delay, s/veh	28.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕	↕	↕	↕	
Traffic Vol, veh/h	89	30	25	58	52	105	14	389	60	95	389	104
Future Vol, veh/h	89	30	25	58	52	105	14	389	60	95	389	104
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	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	75	-	-	0	75	-	-
Veh in Median Storage, #	-	0	-	-	1	-	-	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	97	33	27	63	57	114	15	423	65	103	423	113

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1257	1204	480	1169	1195	423	536	0	0	488	0	0
Stage 1	686	686	-	453	453	-	-	-	-	-	-	-
Stage 2	571	518	-	716	742	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	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	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	148	184	586	170	186	631	1032	-	-	1075	-	-
Stage 1	438	448	-	586	570	-	-	-	-	-	-	-
Stage 2	506	533	-	421	422	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 93	163	586	126	165	631	1032	-	-	1075	-	-
Mov Cap-2 Maneuver	~ 93	163	-	238	272	-	-	-	-	-	-	-
Stage 1	429	405	-	574	559	-	-	-	-	-	-	-
Stage 2	365	522	-	334	381	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	243.4		21.9		0.3		1.4	
HCM LOS	F		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1032	-	-	122	253	631	1075	-	-
HCM Lane V/C Ratio	0.015	-	-	1.283	0.473	0.181	0.096	-	-
HCM Control Delay (s)	8.5	0	-	243.4	31.4	12	8.7	-	-
HCM Lane LOS	A	A	-	F	D	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	10.1	2.4	0.7	0.3	-	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 6th Signalized Intersection Summary
 3: Pahoia Bypass Rd. & Pahoia Village Rd./Pahoia Kapoho Rd.

Future Year 2031 PM
 Alternative 2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↖	↗	↖	↖	↗
Traffic Volume (veh/h)	43	245	123	4	219	177	107	135	1	197	210	33
Future Volume (veh/h)	43	245	123	4	219	177	107	135	1	197	210	33
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	47	266	134	4	238	192	116	147	1	214	228	36
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	84	312	148	47	291	232	590	743	630	688	811	687
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.06	0.40	0.40	0.09	0.43	0.43
Sat Flow, veh/h	111	1040	493	4	970	773	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	447	0	0	434	0	0	116	147	1	214	228	36
Grp Sat Flow(s),veh/h/ln	1643	0	0	1747	0	0	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	2.2	0.0	0.0	0.0	0.0	0.0	2.8	4.1	0.0	5.5	6.2	1.0
Cycle Q Clear(g_c), s	20.7	0.0	0.0	18.5	0.0	0.0	2.8	4.1	0.0	5.5	6.2	1.0
Prop In Lane	0.11		0.30	0.01		0.44	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	544	0	0	571	0	0	590	743	630	688	811	687
V/C Ratio(X)	0.82	0.00	0.00	0.76	0.00	0.00	0.20	0.20	0.00	0.31	0.28	0.05
Avail Cap(c_a), veh/h	609	0	0	640	0	0	1295	743	630	1328	811	687
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.4	0.0	0.0	25.9	0.0	0.0	11.2	15.6	14.4	11.8	14.5	13.0
Incr Delay (d2), s/veh	8.0	0.0	0.0	4.6	0.0	0.0	0.1	0.6	0.0	0.1	0.9	0.1
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	9.0	0.0	0.0	7.9	0.0	0.0	1.0	1.7	0.0	2.0	2.6	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.3	0.0	0.0	30.5	0.0	0.0	11.3	16.2	14.4	11.9	15.4	13.2
LnGrp LOS	C	A	A	C	A	A	B	B	B	B	B	B
Approach Vol, veh/h		447			434			264			478	
Approach Delay, s/veh		34.3			30.5			14.1			13.6	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.5	38.0		29.8	8.6	40.9		29.8				
Change Period (Y+Rc), s	4.0	6.5		6.0	4.0	6.5		6.0				
Max Green Setting (Gmax), s	36.0	31.5		27.0	36.0	33.5		27.0				
Max Q Clear Time (g_c+I1), s	7.5	6.1		22.7	4.8	8.2		20.5				
Green Ext Time (p_c), s	0.0	0.3		1.1	0.0	0.6		1.4				
Intersection Summary												
HCM 6th Ctrl Delay				23.9								
HCM 6th LOS				C								

Intersection						
Int Delay, s/veh	4.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	128	292	477	90	157	471
Future Vol, veh/h	128	292	477	90	157	471
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	Yield	-	None
Storage Length	0	100	-	300	315	-
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	139	317	518	98	171	512

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1372	-	0	0	518
Stage 1	518	-	-	-	-
Stage 2	854	-	-	-	-
Critical Hdwy	6.42	-	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	2.218
Pot Cap-1 Maneuver	161	0	-	-	1048
Stage 1	598	0	-	-	-
Stage 2	417	0	-	-	-
Platoon blocked, %		-	-	-	-
Mov Cap-1 Maneuver	~ 135	-	-	-	1048
Mov Cap-2 Maneuver	257	-	-	-	-
Stage 1	598	-	-	-	-
Stage 2	349	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	34.4	0	2.3
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 257	- 1048	-
HCM Lane V/C Ratio	-	- 0.541	- 0.163	-
HCM Control Delay (s)	-	- 34.4	0 9.1	-
HCM Lane LOS	-	- D	A A	-
HCM 95th %tile Q(veh)	-	- 3	- 0.6	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection												
Int Delay, s/veh	10.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔		↔	↔	↔	↔	
Traffic Vol, veh/h	26	27	9	47	37	122	4	442	118	186	386	38
Future Vol, veh/h	26	27	9	47	37	122	4	442	118	186	386	38
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	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	75	-	-	0	75	-	-
Veh in Median Storage, #	-	0	-	-	1	-	-	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	28	29	10	51	40	133	4	480	128	202	420	41

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1484	1461	441	1352	1353	480	461	0	0	608	0	0
Stage 1	845	845	-	488	488	-	-	-	-	-	-	-
Stage 2	639	616	-	864	865	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	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	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	103	129	616	127	150	586	1100	-	-	970	-	-
Stage 1	357	379	-	561	550	-	-	-	-	-	-	-
Stage 2	464	482	-	349	371	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	58	102	616	82	118	586	1100	-	-	970	-	-
Mov Cap-2 Maneuver	58	102	-	184	220	-	-	-	-	-	-	-
Stage 1	355	300	-	558	547	-	-	-	-	-	-	-
Stage 2	331	479	-	245	294	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	132.2		23.1		0.1		3	
HCM LOS	F		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1100	-	-	85	198	586	970	-	-
HCM Lane V/C Ratio	0.004	-	-	0.793	0.461	0.226	0.208	-	-
HCM Control Delay (s)	8.3	0	-	132.2	37.9	12.9	9.7	-	-
HCM Lane LOS	A	A	-	F	E	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	4	2.2	0.9	0.8	-	-

HCM 6th Signalized Intersection Summary
 3: Pahoia Bypass Rd. & Pahoia Village Rd./Pahoia Kapoho Rd.

Future Year 2041 AM
 Alternative 2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↖	↗	↖	↖	↗
Traffic Volume (veh/h)	136	101	50	9	205	178	132	227	6	87	130	170
Future Volume (veh/h)	136	101	50	9	205	178	132	227	6	87	130	170
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	148	110	54	10	223	193	143	247	7	95	141	185
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	196	139	57	50	310	261	584	785	665	556	758	643
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.07	0.42	0.42	0.05	0.41	0.41
Sat Flow, veh/h	405	424	173	16	949	799	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	312	0	0	426	0	0	143	247	7	95	141	185
Grp Sat Flow(s),veh/h/ln	1002	0	0	1764	0	0	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	7.6	0.0	0.0	0.0	0.0	0.0	3.8	7.3	0.2	2.5	4.0	6.5
Cycle Q Clear(g_c), s	25.7	0.0	0.0	18.1	0.0	0.0	3.8	7.3	0.2	2.5	4.0	6.5
Prop In Lane	0.47		0.17	0.02		0.45	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	392	0	0	621	0	0	584	785	665	556	758	643
V/C Ratio(X)	0.80	0.00	0.00	0.69	0.00	0.00	0.24	0.31	0.01	0.17	0.19	0.29
Avail Cap(c_a), veh/h	392	0	0	621	0	0	1240	785	665	1237	758	643
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.7	0.0	0.0	24.8	0.0	0.0	12.6	16.0	14.0	12.4	15.8	16.5
Incr Delay (d2), s/veh	10.8	0.0	0.0	3.1	0.0	0.0	0.1	1.0	0.0	0.1	0.5	1.1
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	7.1	0.0	0.0	7.5	0.0	0.0	1.4	3.1	0.1	0.9	1.7	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.5	0.0	0.0	27.9	0.0	0.0	12.6	17.1	14.0	12.5	16.3	17.7
LnGrp LOS	D	A	A	C	A	A	B	B	B	B	B	B
Approach Vol, veh/h		312			426			397				421
Approach Delay, s/veh		38.5			27.9			15.4				16.0
Approach LOS		D			C			B				B
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	41.2		33.0	9.6	40.0		33.0				
Change Period (Y+Rc), s	4.0	6.5		6.0	4.0	6.5		6.0				
Max Green Setting (Gmax), s	36.0	31.5		27.0	36.0	33.5		27.0				
Max Q Clear Time (g_c+I1), s	4.5	9.3		27.7	5.8	8.5		20.1				
Green Ext Time (p_c), s	0.0	0.6		0.0	0.0	0.5		1.4				
Intersection Summary												
HCM 6th Ctrl Delay				23.6								
HCM 6th LOS				C								

Intersection						
Int Delay, s/veh	3.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	62	150	470	116	262	572
Future Vol, veh/h	62	150	470	116	262	572
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	Yield	-	None
Storage Length	0	100	-	300	315	-
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	67	163	511	126	285	622

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1703	-	0	0	511
Stage 1	511	-	-	-	-
Stage 2	1192	-	-	-	-
Critical Hdwy	6.42	-	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	-	-	-	2.218
Pot Cap-1 Maneuver	101	0	-	-	1054
Stage 1	602	0	-	-	-
Stage 2	288	0	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	74	-	-	-	1054
Mov Cap-2 Maneuver	166	-	-	-	-
Stage 1	602	-	-	-	-
Stage 2	210	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	40.8	0	3
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	166	-	1054
HCM Lane V/C Ratio	-	-	0.406	-	0.27
HCM Control Delay (s)	-	-	40.8	0	9.7
HCM Lane LOS	-	-	E	A	A
HCM 95th %tile Q(veh)	-	-	1.8	-	1.1

Intersection												
Int Delay, s/veh	37.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕	↕	↕	↕	
Traffic Vol, veh/h	89	30	25	58	52	105	14	429	60	95	429	104
Future Vol, veh/h	89	30	25	58	52	105	14	429	60	95	429	104
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	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	75	-	-	0	75	-	-
Veh in Median Storage, #	-	0	-	-	1	-	-	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	97	33	27	63	57	114	15	466	65	103	466	113

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1343	1290	523	1255	1281	466	579	0	0	531	0	0
Stage 1	729	729	-	496	496	-	-	-	-	-	-	-
Stage 2	614	561	-	759	785	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	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	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	129	163	554	148	166	597	995	-	-	1036	-	-
Stage 1	414	428	-	556	545	-	-	-	-	-	-	-
Stage 2	479	510	-	399	404	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 79	144	554	106	146	597	995	-	-	1036	-	-
Mov Cap-2 Maneuver	~ 79	144	-	219	255	-	-	-	-	-	-	-
Stage 1	405	386	-	544	533	-	-	-	-	-	-	-
Stage 2	339	499	-	313	364	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s\$	343.9		24.1		0.2		1.3	
HCM LOS	F		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	995	-	-	104	235	597	1036	-	-
HCM Lane V/C Ratio	0.015	-	-	1.505	0.509	0.191	0.1	-	-
HCM Control Delay (s)	8.7	0	-	\$ 343.9	35.2	12.5	8.9	-	-
HCM Lane LOS	A	A	-	F	E	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	11.6	2.6	0.7	0.3	-	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 6th Signalized Intersection Summary
 3: Pahoia Bypass Rd. & Pahoia Village Rd./Pahoia Kapoho Rd.

Future Year 2041 PM
 Alternative 2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↖	↗	↖	↖	↗
Traffic Volume (veh/h)	43	245	123	4	219	177	107	147	1	197	229	33
Future Volume (veh/h)	43	245	123	4	219	177	107	147	1	197	229	33
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	47	266	134	4	238	192	116	160	1	214	249	36
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	84	312	148	47	291	232	573	743	630	677	811	687
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.06	0.40	0.40	0.09	0.43	0.43
Sat Flow, veh/h	111	1040	493	4	970	773	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	447	0	0	434	0	0	116	160	1	214	249	36
Grp Sat Flow(s),veh/h/ln	1643	0	0	1747	0	0	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	2.2	0.0	0.0	0.0	0.0	0.0	2.8	4.5	0.0	5.5	6.9	1.0
Cycle Q Clear(g_c), s	20.7	0.0	0.0	18.5	0.0	0.0	2.8	4.5	0.0	5.5	6.9	1.0
Prop In Lane	0.11		0.30	0.01		0.44	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	544	0	0	571	0	0	573	743	630	677	811	687
V/C Ratio(X)	0.82	0.00	0.00	0.76	0.00	0.00	0.20	0.22	0.00	0.32	0.31	0.05
Avail Cap(c_a), veh/h	609	0	0	640	0	0	1279	743	630	1317	811	687
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	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.4	0.0	0.0	25.9	0.0	0.0	11.3	15.8	14.4	11.8	14.7	13.0
Incr Delay (d2), s/veh	8.0	0.0	0.0	4.6	0.0	0.0	0.1	0.7	0.0	0.1	1.0	0.1
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	9.0	0.0	0.0	7.9	0.0	0.0	1.0	1.9	0.0	2.0	2.9	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.3	0.0	0.0	30.5	0.0	0.0	11.4	16.4	14.4	11.9	15.7	13.2
LnGrp LOS	C	A	A	C	A	A	B	B	B	B	B	B
Approach Vol, veh/h		447			434			277			499	
Approach Delay, s/veh		34.3			30.5			14.3			13.9	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.5	38.0		29.8	8.6	40.9		29.8				
Change Period (Y+Rc), s	4.0	6.5		6.0	4.0	6.5		6.0				
Max Green Setting (Gmax), s	36.0	31.5		27.0	36.0	33.5		27.0				
Max Q Clear Time (g_c+I1), s	7.5	6.5		22.7	4.8	8.9		20.5				
Green Ext Time (p_c), s	0.0	0.4		1.1	0.0	0.7		1.4				
Intersection Summary												
HCM 6th Ctrl Delay				23.8								
HCM 6th LOS				C								

Intersection												
Int Delay, s/veh	7.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	26	27	9	47	37	122	4	442	118	186	386	38
Future Vol, veh/h	26	27	9	47	37	122	4	442	118	186	386	38
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	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	75	-	-	-	-	75	-	-	0	75	-	-
Veh in Median Storage, #	-	0	-	-	1	-	-	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	28	29	10	51	40	133	4	480	128	202	420	41

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1484	1461	441	1352	1353	480	461	0	0	608	0	0
Stage 1	845	845	-	488	488	-	-	-	-	-	-	-
Stage 2	639	616	-	864	865	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	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	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	103	129	616	127	150	586	1100	-	-	970	-	-
Stage 1	357	379	-	561	550	-	-	-	-	-	-	-
Stage 2	464	482	-	349	371	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	58	102	616	82	118	586	1100	-	-	970	-	-
Mov Cap-2 Maneuver	58	102	-	184	220	-	-	-	-	-	-	-
Stage 1	355	300	-	558	547	-	-	-	-	-	-	-
Stage 2	331	479	-	245	294	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	74.5		23.1		0.1		3	
HCM LOS	F		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1100	-	-	58	129	198	586	970	-	-
HCM Lane V/C Ratio	0.004	-	-	0.487	0.303	0.461	0.226	0.208	-	-
HCM Control Delay (s)	8.3	0	-	115.8	44.6	37.9	12.9	9.7	-	-
HCM Lane LOS	A	A	-	F	E	E	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	1.9	1.2	2.2	0.9	0.8	-	-

Intersection												
Int Delay, s/veh	21.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↖	↗		↖	↗	↖	↗	
Traffic Vol, veh/h	89	30	25	58	52	105	14	429	60	95	429	104
Future Vol, veh/h	89	30	25	58	52	105	14	429	60	95	429	104
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	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	75	-	-	-	-	75	-	-	0	75	-	-
Veh in Median Storage, #	-	0	-	-	1	-	-	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	97	33	27	63	57	114	15	466	65	103	466	113

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1343	1290	523	1255	1281	466	579	0	0	531	0	0
Stage 1	729	729	-	496	496	-	-	-	-	-	-	-
Stage 2	614	561	-	759	785	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	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	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	129	163	554	148	166	597	995	-	-	1036	-	-
Stage 1	414	428	-	556	545	-	-	-	-	-	-	-
Stage 2	479	510	-	399	404	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 79	144	554	106	146	597	995	-	-	1036	-	-
Mov Cap-2 Maneuver	~ 79	144	-	219	255	-	-	-	-	-	-	-
Stage 1	405	386	-	544	533	-	-	-	-	-	-	-
Stage 2	339	499	-	313	364	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	175.9	24.1	0.2	1.3
HCM LOS	F	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	995	-	-	79	217	235	597	1036	-	-
HCM Lane V/C Ratio	0.015	-	-	1.225	0.275	0.509	0.191	0.1	-	-
HCM Control Delay (s)	8.7	0	-	267.4	27.8	35.2	12.5	8.9	-	-
HCM Lane LOS	A	A	-	F	D	E	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	7.2	1.1	2.6	0.7	0.3	-	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon



APPENDIX D

CRASH DATA

HDOT Crash Data (2016-2020)

Occur Date	Occur Day	Occur Time	Mv Total Inv	Mc Total Inv	Mop Total Inv	Bc Total Inv	Ped Total Inv	Prim Route No	Prim Milepost	Street Highway	Refer Distance	Refer Dist Unit	Refer Direction	Reference Name	Prim Jurisdict	Intersectionrelated	Number Killed	Number Injured	Crashactions
21-12-2019	SA	2:07	2	0	0	0	0	130	10.7	KEAAU-PAHOA RD	-	-	-	KAOHE HMSTD RD	S4U	Y	0	0	87
9/12/2016	FR	6:38	2	0	0	0	0	130	10.8	KEAAU-PAHOA RD	-	-	-	KAOHE HMSTD RD	S4U	Y	0	0	87
17-08-2016	WE	14:34	1	0	0	0	1	130	10.8	KEAAU-PAHOA RD	20	FT	SE	KAOHE HMSTD RD	S4U	Y	0	0	53
25-11-2016	FR	15:03	1	0	0	0	0	130	11.1	KEAAU-PAHOA RD	-	-	-	NANAWALE HMSTD RD	S4U	Y	0	1	21, 24
9/8/2016	TU	8:10	2	0	0	0	0	130	11.1	KEAAU-PAHOA RD	-	-	-	NANAWALE HMSTD RD	S4U	Y	0	1	87
4/10/2020	SU	12:19	0	1	0	0	0	130	11.1	KEAAU-PAHOA RD	9	FT	SE	NANAWALE HMSTD RD	S4U	Y	0	2	8
19-05-2017	FR	12:00	2	0	0	0	0	130	11.5	KEAAU-PAHOA RD	-	-	-	PAHOA-KAPOHO RD	S4U	Y	0	0	81
24-08-2017	TH	14:52	1	1	0	0	0	130	11.5	KEAAU-PAHOA RD	-	-	-	PAHOA-KAPOHO RD	S4U	Y	1	0	87
11/12/2017	MO	7:50	2	0	0	0	0	130	11.5	KEAAU-PAHOA RD	-	-	-	PAHOA-KAPOHO RD	S4U	Y	0	2	81
24-01-2018	WE	12:38	2	0	0	0	0	130	11.5	KEAAU-PAHOA RD	-	-	-	PAHOA-KAPOHO RD	S4U	Y	0	0	87
14-03-2018	WE	19:21	2	0	0	0	0	130	11.5	KEAAU-PAHOA RD	-	-	-	PAHOA-KAPOHO RD	S4U	Y	0	0	87
6/6/2018	WE	19:11	2	0	0	0	0	130	11.5	KEAAU-PAHOA RD	-	-	-	PAHOA-KAPOHO RD	S4U	Y	0	1	87
4/1/2017	WE	16:13	1	1	0	0	0	130	11.5	KEAAU-PAHOA RD	-	-	-	PAHOA-KAPOHO RD	S4U	Y	0	1	87
15-01-2019	TU	12:43	2	0	0	0	0	130	11.5	PAHOA-KALAPANA RD	-	-	-	PAHOA VILLAGE RD (S)	S4U	Y	0	1	85
22-10-2016	SA	1:44	2	0	0	0	0	130	11.5	KEAAU-PAHOA RD	10	FT	N	PAHOA-KAPOHO RD	S4U	Y	0	1	81
22-12-2019	SU	17:57	2	0	0	0	0	130	11.5	KEAAU-PAHOA RD	-	-	-	PAHOA-KAPOHO RD	S4U	Y	0	1	87
12/2/2020	WE	11:15	2	0	0	0	0	130	11.5	KEAAU-PAHOA RD	3	FT	S	PAHOA-KAPOHO RD	S4U	Y	0	2	85
26-09-2020	SA	17:59	2	0	0	0	0	130	11.5	KEAAU-PAHOA RD	4	FT	S	PAHOA-KAPOHO RD	S4U	Y	0	0	87, 80
30-10-2020	FR	8:06	2	0	0	0	0	130	11.5	KEAAU-PAHOA RD	4	FT	S	PAHOA-KAPOHO RD	S4U	Y	0	1	80, 38
26-06-2018	TU	20:23	2	0	0	0	0	130	11.5	KEAAU-PAHOA RD	-	-	-	PAHOA-KAPOHO RD	S4U	Y	0	1	81

The State of Hawaii, Department of Transportation, has provided this traffic accident information under the protection of 23 USC 409. This information may not be used in any federal or State court proceeding in any action for damages arising from any occurrence at a location mentioned or addressed in the information provided.

FINAL ENVIRONMENTAL ASSESSMENT

Arts and Sciences Center (ASC) Campus Expansion

Appendix B Comments in Response to Early Consultation



DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAI'I
345 KEKŪANAŌ'A STREET, SUITE 20 • HILO, HAWAI'I 96720
TELEPHONE (808) 961-8050 • FAX (808) 961-8657

February 4, 2021

Mr. John Pipan, Planning Administrator
Land Planning Hawai'i LLC
194 Wiwoole Street
Hilo, HI 96720

Dear Mr. Pipan:

**Subject: Early Request of Comment for Environmental Assessment for Proposed Expansion of
Hawai'i Academy of Arts and Sciences (HAAS)
Applicant: Arts and Sciences Center (ASC)
Tax Map Key 1-5-006:002, 012 and 026**

This is in response to your letter dated December 23, 2020.

In order to ascertain the water needs of the project, the Department requests that the applicant submit estimated maximum daily water usage calculations for the proposed project, prepared by a professional engineer licensed in the State of Hawai'i, for review and approval. The water usage calculations shall include the total estimated daily water usage in gallons per day and the estimated peak flow in gallons per minute.

Upon acceptance of the water usage calculations, the Department will determine if water is available, the water commitment deposit amount, facilities charges due, and necessary water system improvements to support the subject development.

Should there be any questions, please contact Mr. Ryan Quitoriano of our Water Resources and Planning Branch at 961-8070, extension 256.

Sincerely yours,

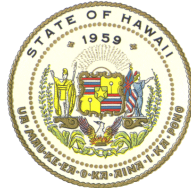
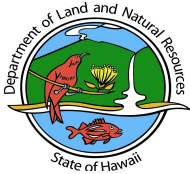
Keith K. Okamoto, P.E.
Manager-Chief Engineer

RQ:dfg

... Water, Our Most Precious Resource ... Ka Wai A Kāne ...

The Department of Water Supply is an Equal Opportunity provider and employer.

DAVID Y. IGE
GOVERNOR OF HAWAII



SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE
MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

January 21, 2021

Land Planning Hawaii
Attn: Mr. John Pipan, Planning Administrator
194 Wiwoole Street
Hilo, Hawaii 96720

via email: info@zendokern.com

Dear Mr. Pipan:

SUBJECT: Early Request or Comments for Environmental Assessment for Proposed Expansion of Hawaii Academy of Arts and Sciences' **Arts and Sciences Center** located at Pahoia, Puna, Island of Hawaii; TMK: (3) 1-5-006: 002, 012, & 026

Thank you for the opportunity to review and comment on the subject matter. The Land Division of the Department of Land and Natural Resources (DLNR) distributed or made available a copy of your request pertaining to the subject matter to DLNR's Divisions for their review and comments.

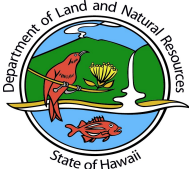
At this time, enclosed are comments from the (a) Engineering Division and (b) Land Division – Hawaii District on the subject matter. Should you have any questions, please feel free to contact Darlene Nakamura at (808) 587-0417 or email: darlene.k.nakamura@hawaii.gov. Thank you.

Sincerely,

Russell Tsuji

Russell Y. Tsuji
Land Administrator

Enclosures
cc: Central Files



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

December 31, 2020

MEMORANDUM

FROM:

TO:

DLNR Agencies:

Div. of Aquatic Resources

Div. of Boating & Ocean Recreation

Engineering Division (DLNR.ENGR@hawaii.gov)

Div. of Forestry & Wildlife (rubyrosa.t.terrago@hawaii.gov)

Div. of State Parks

Commission on Water Resource Management (DLNR.CWRM@hawaii.gov)

Office of Conservation & Coastal Lands

Land Division – Hawaii District (gordon.c.heit@hawaii.gov)

TO:

FROM:

Russell Y. Tsuji, Land Administrator *Russell Tsuji*

SUBJECT:

Early Request or Comments for Environmental Assessment for Proposed
Expansion of Hawaii Academy of Arts and Sciences' **Arts and Sciences
Center**

LOCATION:

Pahoa, Puna, Island of Hawaii; TMK: (3) 1-5-006: 002, 012, & 026

APPLICANT:

Land Planning Hawaii on behalf of the **Arts and Sciences Center**

Transmitted for your review and comment is information on the above-referenced subject matter. Please submit comments by **January 21, 2021**.

If no response is received by the above date, we will assume your agency has no comments. Should you have any questions about this request, please contact Darlene Nakamura at darlene.k.nakamura@hawaii.gov. Thank you.

- () We have no objections.
- () We have no comments.
- (✓) Comments are attached.

Signed:

Print Name:

Carty S. Chang, Chief Engineer

Date:

Jan 15, 2021

Attachments

cc: Central Files

**DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION**

LD/Russell Y. Tsuji

**Ref: Early Request or Comments for Environmental Assessment for
Proposed Expansion of Hawaii Academy of Arts and Sciences'
Arts and Sciences Center**

Location: Pahoa, Puna, Island of Hawaii

TMK(s): (3) 1-5-006: 002, 012, & 026

Applicant: Land Planning Hawaii on behalf of the Arts and Sciences Center

COMMENTS

The rules and regulations of the National Flood Insurance Program (NFIP), Title 44 of the Code of Federal Regulations (44CFR), are in effect when development falls within a Special Flood Hazard Area (high risk areas). State projects are required to comply with 44CFR regulations as stipulated in Section 60.12. Be advised that 44CFR reflects the minimum standards as set forth by the NFIP. Local community flood ordinances may stipulate higher standards that can be more restrictive and would take precedence over the minimum NFIP standards.

The owner of the project property and/or their representative is responsible to research the Flood Hazard Zone designation for the project. Flood Hazard Zones are designated on FEMA's Flood Insurance Rate Maps (FIRM), which can be viewed on our Flood Hazard Assessment Tool (FHAT) (<http://gis.hawaiiinfip.org/FHAT>).

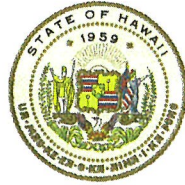
If there are questions regarding the local flood ordinances, please contact the applicable County NFIP coordinating agency below:

- Oahu: City and County of Honolulu, Department of Planning and Permitting (808) 768-8098.
- Hawaii Island: County of Hawaii, Department of Public Works (808) 961-8327.
- Maui/Molokai/Lanai County of Maui, Department of Planning (808) 270-7253.
- Kauai: County of Kauai, Department of Public Works (808) 241-4896.

Signed: 
CARTY S. CHANG, CHIEF ENGINEER

Date: Jan 15, 2021

DAVID Y. IGE
GOVERNOR OF HAWAII



SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE
MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

December 31, 2020

MEMORANDUM

TO: **DLNR Agencies:**
 ___ Div. of Aquatic Resources
 ___ Div. of Boating & Ocean Recreation
X Engineering Division (DLNR.ENGR@hawaii.gov)
X Div. of Forestry & Wildlife (rubbyrosa.t.terrago@hawaii.gov)
 ___ Div. of State Parks
X Commission on Water Resource Management (DLNR.CWRM@hawaii.gov)
 ___ Office of Conservation & Coastal Lands
X Land Division – Hawaii District (gordon.c.heit@hawaii.gov)

FROM: Russell Y. Tsuji, Land Administrator *Russell Tsuji*

SUBJECT: Early Request or Comments for Environmental Assessment for Proposed Expansion of Hawaii Academy of Arts and Sciences' **Arts and Sciences Center**

LOCATION: Pahoa, Puna, Island of Hawaii; TMK: (3) 1-5-006: 002, 012, & 026

APPLICANT: Land Planning Hawaii on behalf of the **Arts and Sciences Center**

Transmitted for your review and comment is information on the above-referenced subject matter. Please submit comments by **January 21, 2021**.

If no response is received by the above date, we will assume your agency has no comments. Should you have any questions about this request, please contact Darlene Nakamura at darlene.k.nakamura@hawaii.gov. Thank you.

() We have no objections.
 () We have no comments.
 () Comments are attached.

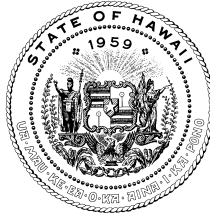
Signed:

Print Name: GORDON C. HEIT

Date: 12/20/21

Attachments
cc: Central Files

DAVID Y. IGE
GOVERNOR OF HAWAII



SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
FIRST DEPUTY

M. KALEO MANUEL
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF FORESTRY AND WILDLIFE
1151 PUNCHBOWL STREET, ROOM 325
HONOLULU, HAWAII 96813

February 11, 2021

John Pipan
Land Planning Hawai'i
194 Wiwo'ole St.
Hilo, HI 96720
info@zendokern.com

Log no. 2949

Dear Mr. Pipan,

The Department of Land and Natural Resources, Division of Forestry and Wildlife (DOFAW) has received your inquiry regarding the Environmental Assessment for the proposed expansion of the Hawai'i Academy of Arts and Sciences in Pahoa on the island of Hawai'i, TMKs: (3) 1-5-006:002, 012 and 026. The proposed project consists of constructing labs, music studios, parking and infrastructure for optimal traffic flow, multi-functional gathering spaces and outdoor classrooms, agricultural research fields, gardens, and aquaculture ponds, a cafetorium, gymnasium, amphitheater, trails and athletic fields, as well as community and workforce development facilities.

The State listed Hawaiian Hawk or 'Io (*Buteo solitarius*) is known to occur in the project vicinity. DOFAW recommends surveying the area to ensure no Hawaiian Hawk nests are present if trees are to be cut. 'Io nests might be present during the breeding season from March to September.

The State listed Hawaiian Hoary Bat or 'Ōpe'ape'a (*Lasiurus cinereus semotus*) has the potential to occur in the vicinity of the project area and may roost in nearby trees. If any site clearing is required this should be timed to avoid disturbance during the bat birthing and pup rearing season (June 1 through September 15). If this cannot be avoided, woody plants greater than 15 feet (4.6 meters) tall should not be disturbed, removed, or trimmed without consulting DOFAW.

We note that artificial lighting can adversely impact seabirds that may pass through the area at night by causing disorientation. This disorientation can result in collision with manmade artifacts or grounding of birds. For nighttime lighting that might be required, DOFAW recommends that all lights be fully shielded to minimize impacts. Nighttime work that requires outdoor lighting should be avoided during the seabird fledging season from September 15 through December 15. This is the period when young seabirds take their maiden voyage to the open sea. For illustrations and guidance related to seabird-friendly light styles that also protect the dark, starry skies of Hawai'i please visit: <https://dlnr.hawaii.gov/wildlife/files/2016/03/DOC439.pdf>.

To prevent the spread of Rapid 'Ōhi'a Death (ROD), if 'ōhi'a trees are present and will be removed, trimmed, or potentially injured DOFAW requests that the information and guidance at the following website be reviewed and followed: <https://cms.ctahr.hawaii.edu/rod>.

DOFAW recommends using native plant species for landscaping that are appropriate for the area (i.e. climate conditions are suitable for the plants to thrive, historically occurred there, etc.). Please do not plant invasive species. DOFAW recommends consulting the Hawai'i-Pacific Weed Risk Assessment website to determine the potential invasiveness of plants proposed for use in the project (<https://sites.google.com/site/weedriskassessment/home>). We recommend that you refer to www.plantpono.org for guidance on selection and evaluation for landscaping plants.

DOFAW recommends minimizing the movement of plant or soil material between worksites, such as in fill. Soil and plant material may contain invasive fungal pathogens (e.g. Rapid 'Ōhi'a Death), vertebrate and invertebrate pests (e.g. Little Fire Ants), or invasive plant parts that could harm our native species and ecosystems. We recommend consulting the Big Island Invasive Species Committee at (808) 933-3340 in planning, design, and construction of the project to learn of any high-risk invasive species in the area and ways to mitigate spread. All equipment, materials, and personnel should be cleaned of excess soil and debris to minimize the risk of spreading invasive species. Gear that may contain soil, such as work boots and vehicles, should be thoroughly cleaned with water and sprayed with 70% alcohol solution to prevent the spread of Rapid 'Ōhi'a Death and other harmful fungal pathogens.

We appreciate your efforts to work with our office for the conservation of our native species. Should the scope of the project change significantly, or should it become apparent that threatened or endangered species may be impacted, please contact our staff as soon as possible. If you have any questions, please contact Koa Matsuoka, Protected Species Habitat Conservation Planning Coordinator at (808) 587-4149 or koa.matsuoka@hawaii.gov.

Sincerely,



DAVID G. SMITH
Administrator



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

Deputy Director
LYNN A.S. ARAKI-REGAN
DEREK J. CHOW
ROSS M. HIGASHI
EDWIN H. SNIFFEN

IN REPLY REFER TO:
DIR 0730
HWY-PS 2.6126

August 9, 2021

VIA EMAIL: info@landplanninghawaii.com

Mr. John Pipan
Planning Administrator
Land Planning Hawaii LLC
194 Wiwoole Street
Hilo, Hawaii 96720

Dear Mr. Pipan:

Subject: Environmental Assessment Pre-Consultation
Proposed Expansion of Arts and Sciences Center (ASC)
Pahoa, Puna, Hawaii
Tax Map Key Nos.: (3) 1-5-006: 002, 012, 026

Thank you for your letter dated July 21, 2021 requesting Environmental Assessment Pre-Consultation comments on the proposed expansion of ASC at Pahoa.

The project proposes to construct a new driveway off State Route 130, labs, music studios, parking, outdoor classrooms, agricultural research fields, gardens, and aquaculture ponds, a cafetorium, gymnasium, amphitheater, trails and athletic fields and community and workforce development facilities. Water lines will need to be extended to the site from existing Department of Water Supply locations.

We have the following comments.

1. Compliance with Hawaii Revised Statutes 343 is required for any use of state land including State Right-of-Way (ROW).
2. Include a Traffic Impact Analysis Report (TIAR), prepared by a licensed engineer, in the Draft Environmental Assessment. Safety impacts can be associated with traffic increases, new access points, or increases in potential conflicts with pedestrian and bike traffic. The analysis should include field work and address accident history, conflict analysis (if accident history not available), intersection sight distance, safe stopping distance, access drive conflicts, queuing and storage depths.

3. Every driveway represents potential conflict points between motor vehicles, pedestrians, and bicyclists. An increased number of these conflict points and reduced distance between them compromise the safety performance of the roadway. State Route 130 is a principal arterial roadway intended for through traffic and new driveways introduce conflict points. Reduce the number of accesses. The proposed new access to the State Route 130 must be justified in the TIAR.
4. Construction plan approval, a Permit to Perform Work Upon State Highways and a Traffic Management Plan are required for any work within the State ROW.
5. The applicant shall show the State of Hawaii ROW along State Route 130 on the proposed construction plans.
6. The Hawaii Department of Transportation (HDOT) supports Travel Demand Management strategies to reduce the number of parking spaces and trips generated. Examples: organize shuttles or busses, ride sharing program, safe secure bike storage and routes, improve sidewalks, improve connectivity with adjacent developments (bikes, pedestrians) comfortable bus stops, reduce parking spaces available if alternative modes of transportation are available.
7. A Use and Occupancy Permit approved by the HDOT, Highways, ROW Branch is required for any use of the ROW. This is not applicable to new access driveways in unrestricted access areas.
8. Describe pipeline and other infrastructure alignments that may be removed or constructed within the HDOT ROW. A Use and Occupancy Permit approved by the HDOT, Highways Division, ROW Branch is required for proposed use of the ROW.
9. If the water lines are extended from Kahakai Boulevard along State Route 130, obtain approval/agreement with our Highways Design Branch on the acceptable method in utilizing a horizontal directional drilling for the section underneath State Route 130.

If you have any questions, please contact Jeyan Thirugnanam, Systems Planning Engineer, Highways Division, Planning Branch at (808) 587-6336 or by email at jeyan.thirugnanam@hawaii.gov. Please reference file review number PS 2021-127.

Sincerely,



JADE T. BUTAY
Director of Transportation

Harry Kim
Mayor

Roy Takemoto
Managing Director

West Hawai'i Office
74-5044 Ane Keohokālole Hwy
Kailua-Kona, Hawai'i 96740
Phone (808) 323-4770
Fax (808) 327-3563



County of Hawai'i PLANNING DEPARTMENT

Michael Yee
Director

April Surprenant
Acting Deputy Director

East Hawai'i Office
101 Pauahi Street, Suite 3
Hilo, Hawai'i 96720
Phone (808) 961-8288
Fax (808) 961-8742

November 13, 2020

Mr. Zendo Kern
Kern & Associates
194 Wiwoole Street
Hilo, HI 96720

Dear Mr. Kern:

Request for Early Environmental Assessment Comments for a Special Permit Application
Applicant: Arts and Sciences Center (ASC)
Tax Map Keys: 1-5-006: 002, 012 & 026 Pāhoa, Hawai'i

This is sent in response to your letter received October 12, 2020 requesting early comments for an environmental assessment that is being prepared for an expansion of their permit area and uses covered under their current Special Permit No. 2011-000115. The trigger for the environmental assessment is work being done within the State and County rights-of-ways, including intersection improvements and waterline improvements.

Special Permit No. 2011-000115 was approved by the Windward Planning Commission to allow the establishment of a charter school on 14.251 acres of land within the State Land Use Agricultural District. The permit had a total of 19 conditions. Condition 10 stated that on-site student enrollment shall not exceed 300 students until several roadway improvements were completed. The applicant is proposing to expand its current campus to include labs and studios accessible to the community, parking and infrastructure designed for workspace access and traffic flow, multi-functional gathering places, which could be used as refuge or shelter in times of natural disaster, agricultural research and demonstration fields, cafetorium that includes a gymnasium, performance space/amphitheater, 1-1.5-mile track/trail inside perimeter of the property for walking, running and fitness stations, maintenance facilities, and administration offices.

The subject parcels are located within the County's Agricultural (A-5a) zoning district and the State Land Use Agricultural district. The General Plan Land Use Pattern Allocation Guide (LUPAG) map identifies the area as Extensive Agriculture. The three (3) parcels total 24.285 acres in size.

Mr. Zendo Kern
Kern & Associates
November 13, 2020
Page 2

As the Special Permit request area will be over 15 acres in size, the final authority for approval will be with the State Land Use Commission. In discussion with staff at the State Land Use Commission, the applicant can utilize the same Special Permit Number (SPP 2011-000115) when applying for the amended permit.

Please also provide us with a copy of the Draft Environmental Assessment for our review and comment, which should include a Traffic Impact Analysis Report reviewed and approved by the State Department of Transportation.

Thank you for the opportunity to comment. If you have any questions, please feel free to contact Jeff Darrow at 961-8158.

Sincerely,



For MICHAEL YEE
Planning Director

JWD:kvs
coh33/planning/public/wpwin60/Jeff/letters/pre-draftEA/LKern-PreEACComments-15006002ASC

Mitchell D. Roth
Mayor

Lee E. Lord
Managing Director



Robert R.K. Perreira
Acting Fire Chief

County of Hawai'i
HAWAII FIRE DEPARTMENT
25 Aupuni Street • Suite 2501 • Hilo, Hawai'i 96720
(808) 932-2900 • Fax (808) 932-2928

December 30, 2020

John Pipan, Planning Administrator
Land Planning Hawai'i
194 Wiwoole Street
Hilo, HI 96720

Dear Mr. Pipan:

RE: Early Request for Comment for Environmental Assessment for Proposed
Expansion of Hawai'i Academy of Arts and Sciences (HAAS)
Applicant: Arts and Sciences Center (ASC)
Pahoa, Puna Hawai'i TMK: (3) 1-5-006:002, 012 & 026

In regards to your request dated December 23, 2020, for the above-entitled matter, the following shall be in accordance:

NFPA 1, UNIFORM FIRE CODE, 2006 EDITION

Note: Hawai'i State Fire Code, National Fire Protection Association 2006 version, with County of Hawai'i amendments. County amendments are identified with a preceding "C~" of the reference code.

Chapter 18 Fire Department Access and Water Supply

18.1 General. Fire department access and water supplies shall comply with this chapter.

For occupancies of an especially hazardous nature, or where special hazards exist in addition to the normal hazard of the occupancy, or where access for fire apparatus is unduly difficult, or areas where there is an inadequate fire flow, or inadequate fire hydrant spacing, and the AHJ may require additional safeguards including, but not limited to, additional fire appliance units, more than one type of appliance, or special systems suitable for the protection of the hazard involved.

18.1.1 Plans.

18.1.1.1 Fire Apparatus Access. Plans for fire apparatus access roads shall be submitted to the fire department for review and approval prior to construction.



18.1.1.2 Fire Hydrant Systems. Plans and specifications for fire hydrant systems shall be submitted to the fire department for review and approval prior to construction.

C~ 18.1.1.2.1 Fire Hydrant use and Restrictions. No unauthorized person shall use or operate any Fire hydrant unless such person first secures permission or a permit from the owner or representative of the department, or company that owns or governs that water supply or system. Exception: Fire Department personnel conducting firefighting operations, hydrant testing, and/or maintenance, and the flushing and acceptance of hydrants witnessed by Fire Prevention Bureau personnel.

18.2 Fire Department Access.

18.2.1 Fire department access and fire department access roads shall be provided and maintained in accordance with Section 18.2.

18.2.2* Access to Structures or Areas.

18.2.2.1 Access Box(es). The AHJ shall have the authority to require an access box(es) to be installed in an accessible location where access to or within a structure or area is difficult because of security.

18.2.2.2 Access to Gated Subdivisions or Developments. The AHJ shall have the authority to require fire department access be provided to gated subdivisions or developments through the use of an approved device or system.

18.2.2.3 Access Maintenance. The owner or occupant of a structure or area, with required fire department access as specified in 18.2.2.1 or 18.2.2.2, shall notify the AHJ when the access is modified in a manner that could prevent fire department access.

18.2.3 Fire Department Access Roads. (*may be referred as FDAR)

18.2.3.1 Required Access.

18.2.3.1.1 Approved fire department access roads shall be provided for every facility, building, or portion of a building hereafter constructed or relocated.

18.2.3.1.2 Fire Department access roads shall consist of roadways, fire lanes, parking lots lanes, or a combination thereof.

18.2.3.1.3* When not more than two one- and two-family dwellings or private garages, carports, sheds, agricultural buildings, and detached buildings or structures 400ft² (37 m²) or less are present, the requirements of 18.2.3.1 through 18.2.3.2.1 shall be permitted to be modified by the AHJ.

18.2.3.1.4 When fire department access roads cannot be installed due to location on property, topography, waterways, nonnegotiable grades, or other similar conditions, the AHJ shall be authorized to require additional fire protection features.

18.2.3.2 Access to Building.

18.2.3.2.1 A fire department access road shall extend to within in 50 ft (15 m) of at least one exterior door that can be opened from the outside that provides access to the interior of the building. Exception: 1 and 2 single-family dwellings.

18.2.3.2.1.1 When buildings are protected throughout with an approved automatic sprinkler system that is installed in accordance with NFPA 13, NFPA 13D, or NFPA 13R, the distance in 18.2.3.2.1 shall be permitted to be increased to 300 feet.

18.2.3.2.2 Fire department access roads shall be provided such that any portion of the facility or any portion of an exterior wall of the first story of the building is located not more than 150 ft (46 m) from fire department access roads as measured by an approved route around the exterior of the building or facility.

18.2.3.2.2.1 When buildings are protected throughout with an approved automatic sprinkler system that is installed in accordance with NFPA 13, NFPA 13D, or NFPA 13R, the distance in 18.2.3.2.2 shall be permitted to be increased to 450 ft (137 m).

18.2.3.3 Multiple Access Roads. More than one fire department access road shall be provided when it is determined by the AHJ that access by a single road could be impaired by vehicle congestion, condition of terrain, climatic conditions, or other factors that could limit access.

18.2.3.4 Specifications.

18.2.3.4.1 Dimensions.

C~ **18.2.3.4.1.1** FDAR shall have an unobstructed width of not less than 20ft with an approved turn around area if the FDAR exceeds 150 feet. **Exception:** FDAR for one and two family dwellings shall have an unobstructed width of not less than 15 feet, with an area of not less than 20 feet wide within 150 feet of the structure being protected. An approved turn around area shall be provided if the FDAR exceeds 250 feet.

C~ **18.2.3.4.1.2** FDAR shall have an unobstructed vertical clearance of not less then 13ft 6 in.

C~ **18.2.3.4.1.2.1** Vertical clearances may be increased or reduced by the AHJ, provided such increase or reduction does not impair access by the fire apparatus, and approved signs are installed and maintained indicating such approved changes.

C~18.2.3.4.1.2.2 Vertical clearances shall be increased when vertical clearances or widths are not adequate to accommodate fire apparatus.

C~ 18.2.3.4.2 Surface. Fire department access roads and bridges shall be designed and maintained to support the imposed loads (25 Tons) of the fire apparatus. Such FDAR and shall be comprised of an all-weather driving surface.

18.2.3.4.3 Turning Radius.

C~ 18.2.3.4.3.1 Fire department access roads shall have a minimum inside turning radius of 30 feet, and a minimum outside turning radius of 60 feet.

18.2.3.4.3.2 Turns in fire department access road shall maintain the minimum road width.

18.2.3.4.4 Dead Ends. Dead-end fire department access roads in excess of 150 ft (46 m) in length shall be provided with approved provisions for the fire apparatus to turn around.

18.2.3.4.5 Bridges.

18.2.3.4.5.1 When a bridge is required to be used as part of a fire department access road, it shall be constructed and maintained in accordance with county requirements.

18.2.3.4.5.2 The bridge shall be designed for a live load sufficient to carry the imposed loads of fire apparatus.

18.2.3.4.5.3 Vehicle load limits shall be posted at both entrances to bridges where required by the AHJ.

18.2.3.4.6 Grade.

C~ 18.2.3.4.6.1The maximum gradient of a Fire department access road shall not exceed 12 percent for unpaved surfaces and 15 percent for paved surfaces. In areas of the FDAR where a Fire apparatus would connect to a Fire hydrant or Fire Department Connection, the maximum gradient of such area(s) shall not exceed 10 percent.

18.2.3.4.6.2* The angle of approach and departure for any means of fire department access road shall not exceed 1 ft drop in 20 ft (0.3 m drop in 6 m) or the design limitations of the fire apparatus of the fire department, and shall be subject to approval by the AHJ.

18.2.3.4.6.3 Fire department access roads connecting to roadways shall be provided with curb cuts extending at least 2 ft (0.61 m) beyond each edge of the fire lane.

18.2.3.4.7 Traffic Calming Devices. The design and use of traffic calming devices shall be approved the AHJ.

18.2.3.5 Marking of Fire Apparatus Access Road.

18.2.3.5.1 Where required by the AHJ, approved signs or other approved notices shall be provided and maintained to identify fire department access roads or to prohibit the obstruction thereof of both.

18.2.3.5.2 A marked fire apparatus access road shall also be known as a fire lane.

18.2.4* Obstruction and Control of Fire Department Access Road.

18.2.4.1 General.

18.2.4.1.1 The required width of a fire department access road shall not be obstructed in any manner, including by the parking of vehicles.

18.2.4.1.2 Minimum required widths and clearances established under 18.2.3.4 shall be maintained at all times.

18.2.4.1.3* Facilities and structures shall be maintained in a manner that does not impair or impede accessibility for fire department operations.

18.2.4.1.4 Entrances to fire departments access roads that have been closed with gates and barriers in accordance with 18.2.4.2.1 shall not be obstructed by parked vehicles.

18.2.4.2 Closure of Accessways.

18.2.4.2.1 The AHJ shall be authorized to require the installation and maintenance of gates or other approved barricades across roads, trails, or other accessways not including public streets, alleys, or highways.

18.2.4.2.2 Where required, gates and barricades shall be secured in an approved manner.

18.2.4.2.3 Roads, trails, and other access ways that have been closed and obstructed in the manner prescribed by 18.2.4.2.1 shall not be trespassed upon or used unless authorized by the owner and the AHJ.

18.2.4.2.4 Public officers acting within their scope of duty shall be permitted to access restricted property identified in 18.2.4.2.1.

18.2.4.2.5 Locks, gates, doors, barricades, chains, enclosures, signs, tags, or seals that have been installed by the fire department or by its order or under its control shall not be removed, unlocked, destroyed, tampered with, or otherwise vandalized in any manner.

18.3 Water Supplies and Fire Hydrants

18.3.1* A water supply approved by the county, capable of supplying the required fire flow for fire protection shall be provided to all premises upon which facilities or buildings, or portions thereof, are hereafter constructed, or moved into or within the county. When any portion of the facility or building is in excess of 150 feet (45 720 mm) from a water supply on a fire apparatus access road, as measured by an approved route around the exterior of the facility or building, on-site fire hydrants and mains capable of supplying the required fire flow shall be provided when required by the AHJ. For on-site fire hydrant requirements see section 18.3.3.

EXCEPTIONS:

1. When facilities or buildings, or portions thereof, are completely protected with an approved automatic fire sprinkler system the provisions of section 18.3.1 may be modified by the AHJ.
2. When water supply requirements cannot be installed due to topography or other conditions, the AHJ may require additional fire protection as specified in section 18.3.2 as amended in the code.
3. When there are not more than two dwellings, or two private garage, carports, sheds and agricultural. Occupancies, the requirements of section 18.3.1 may be modified by AHJ.

18.3.2* Where no adequate or reliable water distribution system exists, approved reservoirs, pressure tanks, elevated tanks, fire department tanker shuttles, or other approved systems capable of providing the required fire flow shall be permitted.

18.3.3* The location, number and type of fire hydrants connected to a water supply capable of delivering the required fire flow shall be provided on a fire apparatus access road on the site of the premises or both, in accordance with the appropriate county water requirements.

18.3.4 Fire Hydrants and connections to other approved water supplies shall be accessible to the fire department.

18.3.5 Private water supply systems shall be tested and maintained in accordance with NFPA 25 or county requirements as determined by the AHJ.

18.3.6 Where required by the AHJ, fire hydrants subject to vehicular damage shall be protected unless located within a public right of way.

18.3.7 The AHJ shall be notified whenever any fire hydrant is placed out of service or returned to service. Owners of private property required to have hydrants shall maintain hydrant records of approval, testing, and maintenance, in accordance with the respective county water requirements. Records shall be made available for review by the AHJ upon request.

C~ 18.3.8 Minimum water supply for buildings that do not meet the minimum County water standards:

Buildings up to 2000 square feet, shall have a minimum of 3,000 gallons of water available for Firefighting.

Buildings 2001- 3000 square feet, shall have a minimum of 6,000 gallons of water available for Firefighting.

Buildings, 3001- 6000 square feet, shall have a minimum of 12,000 gallons of water available for Firefighting.

Buildings, greater than 6000 square feet, shall meet the minimum County water and fire flow requirements.

Multiple story buildings shall multiply the square feet by the amount of stories when determining the minimum water supply.

Commercial buildings requiring a minimum fire flow of 2000gpm per the Department of Water standards shall double the minimum water supply reserved for firefighting.

Fire Department Connections (FDC) to alternative water supplies shall comply with 18.3.8 (1)-(6) of *this code*.

NOTE: In that water catchment systems are being used as a means of water supply for firefighting, such systems shall meet the following requirements:

- 1) In that a single water tank is used for both domestic and firefighting water, the water for domestic use shall not be capable of being drawn from the water reserved for firefighting;
- 2) Minimum pipe diameter sizes from the water supply to the Fire Department Connection (FDC) shall be as follows:
 - a) 4" for C900 PVC pipe;
 - b) 4" for C906 PE pipe;
 - c) 3" for ductile Iron;
 - d) 3' for galvanized steel.
- 3) The Fire Department Connection (FDC) shall:
 - a) be made of galvanized steel;
 - b) have a gated valve with 2-1/2 inch, National Standard Thread male fitting and cap;
 - c) be located between 8 ft and 16 ft from the Fire department access. The location shall be approved by the AHJ;
 - d) not be located less than 24 inches, and no higher than 36 inches from finish grade, as measured from the center of the FDC orifice;
 - e) be secure and capable of withstanding drafting operations. Engineered stamped plans may be required;

- f) not be located more than 150 feet of the most remote part, but not less than 20 feet, of the structure being protected;
 - g) also comply with section 13.1.3 and 18.2.3.4.6.1 of *this code*.
- 4) Commercial buildings requiring a fire flow of 2000gpm shall be provided with a second FDC. Each FDC shall be independent of each other, with each FDC being capable of flowing 500gpm by engineered design standards. The second FDC shall be located in an area approved by the AHJ with the idea of multiple Fire apparatus' conducting drafting operations at once, in mind.
 - 5) Inspection and maintenance shall be in accordance to NFPA 25.
 - 6) The owner or lessee of the property shall be responsible for maintaining the water level, quality, and appurtenances of the system.

EXCEPTIONS TO SECTION 18.3.8:

- 1) Agricultural buildings, storage sheds, and shade houses with no combustible or equipment storage.
- 2) Buildings less than 800 square feet in size that meets the minimum Fire Department Access Road requirements.
- 3) For one and two family dwellings, agricultural buildings, storage sheds, and detached garages 800 to 2000 square feet in size, and meets the minimum Fire Department Access Road requirements, the distance to the Fire Department Connection may be increased to 1000 feet.
- 4) For one and two family dwellings, agricultural buildings, and storage sheds greater than 2000square feet, but less than 3000 square feet and meets the minimum Fire Department Access Road requirements, the distance to the Fire Department Connection may be increased to 500 feet.
- 5) For buildings with an approved automatic sprinkler system, the minimum water supply required may be modified.

If there are any questions regarding these requirements, please contact Assistant Fire Chief Ian Smith at (808) 932-2907.



ROBERT R. K. PERREIRA
Acting Fire Chief

RRKP:cf

Mitchell D. Roth
Mayor



Paul K. Ferreira
Police Chief

Kenneth Bugado Jr.
Deputy Police Chief

County of Hawai`i

POLICE DEPARTMENT

349 Kapi`olani Street • Hilo, Hawai`i 96720-3998
(808) 935-3311 • Fax (808) 961-2389

January 12, 2021

Mr. John Pipan
Planning Administrator
194 Wiwoole St.
Hilo, HI 96720

Dear Mr. Pipan:

Subject: Early Request for Comment for Environmental Assessment for Proposed Expansion of Hawaii Academy of Arts and Science (HAAS); Applicant: Arts and Science Center (ASC), Pahoa, Puna, HI TMK: (3) 1-5-006: 002, 012 & 026

Upon reviewing the provided documents, our staff does not anticipate any negative impact and/or public safety concerns with this project.

Thank you for allowing us the opportunity to comment.

Should you have any questions, please contact Captain John Briski, Puna District Commander, at (808) 965-2716.

Sincerely,


JAMES B. O'CONNOR
ASSISTANT POLICE CHIEF
AREA I OPERATIONS BUREAU

JB:III/20HQ1095

FINAL ENVIRONMENTAL ASSESSMENT

Arts and Sciences Center (ASC) Campus Expansion

Appendix C Comments in Response to the Draft Environmental Assessment



UNIVERSITY
of HAWAII®
MĀNOA

2022 June 07

Via email: natasha.soriano@hawaiicounty.gov

County of Hawai'i, Planning Department
101 Pauahi Street, Suite 3
Hilo, HI 96720

Attention: Ms. Natasha Soriano (natasha.soriano@hawaiicounty.gov)

Re: Campus Expansion for the Arts and Sciences Center in Puna—Draft EA (AFNSI)
TMK: (3) 1-5-006: 002, 012 & 026
Puna District, Hawai'i Island

Dear Ms. Soriano:

Thank you for the opportunity to comment on the draft environmental assessment (EA) for the proposed project for the Campus Expansion for the Arts and Sciences Center in Puna (published May 8, 2022), specifically with respect to issues and concerns regarding light pollution.

The University of Hawai'i Institute for Astronomy (IfA) conducts research in astronomy using telescopes located on Haleakalā and Maunakea and operated by IfA and our partner institutions. Both Haleakalā and Maunakea are among the best sites in the world for astronomical facilities because of their elevation, clear skies, favorable atmospheric conditions, and low levels of light pollution. Hawai'i-based observatories have played major roles in the advancement of astronomy and astrophysics for over 50 years and are well positioned to remain at the forefront of astronomical research for decades to come.

Because of the outstanding quality and productivity of these facilities, IfA is acutely concerned about negative impacts on astronomy from increased light pollution. Our work to combat light pollution has also brought us into contact with others concerned about light pollution for other reasons, including impacts on wildlife (particularly seabirds) and on human health. While IfA's comments focus on the impacts of light pollution on astronomy, appropriate mitigation measures also help to reduce non-astronomy impacts.

With that background, we offer the following comments:

Any new or additional artificial light at night has an adverse effect on astronomical observations by increasing the night sky brightness. Nearly all observations performed by the telescopes on Maunakea are sky-background limited. This means that there is a natural sky brightness coming

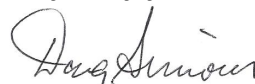
from airflow and zodiacal light. Artificial light increases the sky brightness, thereby decreasing the sensitivity of the telescopes and effectively making the telescope smaller and less sensitive.

IfA appreciates the Draft EA's note on protecting seabirds that may overfly the project area at night. Consistent with that discussion, appropriate steps to keep the skies friendly to both seabirds and the observatories include:

1. Any outdoor lighting must conform to the standards established by the Hawai'i County Outdoor Lighting Ordinance (Hawai'i County Code Chapter 14, Article 9: "Outdoor Lighting").
2. The minimum possible amount of outdoor/exterior lighting should be used, and should be turned off when not needed. Motion sensor activated lighting is strongly preferred wherever feasible.
3. All exterior lighting should be fully shielded. This means that all lighting fixtures must emit zero light above the horizontal plane. This is also recommended by the state Department of Land and Natural Resources, Division of Forestry and Wildlife (DOFAW).
4. Conformity to the Outdoor Lighting Ordinance also requires the use of blue-deficient exterior lighting. This means that exterior LED lighting must emit less than 2% of its total energy at wavelengths less than 500 nm. The best choices for this are either filtered LED lights, or amber LED lights.
5. White light should be avoided because the blue component of white light is very damaging to astronomy. Any white light used should have a Correlated Color Temperature of 2700 K or below.

Thank you for your consideration of these comments and attention to IfA's concerns. If you have questions or need further detail regarding these comments, please do not hesitate to contact the undersigned or Richard Wainscoat (rjw@hawaii.edu).

Very truly yours,



Doug Simons
Director

cc: Mr. Steve Hirakami, Arts and Sciences Center (ascpuna@gmail.com)
Mr. John Pihan, Land Planning Hawaii (john@landplanninghawaii.com)



194 Wiwo‘ole Street
Hilo, Hawai‘i 96720
(808) 333-3393
info@landplanninghawaii.com

June 22, 2022

Doug Simons – Director
University of Hawai‘i Institute for Astronomy (IfA)
Kūkahau‘ula Building
200 West Kawili Street
Hilo, HI 96720

Subject: Response to Publication Comments for the Arts and Sciences Center Draft Environmental Assessment
Applicant: Arts and Sciences Center (ASC)
Approving Agency: Hawai‘i County Planning Department
Location: Pāhoa, Puna, Hawai‘i TMK: (3) 1-5-006: 002, 012, & 026

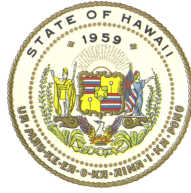
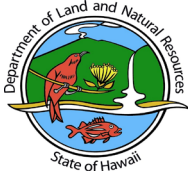
Thank you for your comments dated June 7, 2022, regarding the ASC DEA published in the Environmental Notice on May 8, 2022. We acknowledge that the University of Hawai‘i Institute for Astronomy (IfA) has concerns about negative impacts on astronomy from increased light pollution. The Arts & Sciences Center (ASC) home of Hawaii Academy of Arts & Science Public Charter School (HAASPCS) agrees with your concerns to maintain the best observing conditions possible. We appreciate the detailed specifications that can be addressed in final designs. Security is an issue in our community and at our facility, therefore, motion sensors with appropriate fixtures and bulbs are planned. The detailed steps to keep the skies friendly to both seabirds and observatories will be added to the Final Environmental Assessment in Section 3.1.5.

We will provide notice of the Final Environmental Assessment publication date. If you have any questions or concerns, please do not hesitate to contact me directly.

Sincerely,

John Pipan
Planning Administrator

DAVID Y. IGE
GOVERNOR OF HAWAII



SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE
MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

Jun 3, 2022

Land Planning Hawaii
Attention: Mr. John Pipan
Planning Administrators
194 Wiwoole Street
Hilo, Hawaii 96720

via email: john@landplanninghawaii.com

Dear Mr. Pipan:

SUBJECT: Draft Environmental Assessment for the Proposed Arts and Sciences Center (ASC) Campus Expansion located at Pahoa, Puna, Island of Hawaii; TMKs: (3) 1-5-006: 002, 012, & 026 on behalf of **Arts & Sciences Center**

Thank you for the opportunity to review and comment on the subject matter. The Land Division of the Department of Land and Natural Resources (DLNR) distributed or made available a copy of your request pertaining to the subject matter to DLNR's Divisions for their review and comments.

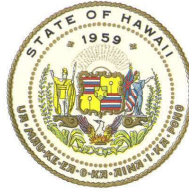
At this time, enclosed are comments from the (a) Engineering Division and (b) Land Division-Hawaii District on the subject matter. Should you have any questions, please feel free to contact Darlene Nakamura at (808) 587-0417 or email: darlene.k.nakamura@hawaii.gov. Thank you.

Sincerely,

Russell Y. Tsuji

Russell Y. Tsuji
Land Administrator

Enclosures
cc: Central Files



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

May 17, 2022

MEMORANDUM

FROM: ~~TO:~~

DLNR Agencies:

- Div. of Aquatic Resources
- Div. of Boating & Ocean Recreation
- Engineering Division (DLNR.ENGR@hawaii.gov)
- Div. of Forestry & Wildlife (rbyrosa.t.terrago@hawaii.gov)
- Div. of State Parks
- Commission on Water Resource Management (DLNR.CWRM@hawaii.gov)
- Office of Conservation & Coastal Lands
- Land Division – Hawaii District (gordon.c.heit@hawaii.gov)

TO: **FROM:** Russell Y. Tsuji, Land Administrator *Russell Tsuji*
SUBJECT: Draft Environmental Assessment for the Proposed Arts and Sciences Center (ASC) Campus Expansion
LOCATION: Pahoia, Puna, Island of Hawaii; TMK: (3) 1-5-006: 002, 012, & 026
APPLICANT: Land Planning Hawaii LLC on behalf of **Arts & Sciences Center**


Transmitted for your review and comment is information on the above-referenced subject matter. The DEA was published on May 8, 2022, by the State Environmental Review Program (formerly the Office of Environmental Quality Control) at the Office of Planning and Sustainable Development in the periodic bulletin, The Environmental Notice, available at the following link:

https://files.hawaii.gov/dbedt/erp/The_Environmental_Notice/2022-05-08-TEN.pdf

Please submit any comments by **June 3, 2022**. If no response is received by this date, we will assume your agency has no comments. Should you have any questions, please contact Darlene Nakamura directly via email at darlene.k.nakamura@hawaii.gov. Thank you.

BRIEF COMMENTS:

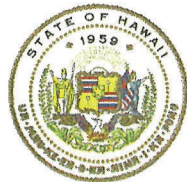
- We have no objections.
- We have no comments.
- We have no additional comments.
- Comments are included/attached.

Signed: 
Print Name: Carty S. Chang, Chief Engineer
Division: Engineering Division
Date: May 27, 2022

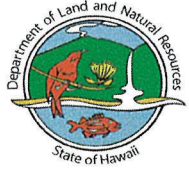
Attachments
cc: Central Files

5/26/22

DAVID Y. IGE
GOVERNOR OF HAWAII



SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE
MANAGEMENT



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

May 17, 2022

MEMORANDUM

TO: **DLNR Agencies:**
___ Div. of Aquatic Resources
___ Div. of Boating & Ocean Recreation
X Engineering Division (DLNR.ENGR@hawaii.gov)
X Div. of Forestry & Wildlife (rubyrosa.t.terrago@hawaii.gov)
___ Div. of State Parks
X Commission on Water Resource Management (DLNR.CWRM@hawaii.gov)
___ Office of Conservation & Coastal Lands
X **Land Division – Hawaii District** (gordon.c.heit@hawaii.gov)

FROM: Russell Y. Tsuji, Land Administrator *Russell Tsuji*
SUBJECT: Draft Environmental Assessment for the Proposed Arts and Sciences Center (ASC) Campus Expansion
LOCATION: Pahoia, Puna, Island of Hawaii; TMK: (3) 1-5-006: 002, 012, & 026
APPLICANT: Land Planning Hawaii LLC on behalf of **Arts & Sciences Center**

Transmitted for your review and comment is information on the above-referenced subject matter. The DEA was published on May 8, 2022, by the State Environmental Review Program (formerly the Office of Environmental Quality Control) at the Office of Planning and Sustainable Development in the periodic bulletin, The Environmental Notice, available at the following link:

https://files.hawaii.gov/dbedt/erp/The_Environmental_Notice/2022-05-08-TEN.pdf

Please submit any comments by **June 3, 2022**. If no response is received by this date, we will assume your agency has no comments. Should you have any questions, please contact Darlene Nakamura directly via email at darlene.k.nakamura@hawaii.gov. Thank you.

BRIEF COMMENTS:

- () We have no objections.
- () We have no comments.
- () We have no additional comments.
- () Comments are included/attached.

Signed:
Print Name: GORDON C. HEIT
Division: Land Division
Date: 5/26/22

Attachments
cc: Central Files



194 Wiwo'ole Street
Hilo, Hawai'i 96720
(808) 333-3393
info@landplanninghawaii.com

June 22, 2022

Suzanne Case, Chairperson
State of Hawaii
Department of Land and Natural Resources
P.O. Box 621
Honolulu, HI 96809

Subject: Response to Publication Comments for the Arts and Sciences Center Draft Environmental Assessment
Applicant: Arts and Sciences Center (ASC)
Approving Agency: Hawai'i County Planning Department
Location: Pāhoa, Puna, Hawai'i TMK: (3) 1-5-006: 002, 012, & 026

Dear Ms. Case,

Thank you for the Land and Engineering Division comments dated May 26 and 27, 2022, regarding the ASC DEA published in the Environmental Notice on May 8, 2022.

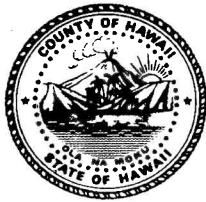
We acknowledge that the Land Division has no objections to the DEA at this time. We also acknowledge that the Engineering Division has no additional comments from what was provided during early consultation on January 15, 2021. These comments were incorporated into the Draft Environmental Assessment in Section 3.1.2.

We will provide notice of the Final Environmental Assessment publication date. If you have any questions or concerns, please do not hesitate to contact me directly.

Sincerely,

John Pipan
Planning Administrator

Mitchell D. Roth
Mayor



Paul K. Ferreira
Police Chief

Kenneth Bugado Jr.
Deputy Police Chief

County of Hawai`i

POLICE DEPARTMENT

349 Kapi`olani Street • Hilo, Hawai`i 96720-3998
(808) 935-3311 • Fax (808) 961-2389

May 18, 2022

Mr. John Pipan
Planning Administrator
Land Planning Hawaii, LLC
194 Wiwoole Street
Hilo, HI 96720

Dear Mr. Pipan:


SUBJECT: NOTICE OF PUBLICATION OF THE ARTS AND SCIENCES CENTER (ASC) DRAFT ENVIRONMENTAL ASSESSMENT IN THE ENVIRONMENTAL NOTICE; APPLICANT: ARTS AND SCIENCES CENTER (ASC); APPROVING AGENCY: HAWAII COUNTY PLANNING DEPARTMENT; LOCATION: PAHOA, PUNA, HAWAII TMK: (3)1-5-006:002, 012, & 026

Staff, upon reviewing the provided documents, does not anticipate any significant impact to traffic and/or public safety concerns.

Thank you for allowing us the opportunity to comment.

If you have any concerns and/or wish to discuss this matter further, please contact our Puna District Commander, Captain Scott Amaral, at (808) 965-2716 or via email at Scott.Amaral@hawaiiicounty.gov.

Sincerely,


KENNETH A. K. QUICHO
ASSISTANT POLICE CHIEF
AREA I OPERATIONS

SA:iii/20HQ1095



194 Wiwo'ole Street
Hilo, Hawai'i 96720
(808) 333-3393
info@landplanninghawaii.com

June 22, 2022

Paul Ferreira
County of Hawai'i Police Department
349 Kapiolani Street
Hilo, HI 96720-3998

Subject: Response to Comments Regarding the Publication of the Arts and Sciences Center Draft Environmental Assessment Publication in the Environmental Notice

Applicant: Arts and Sciences Center (ASC)

Approving Agency: Hawai'i County Planning Department

Location: Pāhoa, Puna, Hawai'i TMK: (3) 1-5-006: 002, 012, & 026

Thank you for your comments dated May 18, 2022, regarding the publication of the ASC DEA in the Environmental Notice on May 8, 2022. We acknowledge that the Police Department does not anticipate any significant impact to traffic and/or public safety concerns and appreciate the department taking the time to comment.

We will provide notice of the Final Environmental Assessment decision and publication date. If you have any questions or concerns please feel free to contact me directly.

Sincerely,

John Pipan
Planning Administrator

=====
Forwarded message
=====

From: Cab General <Cab.General@doh.hawaii.gov>

To: "Soriano, Natasha" <natasha.soriano@hawaiicounty.gov>, "john@landplanninghawaii.com" <john@landplanninghawaii.com>

Date: Thu, 26 May 2022 13:28:10 -1000

Subject: Campus Expansion for the Arts and Sciences Center in Puna -- Draft EA (AFNSI)

=====
Forwarded message
=====

Aloha,

Thank you for the opportunity to provide comments on the subject project. Based on review of the *Campus Expansion for the Arts and Sciences Center in Puna*, CAB has no further comments at this time.

Please see our standard comments at:

<https://health.hawaii.gov/cab/files/2022/05/Standard-Comments-for-Land-Use-Reviews-Clean-Air-Branch-2022-1.pdf>

Please let me know if you have any questions or concerns.

--

Kristen Caskey, EHS

Kristen.caskey@doh.hawaii.gov

Clean Air Branch

Hawaii State Department of Health

Standard Comments for Land Use Reviews
Clean Air Branch
Hawaii State Department of Health

If your proposed project:

Requires an Air Pollution Control Permit

- You must obtain an air pollution control permit from the Clean Air Branch and comply with all applicable conditions and requirements. If you do not know if you need an air pollution control permit, please contact the Permitting Section of the Clean Air Branch.
- Permit application forms can be found here: <https://health.hawaii.gov/cab/permit-application-forms/>

Includes construction, demolition, or renovation activities that involve potential asbestos and lead containing materials:

- Asbestos may be present in any existing structure. Prior to demolition, you must contact the Indoor and Radiological Health Branch, Asbestos-Lead Section. Testing may be required to determine if building materials may contain asbestos, such as: drywall, vinyl floor tile, mastic, caulking, roofing materials, insulation, special coatings, etc.
- Structures built prior to 1980 may also contain lead paint. Prior to demolition, contact the Indoor and Radiological Health Branch, Asbestos-Lead Section. Testing may need to be conducted to determine if building materials contain lead.
- Some construction activities have the potential to create excessive noise and may require noise permits. For DOH Noise Permits and/or Variances and for more information on the Indoor and Radiological Health Branch, please visit: <https://health.hawaii.gov/irhb/>

Includes demolition of structures or land clearing

- Department of Health, Administrative Rule: Title 11, Chapter 26, Vector Control, Section 11-26-35, Rodents; Demolition of Structures and Clearing of Sites and Vacant Lots, requires that:
 - No person, firm or corporation shall demolish or clear any structure, site, or vacant lot without first ascertaining the presence or absence of rodents which may endanger the public health by dispersal from such premises.
 - Should such inspection reveal the presence of rodents, the person, firm, or corporation shall eradicate the rodents before demolishing or clearing the structure, site, or vacant lot.
 - The Department may conduct an independent inspection to monitor compliance, or request a written report.
- The purpose of this rule is to prevent rodents from dispersing into adjacent areas from infested buildings or vacant lands during demolition or land clearing.
- Contractors may either hire a pest control firm or do the job themselves with a qualified employee. Rodenticides must be inspected daily and replenished as necessary to provide a continuous supply for at least one week prior to the start of any work.

- To submit notifications or for more information, contact the Vector Control Branch:
<https://health.hawaii.gov/vcb/>

Has the potential to generate fugitive dust

- You must reasonably control the generation of all airborne, visible fugitive dust. Note that construction activities that occur near to existing residences, businesses, public areas and major thoroughfares exacerbate potential dust concerns. It is recommended that a dust control management plan be developed which identifies and mitigates all activities that may generate airborne, visible fugitive dust. The plan, which does *not* require Department of Health approval, should help you recognize and minimize potential airborne, visible fugitive dust problems.
- Construction activities must comply with the provisions of Hawaii Administrative Rules, §11-60.1-33 on Fugitive Dust. In addition, for cases involving mixed land use, we strongly recommend that buffer zones be established, wherever possible, in order to alleviate potential nuisance complaints.
- You must provide reasonable measures to control airborne, visible fugitive dust from the road areas and during the various phases of construction. These measures include, but are not limited to, the following:
 - Planning the different phases of construction, focusing on minimizing the amount of airborne, visible fugitive dust-generating materials and activities, centralizing on-site vehicular traffic routes, and locating potential dust-generating equipment in areas of the least impact;
 - Providing an adequate water source at the site prior to start-up of construction activities; Landscaping and providing rapid covering of bare areas, including slopes, starting from the initial grading phase;
 - Minimizing airborne, visible fugitive dust from shoulders and access roads;
 - Providing reasonable dust control measures during weekends, after hours, and prior to daily start-up of construction activities; and
 - Controlling airborne, visible fugitive dust from debris being hauled away from the project site.
- If you have questions about fugitive dust, please contact the Enforcement Section of the Clean Air Branch

Increases the population and potential number of vehicles in an area:

- The creation of apartment buildings, complexes, and residential communities may increase the overall population in an area. Increasing the population in an area may inadvertently lead to more air pollution via vehicle exhaust. Vehicle exhaust releases molecules in the air that negatively impact human health and air quality, as they are known lung irritants, carcinogens, and greenhouse gases.
- Ensure that residents keep their vehicle idling time to three (3) minutes or less.
- Provide bike racks and/or electric vehicle charging stations for residents.
- Ensure that there are sufficient and safe pedestrian walkways and crosswalks throughout and around the development.
- Conduct a traffic study to ensure that the new development does not significantly impact traffic in the area.

Clean Air Branch (808) 586-4200 cab@doh.hawaii.gov	Indoor Radiological Health Branch (808) 586-4700	Vector Control Branch (808) 586-4400
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194 Wiwo'ole Street
Hilo, Hawai'i 96720
(808) 333-3393
info@landplanninghawaii.com

June 22, 2022

Kristen Caskey
State of Hawaii
Department of Health Clean Air Branch
2827 Waimano Home Road, #130
Pearl City, Hawai'i 96782

Subject: Response to Publication Comments for the Arts and Sciences Center Draft Environmental Assessment
Applicant: Arts and Sciences Center (ASC)
Approving Agency: Hawai'i County Planning Department
Location: Pāhoa, Puna, Hawai'i TMK: (3) 1-5-006: 002, 012, & 026

Dear Ms. Caskey,

Thank you for your comments dated May 26, 2022, regarding the ASC DEA published in the Environmental Notice on May 8, 2022. We have reviewed the standard comments provided and have modified Section 3.1.5 of the Final Environmental Assessment to reflect the Department of Health guidelines.

We will provide notice of the Final Environmental Assessment publication date. If you have any questions or concerns, please do not hesitate to contact me directly.

Sincerely,

John Pipan
Planning Administrator

Subject: Comment regarding “Applicant: Arts and Sciences Center., TMK (3) 1-5-006: 002,012 & 026

Aloha,

First, I am morally obligated to ask if your State Agency has clear title for the lands so numbered above and if so I am entitled to the proof of such Clear Title. And I must further inform your State Agency that I am, by way of meaningful and morally sound research, aware of the very real possibility of the truth as it stands which places your State Agency in the awkward position of being in “control” of “stolen property”.

All the above begs the questions, who, what, when, where, how, and why? is the rightful controlling title holder not a party to this case? Who do the above lands benefit?

That said, I am thrilled to comment in support of the Applicant however I firmly believe in a Mauka I Makai approach to the Arts and Sciences in the Kakou Language therefor, the applicant will need more lands available to truly fulfill their mission. So, please make available the lands they require providing they demonstrate an awareness of such schooling as can be had from the books titled “the secret life of water” and “the one straw revolution”. And of course, a basic understanding of the quantum physics “observer effect/affect”, along with the conceptual basis of an Ahupuaa, and a strong awareness of the fact that there are no weeds in my garden., only volunteers.

Finally, phew! Have a GREAT day!

Aloha.,

Debra Koonohiokala Norenberg, also known as Puna (Grandma)



194 Wiwo'ole Street
Hilo, Hawai'i 96720
(808) 333-3393
info@landplanninghawaii.com

June 22, 2022

Debra Koonohiokala Norenberg

Subject: Response to Publication Comments for the Arts and Sciences Center Draft Environmental Assessment
Applicant: Arts and Sciences Center (ASC)
Approving Agency: Hawai'i County Planning Department
Location: Pāhoa, Puna, Hawai'i TMK: (3) 1-5-006: 002, 012, & 026

Dear Ms. Koonohiokala Norenberg

Thank you for your comments regarding the ASC DEA published in the Environmental Notice on May 8, 2022. The Arts and Sciences Center owns all three (3) subject parcels in fee simple and thus has legal title to the land and the right to expand its facilities with the approval of all relevant permits. ASC sincerely appreciates your comment in support of the project and acknowledges the need to provide a holistic education to the people of Puna.

We will provide notice of the Final Environmental Assessment publication date in the Environmental Notice to all surrounding property owners. If you have any questions or concerns, please do not hesitate to contact me directly.

Sincerely,

John Pipan
Planning Administrator