

FILE COPY

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

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FEB 23 2021

RICK BLANGIARDI
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DIRECTOR DESIGNATE

JON Y. NOUCHI
DEPUTY DIRECTOR

TP2/21-841368

February 16, 2021

Mr. Keith Kawaoka, Acting Director
State of Hawaii, Department of Health
Office of Environmental Quality Control (OEQC)
235 South Beretania Street, Room 702
Honolulu, Hawaii 96813

Subject: Chapter 343, Hawaii Revised Statutes (HRS) Final Environmental Assessment and Finding of No Significant Impact for the Department of Transportation Services Pearlridge Bus Transit Center Tax Map Key (TMK): (1) 9-8-009: 005, 014, 015, and 016 and easement over (1) 9-8-009: 011 (por.) (Aiea, Oahu, Hawaii)

Dear Mr. Kawaoka:

With this letter, the City and County of Honolulu, Department of Transportation Services (DTS) hereby transmits the Final Environmental Assessment and Finding of No Significant Impact (FEA-FONSI) for the Pearlridge Bus Transit Center project located in Aiea, island of Oahu, for publication in the February 23, 2021 edition of *The Environmental Notice*. We have determined that preparation of an Environmental Impact Statement is not required for the Project, pursuant to the 13 significance criteria specified by Title 11, Chapter 200.1-13, Hawaii Administrative Rules. Therefore, we hereby issue a FONSI.

Enclosed is an Adobe Acrobat PDF file of the FEA-FONSI and a zip file that contains the shapefile of the project location.

Should you have any questions, please contact Virginia Sosh, Project Manager, of my staff at 768-5461 or virginia.sosh@honolulu.gov, or our consultant from G70, Mr. Jeff Overton, by phone at 523-5866 or email at pearlridgetransit@g70.design.

Very truly yours,

A handwritten signature in black ink, appearing to read "J. Roger Morton".

J. Roger Morton
Director Designate

Enclosure

cc: Jeff Overton, G70

21 - 122

From: webmaster@hawaii.gov
To: [HI Office of Environmental Quality Control](#)
Subject: New online submission for The Environmental Notice
Date: Tuesday, February 16, 2021 4:31:10 PM

Action Name

Pearlridge Bus Transit Center

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

Honolulu, O'ahu

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

(1) 9-8-009: 005, 014, 015, and 016 and easement over (1) 9-8-009: 011 (por.)

Action type

Agency

Other required permits and approvals

Special Management Area Use Permit (Major); Joint Development Conditional Use Permit (Minor); Subdivision Approval; Historic Preservation Review under HRS 6E-8; Grading, Grubbing, Trenching and Stockpiling Permits; Erosion and Sediment Control Plan, Clean Water Pollution Plan, Post-Construction Best Management Practices Plan; National Pollutant Discharge Elimination System (NPDES) Permit for Construction Stormwater (Form C); Honolulu Fire Department Plan Review; Americans with Disabilities Act Compliance; Sewer Connection; Water Connection; and Community Noise Permit.

Proposing/determining agency

City and County of Honolulu Department of Transportation Services (DTS)

Agency contact name

Roger Morton

Agency contact email (for info about the action)

pearlridgetransit@g70.design

Email address or URL for receiving comments

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United States

[Map It](#)

Was this submittal prepared by a consultant?

Yes

Consultant

G70

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(808) 523-5866

Consultant address

111 S. King Street, Suite 170
Honolulu, HI 96813
United States
[Map It](#)

Action summary

The City and County of Honolulu Department of Transportation Services proposes to construct and operate the Pearlridge Bus Transit Center in 'Aiea on the island of O'ahu. The project will support the Honolulu Authority for Rapid Transportation Kalauao Pearlridge Station, which is currently under construction. The Project involves construction of a bus transit center on approximately 3.7 acres of pre-developed and underutilized urban lands in the Primary Urban Center. Proposed construction activities include construction of bus lanes throughout the center, six bus bays with bus shelters, four electric bus charging bays, raised central island with comfort station and Operator's Lounge, and two designated TheHandi-Van areas. The new bus transit center will also include sidewalks and crosswalks, bicycle parking, a shared-use pedestrian and bicycle path, and landscaping. The purpose of the Pearlridge Bus Transit Center is to facilitate accessibility and multimodal transportation.

Reasons supporting determination

See Chapter 6.0 of the EA.

Attached documents (signed agency letter & EA/EIS)

- [TP-841368.pdf](#)
- [DTS-Pearlridge-Bus-Transit-Center_-_Final-EA_Final-Draft-02112021.pdf](#)

Shapefile

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

Action location map

- [DTSPearlridgeTOD_projectArea.zip](#)

Authorized individual

Noelle Besa Wright

Authorization

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

Pearlridge Bus Transit Center

FINAL ENVIRONMENTAL ASSESSMENT

‘AIEA, ISLAND OF O‘AHU

TAX MAP KEYS: (1) 9-8-009: 005, 011 (PORTION), 014, 015, AND 016



APPLICANT:



CITY AND COUNTY OF HONOLULU
DEPARTMENT OF TRANSPORTATION SERVICES

PREPARED BY:



FEBRUARY 2021

PEARLRIDGE BUS TRANSIT CENTER

'Aiea, Island of O'ahu, Hawai'i

Tax Map Keys: (1) 9-8-009: 005, 011 (por.), 014, 015, and 016

Final Environmental Assessment

Applicant:

City and County of Honolulu
Department of Transportation Services
650 South King Street, 3rd Floor
Honolulu, Hawai'i 96813-3078

Approving Agency:



City and County of Honolulu
Department of Transportation Services
650 South King Street, 3rd Floor
Honolulu, Hawai'i 96813-3078

Prepared By:



111 S. King Street, Suite 170
Honolulu, Hawai'i 96813

This environmental document is prepared pursuant to 343, Hawai'i Revised Statutes and Chapter 200.1 of Title 11, Administrative Rules, Department of Health, Environmental Impact Statement Rules.

FEBRUARY 2021

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Appendices

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- B. *DRAFT—Archaeological Assessment for the Proposed DTS Bus Transfer Station, Waimalu Ahupua‘a, ‘Ewa District, Island of O‘ahu, Hawai‘i*, Prepared by Keala Pono Archaeological Consulting, LLC., January 2021.
- C. *Preliminary Engineering Report for Pearlridge Bus Transit Center and Transit Oriented Development*, Prepared by G70, January 2021.
- D. *Mobility Analysis Report (MAR) for the Proposed Pearlridge Bus Transit Center*, Prepared by Fehr & Peers, January 22, 2021.
- E. *Air Quality Technical Report: DTS Pearlridge Bus Transit Center*, Prepared by Arcadis U.S. Inc., February 2021.
- F. *Acoustic Study for the Pearlridge Bus Transit Center, Pearlridge, Hawai‘i*, Prepared by Y. Ebisu & Associates, February 2021.
- G. *Phase 1 Environmental Site Assessment, TMKs (1) 9-8009: 005, 011, 014, 015, and 016*, Prepared by ENPRO Environmental, September 16, 2019.
- H. Draft Environmental Assessment Comment Letters



Acronyms and Abbreviations

AIS	Archaeological Inventory Survey
BMPs	Best Management Practices
CAB	Clean Air Branch
Cfs	Cubic Feet Per Second
City	City and County of Honolulu
CIA	Cultural Impact Assessment
CIP	Capital Improvement Plan
CPHC	Central Pacific Hurricane Center
CZM	Coastal Zone Management
CZMP	Coastal Zone Management Program
CWA	Clean Water Act
DDC	Department of Design and Construction, City
DEM	Department of Emergency Management, City
DLNR	Department of Land and Natural Resources, State
DNL	Day-Night Average Sound Level
DP	Development Plan
DPP	Department of Planning and Permitting, City
DoD	Department of Defense, State
DOE	Department of Education, State
DOH	Department of Health, State
DTS	Department of Transportation Services, City
EA	Environmental Assessment
EAS	Emergency Alert System

EHE/CEHMP	Environmental Hazard Evaluation and Construction Environmental Hazard Management Plan
EMS	Emergency Medical Services, City
EPA	U.S. Environmental Protection Agency
ESA	Environmental Site Assessment
ESCP	Erosion and Sediment Control Plan
FEMA	Federal Emergency Management Agency
FIRM	Flood Rate Insurance Map
FONSI	Finding of No Significant Impact
GAT	Great Aleutian Tsunami
GHG	Greenhouse gas
HAR	Hawai'i Administrative Rules
HART	Hawai'i Authority for Rapid Transit
HECO	Hawaiian Electric Company
HDOT	Hawai'i Department of Transportation, State
HEPA	Hawai'i Environmental Protection Act
HFD	Honolulu Fire Department
HI-EMA	Hawai'i Emergency Management Agency, State
HMP	Hazard Mitigation Plan
HPD	Honolulu Police Department
HRS	Hawai'i Revised Statutes
IBC	International Building Code
ICAC	Interagency Climate Adaptation Committee
LCA	Land Commission Awards
Leq(h)	Equivalent Sound Level
LID	Low Impact Development

LOS	Level of Service
LRFI	Literature Review and Field Inspection
LUO	Land Use Ordinance
MAR	Mobility Analysis Report
Mph	Miles per hour
MSL	Mean Sea Level
NAAQS	National Ambient Air Quality Standards
NIMS	National Incident Management System
NPDES	National Pollutant Discharge Elimination System
OEQC	Office of Environmental Quality Control, State
OHA	Office of Hawaiian Affairs
OMPO	O'ahu Metropolitan Planning Organization
ORTP	O'ahu Regional Transportation Plan
PGA	Peak ground acceleration
PHHT	Pearl Harbor Historic Trail
PUC	Primary Urban Center
REC	Recognized Environmental Condition
RFP	Request for Proposal
ROH	Revised Ordinances of Honolulu
SAAQS	Station Ambient Air Quality Standards
SD	Special District
SDC	Seismic Design Category
Sea Grant	UH Sea Grant College Program
SFHA	Special Flood Hazard Area
SHPD	State Historic Preservation Division
SLR	Sea level rise

SLRXA	SLR Exposure Area
SMA	Special Management Area
SOEST	UH School of Ocean and Earth Science and Technology
State	State of Hawai'i
SWP	State Warning Point
TIAR	Traffic Impact Assessment Report
TMK	Tax Map Key
TOD	Transit-Oriented Development
UH	University of Hawai'i
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	Underground Storage Tank
WUI	Wildland-urban interface
XTEZ	Extreme Tsunami Evacuation Zone

Chapter 1

Introduction

Chapter 1

Introduction

This Environmental Assessment (EA) has been prepared in accordance with the requirements of Chapter 343, Hawai'i Revised Statutes (HRS) and Title 11, Chapter 200.1, Hawai'i Administrative Rules (HAR), which set requirements for the preparation of environmental assessments. The planned Pearlridge Bus Transit Center is located within the Special Management Area (SMA) and will require the approval of an SMA Use Permit (Major) pursuant to Chapter 25, Revised Ordinances of Honolulu (ROH), Special Management Area. Chapter 25, ROH requires the preparation of an EA consistent with Chapter 343, HRS and Chapter 11-200.1, HAR.

1.1 Project Information Summary

Type of Document:	Final Environmental Assessment (EA)
Project Name:	Pearlridge Bus Transit Center
Applicant:	City and County of Honolulu, Department of Transportation Services Address: 650 South King Street, Third Floor, Honolulu, HI 96813 Contact: Roger Morton, Director Telephone: (808) 768-8303
Agent:	G70 111 S. King Street, Suite 170, Honolulu, HI 96813 Contact: Jeff Overton, Principal Telephone: (808) 523-5866
Approving Agency:	City and County of Honolulu, Department of Transportation Services Address: 650 South King Street, Third Floor, Honolulu, HI 96813 Contact: Roger Morton, Director Telephone: (808) 768-8303
Ch. 343, HRS Triggers:	Use of County lands and funds
Project Location:	98-69, 73, 75, and 85 Kamehameha Highway, 'Aiea, HI 96701 (<i>Figure 1.1</i>)
Tax Map Keys (TMK)	TMK: (1) 9-8-009: 005, 014, 015, and 016 and easement over (1) 9-8-009: 011 (por.) (<i>Figure 1.2</i>)

Recorded Fee Owners:	TMK: (1) 9-8-009: 005, (1) 9-8-009-014, (1) 9-8-009-015, (1) 9-8-016: City and County of Honolulu 650 South King Street, 11 th Floor, Honolulu, HI 96813 Easement over (1) 9-8-009: 011 (por.): Healani Land Company Inc. P.O. Box 17658, Honolulu, HI 96817
Project Area:	Approx. 3.7 acres
State Land Use District:	Urban (<i>Figure 1.3</i>)
Special Management Area (SMA):	Within SMA (<i>Figure 1.4</i>)
City & County of Honolulu Zoning:	I-2 Intensive Industrial District IMX-1 Industrial-Commercial Mixed-Use District (<i>Figure 1.5</i>)
Transit-Oriented Development (TOD) Special District Zoning:	BMX-3 Business Community Mixed-Use (<i>Figure 1.6</i>)
City Development Plan:	Primary Urban Center Development Plan (<i>Figure 1.7</i>)
Flood Zone:	Zone X (area outside floodplain) (<i>Figure 1.8</i>)
Determination:	Finding of No Significant Impact (FONSI)

1.2 Overview of the Proposed Project

The City and County of Honolulu (City) Department of Transportation Services (DTS) proposes to construct and operate the Pearlridge Bus Transit Center in 'Aiea on the island of O'ahu (the "Project"). Construction of the proposed Project is in support of the Honolulu Authority for Rapid Transportation (HART) elevated rail transit project (Rail). The bus transit center is located adjacent to the HART Kalauao Pearlridge Station, which is currently under construction, and approximately 0.25-mile southwest of the Pearlridge Shopping Center (*Figure 1.1*). The adjoining locations of the planned Pearlridge Bus Transit Center and the Kalauao Pearlridge Station will effectively facilitate multimodal transportation connectivity.

The Project involves construction of a bus transit center on approximately 3.7 acres of pre-developed and underutilized urban lands in the Primary Urban Center (PUC). Proposed construction activities include construction of bus lanes throughout the center, six bus bays with bus shelters, four electric bus charging bays, raised central island with comfort station and Operator's Lounge, and two designated TheHandi-Van areas. The new bus transit center will also include sidewalks and crosswalks, bicycle parking, a shared-use pedestrian and bicycle path, and landscaping. The bus transit center will require reconfiguration of a portion of the adjacent parking lot on TMK (1) 9-8-009-011 to include a bus circulation driveway easement. Design of the Project will be consistent with City standards. Further detail of the Project site and adjacent land uses is provided in *Chapter 2.1*.

The purpose of the Pearlridge Bus Transit Center is to facilitate accessibility and multimodal transportation by allowing Rail passengers and bicycle users to utilize existing and modified bus routes to connect from Rail to their final destinations. In the long-term, the City intended to propose mixed-use development on the bus transit center site and upgrade the bus transit center to a permanent facility consistent with the *'Aiea-Pearl City Neighborhood TOD Plan* (adopted April 8, 2014). The Project represents an initial stage of the City's long-range plans for TOD in the 'Aiea-Pearl City region, which is part of a larger island-wide shift in development patterns along the Rail alignment. The planned facility is anticipated to support users of the public transit system and future TOD mixed-use development. The Project is consistent with the City's effort to reduce traffic congestion, create an integrated multimodal transportation system, and reduce greenhouse gas emissions (GHGs), which is critical to the state's climate change adaptation and resilience goals. Timely construction and upgrading of the City's public transit services and facilities are critical in maintaining effective functionality and growth of the City and ensuring high quality of life for O'ahu residents.

1.3 Purpose of the Environmental Assessment

Pursuant to Chapter 343, HRS and Chapter 11-200.1, HAR the use of County land and funds is the trigger for preparation of the EA. DTS is the proposing and accepting agency.

Additionally, the Project site is situated within the City's designated SMA and development has a valuation more than \$500,000.00. Therefore, the Project will require the approval of an SMA Use Permit (Major). The processing of an SMA Use Permit (Major) application by the City Department of Planning and Permitting (DPP) is generally a two-phase procedure. Chapter 25, ROH requires the preparation of an EA consistent with Chapter 343, HRS and Chapter 11-200.1, HAR. After the environmental review process, a SMA Use Permit (Major) will be processed by the DPP and include a public hearing. The permit will require approval by the Honolulu City Council.

In accordance with Hawai'i's Environmental Review process, a Draft EA was prepared to inform interested parties of the proposed Project, disclose and examine the potential environmental impacts, provide mitigation measures, and seek agency and public comment on subject areas that should be addressed. The Draft EA was published by the State Office of Environmental Quality Control (OEQC) in *The Environmental Notice* on October 23, 2020 and was followed by a 30-day public comment period. All relevant written public comments received during the 30-day public comment period were provided with a written response for inclusion and use in the preparation of this Final EA. Documentation of the consultation process is provided in *Chapter 7.0*. Pursuant to the 13 significance criteria specified by Chapter 11-200.1-13, HAR, DTS determined that preparation of an Environmental Impact Statement is not required for the Project, and hereby issues a Finding of No Significant Impact (FONSI).

1.4 Permits and Approvals Required

Anticipated permits and approvals required for the planned interim Pearlridge Bus Transit Center are listed in *Table 1.1* below:

Table 1.1 List of Required Government Permits and Approvals	
Permit or Approval	Approving Authority
Final Environmental Assessment / FONSI, Chapter 343 HRS	DTS
Special Management Area Use Permit (Major), Chapter 25 ROH	City Department of Planning and Permitting (DPP) and Honolulu City Council
Chapter 6E, HRS Compliance Historic Resources	State Department of Land and Natural Resources (DLNR), State Historic Preservation Division
Conditional Use Permit (Minor) for Joint Development	DPP
Subdivision Approval*	DPP
Grading, Grubbing, Trenching and Stockpiling Permits	DPP
Erosion and Sediment Control Plan, Clean Water Pollution Plan, Post-Construction Best Management Practices Plan	City Department of Facility Maintenance (DFM)
National Pollutant Discharge Elimination System (NPDES) Permit for Construction Stormwater (Form C)	DOH
Plan Review	Honolulu Fire Department (HFD)
ADA Compliance	State Department of Health (DOH)
Building Permits (Demolition, Buildings, Electrical, Plumbing)	DPP
Sewer Connection	DPP
Water Connection	Honolulu Board of Water Supply (BWS)
Community Noise Permit	DOH

* During the EA consultation process, DPP noted that a subdivision application is required for access easements over TMK (1) 9-8-009: 011 and for the consolidation of the other lots if a Conditional Use Permit for Joint Development is not obtained. See Chapter 7.0.

1.5 Agencies, Organizations and Individuals Contacted

Early consultation letters were sent out on March 5, 2020 to agencies, organizations, and other parties to initiate the environmental review process. A total of 11 stakeholders provided comments. The Draft EA was published in *The Environmental Notice* on October 23, 2020. Publication of the Draft EA was followed by a 30-day public comment period. A total of 12 State and City agencies or agency divisions and community organizations commented on the Project. During the public comment period, DTS made presentations to the 'Aiea Neighborhood Board No. 20 on November 9, 2020 and the Pearl City Neighborhood Board No. 21 on November 24, 2020 to inform the community of the Draft EA publication. A discussion of stakeholder comments received during the EA consultation process, DTS responses, and a list of agencies, organizations, and other parties that will be notified of the Final EA is provided in *Chapter 7.0*.



Figure 1.1

Project and Regional Location



Figure 1.2

Tax Map Keys



Figure 1.3

State Land Use District



Figure 1.4

Special Management Area

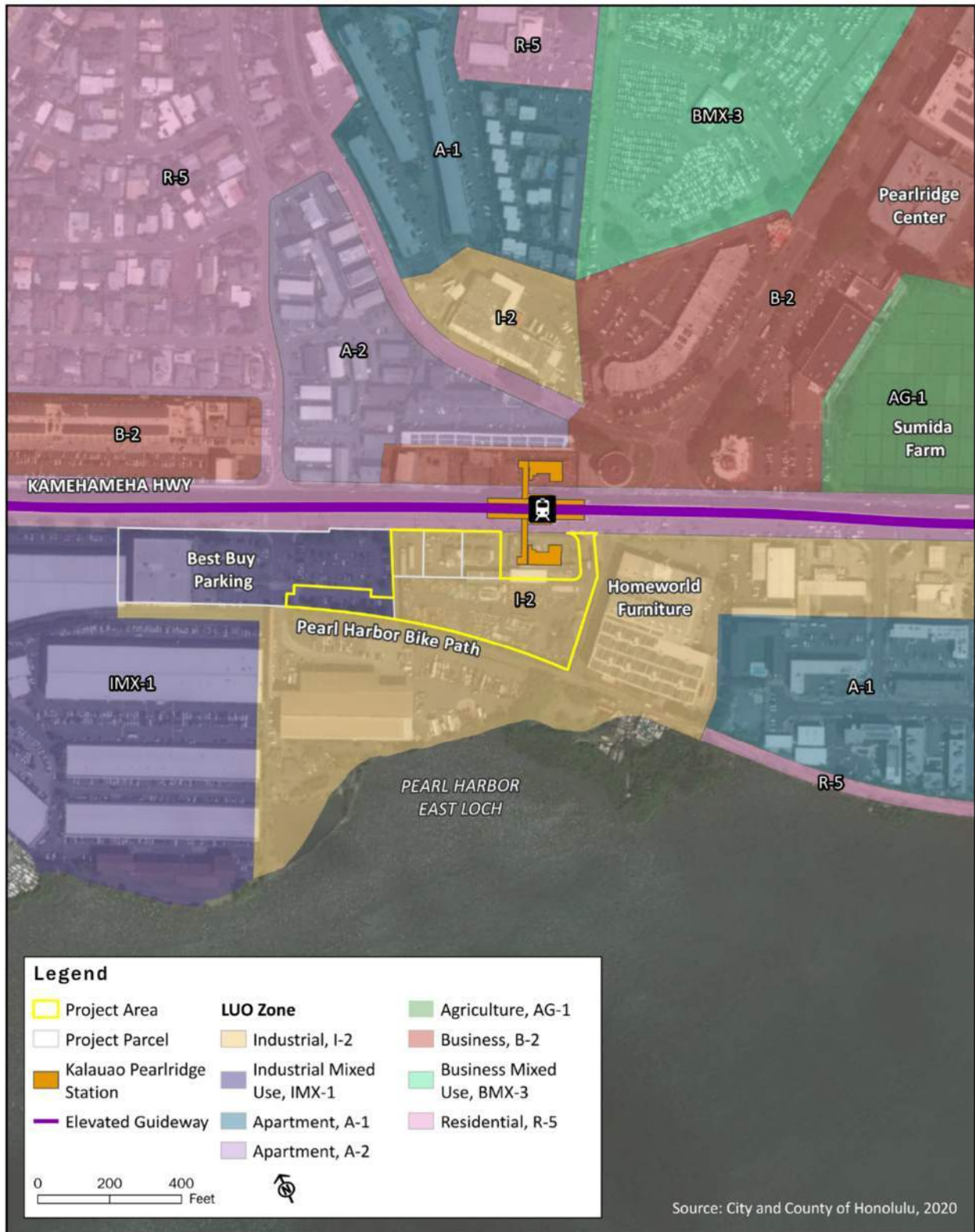
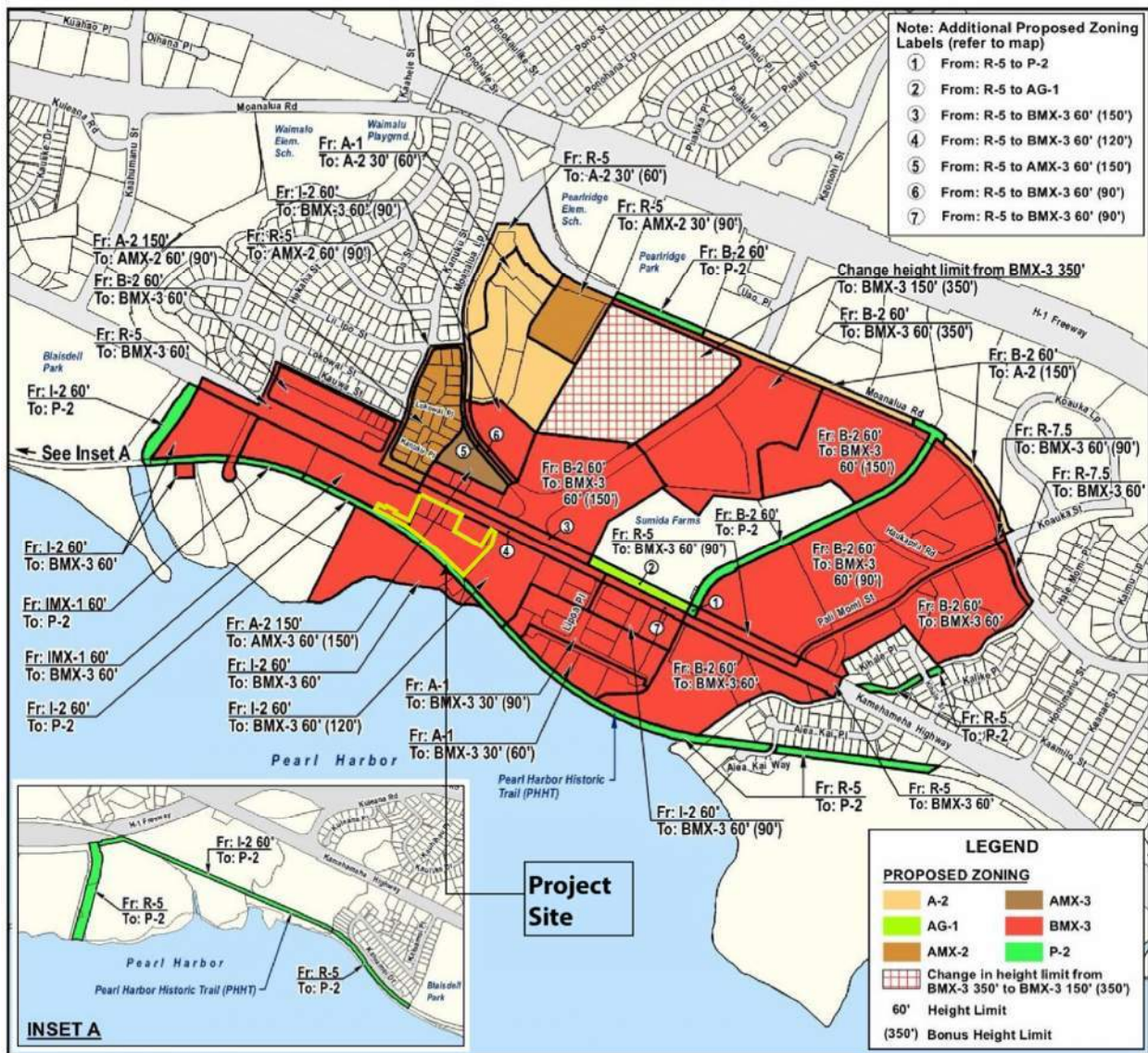


Figure 1.5

City and County of Honolulu Zoning



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Figure 1.6

'Aiea-Pearl City Neighborhood TOD Proposed Zoning

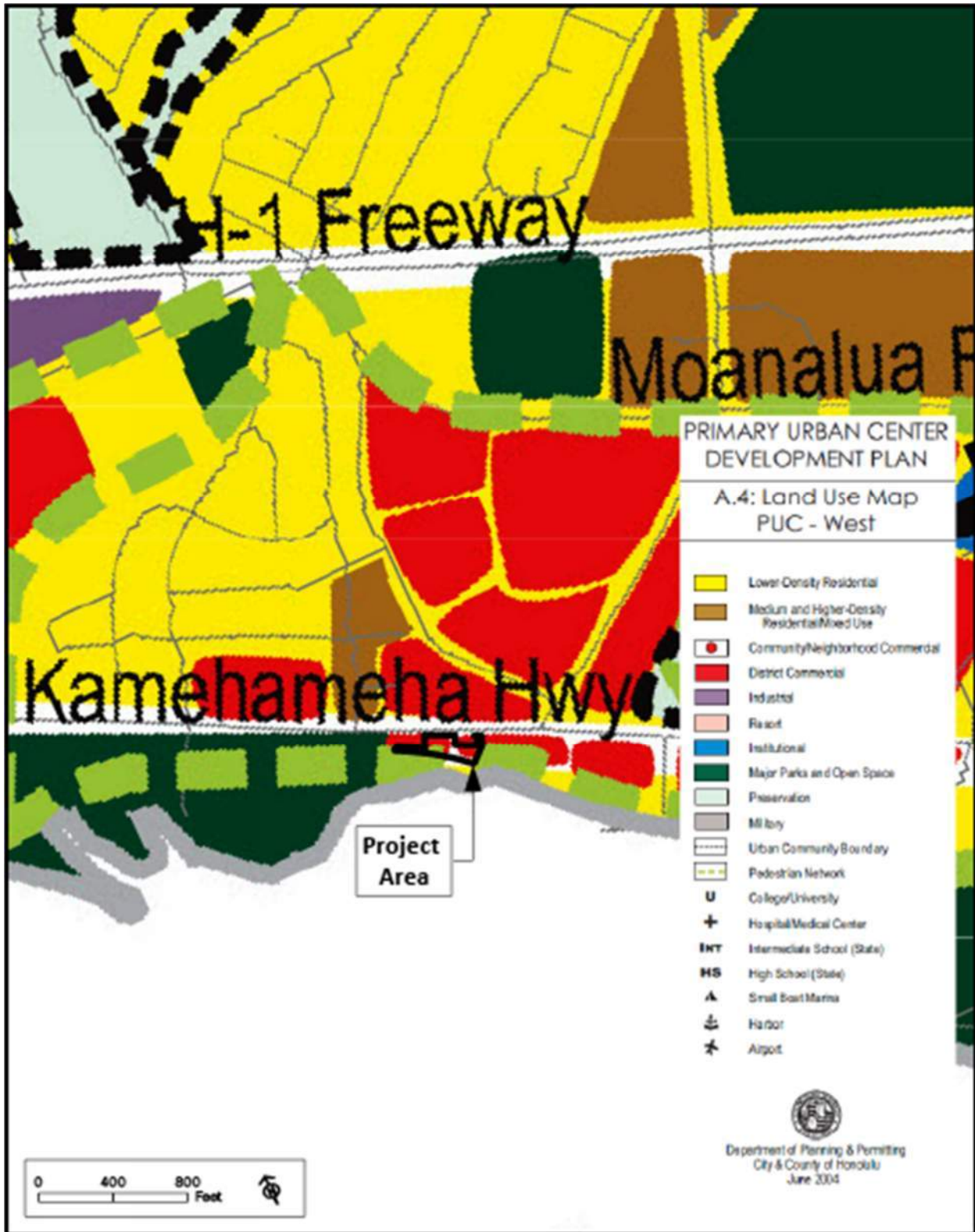


Figure 1.7

Primary Urban Center Development Plan

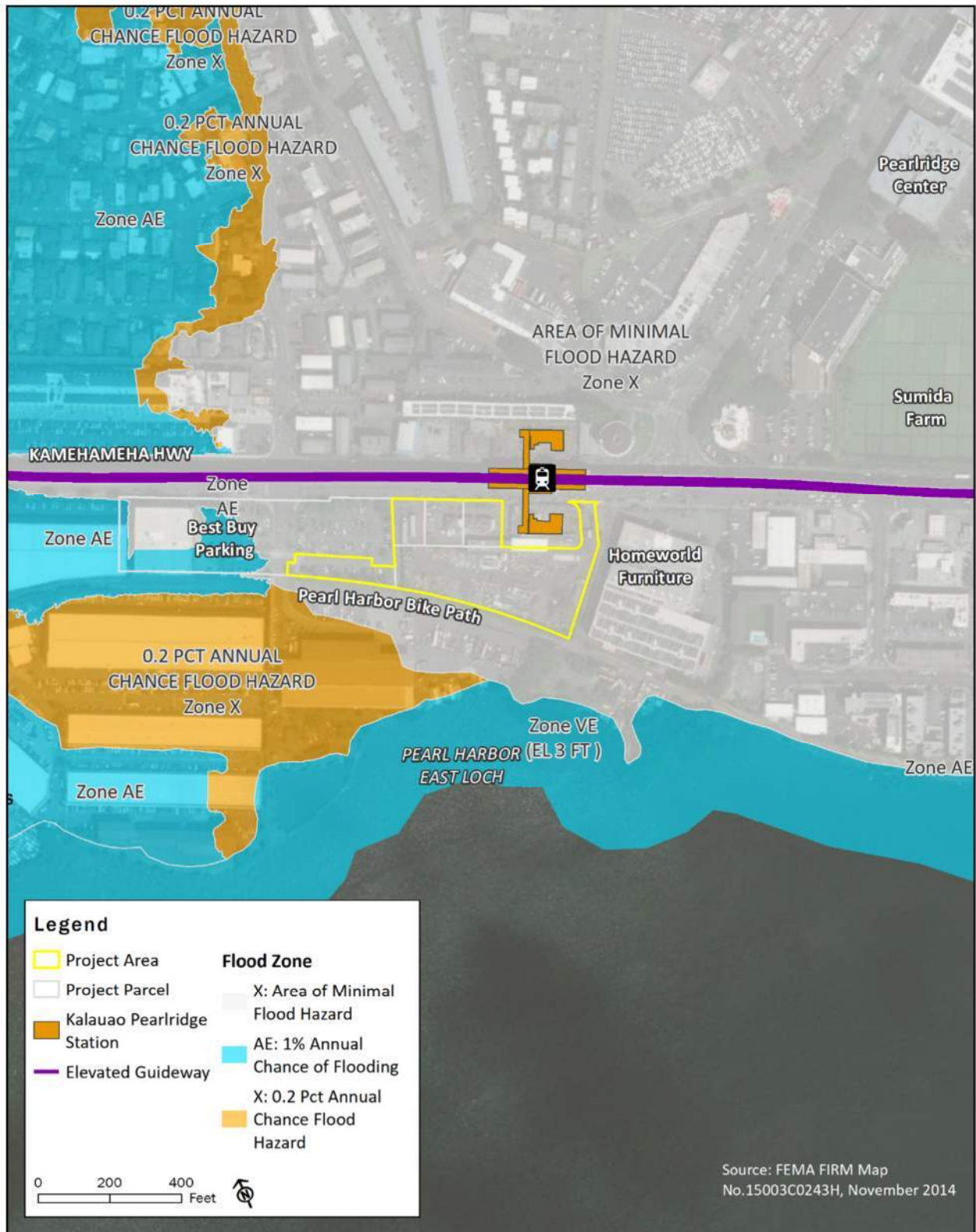


Figure 1.8

FEMA Flood Zone

Project Description

Chapter 2

Project Description

This chapter provides a description of the planned Pearlridge Bus Transit Center, including the Project site characteristics and history, the purpose of the Project, various details of the planned Project, planned construction characteristics, and projected costs and funding.

2.1 Project Location and Land Use

The Project site is located at 98-69, 73, 75, 85 Kamehameha Highway (SR 99) in 'Aiea on the island of O'ahu, State of Hawai'i. The site encompasses approximately 3.0-acre across four Tax Map Key (TMK) parcels identified as (1) 9-8-009: 005, 014, 015, 016. Additionally, DTS is seeking an easement Right-of-Way (ROW) over a portion of an adjacent property identified as TMK (1) 9-8-009: 011 (portion) to utilize for a third driveway into the bus transit center (see *Table 2.1* and *Figure 1.2*). TMK (1) 9-8-009: 011 currently serves as a driveway access to the existing industrial uses makai of the site and as an overflow parking for Best Buy. With this addition, the Project will encompass approximately 3.7 acres. Four of the five subject parcels are owned by the City and County of Honolulu, while the proposed easement traverses over a land owned by Healani Land Company Inc, with Best Buy as a lessee.

No.	TMK	Parcel Area	Owner
1	(1) 9-8-009: 005	88,165 square feet (2.02 acres)	City and County of Honolulu
2	(1) 9-8-009: 014	10,001 square feet (0.23 acres)	City and County of Honolulu
3	(1) 9-8-009: 015	12,000 square feet (0.28 acres)	City and County of Honolulu
4	(1) 9-8-009: 016	12,000 square feet (0.28 acres)	City and County of Honolulu
5	(1) 9-8-009: 011 (portion)	20,241 square feet (0.46-acre)*	Healani Land Company, Inc.
	TOTAL:	162,648 square feet (approximately 3.7 acres)	

**Note that the total TMK area is total 142,790 square feet (3.28 acres)*

The site is bounded by Kamehameha Highway to the north, the Pearl Harbor Bike Path and existing industrial uses to the south, the Best Buy electronics store to the west, and the HomeWorld Furniture store to the east. The topography of the Project site is relatively flat and ranges from 10 to 15 feet above mean sea level (MSL). Kamehameha Highway is a State Right-of-Way. The Pearl Harbor Bike Path is owned by the Federal Government (Navy) and maintained by the City through a grant of an easement.

The area surrounding the Project site is characterized by low-rise residential apartments and retail commercial uses, including the Waimalu Shopping Center, to the north, east and west of the Project site. The Pearlridge Shopping Center (Pearlridge) is located approximately 0.25-mile further northeast

of the site. Pearlridge is the second largest shopping center in the state and includes various retail and community services. The south of the site is characterized by industrial uses, including automotive services and a heavy machinery/vehicle storage lot. The East Loch of Pearl Harbor, an active military base, is located approximately 200 feet south of the site.

The site is situated within the State “Urban” District (*Figure 1.3*). The current City zoning for the Project site is I-2, Intensive Industrial, and IMX-1, Industrial Mixed Use (*Figure 1.5*). The site has been extensively modified by modern development consistent with its current zoning. Past uses of the property include industrial uses such as automobile services; vehicles, heavy equipment, and construction supplies storage stockpiling; and underground storage tanks installation and removal. The northern portion of the Project site, adjacent to Kamehameha Highway, consists of three one-story structures associated with an abandoned car dealership and an asphalt paved parking lot. This portion of the Project site is bound immediately east by the City’s Kalauao Pearlridge Station. The eastern and southern portions of the Project site are currently used as a construction laydown area by contractors constructing the rail station.

The site is located within the City-designated SMA (*Figure 1.4*). The site is also located within the ‘Aiea-Pearl City Neighborhood TOD Plan (adopted September 2014) (*Figure 1.6*). The proposed TOD zoning amendments outlined in the plan will change the zoning of the Project parcels to Business Community Mixed-Use (BMX-3). Once the ‘Aiea-Pearl City Neighborhood TOD Special District for the neighborhood has been adopted, a Special District permit will be required.

2.2 Purpose of the Project

The purpose of the proposed Project is to provide a bus transit center to support the significant mass transit demand in the Pearl City and ‘Aiea communities. The Project will serve as a major transit hub for bus service in the region. The transit center will support the existing bus system, as well as potential new routes to service the underserved areas within these communities.

The bus transit center will also improve multimodal transportation connectivity around the Kalauao Pearlridge Station. In the City and County of Honolulu, approximately 8.1 percent of commuters utilize public transportation, while 64.7 drive alone. While in the Moanalua-Pearl City area, where the Project is located, only 5 percent of commuters utilize public transportation, while 84 percent drive alone (DBEDT, 2015). Bus riders are projected to account for nearly 90 percent of daily rail passengers originating at the Kalauao Pearlridge Station. With the Pearl Harbor Bike Path traversing makai of the Project area, cyclists will also be able to conveniently connect to their destinations via bus or Rail. Convenient and accessible multimodal transportation system will be critical for attracting more public transportation users. Shifting transportation mode from private vehicles to alternative modes is consistent with the State’s and City’s climate change adaptation and resilience goals.

The proposed action is intended to be an interim use of the Project site and a catalytic TOD project in the region. TOD is an urban planning intervention that seeks to establish a mix of housing, jobs, and services accessible to public transit. TOD neighborhoods typically aim to enhance pedestrian amenities and improve walking and biking experience with the goal of reducing dependency on private automobiles. Multimodal choice and connectivity are essential components in the TOD.

In the long-term, the City has a plan to initiate a public-private partnership and mixed-use development, which integrates a permanent bus transit facility on the site. The site has been designated as a future mixed-use workforce housing/bus transit center in the Aiea-Pearl City Neighborhood TOD Plan. The City will be issuing a Request for Proposal (RFP) to seek a qualified developer to develop the TOD

mixed-use project at this site. The timeline for the RFP has not been specified. A new EA will be prepared for the future TOD mixed-use development.

According to the O'ahu Metropolitan Planning Organization (OMPO) *O'ahu Regional Transportation Plan 2040* (ORTP 2016), there will be approximately 240,000 new residents and 130,000 new jobs on O'ahu by 2040. Such growth, in combination with existing traffic congestion, indicates that traffic conditions will likely worsen considerably without substantial interventions, such as TOD. According to HART, by 2030 approximately 70% of the County's population and 80% of the County's jobs will be located along the 20-mile rail corridor. The planned Pearlridge Bus Transit Center will provide needed connection services to and from the bus and Rail station and support TOD in the Pearlridge area. Timely construction and the City's public transit services and facilities upgrades are critical to the functionality and planned growth of the region and will provide a high quality of life for O'ahu residents.

2.3 Description of the Project

2.3.1 Project Background

DTS plans to construct and operate an interim bus transit center adjacent to the Kalauao Pearlridge Station in conjunction with construction of the Rail. The 20-mile Rail alignment includes 21 total stations spanning from East Kapolei and terminating at Ala Moana Center in Honolulu. In order to ensure integration with the existing public transit system on O'ahu, certain stations were planned to include bus transit centers in order to best serve the expected number of passengers. The proposed Project is planned to support the Kalauao Pearlridge Station, which will serve Pearlridge Shopping Center, Pearl City, Waimalu, 'Aiea, and the outlying residential areas. The planned Project will be an interim use of the site as the City prepares for a longer-range transition to TOD in the 'Aiea-Pearl City area. In its initial planning, HART identified the Project parcels as underutilized parcels that could be appropriate for high-density mixed-use development fully integrated into the Rail system in the future (HART, 2011).

2.3.2 Project Description

Program Description and Design Characteristics

The Pearlridge Bus Transit Center will provide pick-up, drop-off, and transit connection for users of the Rail, the TheBus and TheHandi-Van. The Project includes the construction of bus circulation throughout the center, six bus bays, four electric bus charging bays, bus layover area, and two designated areas for TheHandi-Van (see *Figure 2.1* for a conceptual preliminary site plan). The bus bays will include six covered passenger waiting areas with benches, accommodating six buses at any given time. The four electric bus charging stalls will be located at the south end of the site. Curb ramps and sidewalks along the project frontage with Kamehameha Highway will also be upgraded to comply with ADA standards. See *Figure 2.2* for conceptual illustration of the bus transit center.

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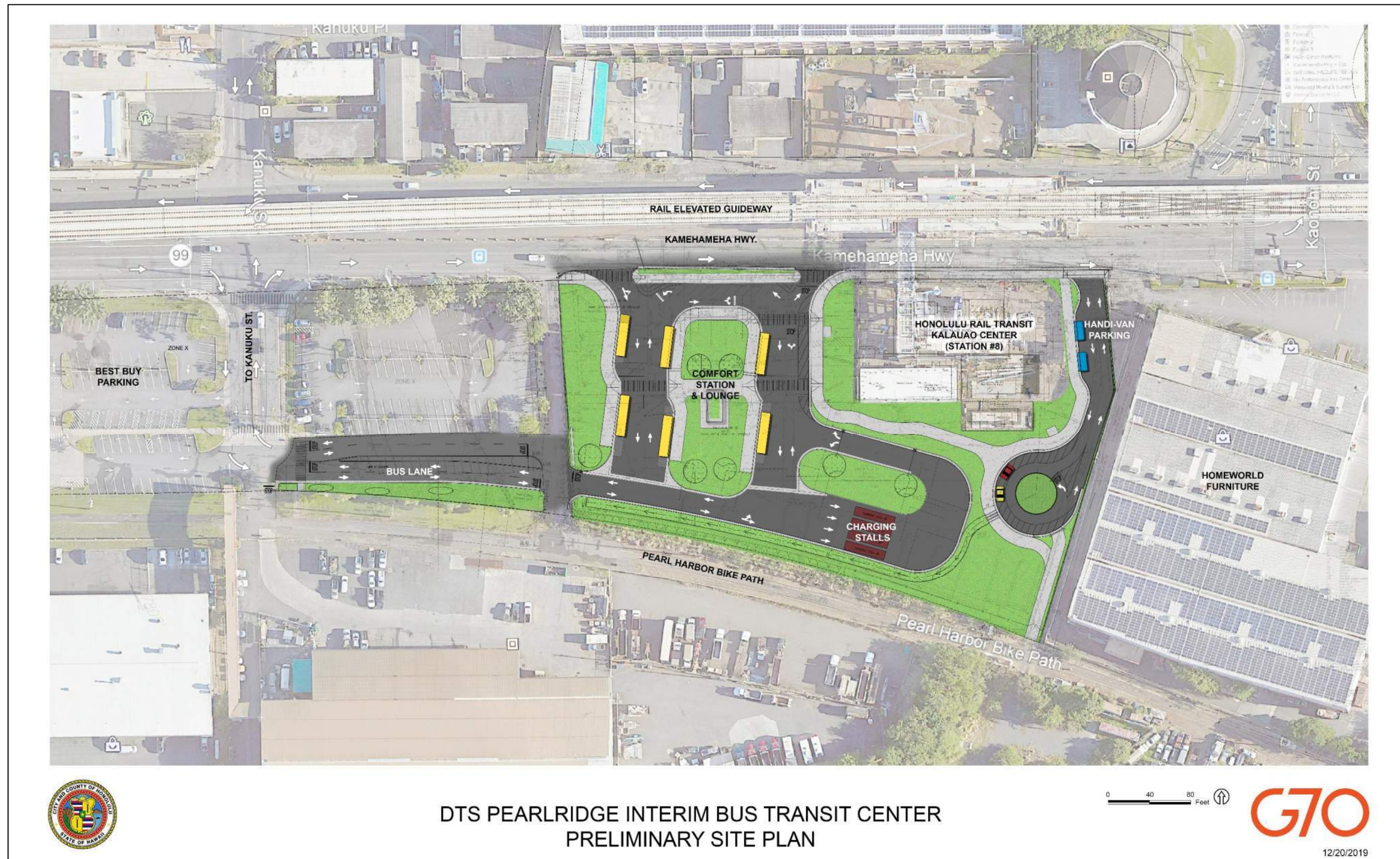


Figure 2.1

Preliminary Site Plan



Figure 2.2

Conceptual Illustration

The new bus transit center will also include a comfort station facility, which will be available for use by transit riders, and an air-conditioned operator's lounge located in the center of the six bus bays at the west end of the site. The operator's lounge will be used as a break area for bus drivers. Design of all structures will be consistent with I-2 and IMX-1 zoning design standard as articulated in the ROH, Chapter 21, Land Use Ordinance (LUO). Proposed heights will not exceed the 60-foot height limit.

To enhance pedestrian safety and experience, the following will be provided throughout the bus transit center: sidewalks, crosswalks, bicycle parking, a shared-use pedestrian/bicycle path and shade trees. Direct connection to the Kalauao Pearlridge Station will be facilitated via a concrete sidewalk. Rail schedule display boards and wayfinding signage may be provided to enable riders to easily navigate the transit center and to the adjacent Pearl Harbor Bike Path. Proposed landscaping will include Low-Impact Development (LID) features, discussed in the following section. Design of the center will adhere to Americans with Disabilities Act (ADA) standards.

Appropriate lighting will be installed to facilitate safety throughout the site during nighttime hours. Lighting structures will follow LUO regulations and will complement the overall design of the transit center. Standardized lighting fixtures and proper illumination will support optimal operation and user experience at the transit center. Exterior lighting will be directed downward and shielded to minimize potential impacts to nocturnal flying seabirds as further discussed in *Chapter 3.7*.

Landscaping

Proposed landscaping will include plants that are also specified for the Kalauao Pearlridge Station for continuity, including *na'u*, *ti*, *carex* and *lonomea*. While "hula girl" hibiscus is specified for the Kalauao Pearlridge Station, the Project will incorporate a native white hibiscus, *pualoalo*, instead. Monkeypod trees are indicated as the large canopy tree to provide shade for the interim use due to its relatively fast-growing rate. Medium canopy trees such as *hala* (native) and *milo* (Polynesian-introduced) are indicated in the planting area adjacent to the charging bays. Palms are indicated to provide a vertical element and help mitigate views of the station and guideway. Coconut palms are a Polynesian-introduced plant and would provide a connection to the shoreline plantings along Pearl Harbor.

For the bioretention areas, native sedges such as *'ahu'awa* and *carex* are proposed. Sedges and groundcovers are used instead of a fence around the bioretention areas to prevent access when they are filled with water for safety reasons. Final layout of the bioretention areas will be finalized as the Project advances.

Beach naupaka is proposed at the makai property line to screen the chain link fence and views of the adjacent industrial areas. Other groundcovers proposed include *pohinahina* and *'ilie'e*, which can tolerate both full sun and shaded conditions. The new landscaping will create a pedestrian-friendly environment for users traversing the site. See *Figures 2.3* and *2.4* for conceptual landscape plan and plant palette. During the EA consultation process, DPP recommended incorporating additional trees and hedges to protect pedestrians from passing vehicles and to deter them from jaywalking between bus islands. Additional protective landscaping will be incorporated where practicable. A final landscape design will be completed through the construction permitting and approvals process.

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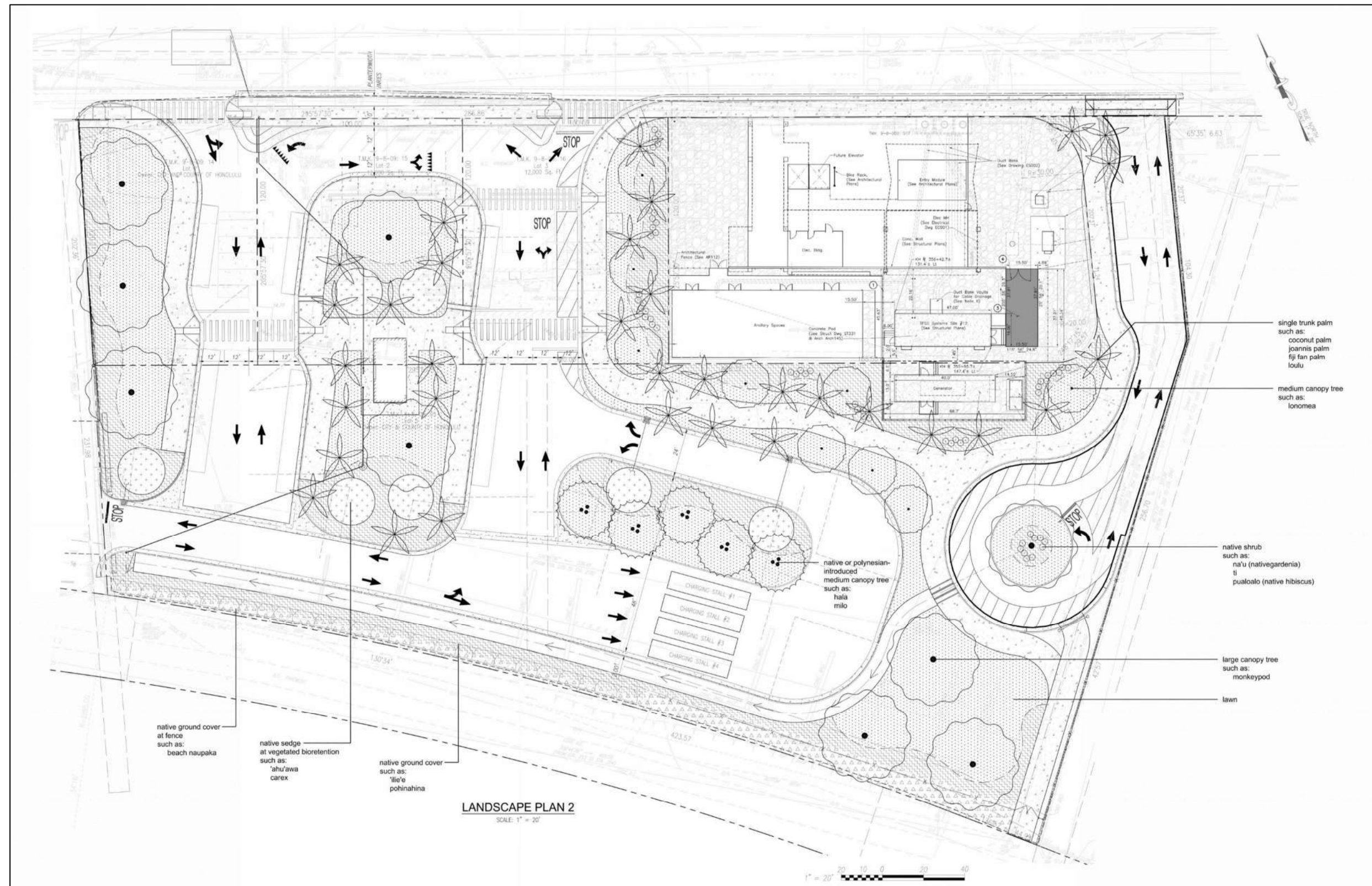


Figure 2.3a

Preliminary Landscape Plan (WKM, Inc.)

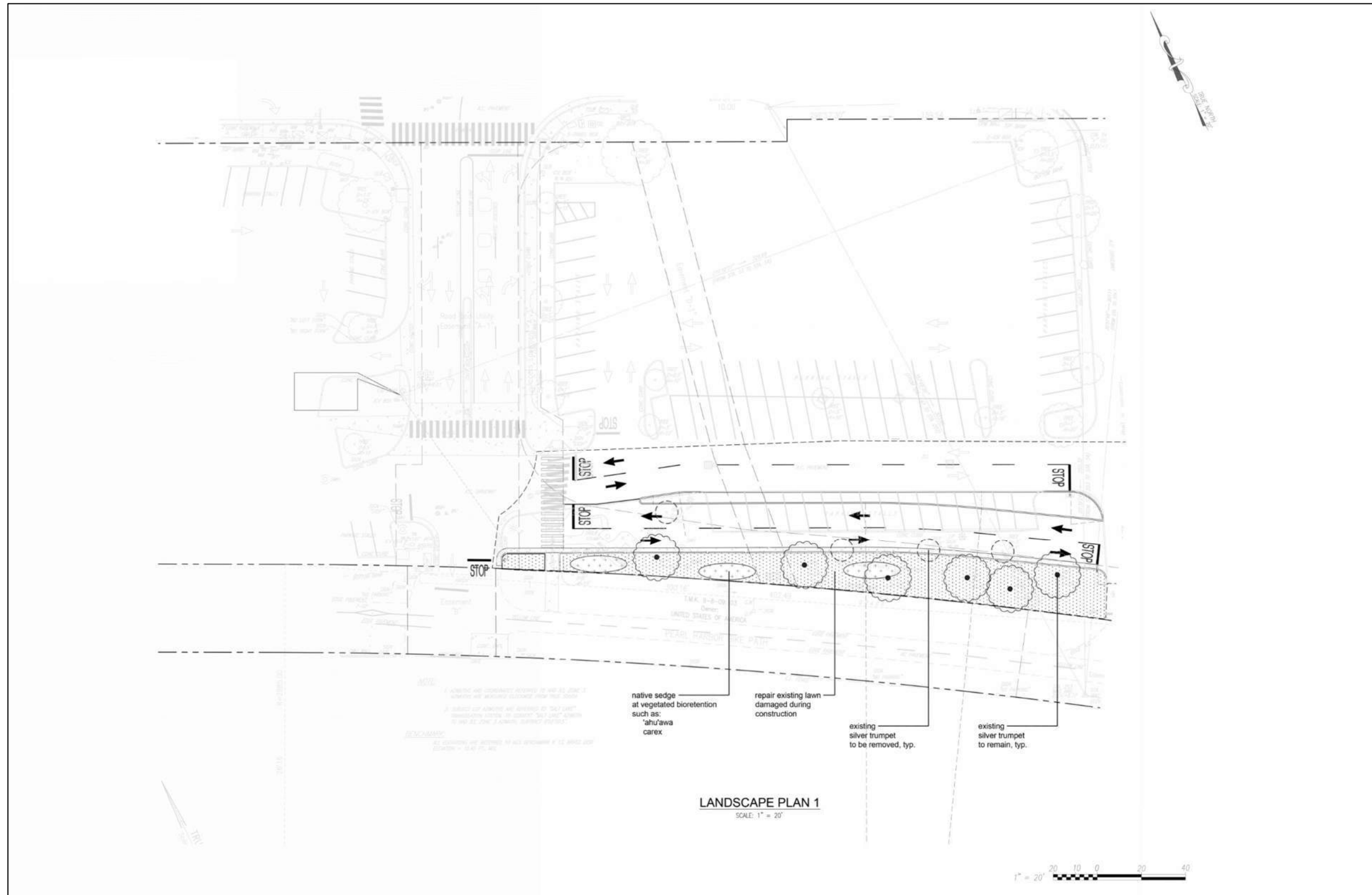


Figure 2.3b

Preliminary Landscape Plan (WKM, Inc.)



Figure 2.4a

Proposed Plant Palette (WKM, Inc.)

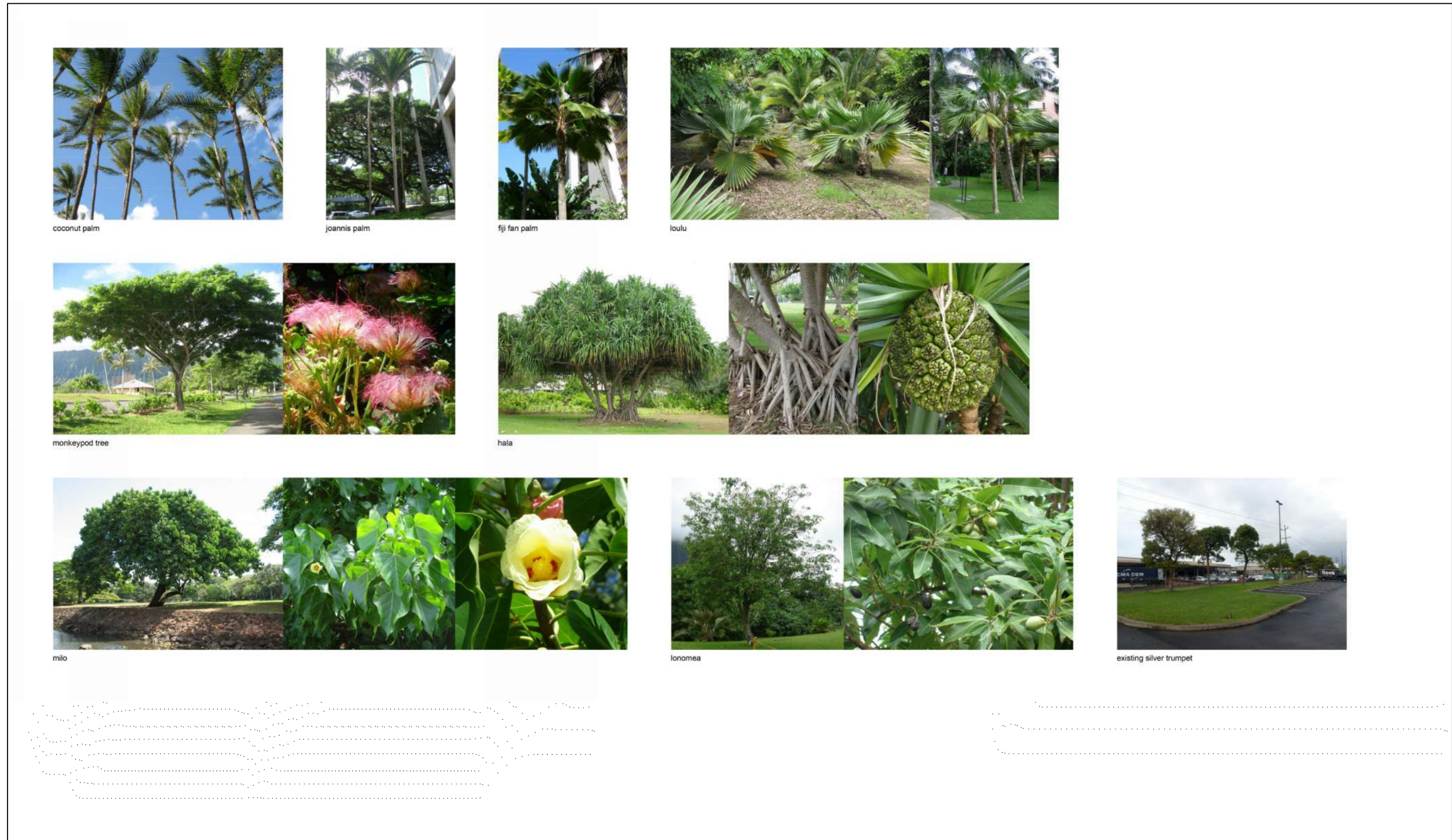


Figure 2.4b

Proposed Plant Palette (WKM, Inc.)

Operation and Site Control

The planned hours of operation for the interim Pearlridge Bus Transit Center are from 4:00 a.m. to 12:00 a.m. daily, which is consistent with the anticipated Rail operating hours. The DTS will be responsible for operation of the bus transit center. After construction, maintenance of the bus transit center may be contracted out to a third-party.

The site will be fenced along the southern, western, and eastern boundaries. Fencing will not be provided along the Kamehameha Highway frontage to present a more welcoming feel at this bus transit center. Security features and lighting will be installed to deter unwanted activities on-site.

Gates will be installed at the Best Buy driveway entrance into the site to prohibit vehicles from entering via these two access points when the station is closed. Removable bollards or cattle gate may be installed at TheHandi-Van driveway entrances to prevent vehicles from entering the facility when it is closed. Access to the Pearl Harbor Bike Path will also be gated and closed when the facility is closed. Final design will be determined during the SMA Permit process.

Site Access

Bus access and egress to/from the site will be provided via two driveways along Kamehameha Highway at the following locations: 1) a right-turn in-bound-only driveway from eastbound Kamehameha Highway located approximately 300 feet east of Kanuku Street and 30 feet east of the shared driveway between TMK (1) 9-8-009-011 and TMK (1) 9-8-009-014; and 2) a right-turn outbound-only driveway to eastbound Kamehameha Highway located immediately west of the planned rail station and approximately 1,200 feet east of the in-bound driveway. Additionally, DTS is seeking an easement through a portion of TMK (1) 9-8-009-011 to provide a west-bound bus entry and exit to and from the property via the signalized Kanuku Street and Kamehameha Highway intersection.

Bus maneuvering, including bus lanes, bus stops, and bus turnarounds are accommodated on site and within the TMK (1) 9-8-009-011 easement. Permanent bus parking will not be provided on the site. Some buses may temporarily park at the station, for breaks and to provide spacing between buses within the routes. Additionally, buses may temporarily park in the electric charging stalls.

In addition to buses, access is also provided for TheHandi-Van, which provide public transit service for persons with disabilities. These vehicles will access the site via a separate right-turn in/right-turn out driveway located immediately east of the planned rail station, which terminates at a cul-de-sac. Although, Kiss & Ride facility is not planned for at this station, it is anticipated that private vehicles will be using this access for such purpose. There will be no vehicular access connection to the main bus circulation area from this access. TheHandi-Vans and private vehicles will be prohibited from accessing areas of the site designated as "Bus Only". See *Figures 2.1* and *2.2* for site accesses and circulation patterns. Public vehicle parking stalls are not provided on the site.

There is a future plan to extend and expand Kaonohi Street along the diamond head boundary of the site to accommodate future adjacent development. This may affect the TheHandi-Van drop off area, driveway, and roundabout along this portion of the site. Another access point to the site may be designated along the extended street. A separate environmental assessment will be prepared for the Kaonohi Street extension once the final design is complete.

Pedestrians will access the site via existing sidewalks along Kamehameha Highway and proposed sidewalk along the Project section fronting the highway. Bicyclists will access the site via the roadway network and the Pearl Harbor Bike Path. The 10-foot-wide shared-use path along the eastern portion of the site will provide north-south connection for bicycles from Kamehameha Highway and Kalauao Pearlridge Rail Station to the Pearl Harbor Bike Path. Alternatively, cyclists can access the bike path along Kanuku Street from the Project site. Short-term bicycle parking will be provided on site via bike racks at both the transit center and the Kalauao Pearlridge Rail Station. This will allow riders to park their bikes for a short period of time while using the public transportation system.

Sidewalks and crosswalks will be provided throughout the Pearlridge Bus Transit Station to allow pedestrians to safely access the Kalauao Pearlridge Station entrance along Kamehameha Highway or transfer to other buses on site.

General Construction Characteristics

Construction will require grading and grubbing to prepare the existing site for new development. Excavation will be required for installation of underground utilities, placement of concrete foundations, and other work typically associated with construction. Construction activities will generally occur between 7:00 am and 6:00 pm, Monday through Friday, excluding certain holidays, and 9:00 am to 6:00 pm on Saturdays pursuant to HAR Chapter 11-46. Construction is not permitted on Sundays. Construction will be performed during the day to the extent possible to ensure minimal nighttime noise impacts on surrounding land uses.

The Project will be required to obtain National Pollutant Discharge Elimination System (NPDES) general permit coverage authorizing discharges of storm water associated with construction activities pursuant to the Clean Water Act (CWA) from the State Department of Health (DOH) Environmental Management Division, Clean Water Branch. Requirements of the approved NPDES permit include preparation of an Erosion Control Plan, which will be adhered to during construction. All other required permits will be obtained. Best Management Practices (BMPs) will also be implemented for construction activities.

Low Impact Development (LID)

In accordance with the City's Rules Related to Water Quality standards, the Project will require implementation of stormwater quality permanent BMPs through principles of LID. LID includes the use of bioretention, biofiltration and vegetated systems to treat, absorb, and infiltrate stormwater runoff. The purpose of the water quality criteria is to reduce water volumes, chemical and sediment associated with stormwater runoff from new development from entering receiving waters. Based on the anticipated 3.27 acres of new construction, the Project will require post-construction BMPs as a Category A project to meet these water quality requirements.

Bioretention basins are landscaped depressions or shallow basins used to treat on-site stormwater runoff. There are seven vegetated bioretention basins proposed in the site. A grass strip to filter runoff from roadways and parking lot before entering the basin will be used as pre-treatment technique for the Project. Inflow to the vegetated bioretention basins may be piped or overland.

Biofiltration is the process of improving water quality by filtering water through biologically influenced media. It is a low-energy treatment technology with the potential to provide both water quality and quantity benefits. The proposed Pearlridge Bus Transit Center will utilize this technology to treat storm water collections where retention and infiltration of stormwater is not feasible through bioretention.

Additionally, a vegetated swale is proposed along the makai side of the bus transit center's pavement. Vegetated swales are broad, shallow channels designed to convey and infiltrate stormwater runoff. The swales are vegetated along the bottom and sides of the channel, with the side vegetation at a height greater than the maximum design stormwater volume. These swales force runoff through vegetated surfaces which remove pollutants and allow for infiltration.

2.4 Project Phasing and Cost

The Project is expected to cost approximately \$9.5M. Project construction will be funded by the City Capital Improvement Plan (CIP) funds. The Project will be implemented in one phase. Construction is expected to commence in 2022 and anticipated to be complete by 2023.

Environmental Setting, Potential Impacts, and Mitigation Measures



Chapter 3

Environmental Setting, Potential Impacts, and Mitigation Measures

The environmental setting, potential impacts, and mitigation measures for the planned Pearlridge Bus Transit Center are addressed in the sections below.

3.1 Climate

Existing Conditions

The Pearlridge Bus Transit Station is located in the 'Aiea-Pearl City area of O'ahu. Climate in the Project area is characterized as semi-tropical and influenced by Hawai'i's geographic location southwest of the Pacific High region. The climate is moderate with consistent year-round temperatures, slight variations, moderate humidity, and prevailing northeasterly trade winds, typical of the climate that characterizes most of the developed areas throughout the State of Hawai'i. The area features mild and semi-tropical climate with slight seasonal variations. The prevailing northeasterly trade winds are present approximately 70% of the time, and generally blow 10 to 20 miles per hour (Fletcher et. al., 2002). During Kona weather conditions in the summer months when tradewind circulation breaks down, the winds blow from a southerly direction and occur as light and variable.

According to data from the Rainfall Atlas of Hawai'i, the Project site experiences an average annual rainfall of 30 inches annually, with the highest precipitation occurring between the months of November through March (Giambelluca et al., 2013). Data from the Climate Atlas of Hawai'i recorded an average annual temperature of 75 degrees Fahrenheit at the project site (Giambelluca et al., 2014).

Anticipated Impacts and Proposed Mitigation

The proposed Project is not anticipated to result in nor constitute a source of impact to rainfall or climate of the Project area or region. Therefore, no mitigation measures are required.

3.2 Topography

Existing Conditions

The Project site is generally flat. Elevations at the site range from 10 to 15 feet above MSL. The nearest body of water is the East Loch of Pearl Harbor approximately 200 feet to the southwest of the makai portion of the property. The site slopes gently with the northern portion sloping towards Kamehameha Highway and the southern portion sloping towards the Pearl Harbor Bike Path. There are no unique topographic features on the Project site.

Anticipated Impacts and Proposed Mitigation

The existing topography will be altered to the extent necessary for construction of the proposed Project. Site work will include limited grading and excavation for building's foundation and installation of utilities. Excavation at the site will be accomplished by using conventional excavating equipment. Detailed design will take into consideration the groundwater level. A grading permit approved by DPP will be required for all grading activities.

The Project will disturb greater than one acre of land area; therefore, Clean Water Act, Section 402, National Pollutant Discharge Elimination System (NPDES) general permit coverage authorizing discharges of storm water associated with construction activities will be required for the Project from the DOH, Environmental Management Division, Clean Water Branch. For all ground disturbing activities, a Grading Plan, Erosion and Sediment Control Plan (ESCP), and Best Management Practices (BMPs) will be integrated into the construction plans. Construction BMPs may include, but are not limited to, stabilized construction entrances, stabilization of disturbed areas, silt-screens, re-vegetation, and maintenance of equipment. Additional mitigation may include removal of unsuitable soils under foundations and/or special foundation design. BMPs will also be deployed at exposed areas to minimize potential runoff. Grading, excavation, and other construction activities required for the project will be in accordance with State and City regulatory requirements.

3.3 Soils and Geologic Conditions

Existing Conditions

The Project site is situated on the coastal plain of the East Loch of Pearl Harbor, south of the flows of the Ko'olau Range. According to the U.S Department of Agriculture (USDA), Soil Conservation Service publication, *Soil Survey of the Islands of Kauai, O'ahu, Maui, Molokai, and Lanai, State of Hawai'i, 1972*, the site consists of the following three types of soils: Honouliuli clay, 0 to 2 percent slopes (HxA); Pearl Harbor clay (Ph); and, Keeau clay, saline, 0 to 2 percent slopes (KmbA). The north and east portions of the site are primarily comprised of HxA, while the south and south east portion is comprised on Ph. A small portion of the west end of the site is comprised of KmbA. See *Figure 3.1*.

- *Honouliuli clay, 0 to 2 percent slopes (HxA)* – Consists of well-drained soils on the coastal plain. This soil is characterized by slow to moderate permeability, slow runoff, and an erosion hazard that is no more than slight. Honouliuli clays are nearly level with slopes ranging from 0 to 2 percent. This soil type is highly plastic. It has a low shear strength and a high shrink-swell potential. Its workability is slightly difficult. This soil is used for sugarcane, truck crops, and pasture.
- *Pearl Harbor clay (Ph)* – Consists of very poorly drained soils on nearly level coastal plains. This soil is characterized by slow permeability, frequent ponding, and an erosion hazard that is no more than slight. Pearl Harbor clays have low bearing capacity and a high potential for shrink-swell. Its workability is very difficult. This soil is used for sugarcane, taro, bananas, and pasture.
- *Keeau clay, saline, 0 to 2 percent slopes (KmbA)* – This soil is characterized by slow permeability, slow runoff, and an erosion hazard that is no more than slight. Workability is difficult because of a sticky, plastic consistency. This soil is strongly affected by salts. It occurs in depressions adjacent to the ocean or in pockets within the limestone areas where seepage water evaporates. The surface structure is platy or vesicular. The dominant vegetation is pickleweed; some areas are barren. This soil is either idle or used for pasture.



Figure 3.1

Soil Classifications

Anticipated Impacts and Proposed Mitigation

The contractor will perform proper quality control density testing during fill and sub-grade compaction in accordance with the City's planned improvement specification requirements. Grading operations will balance the existing material on-site and will avoid transporting existing material off-site or importing new material to the site. The ground levels will be graded to maintain adequate slopes for drainage. Grading will be designed to convey stormwater away from the property and from drainage pathways that lead to the ocean. The use of LID measures, such as bioretention basins and vegetated swale, will be incorporated to the site design. See *Chapters 3.2 and 3.4* for proposed mitigation measures.

Primary fugitive dust control methods that will be implemented include regular watering of exposed soil areas, good housekeeping on the construction site, and prompt landscaping, covering, or paving of bare soils in areas where construction is completed. The impact of construction activities on soils will be mitigated by practicing strict erosion control and dust control measures, particularly those specified in the following:

- City Grading Ordinance; Revised Ordinances of Honolulu Chapter 14-13 Provisions for Grading, Soil Erosion & Sediment Control
- State of Hawai'i, Department of Health (DOH), Water Quality Standards, Chapter 11-54
- U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), Erosion and Sediment Control Guide for Hawai'i
- Clean Water Act, Section 402 National Pollution Discharge Elimination System (NPDES) permit

3.4 Hydrology and Drainage

Existing Conditions

Surface Waters

There are no existing sources of surface water, including streams or wetlands, located on the Project site. The nearest body of water is the estuary of East Loch Pearl Harbor approximately 250 feet south of the Project site. DOH classifies Pearl Harbor as a "Class 2" inland water body, which are to be protected for recreational use, the support and propagation of aquatic life, agricultural and industrial water supplies, shipping, and navigation (HAR, Chapter 11-54-3, Classification of Water Uses).

Two streams within close proximity to the site include the Waimalu Stream located approximately 0.29-mile west of the Project, and the Kalauao Stream located approximately 0.25-mile feet to the east (*Figure 3.2*). Both streams drain into the East Loch of Pearl Harbor. DOH further classifies both the Waimalu and Kalauao Streams as "Class 2" inland waters, which are to be protected for recreational purposes, the support and propagation of aquatic life, agricultural and industrial water supplies, shipping, and navigation (HAR, Chapter 11-54-3, Classification of Water Uses).



Figure 3.2

Surface Waters

Groundwater

Pearl Harbor consists of a series of drowned river valleys. The volcanic flows that formed the island of O'ahu are capped near the shorelines by "caprock," which are layers of alluvial and sedimentary deposits overlying volcanic rock. Over geologic time, a significant portion of the caprock throughout the Pearl Harbor area has been eroded by streamflow. The eroded caprock is much thinner than caprock at most areas of southern O'ahu, and leakage from the caprock occurs at springs located in the Pearl Harbor area.

Groundwater units have been identified by the Commission on Water Resource Management (CWRM) CWRM to manage groundwater resources. The Project site lies within the CWRM-delineated Waimalu Aquifer System of the Pearl Harbor Aquifer Sector. The shallow aquifer is classified as a basal, unconfined aquifer with low salinity. The deeper aquifer is classified as a basal, confined aquifer with low salinity. The aquifer is characterized as predominantly high-level ground water. All reported ground water use is pumped from the basal zone and high level.

The State Department of Health (DOH) Safe Drinking Water Branch (SDWB) and Wastewater Branch (WWB) both work in accordance with each other to protect both surface and groundwater units for the people of Hawai'i. The SDWB administers underground injection control (UIC) program to prevent contamination from injection wells, which are used to dispose water or other fluids into a groundwater aquifer. The boundary between exempted aquifers and underground sources of drinking water is generally referred to as the "UIC Line". Restrictions on injection wells differ, depending on whether the area is inland (mauka) or seaward (makai) of the UIC line (SDWB, 2019). The WWB, ensures wastewater is properly disposed without polluting waters to harm the health of people. The project site lies above (mauka) of the UIC line, indicating that the underlying aquifer is considered a drinking water source. Based on data provided on the Environmental Data Resources radius map, no active drinking water wells are present within a half mile of the property (ENPRO, 2019).

Drainage

The Project site is relatively flat. Concrete curb and gutter, thru gutters and culverts and piping collect stormwater runoff from the site. A roadside curb inlet catch basin captures stormwater from the gutter that flows towards the Diamond Head direction of Kamehameha Highway. Stormwater entering this catch basin comes from the Kamehameha Highway road pavement fronting the site and sidewalks within the ROW.

Existing runoff from the majority of on-site pavements surrounding the existing vacant structures and asphalt parking areas, is captured by a drain inlet that discharges towards an existing drywell. Runoff generated from the south and east asphalt paved areas of the site, sheet flows to the Pearl Harbor Bike Path and discharges towards drainage infrastructure along the pathway and Pearl Harbor.

Stormwater consisting of runoff generated on the adjacent Best Buy parking lot, discharges into an existing drain inlet located within TMK 9-8-009:011. Lastly, runoff from the landscaped area around the paved areas in the Best Buy parking lot, is collected in a drain inlet located within TMK 9-8-009:011. These inlets appear to be connected and discharged through a flowage easement that cuts through the Best Buy parking lot. The Pre-Development runoff from the impacted project area is 8.58 cubic feet per second (cfs).

Anticipated Impacts and Proposed Mitigation

Surface Waters

Storm water quality and water quantity and quality control will be consistent with City and State grading and drainage standards. Project activities will comply with DOH regulations as set forth in Chapter 11-54, Water Quality Standards and Chapter 11-55, Water Pollution Controls. A NPDES permit for discharge of stormwater associated with construction activities will be obtained for the site. The requirements of the approved NPDES permit and erosion control plan will be adhered to during construction as appropriate. Construction, grading, and drainage plans for the project will be submitted to appropriate agencies for review and approval.

The project will incorporate site-specific Best Management Practices (BMPs) to prevent soil loss, storm water runoff, and sediment discharges from the site. BMPs may include the use of a stabilized construction ingress/egress, inlet protection, and temporary filter sock perimeter controls. Control measures will be in place and functional before construction activities begin and will be maintained throughout the construction period.

Groundwater

No short- or long-term significant impacts to groundwater resources associated with the Project are anticipated during construction or operation of the proposed Project. Water requirements for operation of comfort station and operator's lounge is discussed in *Chapter 3.12*.

Drainage

Site drainage infrastructure shall be designed to the City and County of Honolulu, Department of Planning and Permitting, Rules Relating to Storm Drainage, dated August 2017. Building drainage systems shall be designed to the City and County of Honolulu Revised Ordinances of Honolulu, per articles related to the Plumbing Code.

Construction will require grading greater than one acre, therefore a NPDES Permit will be required from DOH. Erosion control BMPs will be installed and will comply with the State, County and Federal regulations during all phases of construction. Pre-construction structural control BMPs may include, but not be limited to, a stabilized construction ingress/egress, catch basin inlet protection, and temporary filter sock perimeter control. During construction, a site-specific BMPs plan will be incorporated into final construction plans, and will include guidelines and mitigation measures to prevent soil loss and sediment discharges from the work site, discharge pollution, and other detrimental impacts related to construction activities. BMPs may include, but not be limited to, the use of silt fences or screens, maintenance and fueling of construction equipment and vehicles in designated areas, vehicle washing in designated areas, storage of all liquids in sealed containers, and temporary stabilization methods. Good housekeeping mitigation measures will also be incorporated in construction plans and will include a spill prevention plan, dust control measures, and a rain response plan.

The Post Development runoff is anticipated to be 9.71 cfs, a 1.13 cfs increase Q(10) from the pre-development hydrologic conditions. In the long-term, this increase in flow will be mitigated by on-site LID BMPs that prioritize water infiltration and slow runoff velocities, increase times of concentration, and reduce peak runoff rates. In compliance with City drainage standards, the Project will include LID measures consisting of the use of seven bioretention basins, biofiltration, and a vegetated swale at the south side of the Project's pavement, further discussed in *Chapter 2.3.2*.

3.5 Climate Change and Sea Level Rise

Existing Conditions

Rapid anthropogenic climate change is a well-established fact within the scientific community. As a result of climate change, oceans are warming and acidifying, ice sheets and glaciers are melting, and sea levels are rising (NASA, 2015). Rising sea levels and high water levels caused by storms will leave developed areas near coastal areas vulnerable to coastal erosion and sea water inundation. Chronic coastal flooding is occurring now, and over the next 30 to 70 years the flooding is expected to increase with sea level rise (SLR) and impact homes and businesses located near the shoreline (HCCMAC, 2017).

The Hawai'i State Legislature passed a law (SB 2745) in 2012 that amends the State Planning Act to include climate change as one of the priority guidelines. In 2014, the Hawai'i State legislature passed the Hawai'i Climate Adaptation Initiative Act (Act 83, 2014), codified as Chapter 225P, HRS, which established an Interagency Climate Adaptation Committee (ICAC). The purpose of the act is to address the effect of climate change by implementing a climate adaptation plan. On June 6, 2017, Governor David Ige signed Act 32, Session Laws of Hawai'i, which amended Chapter 225P, HRS by renaming the ICAC the "Hawai'i Climate Change Mitigation and Adaptation Commission". The *Hawai'i Sea Level Rise Vulnerability and Adaptation Report* was published in December 2017 by the commission to provide a basis for recommendations on reducing exposure and increasing adaptability to the impacts of SLR resulting from human-generated greenhouse gas (GHG) emissions. Research within the report notes that the intensity and frequency of natural disasters have increased and will continue to do so, and further provides technical projections of areas along the coast that are vulnerable to SLR based on the latest available science. The report finds that for O'ahu, with no mitigative actions, 3.2 feet of SLR and its associated erosion, flooding, and waves will have significant impacts to the island's land, building and land values, residents, structures, and major roadways. Rising sea levels will increase the probability of coastal flooding and erosion, which could damage coastal infrastructure. Portions of the island vulnerable to 3.2-foot SLR by 2100 are referred to as the SLR Exposure Area (SLRXA) (PacIOOS, 2018).

Mayor Kirk Caldwell issued an executive order on climate change and SLR with the intention of establishing City policies to address climate change and SLR in accordance with the *Hawai'i Sea Level Rise Vulnerability and Adaptation Report*, and two publications from the City Climate Change Commission: *Sea Level Rise Guidance* and the *Climate Change Brief*. The guidance issued through these publications affirmed that a 3.2-foot SLR scenario by the end of the century was a reasonable benchmark for planning purposes (City Climate Change Commission, 2018).

The proposed Project is located on the coastal plain of Pearl Harbor and outside of the SLRXA, as indicated in the Hawai'i Sea Level Rise Viewer (*Figure 3.3*). The SLRXA is approximately 200 feet south of the site. The Project site is primarily flat, with elevations ranging from 13 to 17 feet above MSL throughout.



Source: Hawai'i Sea Level Rise Viewer, PacIO

Figure 3.3

3.2-Foot Sea Level Rise Exposure Area (SLR-XA)

Anticipated Impacts and Mitigation

Climate change and SLR and associated coastal impacts are a concern for the State of Hawai'i and the world and requires a global response. As discussed, an appropriate planning target includes a sea level benchmark of 3.2-foot SLR scenario by the end-of-century prediction. The effects of climate change and SLR will not adversely affect the development and operation of the Pearlridge Bus Transit Center. The Project site is furthermore located outside of a SLRXA with elevations on site ranging from 13 to 17 feet above MSL.

As discussed in *Chapter 3.3*, the Project will include installation of LID improvements and BMPs where practical and feasible to improve storm water quality and manage storm water quantity. The proposed project will maximize pervious and landscaped areas within the site to the maximum extent practicable. Dry swales, rain gardens, and infiltration trenches may be utilized for LID. As a result, all storm runoff will be detained onsite to attenuate the peak runoff flow. Electric utilities may be relocated to higher floors to account for a future rise in sea level.

The Project will help address climate change impacts overall. The operation of electric buses and on-site electric bus charging is consistent with the City's programs to reduce future carbon emissions in the public transportation system. The new facility improves public transit services, which is expected to increase the number of public transit riders and reduce the number of miles driven by individuals in private automobiles. The reduction of vehicle miles driven in private automobiles contributes to a reduction in GHG emissions and is consistent with State and City policies in meeting climate change goals. Additionally, the Pearlridge Bus Transit Center includes charging bays for electric buses in the TheBus fleet.

Climate change will increase the intensity of storms and may impact the future condition and use of the Project area. The proposed Pearlridge Bus Transit Center is considered an interim use of the site and no timeframe has been determined for future redevelopment. Any future development on the site will be designed to consider the effects of SLR and climate change on the property. While three (3) to six (6) feet of SLR will not result in the inundation of the subject property, natural hazards such as hurricanes and tropical storms, and tsunamis, could produce greater damage under such conditions. An assessment of natural hazards is provided in the following *Chapter 3.6*.

During the public comment period, DPP recommended considering the Project's future interaction with the adjacent Pearl Harbor Bike Path (also called the Pearl Harbor Historic Trail), which may be impacted by climate change (see *Chapter 7.0*). The Project does not include improvements to the path. In the future, DTS will coordinate with the Joint Base Pearl Harbor Hickam on future improvements to the path.

3.6 Natural and Manmade Hazards

Existing Conditions

Hurricanes and Tropical Storms

In Hawai'i, northeast tradewinds predominate throughout most of the year and generally range in velocity between 10 and 20 miles per hour (mph) with tradewinds of 40-60 mph periodically occurring. When wind speeds exceed 70 mph, the storms are characterized as hurricanes.

Hurricanes are characterized by strong tropical winds with sustained wind speeds greater than 74 miles per hour and by widespread heavy rains in excess of six inches. Heavy rains may result in deadly and destructive flooding. Strong winds can produce microbursts and mini-swirls, which are small, localized wind bursts that can reach speeds of greater than 200 mph. Depending on the wind speeds, hurricanes can damage on-shore buildings and structures and vessels within the harbor. The weather associated with hurricanes and tropical storms typically lasts between 12 to 18 hours, with a slow-moving storm lasting around 24 hours. Hurricanes are classified according to “Category”, according to wind speeds as follows: Category 1 hurricanes have wind speeds between 74 to 95 mph; Category 2 hurricanes have winds between 96 to 110 mph; Category 3 (major) have wind speeds of 111 to 129 mph; Category 4 (major) have wind speeds from 130 to 156 mph; and, Category 5 hurricanes have wind speeds exceeding 157 mph (HI-EMA, 2018). Category 1 and 2 storms are still dangerous and require preventative measures.

The weather associated with hurricanes and tropical storms can lead to storm surge, which is an abnormal rise of water generated by a storm, over and above the predicted astronomical tides. Storm surge occurs when water is pushed toward the shoreline by the force of winds from the storm (HI-EMA, 2018). Coastal areas are particularly vulnerable to storm surge due to extreme flooding caused by the rise in water level.

The State of Hawai‘i is located in the Central Pacific basin where hurricane season runs from June 1 to November 30 (HI-EMA, 2018). During hurricanes and storm conditions high winds cause strong uplifting forces on structures, particularly roofs. Wind-driven materials and debris can attain high velocity, causing devastating property damage and harm to life and limb.

Hurricanes occasionally approach the Hawaiian Islands, but rarely reach the islands with hurricane force wind speeds. Records show that strong windstorms have struck all major Hawaiian Islands. The first officially recognized hurricane in Hawaiian waters was Hurricane Hiki in August 1950. Since that time, five hurricanes have caused serious damage in Hawai‘i: Nina (1957), Dot (1959), ‘Iwa (1982), Estelle (1986), and ‘Iniki (1992). The island of O‘ahu has never experienced a hurricane or tropical storm make direct landfall in modern history. However, the island has been subject to indirect effects when storms pass close to the islands, such as heavy rain, strong winds, and storm surge. On O‘ahu, several storms have resulted in activation of the EOC between 2012 and 2017 (HI-EMA, 2018). Tropical Storm Iselle (2014) brought heavy rains and strong winds which resulted in downed trees and wires, and widespread power outages. In 2015, Hurricane Kilo brought high winds and flooding, causing sewers to overflow and water to escape manholes. Also, in 2015, a swell from Hurricane Ignacio generated surf 10 to 20 feet, leading to occasional deposited sand and other debris on roadways along the coastline and resulted in one injury. Other tropical storms that resulted in EOC activation include Hurricane Jimena (2015), Tropical Storm Niala (2015), Tropic Storm Oho (2015), and Hurricane Olaf (2015).

It is difficult to predict when these natural occurrences may occur, but it is reasonable to expect that future events will occur and may be increasing in frequency due to global climate change. The entire State of Hawai‘i is vulnerable to the damaging impacts of hurricanes. The coastal areas of the State are more susceptible to damage caused by a combination of high winds and tidal surge. Inland areas, especially those in the 1% and 0.2% annual chance flood areas designated by FEMA are at risk due to heavy rains and flooding caused by storms. The Project area is, however, no more or less vulnerable than the rest of O‘ahu to the destructive winds and torrential rains associated with hurricanes.

Earthquakes

Earthquakes in the Hawaiian Islands fall into three main categories: volcanic, tectonic, and mantle. Each year, thousands of earthquakes occur within the State, however the majority are detectable only with highly sensitive instruments (USGS, 2019). Moderate earthquakes occasionally occur in the islands; however, most cause little or no damage. The majority of earthquakes in Hawai'i occur on and around the Island of Hawai'i, especially in the southern districts of the island where the most active volcanoes in the State – Kilauea, Mauna Loa, and Loihi – are located.

The severity of an earthquake is classified by magnitude and intensity. Magnitude is a measure of the amount of energy released during an earthquake, while intensity is a measure of the severity of ground shaking (HI-EMA, 2018). Seismic hazard is typically characterized in terms of peak ground acceleration (PGA) measured as a percent of Earth's gravitational acceleration (%g) (USGS, 2017). For example, areas with a PGA at less than 17% have a very small probability of experiencing damaging earthquake events, while areas with a PGA at over 100 %g would make it difficult to stand and could topple structures. Seismic Design Categories (SDC) reflect the likelihood of experiencing earthquakes of various intensities. Building design and construction professionals use SDCs to determine the level of seismic resistance required for new buildings.

Due to the relatively short period of documented earthquake monitoring in the State of Hawai'i, information pertaining to earthquakes that were felt on the Island of O'ahu may not be complete. In general, over the last 150 years of recorded history, we are not aware of reported earthquakes greater than Magnitude 6 occurring on the Island of O'ahu. The last major earthquake to be felt on O'ahu was the Honomu Earthquake in 1973, which resulted in minor cosmetic damage to structures, but fortunately did not result in any reported injuries or deaths. *Figure 3.4, Seismic Hazards* depicts the maximum PGA expected over the next 50 years in the State with at least a 2% chance of exceedance.

Colors indicate shaking in PGA and the corresponding SDC. According to USGS, expected ground acceleration on O'ahu is no greater than 17% with an SDC of "B", which indicates an earthquake hazard of moderate intensity with slight damage. Seismic hazards in the area are no greater in the Project area than other locations on O'ahu. Further, according to the Based on the 2015 United States Geological Survey (USGS) International Building Code (IBC) Seismic Design Map, the Pearlridge Bus Transit Center could experience up to 0.26 earthquake ground motion accelerations (g-force). This represents the lower limits of probable force experienced by the island of O'ahu during a seismic event.

The potential impacts of global climate change on earthquake probability are unknown. For example, some scientists believe that melting glaciers could induce tectonic activity. Secondary impacts of earthquakes could be magnified by climate change, as rising air temperatures facilitate soil breakdown and intense rainstorms cause greater erosion or greater susceptibility to dam failure.

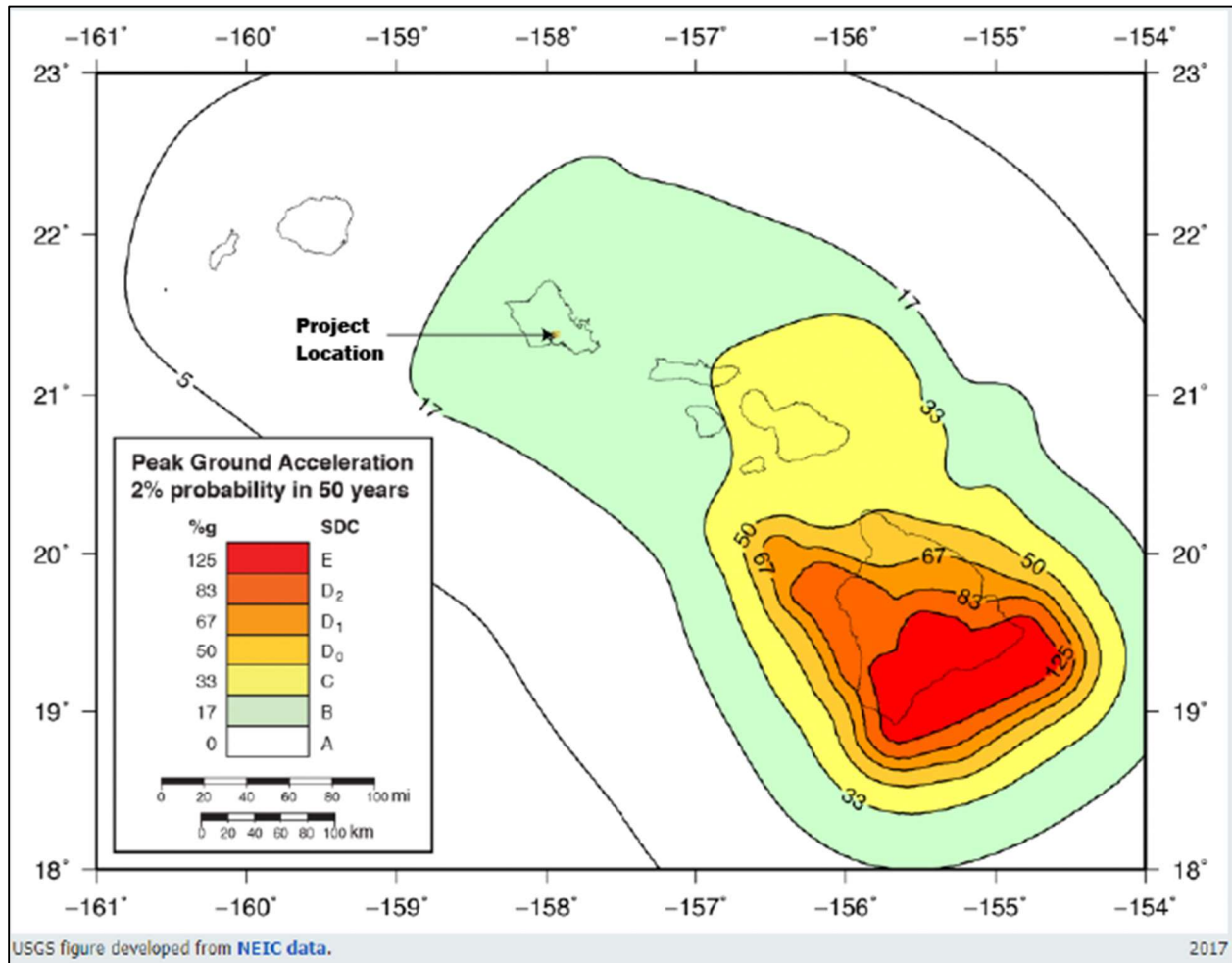


Figure 3.4

Seismic Hazards

Flooding

The Project site itself is primarily flat and level throughout, with an elevation ranging 13 to 17 feet above MSL. According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) map number 15003C0243H, effective on November 5, 2014 the Project area is located in Zone “X”, an area determined to be outside the 0.2% annual chance floodplain and outside of the 500-year floodplain (*Figure 1.8*). There is a minimal to no threat of serious riverine or coastal flooding at the Project site, nor is the parcel subject to any flood regulations. Further, the site is not located within a FEMA Special Flood Hazard Area (SFHA); therefore, a SFHA Development Permit will not be required for the Pearlridge Bus Transit Center.

Tsunami Inundation

The sudden displacement of the ocean floor (earthquakes), landslides, or volcanism can generate tsunamis, which are a series of waves that can reach speeds of up to 600 mph. Upon reaching a coastline, a tsunami can become a wall of water reaching heights of 30 ft or more and capable of moving inland several hundred feet. Known major tsunami events in Hawai'i include the areas of East Hawai'i (1946, 1960, 1975) and North Shore O'ahu (1952, 1957).

The City classifies tsunami evacuation zones into the following three designations: Tsunami Evacuation Zone, where evacuation is required for any tsunami warning; Extreme Tsunami Evacuation Zone (XTEZ), where additional areas must be evacuated only during an extreme tsunami event generated from earthquakes of Magnitude 9 or higher on the Richter scale; and, safe areas that are anticipated to be outside of the inundated areas. According to the City and County of Honolulu, Department of Emergency Management Tsunami Evacuation Zone maps, the subject property is located outside of the Tsunami Evacuation Zone; however, it is situated entirely within the XTEZ (*Figure 3.5*). Therefore, there is potential for the project site to become affected by a major tsunami, if such an event occurred.

Wildfires

The Hawaiian Islands are also vulnerable to wildland fire, especially during the summer months from prolonged drought and/or high winds. The greatest danger of fire is where developed, urbanized areas border densely vegetated areas or wildland (trees and brush), also known as the wildland-urban interface (WUI). Overgrown vegetation close to homes, pockets of open space within subdivisions, and an increase of non-native high fire-intensity plants around developed areas pose increasing threats to commercial, community, environmental, and residential resources. Typical of many areas, larger fires tend to occur during droughts and drier seasons. Drier conditions tend to persist at lower elevations, making neighborhoods and lands near the coast particularly vulnerable to wildfire starts. A great majority of wildfires are human caused (intentionally caused or by negligence) and often start along roadsides. Wildfires can and do also occur naturally.

According to the Hawai'i Wildfire Management Organization data referenced in the Hawai'i Multi-Hazard Mitigation Plan (2018 Draft) (HI-EMA, 2018), the Project site's risk from wildfire is "high". The site is developed and located at a lower elevation near the coast. Notably, climate change has the potential increase vulnerability to wildfire in the State due to longer droughts, an increase in consecutive dry days, and a decrease in days of intense rainfall.

Anticipated Impacts and Proposed Mitigation

Hurricanes and Tropical Storms

The effects of past storm events have caused minimal to no damage in the Project area. The future threat of hurricanes in the 'Aiea area cannot be calculated, although the frequency of hurricane threats may increase with climate change, warming ocean waters, and the resulting rise in sea level. Waves generated by these storm events can cause coastal erosion and flooding, which will be worsened by SLR. According to research within the Hawai'i Multi-Hazard Mitigation Plan (2018 Draft), the entire population is vulnerable to hurricane hazards, with approximately 15.2% of the island's population vulnerable to impacts of a Category 4 hurricane event.



Figure 3.5

Tsunami Evacuation Zone

If a hurricane, tropical storm, or high winds occur during construction of the Pearlridge Bus Transit Center, construction activities would cease, and equipment will be secured in work and support areas. When a hurricane is approaching the islands, the Central Pacific Hurricane Center (CPHC) provides guidance. CPHC issues a hurricane watch when a storm is expected to make landfall within 36 hours. A hurricane warning is issued when landfall is likely within 12 to 24 hours. To mitigate against long-term potential impacts from hurricanes, the proposed Project will be designed to meet the current IBC and City building code requirements pursuant to the ROH Chapter 16. Essential equipment may also be located on higher floors wherever feasible to avoid inundation from storm surges. No direct, secondary, or cumulative impacts related to hurricanes, tropical storms, and high winds are expected.

Earthquakes

Construction of the Pearlridge Bus Transit Center is not expected to be adversely affected by seismic activity as the proposed new structures would be constructed for a long-term design life in accordance with the most current IBC seismic design standards and City building code standards, which provides minimum design criteria to address potential for damage due to seismic disturbances.

Flooding

Short-term impacts due to flooding or tsunami inundation are not expected. During construction, activities would cease for the period that the flood exists. Equipment would be secured in work and support areas. No additional impacts related to construction are anticipated.

Once constructed, no long-term adverse impacts due to the Project are expected. to be subject to significant flooding hazards; therefore, no mitigation measures are proposed. FEMA identifies the subject property within Flood Zone "X" (minimal flood risk). The Flood Insurance Program does not have regulations for development within this district, and a SFHA Development Permit will not be required. Construction of new bus transit building will adhere to the most current IBC, State, and City building code standards. Any increase in runoff caused by an increase in impervious surfaces will be mitigated on site as required to meet City standards. Onsite drainage will be designed to flow away from buildings towards landscaped areas.

Tsunami Inundation

Short-term impacts due to tsunami inundation are not expected. During construction, activities would cease for the period that the tsunami hazard exists. Equipment would be secured in work and support areas. No additional impacts related to construction are anticipated.

Notably, climate change and SLR, as discussed in the previous section, will exacerbate the extent of coastal inundation from tsunami. Inundation will reach further inland, putting more people and property at risk. The Project is located within the XTEZ, and therefore vulnerable in cases of extreme tsunamis. Mitigation of an extreme tsunami should be concentrated on early warning systems and effective evacuation measures to preserve life. In the event of an extreme tsunami, evacuation to the Safe Zone is recommended in accordance with guidance from emergency management authorities. Design of the bus transit center will adhere to the most current IBC, State, and City building code standards to promote public safety to the extent practical.

3.7 Flora and Fauna

Existing Conditions

Flora

The Project site has been previously developed and is situated within an urbanized commercial and industrial setting. The site has a history of industrial use including automobile services, and the storage of vehicles, heavy equipment, construction supplies, and stockpiled soils from quarries. The existing parcels include several built structures and paved and gravel parking and storage areas. As such, vegetation on the Project site is scarce and consists primarily of weeds. There are no endangered flora species within the Project site.

Fauna

It is likely that common species known to occur in urban environments, such as domestic dogs (*Canis familiaris*), domestic cats (*Felis catus*), mongoose (*Herpestes auropunctatus*), rats (*Rattus spp.*) and mice (*Mus domesticus*), may occasionally be present on the Project site. There are no federally designated critical habitats within the immediate vicinity of the Project area.

According to the U.S. Fish and Wildlife Service (USFWS), the Federally- and State-listed endangered Hawaiian hoary bat (*Lasiurus semotus*) is known or believed to occur across the City and County of Honolulu (USFWS, n.d.); therefore, it is possible for them to overfly the Project site on occasion. The Hawaiian hoary bat roosts in both exotic and native woody vegetation across all islands and will leave young unattended in trees and shrubs when they forage. If trees or shrubs 15 feet or taller are cleared during the pupping season, there is a risk that young bats could inadvertently be harmed. Additionally, Hawaiian hoary bats forage for insects from as low as three feet to higher than 500 feet above the ground and can become entangled in barbed wire used for fencing.

Indigenous Hawaiian seabirds, such as the *manu o kū* or white tern (*Gygis alba rothschildi*), are not known to inhabit the Project site. However, white terns are known to have successfully adapted to an urban environment over time (Pyle, 2017). Therefore, there is a possibility that they may occur in the Project area. These terns carry no special Federal Protected, Endangered or Threatened status; however, they are considered endangered on O'ahu and are protected under the Migratory Bird Treaty Act of 1918 (MBTA). Hawaiian seabirds may traverse the project area at night during the breeding season (typically January through June). Outdoor lighting could result in seabird disorientation, fallout, and injury or mortality. Seabirds are attracted to lights and after circling the lights they may become exhausted and collide with nearby wires, buildings, or other structures or they may land on the ground. Downed seabirds are subject to increased mortality due to collision with automobiles, starvation, and predation by dogs, cats, and other predators. Young birds (fledglings) traversing the Project area between September 15 and December 15, in their first flights from their mountain nests to the sea, are particularly vulnerable.

Anticipated Impacts and Proposed Mitigation

The Pearlridge Bus Transit Center is not expected to impact endangered or threatened plant or animal species. There are no known significant habitats or rare, endangered, or threatened species of flora, fauna, and avifauna on the Project site. While temporary disturbance of wildlife during construction is possible, mitigation measures will be implemented to minimize impacts as follows:

- Hawaiian Hoary Bat – It is possible that the Hawaiian hoary bat, or ‘ōpe‘ape‘a (*Lasiurus cinereus semotus*), may overfly the area on occasion. Some trees on the property have potential value as roosting habitat for this listed species. The Hawaiian hoary bat has been documented to use coconut palms (*Cocos nucifera*), kukui (*Aleurites moluccana*), avocado (*Persea americana*), shower trees (*Cassia javanica*), and eucalyptus (*Eucalyptus spp.*); USFWS 1998). To avoid any potential negative impacts to roosting bats, woody vegetation taller than 15 ft will not be removed during pupping season (between June 1 and September 15). Additionally, barbed wire will not be utilized for fencing.
- Hawaiian Seabirds – Hawaiian seabirds may occasionally overfly the Project area. No seabird nesting occurs on the property and no large exist on the Project site; therefore, the only likely impact to seabirds would be the installation of outdoor lights. Night lights can disorient seabirds, resulting in their potential downing and harm from collision with objects and/or predation by feral dogs and cats if downed. All construction activity will take place during daylight hours. In addition, exterior facility lighting will be shielded to reduce the potential for interactions of nocturnally flying seabirds with external lights or other structures. If tree trimming is required, all trees will be examined to determine if any white terns are nesting in them, especially during the white tern breeding season (January through June). Should a nest be discovered, work will cease within a minimum radius of 100 feet of the nest for a minimum of 60 days; if a nest with chicks is discovered, work will cease for 30 days. If a previously undiscovered nest is found after work begins, work will cease within a minimum radius of 100 feet of the nest and the USFWS will be contacted. Information about seabird fallout will be provided to all staff working on the site prior to the initiation of work. If a downed seabird is found, the contractor will contact USFWS immediately.

Additional mitigation measures include the installation of sealed containers for waste to avoid attracting unwanted predators. Post-construction, covered trash receptacles and bait stations for rodents and mongoose will be used to minimize predator presence.

Landscaping improvements are planned for the Pearlridge Bus Transit Center. As discussed in *Chapter 2.0*, WKM will provide landscape design services and prepare a Landscape Maintenance Plan for the project.

3.8 Cultural Resources

Existing Conditions

A Cultural Impact Assessment (CIA) was prepared by Keala Pono in June 2020 to identify cultural resources or practices that occur in the Project area, evaluate potential impacts, and provide recommended mitigation measures (*Appendix A*). The CIA includes background research and an ethnographic survey consisting of three interviews with community members. A summary of the findings is provided below.

Background Research

The Project is located in the Waimalu ahupua‘a in the ‘Ewa Moku, or district, of O‘ahu on the leeward side of the Ko‘olau Mountain Range. The ahupua‘a of Waimalu extends from the northern shoreline of Pearl Harbor to the Ko‘olau Mountains and borders Waiau Ahupua‘a to the east and Kalauao Ahupua‘a to the west. The Project area lies on the Waimalu side of the ahupua‘a border with Kalauao. Waimalu translates to “sheltered” water, which may refer to the sheltered waters of Pearl Harbor.

Additionally, several fishponds were located along the Pearl Harbor coastline including Loko Pa‘aiau, Loko Opu, and Loko Pa‘akea in the Project vicinity.

Traditionally, kalo, ‘uhi, mai‘a, and ‘awa were grown in the ‘Ewa Moku, though it is not clear if these crops were grown specifically in Waimalu. Avifauna, wauke, mamaki, olonā, and wild mai‘a were also present in the moku and provided resources for traditional cultural practice. Waimalu, as part of the larger ‘Ewa District, was in a well-watered coastal environment, ideal for irrigation of lo‘i. In the pre-contact period the coastal flats of Waimalu were developed into agricultural terraces largely irrigated by Waimalu Stream and Waipi Spring. A saying, ‘Ewa, ka ‘āina o nā ali‘i, or ‘Ewa, land of chiefs, originated because the district was known as a favorite residence for chiefs (Sterling and Summers 1978:1), likely due to its abundant fishponds. Several fishponds (loko) were constructed surrounding Waimalu in times past.

Following the arrival of westerners on O‘ahu and the change in the traditional land tenure system (The Great Māhele), the agricultural industry in Waimalu steadily expanded through the 19th century from expansive tracts of traditional Hawaiian lo‘i that were gradually replaced by the large-scale commercial cultivation of sugarcane and rice by the 1850s. To aid the transport of agricultural products for import/export, B.F. Dillingham established the O‘ahu Railway and Land Company (OR&L) and the OR&L Railroad. The OR&L Railroad transported passengers and freight from Pearl Harbor to Honolulu Harbor. By 1890, the Railroad reached Pearl City, then reached Wai‘anae by 1895, then Waialua by 1898 and to Kāhuku by 1899. As Dillingham had intended, the Railroad contributed to the development of Pearl City where a residential subdivision was planned. Operations of the OR&L ceased in 1946 and the Railroad tracks were disassembled except for one section stretching from Pearl Harbor Naval Base to Lualualei.

Another major factor in shaping historic-era Waimalu was the construction of the Pearl Harbor Naval Base, which began in 1903. Pearl Harbor is most remembered for the air raid by the Imperial Japanese Navy on December 7, 1941, which launched the U.S. into WWII. After the attack on Pearl Harbor, additional infrastructure was needed to double the war effort in and around the harbor. By the mid-1900s, the imposition of the American military in Pearl Harbor irretrievably destroyed traditional Hawaiian management systems of the land and sea resources of the area. In 2010, the Navy Yard integrated with the U.S. Hickam Air Force Base to create Joint Base Pearl Harbor-Hickam (JBPHH), which is the command center of the U.S. Pacific Fleet. In 1964, Pearl Harbor was deemed a National Historic Landmark District, State Inventory of Historic Places (SIHP) 50-80-13-9992 and placed on the National Register of Historic Places (NRHP). The USS Arizona, USS Bowfin and USS Utah, located within the harbor, are also considered National Historic Landmarks.

Community Consultation

Ethnographic interviews were conducted by telephone in May 2020. In-person interviews were not carried out due to Covid-19 physical distancing regulations in the state of Hawai‘i. Interviewees were selected because they met one or more of the following criteria: 1) was referred by Keala Pono Archaeological Consulting or G70; 2) had/has ties to the project area or vicinity; 3) is a known Hawaiian cultural resource person; 4) is a known Hawaiian traditional practitioner; or 5) was referred by other cultural resource professionals. The following three individuals were interviewed: Mahealani Cypher, Minerva Pang, and Naomi Tully-Ungacta. Mana‘o and ‘ike shared during these interviews are included in the CIA (*Appendix A*).

The interviewees have extensive knowledge of Waimalu and the area surrounding the proposed bus transit center. One of the kūpuna was born and raised in Waimalu, while the other moved to the ahupua'a in her youth and has lived there for decades. The third interviewee has connections to Waimalu via the Rail Station Naming Group and the island-wide Ahupua'a Marker Project. Interviewees mentioned the original Hawaiian place names for the region, and two mo'olelo were shared, one about a stone that could not be broken or removed, and another regarding a shark named Ka'ahupāhau, who protected the bay and lived in a cave there.

The interviewees mentioned that the gathering of plants and flowers for hula still occurs in the upper reaches of Waimalu. They shared their knowledge of a few archaeological sites including one of the first churches in the region, an unbreakable stone, and a heiau in Hālawā. Interviewees agree that previous development has already greatly affected the area. They also expressed a variety of concerns and recommendations. The increase in traffic during construction was a common topic and the negative impact of construction to nearby small businesses was also discussed. Safety concerns for users of the bus terminal was mentioned as well as the effect on the natural environment. Another concern was that the Waimalu community is no longer able to sustain itself, as subsistence activities in the region gave way to commercial industries. It was suggested to honor the place names of the area with an appropriate name for the transit center based on the region's cultural history. It was also recommended to consult with the community and local cultural practitioners with regard to naming the facility and to find out additional information about known sites and the location of undocumented sites that may be located in the area.

Anticipated Impacts and Proposed Mitigation

Overall, the interviewees did not seem to believe that the proposed project would affect any places of cultural significance, however it was mentioned to refer to additional cultural practitioners from the area regarding the possibility of undocumented sites. One interviewee believed that previous development has already degraded any significant cultural resources in the area.

Per the recommendation of the CIA, the community may be consulted in naming the new facility an appropriate name based on the region's cultural history. The community will be kept informed about the construction plans, and their concerns and recommendations will be considered during all phases of the proposed work. Because of the occurrence of human burials and other archaeological sites in the region, an Archaeological Inventory Survey (AIS) was recommended to determine if any surface or subsurface cultural resources remain on the property.

3.9 Historic and Archaeological Resources

An Archaeological Assessment was conducted by Keala Pono Archaeological Consulting (January 2021) to identify, document, assess significance, and provide mitigation recommendations for any historic properties that may be located in the Project area. The assessment is summarized below and provided in *Appendix B*.

Existing Conditions

There are nine kuleana Land Commission Awards located in the immediate vicinity of the Project area. Māhele data indicate that these lots contained lo'i, kula land, a house, a pond, a fishpond, a stone wall, and an 'ulu tree. Aside from the kuleana parcels, much of Waimalu Ahupua'a and the neighboring Kalauao Ahupua'a are encompassed in large plots of land awarded to ali'i.

Several maps were found that depict the Project area, and a selection of these dating from 1873–1925 are presented in the LRFI (*Appendix B*). These maps illustrate the dramatic changes that took place in the region. The earliest map shows the Project area in what was labeled as “rushes.” This likely indicates a marshy environment. By 1897, the Project area is within and surrounded by rice lands. Three fishponds were in the Project vicinity: Loko Pa’akea, Loko Opu, and Loko Pa’aiau. These are depicted from the earliest map to the latest, indicating that the ponds were not yet filled in by circa 1925.

No archaeological materials or features have been noted on the properties by previous archaeological studies. One previous archaeological study has been done within the Project area itself, although it only covered a portion of the northern side of the current Project site. No archaeological resources were found in this previous study that overlaps the current Project. Several previous studies were conducted nearby, and these can help inform on the kinds of subsurface archaeological resources that may be found within the current Project area. These previous studies have identified a variety of historic properties, including an OR&L Railroad remnant, lo’i deposits, a fire pit, charcoal concentrations, and human burials associated with a subsurface cultural layer. The closest known archaeological site to the Project area was documented by McAllister (1933) and lies approximately 100 m to the east. It consists of Kuki’iahu (Site 110), which was the home of chiefess Kalaimanuia and the site of a famous battle.

‘Ewa Moku, Waimalu Ahupua’a, and Pu’uloa (Pearl Harbor) were culturally significant, as noted in song, chant, proverb, and narrative. It was a region with many of the natural resources which supported traditional subsistence activities such as fishing and kalo cultivation. Fishponds were numerous on the shores of Pu’uloa, and taro farming was practiced in the marshy areas of Waimalu. The 20th century saw widespread changes to the region. Sugar and rice agriculture, as well as military use, significantly transformed the landscape. An OR&L Railroad traversed the coast, and Pu’uloa was developed into the Navy installation that remains today. See *Chapter 3.8* for further discussion.

The site has since been disturbed by development. An archaeological inventory survey of the Project site was conducted by Keala Pono Archaeological Consulting. Methods included a pedestrian survey and subsurface testing at six test trenches. The testing strategy was approved by SHPD. No surface archaeological remains were observed within the Project area during the pedestrian survey. Additionally, no archaeological resources were found in the test trenches, and stratigraphy consisted of fill, sometimes including a buried asphalt pavement. Modern construction debris was encountered in the trenches, indicating previous disturbance. Due to negative findings, the survey results are presented as an Archaeological Assessment pursuant to HAR Section 13-275-5(b)(5)(A). The Archaeological Assessment is provided in *Appendix B* and is currently awaiting SHPD review and approval pursuant to HRS Chapter 6E, Historic Preservation Review.

Anticipated Impacts and Proposed Mitigation

Based on the findings of the Archaeological Assessment, the Project is not anticipated to impact archaeological resources; therefore, no mitigation is recommended. The Archaeological Assessment is currently awaiting SHPD review and approval.

3.10 Socioeconomic Characteristics

Existing Conditions

The Project site is located in the 'Aiea-Pearl City area within the City-designated PUC DP area. The Pearlridge Bus Transit Center will support the Kalauao Pearlridge Station, which will serve the Pearlridge Shopping Center and the surrounding residential areas including Waimalu, 'Aiea, and Pearl City. The Pearlridge Shopping Center is the largest shopping center in the region.

According to U.S. Census Bureau data, the site is situated within census tract 78.08 (Pearlridge Center) and the Waimalu Census-Designated Place (CDP). However, the Project site's address is in 'Aiea. Pearl City is located approximately 1.5 miles northwest of the Project site. Accordingly, the following analysis encompasses Pearlridge Center, Waimalu, 'Aiea, and Pearl City as they are the communities intended to be served by the Project and encompassed in the 'Aiea-Pearl City TOD Neighborhood Plan.

Table 3.1 below presents demographic information for census tract 78.08, Waimalu CDP, 'Aiea CDP, and Pearl City CDP, as well as wider City and County of Honolulu and State of Hawai'i data provided by the U.S. Census Bureau (Hawai'i 2012-2016 ACS 5-year Estimates):

Table 3.1 Demographic Information, U.S. Census Bureau						
	Census Tract 78.08 (Pearlridge Center)¹	Waimalu CDP¹	'Aiea CDP¹	Pearl City CDP¹	City and County of Honolulu	State of Hawai'i
Indicator	Number / Percent	Number / Percent	Number / Percent	Number / Percent	Number / Percent	Number / Percent
Population Estimates, July 2019	3,611	x	x	x	974,563 (July 2019 estimate)	1,415,872 (July 2019 estimate)
Population Estimates base, April 1, 2010	3,346	13,730	9,338	47,698	953,206	1,360,307
Persons under 18 years, percent	26.4	17.3	23.2	19.2	21.2	21.4
Persons 65 years and over, percent	11.6	17.0	19.8	23.3	17.7	18.4
Race						
White	8.7	17.0	17.6	13.6	21.7	25.6
Black/African American	1.6	3.5	0.5	2.3	2.8	2.2
Amer Indian/Alaskan Native	0.1	0.1	0.1	0.1	0.3	0.4

Table 3.1 Demographic Information, U.S. Census Bureau						
Indicator	Census Tract 78.08 (Pearlridge Center)¹	Waimalu CDP¹	‘Aiea CDP¹	Pearl City CDP¹	City and County of Honolulu	State of Hawai‘i
	Number / Percent	Number / Percent	Number / Percent	Number / Percent	Number / Percent	Number / Percent
Asian alone	49.5	46.1	48.1	51.4	43.0	37.6
Nat Hawn/Other Pac Islander	15.4	8.3	4.7	0.3	9.6	10.2
Hispanic or Latino	8.90	8.70	13.50	9.40	10.00	10.70
Two or more Races	24.10	24.40	28.00	25.10	22.60	24.00
Population Characteristics						
Population Who Were Foreign-Born	26.90	20.60	11.50	12.80	19.50	18.30
Population Who Speak A Language Other Than English	39.20	28.70	19.30	20.70	28.00	26.10
Family & Living Arrangements						
Households, 2014-2018	1,053	5,499	2,620	13,987	311,525	456,782
Avg household size	3.15	2.43	3.58	3.17	3.06	3.02
Income & Poverty						
Median household income, (in 2018 dollars)	\$66,068	\$80,383	\$106,556	\$94,417	\$82,906	\$78,084
Persons in Poverty (percent)	4.50	5.60	5.30	4.30	7.70	8.80
Housing						
Median Value for Owner-Occupied Housing Unit (2014-2018)	\$360,800	\$426,900	\$780,400	\$649,000	\$649,800	\$587,700

Table 3.1 Demographic Information, U.S. Census Bureau						
	Census Tract 78.08 (Pearlridge Center)¹	Waimalu CDP¹	'Aiea CDP¹	Pearl City CDP¹	City and County of Honolulu	State of Hawai'i
Indicator	Number / Percent	Number / Percent	Number / Percent	Number / Percent	Number / Percent	Number / Percent
Economy						
In civilian labor force, total, percent of population age 16+ years, 2014-2018	X	60.70	62.40	55.30	61.6	61.8

¹ Data based on Hawai'i 2012-2016 ACS 5-year Estimates by Census Tract

The combined population of 'Aiea, Waimalu, and Pearl City is roughly 70,406 persons, or approximately seven (7) percent of the residential population of the City and County of Honolulu. Ethnic demographics for the project area are consistent with the island; however, a larger percentage of residents in the Project census tract and CDP's are foreign-born. Median household income within the Project's census tract area is lower than the County average; however, the surrounding neighborhoods are consistent or higher than the island's average. The percentage of the population in the Project region that are employed in the civilian labor force is consistent with County and State percentages.

According to the *O'ahu Regional Transportation Plan (ORTP) 2040* (OMPO, 2016), a majority, or 68 percent, of jobs will continue to be concentrated in the PUC in the year 2040. Data in the OMPO suggests that the 'Aiea/Pearl City area will see an increase of between 4,000 to 6,999 jobs by 2040. Meanwhile, significant population increases in the 'Aiea/Pearl City region are not expected as residential growth primarily moves towards portions of west O'ahu, Central O'ahu, and Kaka'ako. The Project is expected to serve existing residents of the area that will continue to commute throughout the PUC DP region.

Commute time for residents in the Aiea, Waimalu, and Pearl City CDP's ranges from 25.4 to 29.9 minutes one-way, which is comparable to mean travel time for commuters on the island (see *Table 3.2*). In the City and County of Honolulu, commuters primarily drive alone to work (approximately 64.7 percent). According to the most recent 2013 American Community Survey 5-year estimates, in the Moanalua to Pearl City region, approximately 84 percent of commuters use cars, 5 percent use public transportation, and 5 percent walk or use a bicycle (DBEDT, 2016). The percentage of public transit users in the Project area is slightly lower than the rest of the City and County of Honolulu, where 8.1 percent of commuters utilize public transit. Of the percentage of commuters on the island that utilize public transit, senior workers, aged 65 and over, accounted for 8.1 percent of public transportation commuters (DBEDT, 2016). About two thirds of public transportation commuters on the island had Service or Sales and Office occupations (DBEDT, 2016). Approximately 13.8 percent of those earning \$1-\$25,000 annually (gross) utilize public transportation as compared to 2.4 percent of those earning \$75,000 or more annually (gross) (DBEDT, 2016).

Table 3.2 Commute Patterns, U.S. Census Bureau 2013 American Community Survey						
Indicator	Waimalu CDP	'Aiea CDP	Pearl City CDP	Moanalua to Pearl City*	City and County of Honolulu	State of Hawai'i
Mean travel time to work (minutes), workers age 16 year+, 2014-2018	27.9	25.4	29.9	X	29.1	27.4
Commuting Mode (percent)						
Drive Alone	x	x	x	84.0*	64.7	66.6
Carpool	x	x	x	x	14.7	14.4
Public Transportation	x	x	x	5.0	8.1	6.4
Other Means	x	x	x	5.0	9.1	8.1
Work at Home	x	x	x	x	3.4	4.5

"X" = No information provided

* Data aggregated in the "Statistics Brief Commuting Patterns in Hawai'i" by DBEDT, 2015. Note that data for commuters that utilize cars does not differentiate between "drive alone" or "carpool". It can therefore be assumed that the statistic provided by DBEDT includes both car users that "drive alone" and "carpool".

Anticipated Impacts and Proposed Mitigation

In the short-term, the Project will create economic benefits as a result of design and construction employment. Total construction cost is estimated at approximately \$9.5 million. Local material suppliers and retail businesses can also expect to benefit through a multiplier effect from the increased construction activities. Support for construction-related jobs and positive economic impacts of the Project was expressed during the EA consultation process by the International Union of Bricklayers and Allied Craftworkers Local #1 of Hawai'i (see *Chapter 7.0*).

There are no anticipated negative long-term impacts on the socio-economic characteristics of the general population. The Project is expected to create and sustain a number of long-term jobs related to maintenance and operation of the bus transit center. The Project will therefore result in a slight increase in daily commuting population to the Project site; however, it will not result in an increase in the residential population.

Compared to the City and County of Honolulu, the 'Aiea-Waimalu-Pearl City region has a higher percentage of commuters driving alone and a lower percentage of commuters utilizing public transit. The Pearlridge Bus Transit Center and future Pearlridge TOD will provide residents with improved alternative transportation opportunities and facilities, which is likely to increase the number of commuters utilizing public transportation in the region. This will offer an opportunity for households to decrease overall transportation expenditures, relieving them of the cost burden.

In the long-term, TOD is expected to promote long-term economic development opportunities along the elevated Rail line. The proposed action is intended to be an interim use of the Project site that will support multimodal connectivity in the initial phases of the Rail operation. The long term, the City has may propose mixed-use development in the area, including upgraded permanent transit facilities and land use measures consistent with TOD. Timely upgrading of the City's transit services and facilities are critical to maintain effective functionality and growth of the City and to ensure a high-quality of life for O'ahu's residents. Should future mixed-use development include housing, the Project may result in an increase of population on the site. This would be evaluated during a separate environmental process.

3.11 Visual Resources

Existing Conditions

The southwest section of the Project site includes a portion of the asphalt paved parking lot used for the Best Buy store. The northwest of the Project site adjacent to Kamehameha Highway consists of three low-rise structures associated with an abandoned car dealership and an asphalt paved parking lot (see *Figures 3.6 and 3.7*). This portion of the Project site is bound immediately east by an entry point to City's future Kalauao Pearlridge Station and its associated infrastructure. The eastern and southern portions of the Project site are currently used for construction laydown and includes various warehouse building structures and dirt roads. The Project site has been previously developed and has a history of industrial uses including automobile services, and the storage of vehicles, heavy equipment, construction supplies, and stockpiled soils from quarries. The Project site is currently being used for Rail station construction staging.

The site is bounded by Kamehameha Highway to the north, the Pearl Harbor Bike Path to the south, Best Buy electronics store to the west, and Home World Furniture store to the east. Surrounding views generally consist of large shopping centers, strip malls, a heavily trafficked multi-lane highway, and paved surfaces such as large parking lots and various roadways. The bus transit center will be visible along Kamehameha Highway, at the intersection of Kamehameha Highway and Kaonohi Street, and may also be visible from Kanuku Street (*Figures 3.6 through 3.10*). The elevated Rail corridor and associated cement columns are visible throughout the Project area.

The Project site is relatively flat and does not exhibit unique topographic features. There are no significant views identified in the City's *Coastal View Study* (1987) at the Project site. While the East Loch of Pearl Harbor is recognized as a significant scenic resource and viewshed in the PUC DP (2004), the Project site is situated just outside of the established significant view plane. The clearest views of the East Loch in the Project vicinity are from the Neal S. Blaisdell Park, located approximately 0.41-mile west of the Project site, and the 'Aiea Bay State Recreation Area, located approximately 0.85-mile southeast. The Pearl Harbor Bike Path, which passes along the southern boundary of the property, also offers intermittent views of Pearl Harbor.



Figure 3.6 View of Kamehameha Highway at Project Site (Looking East)

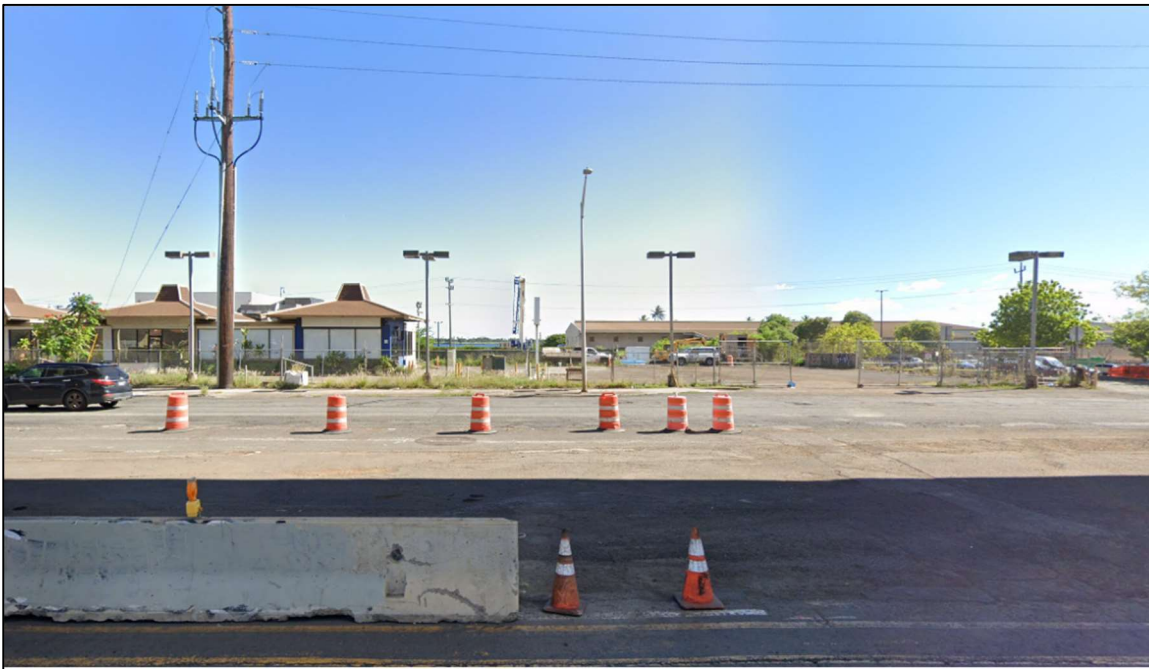


Figure 3.7 View of Mauka side of Kamehameha Highway Looking at Project Site



Figure 3.8 View of Mauka side of Kamehameha Highway and Kaonohi Street (Looking South)



Figure 3.9 View of Makai side of Kamehameha Highway and Kaonohi Street (Looking West)



Figure 3.10 View of Kamehameha Highway at Kanuku Street (Looking East)

The East Loch of Pearl Harbor is intermittently visible from the north of the Project site; however, existing vehicle storage and buildings block views of the lagoon along Kamehameha Highway (*Figure 3.11*). The proposed bus transit center will be visible along the Pearl Harbor Bike Path, which borders the south of the site (*Figure 3.9*). From this portion of the Pearl Harbor Bike Path, views of the East Loch of Pearl Harbor are obstructed by existing vehicle storage.



Figure 3.11 View of Pearl Harbor Bike Path (Project Site at the left)

Anticipated Impacts and Proposed Mitigation

Short-term minor impacts of the Project on the surrounding area are related to construction activities and will be minimized through avoidance and minimization measures. If night-time construction activity or equipment maintenance is proposed during construction phases of the Project, all associated lights will be shielded, and when large flood/work lights are used, they would be placed on poles to allow the lights to be pointed directly at the ground. Upon completion of the project, temporary lighting would be removed, and disturbed areas would be revegetated with non-invasive plant species appropriate for the project area.

Structures associated with the Pearlridge Bus Transit Center will not exceed 10 feet tall (see *Figure 2.4*). The Project will not adversely affect existing and surrounding visual resources, including significant viewsheds articulated in the PUC DP. The topography of the site will not be significantly modified by new facilities or new landscaping. The scale of the Project is compatible with the surrounding area and will be designed to promote a pedestrian-friendly conducive to multimodal mobility. The proposed transit center will not inhibit views of Pearl Harbor from either the immediate surrounding area or from the upper residential neighborhoods of 'Aiea, Waimalu, Pearl City, or Waipi'o, which are generally located at higher elevations than the Project site.

While no mitigation measures are required for the Project, the planned design of the Pearlridge Bus Transit Center aims to improve the overall aesthetic quality of the Project area in accordance with the City's plans for TOD in the 'Aiea-Pearl City neighborhood. Celebration and expression of cultural and heritage themes will be weaved into the architectural design and landscaping to reflect characteristics of the community and reinforce a unique sense of place tied to the Pearlridge neighborhood.

A naturalized planting scheme will replace much of the existing asphalt parking lots, flanking the entrance and running parallel to Kamehameha Highway. Planting of a variety of appropriate trees and shrubs in place of the existing surface lots along the highway will provide a landscaped buffer. The buffer will minimize the views of buildings, giving the project site will have a more naturalized appearance. Additionally, overhead cables and powerlines will be moved underground where possible.

3.12 Utilities

A Preliminary Engineering Report (PER) was prepared by G70 to assess existing infrastructure and utility systems at the Project site and determine the extent of infrastructure and utility improvements needed for the Pearlridge Bus Transit Center (see *Appendix C*). The PER summarizes existing site conditions and proposed improvements needed to support the construction and operation of the Project. The following section discusses the Project site's existing water, wastewater, electric, telecom, and gas conditions, and includes anticipated impacts and mitigation measures to each system. Stormwater drainage is discussed in *Chapter 3.4*.

Existing Conditions

Water System

Based on Board of Water Supply (BWS) Distribution Maps of the area, an 8-inch BWS water main is located within the Kamehameha Highway ROW along the project frontage. An existing 2-inch (TMK 9-8-009:016) and a 1-inch (TMK 9-8-009:005) BWS water meter serve the existing structures on site. The 2-inch meter serving TMK 9-8-009:016 is located on a main BWS lateral that splits to serve the Project site as well as the adjacent HART Rail station (separate meter). These laterals are all served from the 8-inch main in Kamehameha Highway. There is no service to TMK 9-8-008:015 and 014, though service previously existed to parcel 014.

Two fire hydrants that are approximately 200 feet apart are located on the sidewalk along Kamehameha Highway.

Wastewater System

There appear to be two 6-inch sewer laterals serving TMK 9-8-009: 005 which covers a majority of the Project site on the south side. An existing 6-inch lateral is identified on the project's topographic survey and is within Easement "A" that traverses TMK 9-8-009: 005, 011, and 014 in the makai to mauka direction. This lateral is not identified on the City's sewer database and may be a private line. However, it appears to connect to a 10-inch sewer line within the easement that extends to the City's 42-inch sewer line running parallel to and south of the Pearl Harbor Historic Trail, according to DPP, Wastewater Branch records.

Another 6-inch lateral is located on the east side of the site along the property's boundary with the Homeworld Furniture store lot. It appears to connect directly into a manhole on the 42-inch sewer main, per City sewer database records.

Both laterals are served by the 42-inch main that runs south of the Project site. This existing sewer line continues west and eventually discharges to the Honouliuli Wastewater Treatment Plant in 'Ewa Beach.

Electric and Telecom Infrastructure

The existing electrical and telecom service in the area is provided by overhead power poles running along the frontage of Kamehameha Highway and along the rear of the site adjacent to the Pearl Harbor Bike Path.

HART/HECO will relocate the 138-kilovolts (kV)-conductors and 46-kV lines on the Project site to accommodate the installation of the Rail guideway and Kalauao Pearlridge Rail Station. The locations of these new facilities are not anticipated to impact the Project site.

The overhead lines along the Pearl Harbor Bike Path have 12-kV-conductors and will remain in place and are not anticipated to be impacted by the project or the Rail construction.

Telecom service is available in the area via overhead and underground infrastructure.

Gas

Based on the topographical survey, there appears to be an existing natural gas main located in Kamehameha Highway. Additionally, a petroleum pipeline is located along the Pearl Harbor Historic Trail and bike path and follows the makai side of the project site. It does not appear the pipeline is located on the project property. Design of the Project improvements will avoid all impacts to this petroleum pipeline infrastructure.

Anticipated Impacts and Proposed Mitigation

Water System

The Pearlridge Bus Transit Center water service will be supplied by the 8-inch BWS main within Kamehameha Highway. A new water meter and water lateral may be installed from the BWS main or an existing lateral may be utilized if sufficiently sized to service the comfort station and the operator's lounge. A 1-inch to 2-inch meter is anticipated to be sufficient for usage, based on the peak flows and fixtures anticipated on-site. The exact sizing will be provided during design, but no impact is anticipated to the BWS water system as the existing uses on-site were likely similar in demand.

A new irrigation lateral and meter will be required to service the significant improvements to the site's landscaping. New landscaping will be installed in all areas surrounding the pavements, sidewalks, and bus stops, within the transit center to provide an aesthetically pleasing experience to transit riders. The irrigation demand for the landscaping is anticipated to be the largest demand, as landscaping will consist of nearly 1 acre of the site. LID features such as rain gardens and biofiltration planters, utilizing drought-tolerant plants, will help to reduce irrigation demands, but will still need irrigation water to maintain healthy plants. It is estimated that the site will require around 5,500 gallons per day for irrigation needs, which is not anticipated to have an impact on the BWS systems in the area. During the EA consultation process, BWS responded that BWS Rules and Regulations require the use of non-potable water for irrigation of large landscape areas. Subsequent consultation with BWS was conducted and confirmed that the Project has low irrigation demand. Therefore, the Project is not required to construct an extension of the pipeline and connection to the Kaluaao Spring nonpotable water system (*Chapter 7.0*). Instead, per BWS recommendations, an on-site nonpotable water system with an irrigation system point of connection will be designed for the Project to facilitate connection to the Kaluaao Spring nonpotable water system when it becomes available.

Wastewater System

The new comfort station and operator's lounge will require wastewater service. The Project anticipates utilizing the 6-inch sewer lateral located at the west end of the site. A Sewer Connection Application (SCA) was submitted and approved by the DPP, Wastewater Branch (WWB) on June 30, 2020 (2020/SCA-0869).

Sewage generated by the office usage is anticipated to be minimal, consisting of several employees utilizing the space throughout the day's various shifts. Each employee is anticipated to generate 25 gallons per day of wastewater usage, per "full-time equivalent" (FTE).

The comfort station sewer generation is anticipated to be higher and more variable, as different amounts of riders during various peak times of the day and each day of the week are anticipated. However, the comfort station will consist of a limited number of stalls and the generation of wastewater per day is not anticipated to have a significant impact to the City's municipal sewer system.

Stormwater Drainage

Proposed site drainage infrastructure improvements are designed to the City DPP, Rules Relating to Storm Drainage Standards dated January 1, 2000 with subsequent amendments effective May 1, 2011 and June 1, 2013. Proposed building drainage systems are designed to standards articulated in Chapter 19, ROH, Plumbing Code, which refers to the 1997 Uniform Plumbing Code (UPC) with amendments.

LID measures and stormwater quality BMPs are planned at the Pearlridge Bus Transit Center. Such measures include the use of vegetated swales, which are designed to convey and infiltrate storm water runoff; vegetated buffer strips; retention basins and drywells; and rain gardens, green roofs, and planter boxes. Rain gardens are designed vegetated shallow depressions that collect runoff and allow for filtration and percolation of stormwater through planting media. Planter boxes are similar in nature to rain gardens, with the exception that it can be an above ground system that allows percolation into an underdrain system in lieu of the ground.

Electric and Telecom Infrastructure

HECO has been approached about the Pearlridge Bus Transit Center project. It is anticipated that the Project would be served by both HECO and Hawaiian Telecom points of connection for service. Both utilities would provide these points of interconnection immediately outside of the property on overhead pole lines along the makai side of Kamehameha Highway.

An engineering service request will be submitted to evaluate the circuit capacity to ensure that power is available. The comfort station, operator's lounge, and site lighting would have relatively low power demands. The four (4) electric bus charging stations and appurtenant equipment have much higher power demands. Service for these can be served by the existing 46 kV lines with the appropriate step-down transformers. DTS will coordinate with HECO during the design process.

Gas

There are no anticipated impacts to Hawai'i Gas lines and petroleum pipelines within the project vicinity. Work will be careful to avoid the pipelines.

3.13 Roadways, Access, and Traffic Conditions

A Mobility Analysis Report (MAR) was prepared by Fehr & Peers (August 2020) to evaluate the impacts of the Pearlridge Bus Transit Center to mobility and access surrounding the Project site. The MAR was prepared in accordance with the standards and guidelines established by the City and County of Honolulu DPP, Traffic Review Branch (TRB) and the State of Hawai'i Department of Transportation (HDOT), Highways Division (see *Appendix D*). The focus of the study was on the operations of the Kamehameha Highway/Kanuku Street and Kamehameha Highway/Kaonohi Street intersections, which were evaluated during the weekday morning (AM) and evening (PM) peak hour for Existing (2019) and Future (2025) conditions Without and With the Project. The intersections adjacent to these locations were also evaluated to ensure that any changes in proposed signal timings at the key intersections would not adversely affect the corridor. For the purposes of this study, AM peak hours were 6:00 to 7:00 AM and PM peak hours were 4:30 to 5:30 PM.

Key findings of the study are summarized below.

Existing Conditions

Existing Transportation Facilities

The key roadways providing access to or in the vicinity of the study area are described below.

- *Kamehameha Highway* is a six-lane principal arterial that is under the jurisdiction of HDOT. It extends from Pearl Harbor to the south and east, and Waialua to the north and west. Adjacent to the Project, the posted speed limit is currently 25 miles per hour (mph). At the time of the field data collected in October 2019, the HART rail guideway was under construction along this portion of Kamehameha Highway, such that only one westbound lane was provided in the AM peak period, and only two westbound lanes were provided in the PM peak period. Before construction began, the posted speed limit was 35 mph. Per input from HDOT, the posted speed limit is expected to return to 35 mph once construction is complete, and accordingly the Future Conditions evaluated in this report reflects a 35-mph speed limit. It is also noted that HART construction eliminated the second westbound left-turn lane at the Kamehameha Highway/Kanuku Street intersection. Only one westbound left-turn lane will be provided once construction is complete, as reflected in the Future Conditions evaluated in this report.

Discussions with DPP Traffic Review Branch and the current project schedule indicate that Live, Work, Play 'Aiea will not start construction until the beginning of 2023 at the earliest, and it will be built out over an extended period of time beyond 2025. Given that the majority of the project will be built after this Project opens, Live, Work Play 'Aiea is not included in the forecast and the DPP Traffic Review Branch concurs with this approach. The Existing Conditions evaluated in the MAR reflect on-the-ground observed conditions at the time the study was initiated consistent with standard environmental practice. However, for evaluating impacts under future conditions, higher volumes from counts collected prior to HART construction were used and increasing them over a 15-year period to 2025 conditions. The 2010/2011 traffic count data was used because it was the most recent available data prior to HART construction that included detailed turning-movement-level counts. This additional growth will also account for the initial phases of the Live, Work, Play 'Aiea project noted above.

Sidewalks are provided on both sides of the roadway, but not continuously; gaps exist on the mauka side of the street between Kaonohi Street and approximately 400 feet west of Kaonohi Street, where a concrete sidewalk is intermittently replaced with a rolled asphalt path during ongoing HART construction.

- *Kanuku Street* is a two-lane minor collector that extends from the Pearl Harbor Bike Path and commercial driveways at its makai terminus to Hekaha Street at its mauka terminus. Kanuku Street is under the jurisdiction of the City and County of Honolulu from Hekaha Street to Kamehameha Highway. A private driveway extends from Kamehameha Highway to the Pearl Harbor Bike Path. The posted speed limit is 25 mph. Sidewalks are provided on both sides of the street makai of Kamehameha Highway, but no sidewalk or shoulder is provided more than 100 feet north of the intersection with Kamehameha Highway. Makai of the highway, this street effectively operates as a driveway for the retail, commercial, and industrial uses.
- *Kaonohi Street* is a four-lane minor arterial that is under the jurisdiction of the City and County of Honolulu. As an arterial, it extends from Kamehameha Highway at its makai terminus to Moanalua Road, where it continues as a four-lane major collector until approximately 1,300 feet past Pua'ali'i Street; from this point it continues as a two-lane major collector into the Kaonohi neighborhood

where it terminates in a loop. The posted speed limit is 25 mph. Sidewalks are provided on both sides of the street.

TheBus is the main public transportation service on the island. Within the Project study area, Routes 40, 42, 51, 53, 71, 88A, and A provide service along Kamehameha Highway at stops in the vicinity of the Project, and Routes 11, 20, 32, and 71 provide service along Kaonohi Street. The nearest existing bus stops are located on Kamehameha Highway, with a stop on both sides of the highway to the east of Kanuku Street, another stop in the eastbound direction just west of Kaonohi Street, and a stop in the westbound direction just east of Kaonohi Street. All stops are provided with shelters and benches, and all stops, with the exception of the one for the eastbound direction just east of Kanuku Street, are provided with trash bins.

The study area has a moderate amount of existing pedestrian activity, with counts between 70 and 205 pedestrians passing through each intersection during the peak periods. The highest pedestrian volumes occur at the Kamehameha Highway/Kaonohi Street intersection. Anecdotal evidence indicates that the existing raised pedestrian median or island on the north side of the highway and west side of Kaonohi Street is too small to accommodate the pedestrian volume after transit patrons alight a bus(es) on the north side of the highway and cross the street. This is caused in part by the fact that the signal phasing for the northbound and then eastbound pedestrian movements is not directly sequential. As such, pedestrian volumes build and exceed the physical capacity of the island, which includes multiple utility cabinets.

The roadways in the study area do not provide separate bicycle facilities and have a minimal amount of bicycle activity. In the vicinity of the Project, the *2019 O'ahu Bike Plan Update* proposes bike lanes on Kamehameha Highway (Project 1-113) and Kanuku Street (Project 1-114) and a protected bike lane on Kaonohi Street from Kamehameha Highway to Moanalua Road (Project 1-115).

In addition to the roadways, a separate bike facility is provided by the Pearl Harbor Bike Path, which extends from Waipahu to Pearl Harbor. This two-way bike path provides a low-stress alternative to east-west bicycle travel along Kamehameha Highway. Near the project, the Pearl Harbor Bike Path can be accessed via either of the two driveways serving the Best Buy parking lots. Trip generation for the facility was determined based on planned bus service detailed in the Bus/Rail Integration Plan of the Kamehameha Highway Station Group (April 2014, HART)

Existing Intersection Operations

The analysis in the MAR is based on procedures published in the Highway Capacity Manual (HCM), published by the Transportation Research Board. The operations of roadway facilities are described with the term Level of Service (LOS). The HCM defines LOS as “a quantitative stratification of a performance measure or measures representing quality of service”. HCM defines the six levels of service from the traveler’s perspective, ranging from the best – LOS “A” – to the worst – LOS “F”. LOS’s “A”, “B”, and “C” are considered satisfactory levels of service. LOS “D” is generally considered a “desirable minimum” operating LOS. LOS’s “E” and “F” are undesirable conditions. Intersection LOS is primarily based upon average delay in seconds per vehicle (sc/veh).

LOS	Control Delay (sec/veh)	Description
A	< 10	Control delay is minimal.
B	> 10 - 15	Control delay is not significant.
C	> 15 - 25	Stable operation. Queuing begins to occur.
D	> 25 - 35	Less stable condition. Increase in delays, decrease in travel speeds.
E	> 35 - 50	Unstable operation, significant delays.
F	> 50	High delays, extensive queuing.

Peak hour intersection capacity analysis was performed for the study intersections (Kamehameha Highway/Kanuku Street and Kamehameha Highway/Kaonohi Street) and is summarized in *Table 3.4* below. Detailed LOS worksheets are provided in Appendix D of the MAR (*Appendix D*). As shown in *Table 3.4* overall intersection conditions are LOS C or better at both locations and in both peak hours.

Intersection	Traffic Control	Peak Hour	Intersection Delay (sec/veh)¹	Intersection LOS	Worst Movement	Worst Movement LOS
1. Kamehameha Hwy/Kanuku St.	Signalized	AM	11.4	B	EBL*	F
		PM	9.5	A	EBL	F
2. Kamehameha Hwy/Kaonohi St.	Signalized	AM	17.6	B	EBL	F
		PM	27.0	C	EBL	F

* EBL = Eastbound Left-turn

Anticipated Impacts and Proposed Mitigation

The MAR assesses traffic volumes in the Project area both with and without the Project in Year 2025. The following excerpted sections provides the analysis of potential impacts on the transportation system with the Project only, including traffic generated by the Project.

Transportation Facilities

As described in *Chapter 2.0*, bus access and egress to/from the site will be provided via two driveways on Kamehameha Highway. Additionally, DTS is seeking an easement through the Best Buy parking lot for a third full-access driveway. Design of this driveway will minimize conflicts between buses and vehicles circulating within the Best Buy parking lot.

In addition to buses, access is also provided for TheHandi-Vans via a separate right-turn in/right-turn out driveway located immediately east of the Kalauao Pearlridge Station, which will terminate in a cul-de-sac with no vehicular connection to the bus circulation area. This driveway will also serve a Kiss & Ride. Signing and curb markings will indicate appropriate locations for drivers of each of these vehicle types to stop and load/unload passengers. Emergency access will be provided via Kanuku Street and the project driveways along Kamehameha Highway.

The site plan includes bus bays, bus charging spots, and two-way circulation throughout the transit center. Private vehicles will be prohibited from accessing these areas of the site via “Bus Only” or similar signage located at each relevant driveway. The proposed Project is a bus transit center, and accordingly the provided service and amenities are deemed sufficient to serve the forecasted transit patron demand by design.

While it is anticipated that some number of transit center users will use the adjacent commercial lots or residential on-street parking for Park & Ride service, it is expected that the number of users doing this will be low, approximately nine people in an hour. In consultation with the affected property owners, signage and enforcement should be used to discourage this activity if appropriate.

Within the Project study area, implementation of the Project is not expected to conflict with any existing bikeways or planned bicycle facilities included in the *2019 O’ahu Bike Plan Update*. Bicyclists will access the site via the roadway network or the Pearl Harbor Bike Path. A shared-use connection for bicyclists and pedestrians linking the Pearl Harbor Bike Path to the site will be provided in the southeast corner of the site. The shared-use path will provide on-site bicycle access to both the bus center and Rail station. Bike racks will be provided at the southeast corner of the Rail station.

Within the Project study area, implementation of the Project is anticipated to enhance pedestrian access and connectivity. It is not expected to conflict with any existing or planned pedestrian facilities. Pedestrians will access the site via existing sidewalks along Kamehameha Highway and new proposed sidewalk sections where the project fronts the highway, including between the existing Best Buy right-turn only driveway and new in-bound driveway serving the transit center. The one-way project driveways will be made as narrow as possible while providing appropriate bus turning radii, and high-visibility crosswalks will be installed to make these crossings comfortable for pedestrians.

Sidewalks and crosswalks are provided on site to connect pedestrians between bus stops and between the bus center and Rail access. Sidewalks throughout the site, including the one along the highway frontage of the transit center, will be designed to be 10 feet-wide to provide sufficient space for pedestrians. Curb ramps and sidewalks along the project frontage with Kamehameha Highway will be upgraded to comply with ADA standards. It is important to note that the majority of the increased pedestrian demand analyzed in the MAR will be associated with the Rail station and not the Pearlridge Bus Transit Center. The Project is expected to add fewer than 10 pedestrians to any individual facility beyond the sidewalk fronting the Project site and connecting to adjacent traffic signals. Furthermore, because the majority of the bus routes serving the Project also serve the Pearlridge Shopping Center, it is much less likely that pedestrians will walk from the project site to the shopping center.

Signal timing modification at the Kamehameha Highway and Kaonohi Street intersection is recommended to provide a leading pedestrian interval or a pedestrian-only phase to better facilitate pedestrian movement across the highway and at the intersection. Similarly, modification of signal timings at this intersection could be made to provide more continuous pedestrian flow from the transit center side of Kamehameha Highway to both sides of Kaonohi Street. These improvements may be provided without substantially affecting overall intersection operations.

The shared-use path located to the south of the Rail station provides a connection between Kiss & Ride or TheHandi-Van and the bus center, and also provides a lower-stress connection from the Kamehameha Highway/Kaonohi Street intersection or the Rail station and the bus center. Wayfinding signage may be provided on site to guide bicyclists from the Pearl Harbor Bike Path to the site.

Pedestrian demand is expected to increase at the Kanuku Street intersection as transit patron access both transit facilities. To enhance safety for people traversing these intersections, various pedestrian improvements were analyzed at these locations, including modifying the signal timing at the Kaonohi Street intersection to allow consecutive pedestrian phases for pedestrians departing the transit center via a pedestrian-only phase.

These improvements may be provided without substantially affecting overall intersection operations. However, the eastbound left turn at Kamehameha Highway/Kaonohi Street, which is the movement with the highest delay at this intersection, will experience an increase in delay of 30 seconds. Despite this additional delay, the projected 95th percentile queue for this movement can be accommodated by the planned storage capacity. Final mitigation measures will be determined as the project progresses.

Intersection Operations

The proposed project is estimated to generate 160 new peak hour vehicle trips in each of the AM and PM peak hours. The comparative LOS analysis results for the study intersections under Future (2025) Without and With Project conditions are presented in *Table 3.5* below. Results indicate that under Future (2025) Plus Project conditions, operations are largely unchanged with the addition of project-generated traffic. The largest effect is seen at Kamehameha Highway/Kaonohi Street, where Project traffic increases the average delay by 11.6 seconds, degrading LOS C operations to LOS D. Therefore, the Project is not forecasted to cause a significant impact at the intersection level at the study locations.

Table 3.5: Future (2025) Without and With Project Intersection Levels of Service (Fehr & Peers)												
Intersection	Traffic Control	Peak Hour	Future No Project Conditions				Future Plus Project Conditions				Change in Delay	
			Inter-section Delay (sec/veh)	Inter-section LOS	Worst Movement	Worst Movement LOS	Inter-section Delay (sec/veh)	Inter-section LOS	Worst Movement	Worst Movement LOS	Inter-section	Worst Movement
1. Kamehameha Hwy/Kanuku St.	Signalized	AM	6.4	A	EBL	F	8.2	A	EBL	F	+1.8	-3.5
		PM	6.8	A	EBL	F	9.0	A	EBL	F	+2.2	-1.0
2. Kamehameha Hwy/Kaonohi St.	Signalized	AM	16.3	B	EBL	F	16.5	B	EBL	F	+0.2	-2.2
		PM	30.5	C	WBT/R	F*	42.1	D	WBT/R	F*	+11.6	+18.1

Notes:

1 Whole intersection weighted average stopped delay expressed in seconds per vehicle for signalized intersections.

* LOS F is due to the vehicle-to-capacity ratio exceeding 1.00.

The addition of project traffic to the southbound right-turn movement at Kamehameha Highway/Pali Momi Street may cause the queue to extend beyond available capacity during the PM peak hour. However, the queue will occur very rarely and is expected to exceed capacity by at most one vehicle. Therefore, no mitigation is recommended at this location.

Per DPP's comment, qualitative discussion of impacts to the following intersections were included in the MAR (*Appendix D*): Kamehameha Highway and Hekaha Street; Kaonohi Street and Moanalua Loop; and Moanalua Road and Kaonohi Street. The Kamehameha Highway and Hekaha Street intersection LOS was analyzed and findings are provided in Appendix D of the MAR (*Appendix D*). At this intersection, the Project will not change the LOS from the Future (2025) No Project Conditions.

An existing queueing issue at the southbound queue at Kamehameha Highway/Kaonohi Street, which currently blocks the Kaonohi Street/Moanalua Loop intersection, is expected to be exacerbated under Future (2025) No Project Conditions. The Project is not projected to substantially increase queue lengths since the issue is still expected to occur. A potential future improvement would be to install "Keep Clear" signage and striping to maintain access for Moanalua Loop both to and from Kaonohi Street regardless of the Project. Mitigation measures will also be implemented to mitigate potential traffic-related impacts and safety measures will be maintained during the construction phase.

There is congestion at Kaonohi Street/Moanalua Road in the northbound left-turn pocket in the PM peak hour. This congestion is also expected to be exacerbated under Future (2025) No Project Conditions. There is only one bus route that would add traffic to the northbound left-turn movement at this intersection, route 548, which will only have two (2) buses per hour traveling in this direction. Therefore, the project is not expected to substantially exacerbate this existing issue.

Driveway Operations

Discussion of impacts to nearby driveways were included per HDOT's comments. The in-bound driveways on Kamehameha Highway are being designed to allow vehicles to turn into the site with limited effect to traffic in the curbside travel lane.

Operations at the Best Buy driveway are not expected to result in any substantial issues because the Project driveway is in-bound only, and the Project driveway will only serve buses such that the number of vehicles turning into the site will be limited. In the case of the HomeWorld Furniture store driveway, the number of instances where vehicles will be exiting the adjacent driveways will be limited given the size of the furniture store lot, and the limited turnover that typically occurs at the store.

There are no queueing issues anticipated for the driveway connecting to Kanuku Street because no substantial traffic volume will conflict with buses turning into the Project site. Buses will be able to bypass any vehicles entering the main Best Buy parking lot (located immediately east of the store) by using the median lane of the driveway.

Finally, the Kiss & Ride driveway will serve private vehicles and TheHandi-Van vehicles. The first 100 feet of this driveway are for TheHandi-Van parking only, and private vehicles are provided with a lane to bypass these parking stalls to access the pick-up/drop-off turnaround area well within the project site. This driveway is expected to only serve 35 in-bound vehicles in each of the peak hours.

3.14 Air Quality

Existing Conditions

Ambient air quality can be characterized in terms of compliance with National Ambient Air Quality Standards (NAAQS) and State Ambient Air Quality Standards (SAAQS). The U.S. Environmental Protection Agency (EPA) established the NAAQS per the requirements of the Clean Air Act (last amended in 1990) to protect public health and welfare and prevent the significant deterioration of air quality. These standards account for seven major air pollutants: carbon monoxide (CO), nitrogen oxides (NO₂), ozone (O₃), particulate matter smaller than 10 microns (PM₁₀), particulate matter smaller than 2.5 microns (PM_{2.5}), sulfur oxides (SO₂), and lead.

The State DOH, Clean Air Branch (DOH-CAB) has established SAAQS for six (6) of these air pollutants to regulate air quality statewide. According to the *Annual Summary 2018 Hawai'i Air Quality Data*, air quality monitoring data compiled by the DOH indicates that the established air quality standards for all monitored parameters are consistently met throughout the State and on the island of O'ahu. O'ahu has relatively clean air, low in pollution, due in part to prevailing northeasterly trade winds. On O'ahu, DOH operates four air quality monitoring stations. According to the DOH-CAB Hawai'i Air Quality Data map, readings at the Pearl City monitoring station located approximately 1.6 miles west of the Project site at 860 4th Street, a commercial and highly populated residential area, indicate that air quality is considered "good" and confirm that criteria pollutants were below state and federal ambient air quality standards. In general, air quality in the State of Hawai'i continues to be one of the best in the nation, and criteria pollutant levels remain well below SAAQS.

An Air Quality Technical Report was prepared by Arcadis U.S., Inc. (June 2020) to study the potential air quality impacts from the construction and operation of the Pearlridge Bus Transit Center (*Appendix E*). Presently, air quality in the Project area is primarily affected by non-stationary pollutant sources such as vehicular traffic related to construction of the Kalauao Pearlridge Station and vehicular traffic on Kamehameha Highway. Depending upon the prevailing wind direction, emissions from motor vehicles traveling on Kamehameha Highway or Interstate H-1 may be dispersed in the Project area. Natural sources of air pollution that may affect the air quality of the study area include ocean sea spray, aeroallergens from plants, and wind-blown dust from bare soil areas.

Anticipated Impacts and Proposed Mitigation

Construction

Short-term impacts to air quality in the surrounding area are related to construction activities, including demolition, site preparation, grading, construction, and paving. Construction would generate emissions including fugitive dust from vehicle and earth movement, construction equipment exhaust, and off-gassing of pollutants from applying asphalt paving and architectural coatings. Arcadis estimates that the maximum annual emissions of criteria pollutants from construction activities will be less than three tons per year. Impacts are expected to be intermittent and will last the estimated 13-month construction period.

A dust control management plan will be developed which identifies and addresses activities that have a potential to generate fugitive dust. The short-term effects on air quality during construction will be mitigated by compliance with provisions of HAR §11-60.1-33 on Fugitive Dust. Potential control measures to reduce fugitive dust include:

- Using water to control fugitive dust in construction operations, the grading of roads, or the clearing of land;
- Applying asphalt, water, or suitable chemicals on roads, material stockpiles, and other surfaces which may result in fugitive dust;
- Installing and using hoods, fans, and fabric filters to enclose and vent the handling of dusty materials. Reasonable containment methods shall be employed during sandblasting or other similar operations;
- Covering all moving, open-bodied trucks transporting materials which may result in fugitive dust;
- Maintaining roadways in a clean manner;
- Promptly removing earth or other materials from paved streets which have been transported there by trucking, earth-moving equipment, erosion, or other means.

Additional BMPs proposed by DOH-CAB during the EA consultation process may also be incorporated during construction of the Project, and includes 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.

Operations

Long-term impacts to air quality are primarily associated with urban bus traffic movement at the site once the transit center is in operation. Results of the air quality study performed for the Project indicates that criteria pollutants and GHG emissions will increase with operational activities.

However, emissions are likely to decrease over time with the bus fleet turnover to newer conventional buses and alternative fuel buses, such as electric buses to be charged at the proposed electric charging bays on site. Overall, the Project supports the City's transportation and climate change goals to reduce GHG emissions and decrease single occupant vehicle travel. Notably, calculations derived in the Arcadis study did not include these factors.

3.15 Noise

An Acoustic Study was prepared by Y. Ebisu & Associates (August 2020) to evaluate potential traffic and bus noise impacts associated with the construction and operation of the Pearlridge Bus Transit Center. The report is included as *Appendix F*. Traffic noise calculations for the Base Year Conditions in 2019 as well as noise predictions for Construction Year 2025 were performed. Traffic noise levels were also calculated for future Construction Year 2025 conditions with and without the proposed Project. Sound level measurements used in the study were derived from "pre-COVID 19" ground-level noise measurements obtained in the Project environs in 2011 and measurements obtained at the Alapa'i Transit Center in 2020 since the Project involves expanded operations of TheBus.

Federal agencies, such as the Federal Housing Administration and U.S. Office of Housing and Urban Development, utilize the Day-Night Sound Level (DNL) metric. However, HDOT, Highways Division and Federal Highway Administration utilize a noise metric which describes the average hourly traffic noise level (or Leq(h)) rather than the DNL metric. Therefore, both metrics were used throughout the study. For noise sensitive residential land uses, a DNL of 65 DNL and a Leq(h) of 66 Leq(h) correspond to the threshold between “Acceptable” and “Normally Unacceptable” levels of outdoor noise exposure. For commercial, industrial, and other non-noise sensitive land uses, exterior noise levels as high as 75 DNL or 71 Leq(h) are generally considered acceptable. HDOT and FHWA also utilize Leq(h) values as thresholds for consideration of noise mitigation measures.

If at least a 15 Leq(h) increase in Base Year noise levels is predicted to occur in the future study year of a project, consideration of noise mitigation measures is required. Key findings of the study are summarized below.

Existing Conditions

In urbanized areas which are shielded from high volume streets, DNL levels generally range from 55 to 65 DNL and are usually controlled by motor vehicle traffic noise. Residences which front major roadways are generally exposed to levels of 65 DNL and as high as 75 DNL when the roadway is a high-speed freeway. The major contributor to background noise levels within the Project area is traffic along Kamehameha Highway, a major east-west thoroughfare. Moderately lower traffic noise levels currently exist along Kaonohi Street, and much lower traffic noise levels currently exist along Kanuku Street. In the Project area, traffic noise levels associated with Kaonohi Street and Kamehameha Highway are typically greater than 65 DNL along the ROW due to the large volumes of traffic on those major thoroughfares. At receptor locations, or nearby residential communities, which are shielded from roadway noises, background ambient noise levels are controlled by nearby mechanical equipment or human activities rather than traffic noise and can range from 55 to 65 DNL.

Anticipated Impacts and Proposed Mitigation

Construction

Unavoidable, but temporary, noise impacts may occur during construction of the Project, particularly during earthwork and driveway construction activities. Because construction activities are predicted to be audible within the Project site and at adjoining properties, the quality of the acoustic environment may be degraded to unacceptable levels during periods of construction. Mitigation measures to reduce construction noise to inaudible levels will not be practical in all cases, but the use of properly muffled construction equipment is recommended as a standard mitigation measure and may be implemented during construction. Construction will follow State and County protocol to limit construction noise to allowable levels, including HAR, Chapter 11-46, which defines maximum permissible sound levels which are intended to protect, control, and abate noise pollution from stationary sources and construction equipment. Under current permit procedures, noisy construction activities are restricted to hours between 7:00 AM and 6:00 PM, from Monday through Friday, and exclude certain holidays. Noisy construction activities are normally restricted to the hours of 9:00 AM to 6:00 PM on Saturdays, with construction not permitted on Sundays.

Operations

No significant increase in traffic noise at noise sensitive receptors are predicted to occur along streets servicing the Project site as a result of Project traffic following Project build-out by 2025. Traffic noise from Kamehameha Highway is expected to continue to control background ambient noise levels in the Project environs, with traffic noise levels exceeding the 66 Leq(h) HDOT criteria for residence along the ROW and for those more distant residences whose lines-of-sight are not blocked from the highway by intervening buildings. Future traffic noise levels will also exceed the 71 Leq(h) HDOT criteria for restaurants and commercial establishments fronting the highway. These conditions are expected to remain with or without the Project by 2025.

Project traffic is anticipated to add 0.1 to 0.6 Leq(h) (Equivalent or Average Hourly Noise Level) of noise along the roadways such as Kamehameha Highway, Kaonohi Street, and Kanuku Street north of Kamehameha Highway.

Increases in future traffic noise levels along Kanuku Street south of Kamehameha Highway are predicted to range from 0.5 Leq(h) without the project to 4.5 Leq(h) with the Project. Kanuku Street south of Kamehameha Highway is located in a commercial / light industrial area and will service the west driveway of the Pearlridge Bus Transit Center. While increases in future traffic noise with the Project are relatively high along Kanuku Street south of Kamehameha Highway, baseline noise levels without the Project along that roadway will continue to be relatively low, so final traffic noise levels are expected to remain below HDOT noise thresholds. The increases in future traffic noise levels resulting from Project-generated traffic along the other roadways are considered to be low at noise sensitive receptors, and risks of adverse noise impacts from Project traffic are considered to be low.

Bus movement noise associated with 72 total bus trips during the peak hour at the Pearlridge Bus Transit Center should not exceed background noise levels from baseline traffic at existing residences closest to the transit center. There are sufficient buffer distances between the transit center bus driveways and the closest noise sensitive residences such that adverse noise impacts from bus movement noise within the transit center are not anticipated to occur.

3.16 Hazardous Wastes and Materials

Existing Conditions

ENPRO performed a Phase 1 Environmental Site Assessment (ESA) to identify recognized environmental conditions (RECs), defined by the American Society for Testing and Materials as the presence or likely presence of any hazardous substance or petroleum product in, on, or at a Project site (*Appendix G*). The Project site has a history of industrial use including automobile services; the storage of vehicles, heavy equipment, construction supplies, and stockpiled soils from quarries; and the installation and removal of underground storage tanks. These historical uses have the potential for environmental impacts to the subject property through the release of hazardous materials or petroleum products. As such, an on-site investigation was performed on August 22, 2019, and identified the following RECs: stockpiled soil, historical releases, hydraulic fluid in the on-site freight elevator on TMK (1) 9-8-009: 011, and the presence of four former underground storage tanks (UST), all of which have been removed from the site. Possible petroleum release on the site was also identified as a *de minimis* condition.

Anticipated Impacts and Proposed Mitigation

The Project includes the demolition of existing structures. Because confirmed and assumed hazardous materials will be disturbed during construction, these materials will be properly removed and disposed of prior to general demolition/construction activities. The ESA recommends the following construction mitigation measures:

- Preparation of an Environmental Hazard Evaluation and Construction Environmental Hazard Management Plan (EHE/CEHMP) in compliance with the HART Programmatic Environmental Hazard Evaluation and Environmental Hazard Management Plan prior to initiating construction activities.
- Multi-increment soil sampling of stockpiled material to evaluate re-use and/or disposal options.
- Secondary containment for all hazardous materials stored on site.

With the implementation of proposed mitigation measures, no adverse impacts due to hazardous materials is anticipated.

3.17 Public Services and Facilities

Existing Conditions

Police and Fire Services

Police protection services for the Project site are provided by Honolulu Police Department (HPD) District 3, Pearl City, Sector 2 – Pearl City-Pacific Palisades. HPD District 3 covers the area from Red Hill to Village Park and Waipahu. The nearest police department to the Project site is the Pearl City Police Station, located at 1100 Waimano Home Road, approximately 1.68 miles north west of the project site. The station also serves as the HPD District 3 headquarters.

Fire protection services are provided by the Honolulu Fire Department (HFD) 'Aiea Fire Station, which is located at 98-1225 Ulune Street, approximately one mile north east of the Project site.

Emergency Medical Services and Facilities

Emergency medical service is provided by the City and County of Honolulu's Emergency Services Department, Emergency Medical Services Division (EMS). EMS operates 21 ambulance units under three districts. The Project area is served by District 1. All ambulance units are designated as advanced life support units, meaning they are staffed by at least two people. HFD also responds to medical emergencies, providing first aid in coordination with EMS.

The nearest medical center to the Project site that provides emergency medical services is the Hawai'i Pacific Health-affiliated Pali Momi Medical Center, located approximately 0.59-mile from the Project site and directly north of the Pearlridge Shopping Center. The center primarily serves the Central and West O'ahu regions.

Educational Facilities

The Project site is located within the State Department of Education's (DOE) Central District 'Aiea-Moanalua-Radford Complex Area. This Complex Area serves approximately 6,800 students across 23 elementary, middle, and high schools (DOE, 2017). The Complex Area also includes the Moanalua Community School. The 'Aiea Complex alone includes the following schools (including distance from the Project site):

- 'Aiea Elementary – 1.37 miles southeast
- Alvah A. Scott Elementary – 0.90-mile northeast
- Pearlridge Elementary – 0.38- mile north
- Waimalu Elementary – 0.48-mile northwest
- Webling Elementary – 1.77 miles northeast
- 'Aiea Intermediate – 1.55 miles northeast
- 'Aiea High – 1.13 miles northeast

The public library in closest proximity to the Project site is the 'Aiea Public Library, located 1.31 miles northeast. The Pearl City Public Library is located 1.67 miles northwest of the Project site.

Recreational Facilities

The Pearl Harbor Bike Path traverses along the southern end of the Project site. The 2011 City and County of Honolulu *Pearl Harbor Historic Trail Master Plan* originally envisioned an 18.6-mile long shoreline path running from Hālawa Landing to Nanakuli; at this time, the entire plan has not yet been completed. The path offers shoreline access at certain points and intermittent shoreline views. The bike path is owned by Navy, which conveyed a grant of easement to the City to manage it. It is considered one of the key low-stress bikeways on the island, allowing riders to safely and leisurely ride on an off-street shared use path. The path is also used for leisurely walking and jogging.

City parks managed by the Department of Parks and Recreation (DPR) in close proximity to the Project site include the Neal S. Blaisdell Park, located approximately 0.41-mile west, and the 'Aiea Bay State Recreation Area, located approximately 0.85-mile southeast.

The Pearlridge Shopping Center is the largest enclosed shopping center in the state. In addition to retail services, the center serves as a recreational hub of services and events for the region. Additional activities include weekly farmers' markets, wellness walking programs, and more.

Refuse

Solid waste collected in the Honolulu area is hauled to the Campbell Industrial Park H-POWER Plant for incineration that generates electricity, followed by disposal of ash and non-combustibles at the Waimānalo Gulch Sanitary Landfill (WGSL) in Kapolei. The WGSL is the sole municipal solid waste landfill on O'ahu. Construction debris is handled by the privately-owned PVT landfill, the only landfill on the island that accepts such waste. The PVT Landfill accepts approved contaminated soil for disposal or use in solidification of liquid wastes and sludge material for processing or disposal, which is regulated under their existing Solid Waste Management Plan.

Refuse collection at the Project site is provided by Honolulu Disposal Service Inc.

Anticipated Impacts and Proposed Mitigation

Police and Fire Services

The Project will increase the on-site population of transit users and employees. This increase in population may require additional security and police protection services. HPD responded to early consultation efforts for the Project (see *Chapter 7.0*). Per HPD's recommendation all necessary signs, lights, barricades, and other safety equipment will be installed and maintained by the contractor during construction. Temporary loading and unloading zones will be determined by the contractor to minimize disruption to existing traffic patterns. Designated parking areas for contractors and construction personnel will also be established.

In the long-term, issues related to public safety due to the increase in pedestrian and vehicular traffic may affect police services. To reinforce public safety, the planned design of the Pearlridge Bus Transit Center may include open sight lines and a high degree of visibility; adequate lighting for nighttime users; informational signs to direct traffic and pedestrian flows; and traffic calming measures. Additionally, security will be considered, particularly due to the facility's central location. HPD has been kept apprised of the Project throughout the EA process (*Chapter 7.0*). DTS will continue to consult with HPD regarding long-term security on the Project site.

Similarly, the Project will impact fire protection services with an increase in pedestrian and vehicular traffic at the site. Fire protection access and firefighting support requirements for the bus transit center will meet HFD requirements as outlined in the early consultation letter provided (see *Chapter 7.0*). Design measures for the facility will meet the Uniform Fire Code and fire flow requirements. There are two existing offsite fire hydrants located in the Kamehameha Highway ROW that provide fire protection to the Project site. The Project is not expected to significantly affect fire protection services or substantially increase fire hazards.

Emergency Medical Services and Facilities

The Project is not anticipated to significantly affect medical facilities in the area or significantly increase the demand for emergency medical services. As previously stated, to reinforce public safety, the planned design of the Pearlridge Bus Transit Center may include open sight lines and a high degree of visibility; adequate lighting for nighttime users; informational signs to direct traffic and pedestrian flows; and traffic calming measures.

Educational Facilities

The Project is not expected to significantly affect regional educational facilities. No mitigation is planned.

Recreational Facilities

The Project is not anticipated to adversely affect nearby recreational facilities. The Project is anticipated to increase safety and access to regional recreational facilities, resulting in an overall positive impact to the community. Planned landscaping and architectural design is intended to improve the aesthetic character of the Project site and enhance the surrounding environment.

Refuse

Short-term impacts to solid waste are related to construction activities, resulting in a temporary increase over current conditions. All construction debris will be handled and disposed of in accordance with applicable federal, state, and City rules and regulations. Efforts will be made to reduce the waste generated during the construction phase and when possible materials/structures will be re-used and/or recycled, to minimize disposal of material into landfills. All waste-related materials hauled off-site will be handled by the general contractor who will be responsible for ensuring that the loads are properly secured and covered to prevent the inadvertent loss of waste along the roadway and to prevent the commingling of rainfall with waste materials while it is in transit. Construction activity is not expected to generate any hazardous materials.

No long-term impacts to solid waste collection and disposal facilities related to operation of the facility are anticipated. Refuse collection at the Project site will continue to be provided by a private entity.

3.18 Potential Cumulative and Secondary Impacts

Cumulative impacts are the result of incremental effects of an activity when combined with other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Minor but collectively significant actions over time can result in cumulative impacts to a place. The Project site has been previously disturbed for industrial uses.

The Pearlridge Bus Transit Center will be constructed in an existing development footprint that is currently zoned for industrial use and business mixed uses under the City's proposed TOD zoning. As a result, it is not anticipated to generate significant cumulative impacts. The Pearlridge Bus Transit Center is appropriately scaled for the surrounding area and design elements will be reflective of the community character. Construction and design will follow applicable City and State regulations and employ construction BMPs and LID strategies to mitigate adverse environmental impacts

The Project will generate few vehicular trips and is expected to have a negligible impact on traffic operations. There are several major projects or long-range development projects within the vicinity of the Project. The Project is an interim use of the site. In the long-term, the City may redevelop the site to include a mixed-use development and permanent transit facilities in consistence with the TOD Neighborhood Plan. A Rail station is also planned at the Pearl Harbor Naval Base Station (Station No. 10), which will be an estimated five-minute ride from the Kalauao Pearlridge Station. The State also has plans to redevelop Aloha Stadium, where a Rail station is also planned (Hālawa Station No. 9). Surrounding landowners, including Kamehameha Schools, have indicated future redevelopment of their properties. DTS is currently working with Kamehameha Schools to coordinate future development plans at the adjacent HomeWorld Furniture property (identified by TMK (1) 9-8-014: 005). Stanford Carr Development has also presented plans to redevelop the Live, Work, Play 'Aiea property located on Kaonohi Street approximately 800 feet north of the Project site (identified by TMK (1) 9-8-013: 013 and 015 owned by CP Kam Properties, LLC). Due to construction of the Rail transit system, surrounding development trends in the region point towards TOD, which is consistent with the City's long-range land use plans for neighborhoods surrounding future Rail transit stations.

Secondary effects are impacts that are associated with an activity but do not result directly from the activity. The Project is intended to serve existing residents in the PUC, where employment will continue to be directed. The increase of users on site is not expected to exceed the TheBus' current capacity. The site may contribute to an increase in the use of pedestrian and bikeway corridors in the vicinity of the site, which would have the secondary impact of activating the streets in the Project area.

Construction of the planned bus transit facility may result in positive secondary impacts including increased bus transit ridership and Rail ridership, increased multimodal connectivity, increased employment access and transportation equity, reduction of single-occupancy vehicles on the road, reduction in GHG emissions, and other qualitative public benefits. The increase in clean public transportation and reduction in GHG emissions will help the State meet its climate change goals overall.

Chapter 4

Alternatives

Chapter 4

Alternatives

Three alternatives were considered to address the purpose and need for the Project: (A) No Action Alternative; (B) Delayed Action; (C) Alternative Configurations; (D) Alternative Locations; and, (E) the Preferred Alternative/Proposed Action. The following presents an analysis of the alternatives to the proposed Project.

4.1 Alternative A – No-Action Alternative

The No-Action Alternative is the baseline against which all other alternatives are measured. “No-Action” refers to the future site and program conditions that will result should the proposed action not proceed. This alternative would not advance the Pearlridge Bus Transit Center.

Environmental impact considerations of the No-Action Alternative would be minimal, as there would be no anticipated impacts to environmental resources. This alternative would result in negative impacts to transportation conditions and socioeconomic conditions.

In the case of the No-Action Alternative, the Project site would be unused after the construction of the Kalauao Pearlridge Station is complete. The purpose of the Project is to facilitate multimodal connection between the Rail and TheBus and to promote an integrated public transit system. If the Project is not constructed, the Rail station would have limited bus connection services. This may discourage Rail usage and would not help increase alternative transportation users. This option would not address the State’s or the City’s transportation objectives to promote public transportation modes and to maintain an integrated multi-modal transportation system. It also would not satisfy the goal outlined in the community-driven *‘Aiea-Pearl City Neighborhood TOD Plan* to provide equitable multimodal access to and from the stations. For these reasons, the No-Action Alternative was not considered a viable alternative.

4.2 Alternative B – Delayed Action

The Delayed Action Alternative would involve postponing construction and operation of the Pearlridge Bus Transit Center. This would result in the Kalauao Pearlridge Station having limited bus connection services for a period of time. It is critical that timely construction of the Project coincide with the Rail opening schedule. Delaying construction to a future date may also result in higher construction costs due to inflation.

Environmental impact considerations of the Delayed Alternative would be minimal, as there would be no anticipated impacts to environmental resources. This alternative would result in negative impacts to transportation conditions and socioeconomic conditions.

There is no compelling reason to delay the proposed action. This alternative was eliminated from further consideration due to the same concerns as those stated in the No-Action Alternative.

4.3 Alternative C – Alternative Configurations

Alternative C would include construction of the Pearlridge Bus Transit Center with alternative configuration. Various site configurations have been explored to ensure functional bus operations, as well as safe and efficient pedestrian flow. A smaller footprint for the bus transit center was considered to allow for future long-term use. However, the smaller footprint cannot sufficiently accommodate all the needs of the transit center, including the required bus bays, TheHandi-Van pick-up/drop-off area, and the electric bus charging stalls.

Environmental impact considerations of the Alternative Configuration Alternative would be comparable to the Proposed Action. A reduced scope transit center would result in negative impacts to transportation conditions and socioeconomic conditions.

4.4 Alternative D - Alternative Location

As discussed previously, locating the Pearlridge Bus Transit Center must be based on various factors, including operational and circulation requirements. To meet the purpose of the Project, the Pearlridge Bus Transit Center should be sited within short walking distance from the Rail station to facilitate convenient and accessible multimodal public transit connection. The site should also be located in a central location and on a major highway to serve as a bus hub for the 'Aiea-Pearl City region. Location of a new bus transit center should also be consistent with land use designations outlined in the PUC DP, as well as the 'Aiea-Pearl City TOD Neighborhood Plan. Available City-owned lands along the Rail corridor that could meet these requirements are limited. Due to these factors alternative locations were not considered.

Environmental impact considerations of the Alternative Location would be specific to the selected alternative location. Assuming the alternative site would support a comparable development footprint, there will be similar anticipated impacts to environmental resources. This alternative would result in positive impacts to transportation conditions and socioeconomic conditions.

4.5 Preferred Alternative/Proposed Action

The proposed action to construct and operate an interim bus transit center at the Project site fulfills the Project purpose. The Project will serve as a major hub for buses in the region, as well as facilitate multimodal transportation at the Kalauao Pearlridge Station. The Project will provide essential public facilities for the City to deliver needed public transportation services for current and future residents. The Project will be an interim use of the site as the City prepares for the future TOD project at the site in consistent with the TOD Plan.

The action to undertake the planned improvements was determined to be the preferred alternative. The Project will provide essential public facilities for the City to deliver needed public transportation services for current and future residents and supports City and State goals related to GHG reduction and climate change.

The Project is not anticipated to result in significant adverse environmental, ecological, or socioeconomic impacts, as discussed throughout this EA.

Plans and Policies

Chapter 5

Plans and Policies

In this chapter, the consistency of the Pearlridge Bus Transit Center with applicable State of Hawai'i and City & County of Honolulu planning and land use objectives, policies, principles, and guidelines are discussed.

5.1 Americans with Disabilities Act of 1991

In 1991, the Federal government enacted the Americans with Disabilities Act (ADA) to provide equal accessibility for persons with disabilities. Part of this statute requires building designs to consider and incorporate the needs of persons with disabilities. Chapter 103-50, HRS states, "...all plans and specifications for the construction of public buildings, facilities, and sites shall be prepared so that the buildings, facilities, and sites are accessible to and usable to persons with disabilities." The Disability and Communication Access Board (DCAB) shall adopt rules for the design of buildings, facilities, and site, by or on behalf of the State and Counties.

Discussion: The Project will comply with ADA and Disability and Communication Access Board (DCAB) accessibility requirements. Concrete walkways between the bus transit center and the Rail station will be ADA-compliant. The comfort station will also be ADA-compliant. The transit center will also accommodate the TheHandi-Van paratransit service, which is often used by the elderly or individuals with disabilities.

5.2 Hawai'i State Plan

The Hawai'i State Plan, adopted in 1978 and revised in 1986, serves as a guide for the future long-range development of the State by identifying goals, objectives, policies, and priorities. It is the goal of the State, under the Hawai'i State Planning Act (Chapter 226, HRS), to achieve the following:

- A strong, viable economy characterized by stability, diversity, and growth, that enables the fulfillment of the needs and expectations of Hawai'i present and future generations.
- A desired physical environment, characterized by beauty, cleanliness, quiet, stable natural systems, and uniqueness, that enhances the mental and physical well-being of the people.
- Physical, social, and economic well-being, for individuals and families in Hawai'i, that nourishes a sense of community responsibility, of caring, and of participation in community life (Chapter 226-4, HRS).

Specific objectives and policies of the State Plan that pertain to the Project are as follows:

Section 226-5 Objectives and Policies for population

- (a) *Planning for the State's population to guide population growth to be consistent with the achievement of physical, economic, and social objectives contained in this chapter.*
- (b) *To achieve the population objective, it shall be the policy of this State to:*

- (1) *Manage population growth statewide in a manner that provides increased opportunities for Hawai'i's people to pursue their physical, social, and economic aspirations while recognizing the unique needs of each county;*
- (3) *Promote increased opportunities for Hawai'i's people to pursue their socio-economic aspirations throughout the islands;*
- (7) *Plan the development and availability of land and water resources in a coordinated manner so as to provide for the desired levels of growth in each geographic area.*

Discussion: The Project is consistent with the State's objectives and policies regarding population. The Pearlridge Bus Transit Center will utilize available and underutilized City urban lands for a multi-modal transportation center, which will support anticipated population growth in the PUC DP area. The PUC DP area has been designated by the City as a key place for future population and job growth on the island of O'ahu. In the short-term, the proposed action will provide an essential multi-modal connection to and from the future Kalauao Pearlridge Station. The Project will allow the City to provide needed public transportation facilities to current and future residents. The increase of transportation choice on the island will relieve users of time spent in traffic, helping residents pursue a better quality of life. Timely upgrading of the City's transit services and facilities are critical in maintaining effective functionality and growth of the City, to promote the public good, and to ensure a high-quality of life for O'ahu's residents.

In the long-term, the City plans to upgrade the site to a permanent transit facility with mixed-use development consistent with long-range TOD plans for the area. Though future development is unknown, mixed-use development may include housing opportunities in the PUC DP, meeting the State's goals articulated in the State Plan.

Section 226-6 Objectives and Policies for the economy—in general

- (a) *Planning for the State's economy in general shall be directed toward achievement of the following objectives:*
 - (1) *Increased and diversified employment opportunities to achieve full employment, increased income and job choice, and improved living standards for Hawai'i's people, while at the same time stimulating the development and expansion of economic activities capitalizing on defense, dual-use, and science and technology assets, particularly on the neighbor islands where employment opportunities may be limited.*
 - (2) *A steadily growing and diversified economic base that is not overly dependent on a few industries and includes the development and expansion of industries on neighbor islands.*
- (b) *To achieve the general economic objectives, it shall be the policy of this State to:*
 - (3) *Promote Hawai'i as an attractive market for environmentally and socially sound investment activities that benefit Hawai'i's people;*
 - (4) *Transform and maintain Hawai'i as a place that welcomes and facilitates innovative activity that may lead to commercial opportunities;*
 - (5) *Promote innovative activity that may pose initial risks, but ultimately contribute to the economy of Hawai'i;*
 - (9) *Strive to achieve a level of construction activity responsive to, and consistent with, state growth objectives;*
 - (12) *Encourage innovative activities that may not be labor-intensive but may otherwise contribute to the economy of Hawai'i;*
 - (13) *Foster greater cooperation and coordination between the government and private sectors in developing Hawai'i's employment and economic growth opportunities;*

- (14) *Stimulate the development and expansion of economic activities which will benefit areas with substantial or expected employment problems;*
- (15) *Maintain acceptable working conditions and standards for Hawai'i's workers;*
- (18) *Encourage businesses that have favorable financial multiplier effects within Hawai'i's economy, particularly with respect to emerging industries in science and technology;*
- (21) *Foster a business climate in Hawai'i – including attitudes, tax and regulatory policies, and financial and technical assistance programs –that is conducive to the expansion of existing enterprises and the creation and attraction of new business and industry.*

Discussion: The Pearlridge Bus Transit Center is in alignment with the State's goals regarding the economy. The Project will create short-term economic benefits as a result of design and construction employment. Total construction cost is estimated at \$9.5 million. Local material suppliers and retail businesses can also expect to benefit through a multiplier effect from the increased construction activities. Long-term jobs will be sustained through ongoing maintenance and operation of bus transit center.

TOD is expected to promote long-term economic development opportunities throughout communities along the Rail alignment. The Pearlridge Bus Transit Center is an early component of the emerging TOD in the 'Aiea-Pearl City neighborhood. In the short-term, the proposed action will provide needed bus and Rail connection services to and from the future Kalauao Pearlridge Station.

As discussed in *Chapter 3.10*, the 'Aiea-Waimalu-Pearl City area currently has a higher rate of residents commuting to work by driving alone and a lower rate commuting to work via transit. The Pearlridge Bus Transit Center, in conjunction with Rail, will provide residents with improved alternative transportation mode choice and opportunities for decreasing overall time spent in traffic and expenditures on private automobile ownership.

Construction BMPs and LID measures as discussed throughout this EA will be used throughout the Project to mitigate adverse environmental impacts and protect Hawai'i's natural resources. The planned design of new structures and landscaping at the Project site are compatible with the surrounding environment and is intended to improve the aesthetic quality of the Project site.

Section 226-11 Objectives and Policies for the physical environment--land-based, shoreline, and marine resources

- (a) *Planning for the State's physical environment with regard to land-based, shoreline, and marine resources shall be directed towards achievement of the following objectives:*
 - (1) *Prudent use of Hawai'i's land-based, shoreline, and marine resources; and*
 - (2) *Effective protection of Hawai'i's unique and fragile environmental resources.*
- (b) *To achieve the land-based, shoreline, and marine resources objectives, it shall be the policy of this State to:*
 - (1) *Exercise an overall conservation ethic in the use of Hawai'i's natural resources;*
 - (2) *Ensure compatibility between land-based and water-based activities and natural resources and ecological systems;*
 - (3) *Take into account the physical attributes of areas when planning and designing activities and facilities;*
 - (4) *Manage natural resources and environs to encourage their beneficial and multiple use without generating costly or irreparable environmental damage;*
 - (5) *Consider multiple uses in watershed areas, provided such uses do not detrimentally affect water quality and recharge functions;*

- (6) *Encourage the protection of rare or endangered plant and animal species and habitats native to Hawai'i;*
- (7) *Provide public incentives that encourage private actions to protect significant natural resources from degradation or unnecessary depletion; and*
- (8) *Pursue compatible relationships among activities, facilities, and natural resources.*
- (9) *Promote increased accessibility and prudent use of inland and shoreline areas for public recreational, educational, and scientific purposes.*

Discussion: The Pearlridge Bus Transit Center is consistent with the State's objectives and policies regarding land-based, shoreline, and marine resources. The Project site is within an area designated by the State and City for urban development and the characteristics of the property and surrounding area are suitable for the proposed action.

There are no existing sources of surface water located on the Project site, as discussed in *Chapter 3.4*. The nearest body of water is the estuary of East Loch Pearl Harbor approximately 200 feet south of the Project site. Two streams within close proximity to the site include the Waimalu Stream located approximately 0.29-mile west of the Project, and the Kalauao Stream located approximately 0.25-mile feet to the east. Both streams drain into the East Loch of Pearl Harbor. The Pearlridge Bus Transit Center will not inhibit shoreline access. The shore is not accessible via the Pearl Harbor Bike Path in the vicinity of the Project site.

As discussed in *Chapter 3.7*, the Project is not expected to pose threats to Native Hawaiian endangered plant or animal species and habitats. As discussed throughout this EA, construction BMPs and LID measures, including a vegetated bioretention basin, will be used to mitigate adverse environmental impacts and protect Hawai'i's natural resources.

Section 226-12 Objectives and Policies for the physical environment—scenic, natural beauty, and historic resources

- (a) *Planning for the State's physical environment shall be directed towards achievement of the objective of enhancement of Hawai'i's scenic assets, natural beauty, and multi-cultural/historical resources.*
- (b) *To achieve the scenic, natural beauty, and historic resources objectives, it shall be the policy of this State to:*
 - (1) *Promote the preservation and restoration of significant natural and historic resources;*
 - (2) *Provide incentives to maintain and enhance historic, cultural, and scenic amenities;*
 - (3) *Promote the preservation of views and vistas to enhance the landscapes, and other natural features;*
 - (4) *Protect those special areas, structures, and elements that are an integral and functional part of Hawai'i's ethnic and cultural heritage; and*
 - (5) *Encourage the design of developments and activities that complement the natural beauty of the islands.*

Discussion: The Pearlridge Bus Transit Center is in alignment with the State's objectives and policies regarding scenic and historic resources. The characteristics of the Project site and surrounding area are suitable for the Project. See discussion in *Chapters 3.9 and 3.10* on historic uses of the property.

The Project will not adversely affect important views as there are no existing significant visual resources at the Project site, nor will it inhibit views of Pearl Harbor from the upper residential neighborhoods of 'Aiea, Waimalu, Pearl City, or Waipi'o. See *Chapter 3.11* for further discussion.

Design of the transit center and associated landscaping will enhance the surrounding urban environment. However, the purpose of the Project is not to necessarily enhance scenic assets, natural beauty, and multi-cultural/historical resources.

Section 226-13 Objectives and policies for the physical environment—land, air, and water quality.

- (a) *Planning for the State's physical environment with regard to land, air, and water quality shall be directed towards achievement of the following objectives:*
 - (1) *Maintenance and pursuit of improved quality in Hawai'i's land, air, and water resources; and*
 - (2) *Greater public awareness and appreciation of Hawai'i's environmental resources.*
- (b) *To achieve the land, air, and water quality objectives, it shall be the policy of this State to:*
 - (1) *Foster educational activities that promote a better understanding of Hawai'i's limited environmental resources;*
 - (2) *Promote the proper management of Hawai'i's land and water resources;*
 - (3) *Promote effective measures to achieve desired quality in Hawai'i's surface, ground, and coastal waters;*
 - (4) *Encourage actions to maintain or improve aural and air quality levels to enhance the health and well-being of Hawai'i's people;*
 - (5) *Reduce the threat to life and property from erosion, flooding, tsunamis, hurricanes, earthquakes, volcanic eruptions, and other natural or man-induced hazards and disasters;*
 - (6) *Encourage design and construction practices that enhance the physical qualities of Hawai'i's communities;*
 - (7) *Encourage urban developments near existing services and facilities; and*
 - (8) *Foster recognition of the importance and value of the land, air, and water resources to Hawai'i's people, their cultures and visitors.*

Discussion: The Project is consistent with the State's objectives and policies regarding land, air, and water quality. The Project site is situated in an urban environment near existing services and facilities. Further, the Project is not expected to increase susceptibility of life and property from erosion, flooding, tsunamis, hurricanes, and other natural or man-induced hazards. The Project site is located outside of the Tsunami Evacuation Zone and is within Flood Zone X (area of minimal flood hazard). The site, however, is located within the XTEZ. In the event of an extreme storm, facility users may need to evacuate to higher floors of the Rail station or to Safe Zones. Notably, the effects of climate change may increase the severity of storms now and in the future. See *Chapter 3.6* for further discussion.

The Pearlridge Bus Transit Center is not expected to adversely affect Hawai'i's land, air, and water resources. Construction and operation of the Project will include BMPs to minimize effects to air and water quality and is not anticipated to pose significant detrimental effects to the surrounding area.

Section 226-14 Objectives and policies for facility systems—in general

- (a) *Planning for the State's facility systems in general shall be directed towards the achievement of the objective of water, transportation, waste disposal, and energy and telecommunication systems that support statewide social, economic, and physical objectives.*
- (b) *To achieve the general facility systems objective, it shall be the policy of this State to:*
 - (1) *Accommodate the needs of Hawai'i's people through coordination of facility systems and capital improvement priorities in consonance with state and county plans;*
 - (2) *Encourage flexibility in the design and development of facility systems to promote prudent use of resources and accommodate changing public demands and priorities;*

- (3) *Ensure that required facility systems can be supported within resource capacities and at reasonable cost to the user; and*
- (4) *Pursue alternative methods of financing programs and projects and cost-saving techniques in the planning, construction, and maintenance of facility systems.*

Discussion: The Project supports the State's objectives and policies regarding facility systems. The Pearlridge Bus Transit Center is a planned facility intended to support the Kalauao Pearlridge Station. As a public transportation facility, it will be available for use by all bus and Rail riders. The Project will make connections between the two modes more convenient, contributing to a better public transportation experience for riders.

Section 226-15 Objectives and policies for facility systems--solid and liquid wastes

- (a) *Planning for the State's facility systems with regard to solid and liquid wastes shall be directed towards the achievement of the following objectives:*
 - (1) *Maintenance of basic public health and sanitation standards relating to treatment and disposal of solid and liquid wastes; and*
 - (2) *Provision of adequate sewerage facilities for physical and economic activities.*
- (b) *To achieve solid and liquid waste objectives, it shall be the policy of this State to:*
 - (1) *Encourage adequate development of sewerage facilities that complement planned growth;*
 - (2) *Promote re-use and recycling to reduce solid and liquid wastes and employ a conservation ethic; and*
 - (3) *Promote research to develop more efficient and economical treatment and disposal of solid and liquid wastes.*

Discussion: Proper maintenance of basic public health and sanitation standards relating to treatment and disposal of solid and liquid wastes will be upheld by the City throughout operation of the facility. Throughout construction, the contractor will promote re-use and recycling to reduce solid and liquid wastes.

Section 226-16 Objectives and policies for facility systems--water

- (a) *Planning for the State's facility systems with regard to water shall be directed towards achievement of the objective of the provision of water to adequately accommodate domestic, agricultural, commercial, industrial, recreational, and other needs within resource capacities.*
- (b) *To achieve the facility systems water objective, it shall be the policy of this State to:*
 - (1) *Coordinate development of land use activities with existing and potential water supply;*
 - (2) *Support research and development of alternative methods to meet future water requirements well in advance of anticipated needs;*
 - (3) *Reclaim and encourage the productive use of runoff water and wastewater discharges.*
 - (4) *Assist in improving the quality, efficiency, service, and storage capabilities of water systems for domestic and agricultural use;*
 - (5) *Support water supply services to areas experiencing critical water problems; and*
 - (6) *Promote water conservation programs and practices in government, private industry, and the general public to help ensure adequate water to meet long-term needs.*

Discussion: Existing water at the parcel location is sufficient to serve the Project site. LID measures, such as a vegetated bioretention basin, will be incorporated into the Project to the extent possible to encourage the productive use of runoff water. Use of nonpotable water for landscaping and vehicle washing, as recommended by BWS, will be performed throughout construction and operation of the transit center.

Section 226-17 Objectives and policies for facility systems--transportation.

- (a) *Planning for the State's facility systems with regard to transportation shall be directed towards the achievement of the following objectives:*
 - (1) *An integrated multi-modal transportation system that services statewide needs and promotes the efficient, economical, safe, and convenient movement of people and goods.*
 - (2) *A statewide transportation system that is consistent with and will accommodate planned growth objectives throughout the State.*
- (b) *To achieve the transportation objectives, it shall be the policy of this State to:*
 - (1) *Design, program, and develop a multi-modal system in conformance with desired growth and physical development as stated in this chapter;*
 - (2) *Coordinate state, county, federal, and private transportation activities and programs toward the achievement of statewide objectives;*
 - (3) *Encourage a reasonable distribution of financial responsibilities for transportation among participating governmental and private parties;*
 - (4) *Provide for improved accessibility to shipping, docking, and storage facilities;*
 - (5) *Promote a reasonable level and variety of mass transportation services that adequately meet statewide and community needs;*
 - (6) *Encourage transportation systems that serve to accommodate present and future development needs of communities;*
 - (7) *Encourage a variety of carriers to offer increased opportunities and advantages to interisland movement of people and goods;*
 - (8) *Increase the capacities of airport and harbor systems and support facilities to effectively accommodate transshipment and storage needs;*
 - (9) *Encourage the development of transportation systems and programs which would assist statewide economic growth and diversification;*
 - (10) *Encourage the design and development of transportation systems sensitive to the needs of affected communities and the quality of Hawai'i's natural environment;*
 - (11) *Encourage safe and convenient use of low-cost, energy-efficient, non-polluting means of transportation;*
 - (12) *Coordinate intergovernmental land use and transportation planning activities to ensure the timely delivery of supporting transportation infrastructure in order to accommodate planned growth objectives; and*
 - (13) *Encourage diversification of transportation modes and infrastructure to promote alternate fuels and energy efficiency.*

Discussion: The Pearlridge Bus Transit Center meets the State's objectives and policies for facility systems regarding transportation. The Project facilitates an integrated multi-modal public transportation system. The Project site is within the PUC DP area and it is also within the City's designated 'Aiea/Pearl City TOD Plan neighborhood.

The new bus transit center will be able to accommodate up to six buses at any given time and will also accommodate TheHandi-Van paratransit service. The planned facilities are consistent with City standards and include a charging bays for electric buses, bus passenger shelters, a pick-up and drop-off area, bicycle parking, and comfort station facilities. Electric charging areas for buses will support the City's overall transition to an electric bus fleet. Further supporting the multi-modality of the transit center is site's location adjacent to the existing Pearl Harbor Bike Path. Cyclists will be able to benefit from the convenience of the transit station and will be able to bring their bicycles onto buses or the Rail.

The proposed action is intended to be an interim use of the Project site that will support multimodal connectivity in the initial phases of the Rail operation. In the long-term, the City may propose mixed-use development in the area consistent with the TOD Plan.

Section 226-22 Objectives and policies for socio-cultural advancement--social services

- (a) *Planning for the State's socio-cultural advancement with regard to social services shall be directed towards the achievement of the objective of improved public and private social services and activities that enable individuals, families, and groups to become more self-reliant and confident to improve their well-being.*
- (b) *To achieve the social service objective, it shall be the policy of the State to:*
 - (1) *Assist individuals, especially those in need of attaining a minimally adequate standard of living and those confronted by social and economic hardship conditions, through social services and activities within the State's fiscal capacities.*
 - (2) *Promote coordination and integrative approaches among public and private agencies and programs to jointly address social problems that will enable individuals, families, and groups to deal effectively with social problems and to enhance their participation in society.*
 - (3) *Facilitate the adjustment of new residents, especially recently arrived immigrants, into Hawai'i's communities.*
 - (4) *Promote alternatives to institutional care in the provision of long-term care for elder and disabled populations.*
 - (5) *Support public and private efforts to prevent domestic abused and child molestation and assist victims of abuse and neglect.*
 - (6) *Promote programs which assist people in need of family planning services to enable them to meet their needs.*

Discussion: The Project will contribute towards the City's integrated multi-modal transportation system and supports greater accessibility and connectivity between the Project region and other parts of O'ahu. As discussed in *Chapter 3.10*, of the percentage of commuters on the island that utilize public transit, senior workers, aged 65 and over, accounted for 8.1 percent of public transportation commuters (DBEDT, 2016). About two thirds of public transportation commuters on the island had Service or Sales and Office occupations (DBEDT, 2016). Approximately 13.8 percent of those earning \$1-\$25,000 annually (gross) utilize public transportation as compared to 2.4 percent of those earning \$75,000 or more annually (gross) (DBEDT, 2016). The Project will provide needed connectivity and transportation equity for existing and future public transportation users. The Pearlridge Bus Transit Center will also accommodate TheHandi-Van paratransit service. The Project and associated TOD are expected to promote accessibility and economic development, supporting greater self-reliance, connectedness, participation, and social well-being.

Section 226-26 Objectives and policies for socio-cultural advancement--public safety

- (a) *Planning for the State's socio-cultural advancement with regard to public safety shall be directed towards the achievement of the following objectives:*
- (1) *Assurance of public safety and adequate protection of life and property for all people.*
 - (2) *Optimum organizational readiness and capability in all phases of emergency management to maintain the strength, resources, and social and economic well-being of the community in the event of civil disruptions, wars, natural disasters, and other major disturbances.*
 - (3) *Promotion of a sense of community responsibility for the welfare and safety of Hawai'i's people*
- (b) *To achieve the public safety objectives, it shall be the policy of this State to:*
- (1) *Ensure that public safety programs are effective and responsive to community needs.*
 - (2) *Encourage increased community awareness and participation in public safety programs.*

Discussion: The Pearlridge Bus Transit Center will be designed to provide adequate access to emergency service providers. To reinforce public safety, the planned design includes open sight lines and a high degree of visibility; adequate lighting for nighttime users; informational signs to direct traffic and pedestrian flows; and traffic calming measures with the goal of reducing traffic related incidences.

Section 226-27 Objectives and policies for socio-cultural advancement--government

- (a) *Planning the State's socio-cultural advancement with regard to government shall be directed towards the achievement of the following objectives:*
- (1) *Efficient, effective, and responsive government services at all levels in the State.*
 - (2) *Fiscal integrity, responsibility, and efficiency in the state government and county governments.*
- (b) *To achieve the government objectives, it shall be the policy of this State to:*
- (1) *Provide for necessary public goods and services not assumed by the private sector.*
 - (2) *Pursue an openness and responsiveness in government that permits the flow of public information, interaction, and response.*
 - (3) *Minimize the size of government to that necessary to be effective.*
 - (4) *Stimulate the responsibility in citizens to productively participate in government for a better Hawai'i.*
 - (5) *Assure that government attitudes, actions, and services are sensitive to community needs and concerns.*
 - (6) *Provide for a balanced fiscal budget.*
 - (7) *Improve the fiscal budgeting and management system of the State.*
 - (8) *Promote the consolidation of state and county governmental functions to increase the effective and efficient delivery of government programs and services and to eliminate duplicative services wherever feasible.*

Discussion: The Pearlridge Bus Transit Center supports the objectives and policies of government. The Project will provide necessary public goods and services in a fiscally responsible manner. The projected design and construction cost is projected at approximately \$9.5 million dollars.

Section 226-103 Economic priority guidelines

- (b) *Priority guidelines to promote the economic health and quality of the visitor industry:*
- (1) *Promote visitor satisfaction by fostering an environment which enhances the Aloha Spirit and minimizes inconveniences to Hawai'i's residents and visitors.*

- (2) *Encourage the development and maintenance of well-designed, adequately serviced hotels and resort destination areas which are sensitive to neighboring communities and activities and which provide for adequate shoreline setbacks and beach access.*
 - (3) *Support appropriate capital improvements to enhance the quality of existing resort destination areas and provide incentives to encourage investment in upgrading, repair, and maintenance of visitor facilities.*
 - (4) *Encourage visitor industry practices and activities which respect, preserve, and enhance Hawai'i's significant natural, scenic, historic, and cultural resources.*
 - (5) *Develop and maintain career opportunities in the visitor industry for Hawai'i's people, with emphasis on managerial positions.*
 - (6) *Support and coordinate tourism promotion abroad to enhance Hawai'i's share of existing and potential visitor markets.*
 - (7) *Maintain and encourage a more favorable resort investment climate consistent with the objectives of this chapter.*
 - (8) *Support law enforcement activities that provide a safer environment for both visitors and residents alike.*
 - (9) *Coordinate visitor industry activities and promotions to business visitors through the state network of advanced data communication techniques.*
- (f) *Priority guidelines for energy use and development:*
- (1) *Encourage the development, demonstration, and commercialization of renewable energy sources.*
 - (2) *Initiate, maintain, and improve energy conservation programs aimed at reducing energy waste and increasing public awareness of the need to conserve energy.*
 - (3) *Provide incentives to encourage the use of energy conserving technology in residential, industrial, and other buildings.*
 - (4) *Encourage the development and use of energy conserving and cost-efficient transportation systems.*

Discussion: The Pearlridge Bus Transit Center will support the Kalauao Pearlridge Station, effectively improving public transportation accessibility to the recreational opportunities in the Project region, such as Pearlridge Shopping Center. This may attract more tourists to the region and offer economic opportunities to local businesses. Economic benefits are also expected as a result of design and construction employment. Total construction cost is estimated at \$9.5 million. Local material suppliers and retail businesses can also expect to benefit through a multiplier effect from the increased construction activities. Long-term jobs will be sustained through ongoing maintenance and operation of the project site and Pearlridge transit system.

The Project will also support the City's effort to transition its bus fleet to electric by providing electric bus charging bays. The use of LID will be incorporated into the site's design.

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

- (a) *Priority guidelines to effect desired statewide growth and distribution:*
- (1) *Encourage planning and resource management to ensure that population growth rates throughout the State are consistent with available and planned resource capacities and reflect the needs and desires of Hawai'i's people.*
 - (2) *Manage a growth rate for Hawai'i's economy that will parallel future employment needs for Hawai'i's people.*
 - (3) *Ensure that adequate support services and facilities are provided to accommodate the desired distribution of future growth throughout the State.*

- (4) *Encourage major state and federal investments and services to promote economic development and private investment to the neighbor islands, as appropriate.*
 - (5) *Explore the possibility of making available urban land, low-interest loans, and housing subsidies to encourage the provision of housing to support selective economic and population growth on the neighbor islands.*
 - (6) *Seek federal funds and other funding sources outside the State for research, program development, and training to provide future employment opportunities on the neighbor islands.*
 - (7) *Support the development of high technology parks on the neighbor islands.*
- (b) *Priority guidelines for regional growth distribution and land resource utilization:*
- (1) *Encourage urban growth primarily to existing urban areas where adequate public facilities are already available or can be provided with reasonable public expenditures, and away from areas where other important benefits are present, such as protection of important agricultural land or preservation of lifestyles.*
 - (2) *Make available marginal or nonessential agricultural lands for appropriate urban uses while maintaining agricultural lands of importance in the agricultural district.*
 - (3) *Restrict development when drafting of water would result in exceeding the sustainable yield or in significantly diminishing the recharge capacity of any groundwater area.*
 - (4) *Encourage restriction of new urban development in areas where water is insufficient from any source for both agricultural and domestic use.*
 - (5) *In order to preserve green belts, give priority to state capital-improvement funds which encourage location of urban development within existing urban areas except where compelling public interest dictates development of a noncontiguous new urban core.*
 - (6) *Seek participation from the private sector for the cost of building infrastructure and utilities and maintaining open spaces.*
 - (7) *Pursue rehabilitation of appropriate urban areas.*
 - (8) *Support the redevelopment of Kaka'ako into a viable residential, industrial, and commercial community.*
 - (9) *Direct future urban development away from critical environmental areas or impose mitigating measures so that negative impacts on the environment would be minimized.*
 - (10) *Identify critical environmental areas in Hawai'i to include but not be limited to the following: watershed and recharge areas; wildlife habitats (on land and in the ocean); areas with endangered species of plants and wildlife; natural streams and water bodies; scenic and recreational shoreline resources; open space and natural areas; historic and cultural sites; areas particularly sensitive to reduction in water and air quality; and scenic resources.*
 - (11) *Identify all areas where priority should be given to preserving rural character and lifestyle.*
 - (12) *Utilize Hawai'i's limited land resources wisely, providing adequate land to accommodate projected population and economic growth needs while ensuring the protection of the environment and the availability of the shoreline, conservation lands, and other limited resources for future generations.*
 - (13) *Protect and enhance Hawai'i's shoreline, open spaces, and scenic resources.*

Discussion: The Project is consistent with the State's population growth and land resources priority guidelines. The Pearlridge Bus Transit Center will utilize available and underutilized State urban lands for a multimodal bus transit center. The project site is situated in an existing urbanized area and the proposed use is compatible with surrounding land uses.

The Pearlridge Bus Transit Center will provide services and facilities to support anticipated population and job growth in the PUC DP region. In the short-term, the proposed action will provide needed connection services to and from the future Kalauao Pearlridge Station. Timely upgrading of the City's transit services and facilities are critical to maintain effective functionality and growth of the City, to promote the public good, and to ensure a high-quality of life for O'ahu's residents.

The project site is not in a critical environmental area. The project is not anticipated to result in adverse impacts to Hawai'i's shoreline, open spaces, and scenic resources. Construction BMPs and LID measures as described throughout this EA will be used to mitigate adverse environmental impacts and protect Hawai'i's natural resources.

Section 226-108 Sustainability.

Priority guidelines for sustainability shall include:

- (1) Encouraging balanced economic, social, community, and environmental priorities.*
- (2) Encouraging planning that respects and promotes living within the natural resources and limits of the State.*
- (4) Encouraging respect for the host culture.*
- (5) Promoting decisions based on meeting the needs of the present without compromising the needs of future generations.*
- (6) Considering the principles of the ahupua'a system; and*
- (7) Emphasizing that everyone, including individuals, families, communities, businesses, and government, has the responsibility for achieving a sustainable Hawai'i.*

Discussion: The Project is complementary to the State's sustainability priority guidelines and will support a balance of social, community, environmental, and economic goals. The improved transportation connection provided by the Project is anticipated to attract more users to cleaner transportation modes, which would reduce GHG emissions overall. Reduction in GHG emissions helps the State to meet its climate change goals to sustain the State's future. The Project further promotes energy conservation and the use of alternative fuels through the inclusion of charging bays for electric buses.

Section 226-109 Climate change adaptation priority guidelines

Priority guidelines to prepare the State to address to impacts of climate change, including impacts to the areas of agriculture; conservation lands; coastal and nearshore marine areas; natural and cultural resources; education; energy; higher education; health; historic preservation; water resources; the built environment; such as housing, recreation, transportation; and the economy shall:

- (1) Ensure that Hawai'i's people are educated, informed, and aware of the impacts climate change may have on their communities.*
- (2) Encourage community stewardship groups and local stakeholders to participate in planning and implementation of climate change policies.*
- (3) Invest in continued monitoring and research of Hawai'i's climate and the impacts of climate change on the State.*
- (4) Consider native Hawaiian traditional knowledge and practices in planning for the impacts of climate change.*
- (5) Encourage the preservation and restoration of natural landscape features, such as coral reefs, beaches and dunes, forests, streams, floodplains, and wetlands, that have the inherent capacity to avoid, minimize, or mitigate the impacts of climate change.*
- (6) Explore adaptation strategies that moderate harm or exploit beneficial opportunities in response to actual or expected climate change impacts to the natural and built environments.*

- (7) *Promote sector resilience in areas such as water, roads, airports, and public health by encouraging the identification of climate change threats, assessment of potential consequences, and evaluation of adaptation options.*
- (8) *Foster cross-jurisdictional collaboration between county, state, and federal agencies and partnerships between government and private entities and other nongovernmental entities, including nonprofit entities.*
- (9) *Use management and implementation approaches that encourage the continual collection, evaluation, and integration of new information and strategies into new and existing practices, policies, and plans.*
- (10) *Encourage planning and management of the natural and built environments that effectively integrate climate change policy.*

Discussion: The project supports the State’s climate change adaptation priority guidelines. The improved transportation connection provided by the Project is anticipated to attract more users to cleaner transportation modes, which would reduce GHG emissions overall. Reduction in GHG emissions helps the State to meet its climate change and SLR goals to sustain the State’s future. The Project further promotes energy conservation and the use of alternative fuels through the inclusion of charging bays for electric buses.

5.3 Hawai‘i State Land Use District Guidelines

Chapter 205, HRS, Land Use Commission, establishes the State Land Use Commission (LUC) and defines the four major land use districts in which all lands in the State of Hawai‘i are classified. The LUC, an agency of the State Department of Business, Economic Development, and Tourism (DBEDT), is responsible for each district’s standards and for determining the boundaries of each district (Chapter 205-2(a), HRS). The LUC is also responsible for administering all requests for district reclassifications and/or amendments to district boundaries, pursuant to Chapter 205-4, HRS, and the Title 15, Chapter 15, HAR as amended. Under this Chapter, all lands in Hawai‘i are classified into four land use districts: (1) Conservation, (2) Agricultural; (3) Urban, and (4) Rural.

Discussion: As classified by the State of Hawai‘i LUC, the project site is situated within the State Urban District (*Figure 1.3*). The Hawai‘i State Plan, Chapter 205-2 (b) Hawai‘i Revised Statutes, states that:

“Urban districts shall include activities or uses as provided by ordinances or regulations of the county within which the urban district is situated in.”

The proposed project is consistent with this Statute, as the proposed land uses are consistent with City and County of Honolulu General Plan, PUC DP, and LUO, as discussed below.

5.4 Hawai‘i Coastal Zone Management Program

The Coastal Zone Management Act of 1972 (16 USC Section 1451), as amended through Public Law 104-150, created the coastal management program and the National Estuarine Research Reserve system. The coastal states are authorized to develop and implement a state coastal zone management program. Hawai‘i Coastal Zone Management (CZM) Program received federal approval in the late 1970’s. The objectives of the State’s Hawai‘i Coastal Zone Management (CZM) Program, Section 205A-2, HRS, are to protect valuable and vulnerable coastal resources such as coastal ecosystems, special scenic and cultural values and recreational opportunities. The objectives of the program are also to reduce coastal hazards and to improve the review process for activities proposed within the coastal zone.

The Hawai'i CZM Law charges each County with designating and administering Special Management Areas (SMA) within the State's coastal areas that extends inland from the shoreline. Development within this SMA is subject to County approval to ensure the proposal is consistent with the policies and objectives of the Hawai'i CZM Program. The entire Project site is within the SMA as delineated by the City and County of Honolulu and as such, requires an additional review under State CZM and County SMA rules.

The following subsections examine the objectives of the Hawai'i CZM Program and the Project's impacts relative to the State CZM objectives and policies. Specific City and County of Honolulu SMA policies are discussed in *Chapter 5.12*.

RECREATIONAL RESOURCES

Objective: Provide coastal recreational opportunities accessible to the public.

- (A) *Improve coordination and funding of coastal recreation planning and management.*
- (B) *Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:*
 - *Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;*
 - *Requiring replacement of coastal resources having significant recreational value, including but not limited to surfing sites and sandy beaches, when such resources will be unavoidable damaged by development; or requiring reasonable monetary compensation to the State for recreation when replacement is not feasible or desirable;*
 - *Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;*
 - *Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;*
 - *Encouraging expanded public recreational use of county, state, and federally owned or controlled shoreline lands and waters having recreational value;*
 - *Adopting water quality standards and regulating point and non-point sources of pollution to protect and where feasible, restore the recreational value of coastal waters;*
 - *Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches, artificial reefs for surfing and fishing; and*
 - *Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use Commissions, board of land and natural resources, county planning commissions, and crediting such dedication against the requirements of Section 46-6.*

Discussion: The Pearlridge Bus Transit Center will not impact public access to coastal or recreational resources in the Project area, as discussed in *Chapter 3.17*. The south end of the site is adjacent to the existing Pearl Harbor Bike Path. The Project will activate and improve the existing vacant and dilapidated surroundings of the bike path. Construction of the Project will include BMPs as described throughout this EA to protect and regulate point and nonpoint sources of pollution to protect the recreational value of coastal waters. LID, such as a vegetated bioretention basin, will be installed to capture stormwater runoff from the site in the long-term.

HISTORIC RESOURCES

Objective: Protect, preserve and, where desirable, restore those natural and man-made historic and pre-historic resources in the coastal zone management area that are significant in Hawai'i and American history and culture.

- (A) Identify and analyze significant archaeological resources;*
- (B) Maximize information retention through preservation of remains and artifacts or salvage operations; and*
- (C) Support state goals for protection, restoration, interpretation and display of historic resources.*

Discussion: See Chapters 3.8 and 3.9 for further discussion. Keala Pono Archaeology is preparing an AIS to identify significant archeological resources that may exist at the Project site, which will be included in the forthcoming Final EA.

SCENIC AND OPEN SPACE RESOURCES

Objective: Protect, preserve and where desirable, restore or improve the quality of coastal scenic and open space resources.

- (A) Identify valued scenic resources in the coastal zone management area;*
- (B) Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views to and along the shoreline;*
- (C) Preserve, maintain, and, where desirable, improve and restore shoreline open space and scenic resources; and*
- (D) Encourage those developments which are not coastal dependent to locate in inland areas.*

Discussion: As discussed in Section 3.11 of this EA, the Project is not anticipated to adversely affect scenic view planes or resources in the area.

COASTAL ECOSYSTEMS

Objective: Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.

- (A) Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;*
- (B) Improve the technical basis for natural resource management;*
- (C) Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance;*
- (D) Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs; and*
- (E) Promote water quantity and quality planning and management practices which reflect the tolerance of fresh water and marine ecosystems and prohibit land and water uses which violate state water quality standards.*

Discussion: The nearest body of water is the East Loch of Pearl Harbor, approximately 200 feet south of the Project site. Storm water quality and water quantity and quality control will be consistent with City and State standards. A NPDES permit for discharge of stormwater associated with construction activities will be obtained prior to construction. The requirements of the approved NPDES permit and erosion control plan will be adhered to during construction as appropriate. Construction, grading and drainage plans for the project will be submitted to appropriate agencies for review and approval.

Design of the Project will incorporate landscaping and installation of LID measures, such as the vegetated bioretention basin, to mitigate adverse environmental impacts and protect potential long-term impacts to water quality.

ECONOMIC USES

Objective: Provide public or private facilities and improvements important to the State's economy in suitable locations.

- (A) *Concentrate coastal dependent development in appropriate areas;*
- (B) *Ensure that coastal dependent development such as harbors and ports, and coastal related development such as visitor industry facilities and energy generating facilities, are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area; and*
- (C) *Direct the location and expansion of coastal dependent developments to areas presently designated and used for such developments and permit reasonable long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when:
 - (i) *Use of presently designated locations is not feasible;*
 - (ii) *Adverse environmental effects are minimized; and*
 - (iii) *The development is important to the State's economy.**

Discussion: The characteristics of the Project site and surrounding environment are suitable for the development of the Pearlridge Bus Transit Center. While the Project site is within the State CZM area, it is located more than 250 feet away from the shoreline and will not interfere with other important coastal-dependent or coastal-related development such as harbors and ports, visitor-industry facilities, and energy generating facilities. The Project will utilize available and underutilized City urban lands for a multimodal transportation center, which will support anticipated population and job growth in the PUC DP region.

COASTAL HAZARDS

Objective: Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence, and pollution.

- (A) *Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and nonpoint source pollution hazards;*
- (B) *Control development in areas subject to storm wave, tsunami, flood, erosion, hurricane, wind, subsidence, and point and nonpoint source pollution hazards;*
- (C) *Ensure that developments comply with requirements of the Federal Flood Insurance Program; and*
- (D) *Prevent coastal flooding from inland projects.*

Discussion: The Project is consistent with the CZM Program's objectives and policies regarding coastal hazards and is not expected to pose a hazard to life, property, or coastal ecosystems. The Project site is outside of the Tsunami Evacuation Zone and is within the FEMA Flood Zone X (minimal flood risk, outside of 0.2% annual chance floodplain) (Figures 1.8 and 3.6). The Federal Flood Insurance Program does not have regulations for development within this district. A Special Flood Hazard Area Development Permit will not be required.

Notably, climate change and SLR will increase the intensity of storms now and in the future, which will exacerbate flooding and the extent of coastal inundation from tsunamis. Inundation will reach further inland, putting more people and property at risk. The Project is located within the XTEZ, and therefore vulnerable in cases of extreme tsunamis. Mitigation of an extreme tsunami should be concentrated on early warning systems and effective evacuation measures to preserve life. In the event of an extreme tsunami, evacuation to the Safe Zone is recommended in accordance with guidance from emergency management authorities. Design of the bus transit center will adhere to the most current IBC, State, and City building code standards to promote public safety to the extent practical. See *Chapter 3.6* for further discussion.

MANAGING DEVELOPMENT

Objective: Improve the development review process, communication, and public participation in the management of coastal resources and hazards.

- (A) *Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development;*
- (B) *Facilitate timely processing of applications for development permits and resolve overlapping or conflicting permit requirements; and*
- (C) *Communicate the potential short and long-term impacts of proposed significant coastal developments early in their life-cycle and in terms understandable to the public to facilitate public participation in the planning and review process.*

Discussion: The project site is in the State Urban Land Use District and is zoned for industrial uses. All improvement activities will be conducted in compliance with State and City environmental rules and regulations. This EA identifies and, where necessary, proposes mitigation measures to address anticipated impacts from the construction and operation of the Project. The Draft EA was published in *The Environmental Notice* on October 23, 2020. Publication of the Draft EA was followed by a 30-day public comment period. During pre-scoping, agencies, organizations and persons were consulted and will continue to be informed throughout the planning process. During the public comment period, DTS made presentations to the 'Aiea Neighborhood Board No. 20 on November 9, 2020 and the Pearl City Neighborhood Board No. 21 on November 24, 2020 to inform the community of the Draft EA publication. DTS is developing a public involvement plan to ensure the community is kept apprised of construction.

PUBLIC PARTICIPATION

Objective: Stimulate public awareness, education, and participation in coastal management.

- (A) *Promote public involvement in coastal zone management processes;*
- (B) *Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal issues, developments, and government activities; and*
- (C) *Organize workshops, policy dialogues, and site-specific mediations to respond to coastal issues and conflicts.*

Discussion: Public notification of the proposed action will be provided with publication of the EA, as previously discussed. See *Chapter 7.0* of this EA for a list of agencies, organizations and individuals that have been consulted to date. During the public comment period, DTS made presentations to the 'Aiea Neighborhood Board No. 20 on November 9, 2020 and the Pearl City Neighborhood Board No. 21 on November 24, 2020 to inform the community of the Draft EA publication. Community questions were answered and contact information was collected from community members that wanted to be added to the Project's contact list. DTS is developing a public involvement plan to ensure the

community is kept apprised of construction. Stakeholders listed in *Chapter 7.0* will receive copies of the Final EA. Subsequently, DTS will develop a public involvement plan to keep the public apprised of construction details.

BEACH PROTECTION

Objective: Protect beaches for public use and recreation.

- (A) *Locate new structures inland from the shoreline setback to conserve open space and to minimize loss of improvements due to erosion;*
- (B) *Prohibit construction of private erosion-protection structures seaward of the shoreline, except when they result in improved aesthetic and engineering solutions to erosion at the sites and do not interfere with existing recreational and waterline activities;*
- (C) *Minimize the construction of public erosion-protection structures seaward of the shoreline;*
- (D) *Prohibit private property owners from creating a public nuisance by inducing or cultivating the private property owner's vegetation in a beach transit corridor; and*
- (E) *Prohibit private property owners from creating a public nuisance by allowing the private property owner's unmaintained vegetation to interfere or encroach upon a beach transit corridor.*

Discussion: The Project is not located along the coastal area, and therefore will not affect public beaches on O'ahu.

MARINE RESOURCES

Objective: Promote the protection, use, and development of marine and coastal resources to assure their sustainability.

- (A) *Ensure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;*
- (B) *Coordinate the management of marine and coastal resources and activities to improve effectiveness and efficiency;*
- (C) *Assert and articulate the interests of the State as a partner with federal agencies in the sound management of ocean resources within the United States exclusive economic zone;*
- (D) *Promote research, study, and understanding of ocean processes, marine life, and other ocean resources in order to acquire and inventory information necessary to understand how ocean development activities relate to and impact upon ocean and coastal resources; and*
- (E) *Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.*

Discussion: The Project will not impact the protection or use of marine and coastal resources. During construction, BMPs will mitigate the potential for erosion and stormwater runoff from the site, as described in *Chapter 3.4*.

5.5 Hawai'i 2050 Sustainability Plan

The long-term strategy of the Hawai'i 2050 Sustainability Plan is supported by its main goals and objectives of respect for culture, character, beauty, and history of the State's island communities; balance among economic, community, and environmental priorities; and an effort to meet the needs of the present without compromising the ability of future generations to meet their own needs.

The 2050 Plan delineates five goals toward a sustainable Hawai'i accompanied by strategic actions for implementation and indicators to measure success or failure. The goals and strategic actions that are pertinent to the project are as follows.

Goal One: Living sustainably is part of our daily practice in Hawai'i. Strategic Actions: Develop a sustainability ethic.

Goal Two: Our diversified and globally competitive economy enables us to meaningfully live, work, and play in Hawai'i. Strategic Actions: Develop a more diverse and resilient economy; support the building blocks for economic stability and sustainability.

Goal Three: Our natural resources are responsibly and respectfully used, replenished, and preserved for future generations. Strategic Actions: Reduce reliance on fossil (carbon-based) fuels; increase recycling, reuse and waste reduction strategies; provide greater protection for air, and land-, fresh water- and ocean-based habitats; conserve agricultural, open space and conservation lands and resources.

Goal Four: Our community is strong, healthy, vibrant and nurturing, providing safety nets for those in need. Strategic Actions: Strengthen social safety nets; improve public transportation infrastructure and alternatives.

Goal Five: Our Kanaka Maoli and island cultures and values are thriving and perpetuated. Strategic Actions: Honor Kanaka Maoli culture and heritage; Celebrate our cultural diversity and island way of life.

Discussion: The proposed interim Pearlridge Bus Transit Center promotes the overall goals of the Hawai'i 2050 Sustainability Plan. The bus transit center will provide connectivity for public transportation users at the Kalauao Pearlridge Station. The site is adjacent to the Pearl Harbor Bike Path and will provide convenient access to TheBus and Rail for cyclists and pedestrians. Upgraded transportation infrastructure provided is anticipated to attract users to utilize public transportation over private vehicles. A shift in transportation modes contributes to a decrease in GHG emissions and helps the City and State meet its climate change goals. The Project also supports the use of renewable energy through the inclusion of charging bays for electric buses.

Construction BMPs and LID measures as described throughout this EA will be used to mitigate adverse environmental impacts and protect Hawai'i's natural resources. In its final design, cultural and heritage themes will be weaved into the architectural design and landscaping to reflect characteristics of the community and reinforce a unique sense of place tied to Pearlridge.

The interim bus transit center is an early component of long-term planned TOD in the Pearlridge neighborhood. As discussed in *Chapter 5.10*, the parcel is zoned for business mixed-use development, and may include upgraded, permanent transit facilities.

5.6 State of Hawai'i Strategic Plan for Transit-Oriented Development, Revised August 2018

The *State of Hawai'i Strategic Plan for Transit-Oriented Development, Revised August 2018* was prepared by the State Office of Planning (DBEDT-OP) pursuant to Act 130, Session Laws of Hawai'i (SLH) 2016. DBEDT-OP is the lead State agency charged with coordinating and advancing smart growth

and TOD planning in the State. Act 130 established the Hawai'i Interagency Council for TOD (TOD Council) to coordinate TOD planning statewide.

The purpose of the plan is to (1) guide the implementation of TOD projects, including mixed-use and affordable and rental housing projects, on State lands in each county; and (2) to guide the establishment and maintenance of the institutional framework and collaborative relationships required for State-County partnerships for TOD and directed growth strategies.

The State's Strategic Plan for TOD is an initial assessment of TOD opportunities statewide for public lands and facilities and identifies TOD initiatives in each county. It is intended to serve as a guide to the implementation of TOD projects. The following seven key principles for TOD investments are promoted in the plan to guide agency actions in selecting, planning, and implementing projects:

1. Locate or redevelop facilities first in existing town and growth centers, aligned with county plans, at transportation nodes served by public transportation.
2. Maximize the co-location of State facilities and services in higher density, compact, mixed-use developments and walkable communities.
3. Invest in critical infrastructure necessary to successfully implement town/growth center development.
4. Partner more through creative, cost-effective partnerships with other public and private partners.
5. Look to develop more affordable housing wherever feasible to do so.
6. Use green building and sustainable development practices as much as possible.
7. Engage in equitable development that promotes and supports community well-being and active and healthy lifestyles.

The plan has four interrelated strategy components that comprise and support the overall State TOD implementation and investment strategy. Specific actions have been identified for each strategy component. The strategy components most relevant to the Project are discussed below:

Strategy Components 1 and 2: Actions and investments at the TOD project-level, and actions and investments for projects at the regional or area-wide level that are needed to facilitate individual TOD project implementation, such as infrastructure.

Actions:

- *Support Priority TOD projects endorsed by agencies and the TOD Council.*
- *Monitor the progress of TOD projects to track the progress of funded projects to ensure the efficient and effective delivery of public facilities.*

Discussion: The Pearlridge Bus Transit Center is listed as a priority project in the State's Strategic Plan for TOD (Project No. 0-33) and will therefore be a direct fulfillment of the plan.

Strategy Component 4: TOD program support and administration to sustain the coordination and facilitation of TOD statewide.

Actions:

- *Explore how best to promote implementation and institutionalization of TOD Key Principles in agency actions and TOD investments, including equitable development outcomes.*
- *Monitor agency actions for their consistency with the Key Principles.*

Discussion: DTS will ensure that the Project is consistent with the Key Principles highlighted in the State’s Strategic Plan for TOD. The Project is funded by the City and intended to serve as a critical transportation facility supporting multimodal connectivity at the future Kalauao Pearlridge Station. The City will ensure continued consistency with the Key Principles in the long term, as the site may be redeveloped to incorporate mixed uses and an upgraded, permanent bus transit facility.

5.7 Session Laws of Hawai‘i, Act 54, Complete Streets

Session Laws of Hawai‘i (SLH), Act 54, Complete Streets was signed into law in 2009. SLH, Act 54 requires the HDOT and county transportation departments to ensure the accommodation of all users of the road, regardless of their age, ability, or preferred mode of transportation. The bill calls for context-sensitive solutions to enhance the accessibility and safety for users of multi-modal means of transportation. It calls for use of national industry best practices, including those delineated within reports by the American Planning Association and the National Complete Streets Coalition, when planning, designing, constructing, reconstructing, maintaining or improving public highways, roadways, streets, sidewalks, or anything related to accommodating walking, bicycling, mobility devices, transit and driving.

Discussion: As the City’s transportation department, DTS is required under SLH, Act 54 to ensure that the Project is consistent with Complete Streets principles. The Pearlridge Bus Transit Center is sited adjacent to the Kalauao Pearlridge Station and will accommodate multimodal public transportation. Sidewalks and shared use paths are integrated into the site design to ensure safety of pedestrians and bicyclists. Access to the adjacent Pearl Harbor Bike Path is provided at the southeast end of the site, and bicycle racks will be provided. TheHandi-Van paratransit service will also be accommodated at pick-up/drop-off points at the east of the site. The site will also include a Kiss & Ride. Through the incorporation of such design elements, the Project meets the intent of SLH, Act 54.

5.8 City and County of Honolulu General Plan

The City and County of Honolulu General Plan (General Plan) was adopted in 1977 and has been subsequently amended (most recently in 2002). The General Plan is a comprehensive statement of the long-range social, economic, environmental and design objectives for the general welfare and prosperity of the people of O‘ahu. The objectives and policies are organized into 11 subject areas and are intended to guide and coordinate City land use plans and regulations, and budgeting policies and decisions for public facility capital improvements, operations and maintenance.

A Draft 2035 O‘ahu General Plan Update was published for public review in November 2012, and the Revised General Plan was submitted to the City Council in April 2018 for approval. A Final Revised General Plan Update is still pending. The General Plan Update provides objectives and policies intended to guide and coordinate land use planning and regulation, and budgeting for operations and capital improvements. The Proposed Revised General Plan includes continued focus on critical issues such as regional population, economic health, and affordable housing, while also addressing concerns such as climate change, SLR, and sustainability.

The Pearlridge Bus Transit Center is consistent with the applicable objectives and policies of the existing General Plan as amended in 2002, described below.

POPULATION

Objective A: To control the growth of Oahu's resident and visitor populations in order to avoid social, economic, and environmental disruptions:

Policy 4: Seek to maintain a desirable pace of physical development through City and County regulations.

Objective B: To plan for future population growth.

Policy 1: Allocate efficiently the money and resources of the City and County in order to meet the needs of O'ahu's anticipated future population.

Objective C: To establish a pattern of population distribution that will allow the people of O'ahu to live and work in harmony.

Policy 1: Facilitate the full development of the primary urban center.

Policy 4: Direct growth according to Policies 1, 2, 3 above by providing land development capacity and needed infrastructure to seek a 2025 distribution of O'ahu's residential population: PUC – 46.0% of 2025 island-wide population

Discussion: The Project will provide a transportation facility intended to support the residents in the PUC, which has been planned for continued job growth and the center of population distribution. The Project utilizes City land in the PUC that are pre-develop and under-utilized.

THE ECONOMY

Objective G: To bring about orderly economic growth on O'ahu.

Policy 1: Direct major economic activity and government services to the primary urban center and the secondary urban center at Kapolei.

Policy 2: Permit the moderate growth of business centers in the urban-fringe areas.

Discussion: DTS is proposing the Project to provide a public transportation facility open to all in the PUC. The facility will provide multimodal transportation connections to enable residents to access other parts of the island. In the long-term, the City may propose mixed use TOD consistent with long-range plans and a shift in development patterns.

NATURAL ENVIRONMENT

Objective A: To protect and preserve the natural environment.

Policy 1: Protect O'ahu's natural environment, especially the shoreline, valleys, ridges and watersheds, from incompatible development.

Policy 2: Seek the restoration of environmentally damaged areas and natural resources.

Policy 3: Retain the Island's streams as scenic, aquatic, and recreation resources.

Policy 4: Require development projects to give due consideration to natural features such as slope, flood and erosion hazards, water-recharge areas, distinctive land forms, and existing vegetation, as well as plan for coastal hazards that threaten life and property.

Policy 6: Design surface drainage and flood-control systems in a manner which will help preserve their natural settings.

Policy 7: Protect the natural environment from damaging levels of air, water, and noise pollution.

Policy 8: Protect plants, birds, and other animals that are unique to the State of Hawai'i and the Island of O'ahu, and protect their habitats.

Policy 9: Protect mature trees on public and private lands and encourage their integration into new developments.

Objective B: To preserve and enhance natural landmarks and scenic views of O‘ahu for the benefit of both residents and visitors as well as future generations.

- Policy 1: Protect the Island’s significant natural resources: its mountains and craters; forests and watershed areas; marshes, rivers, and streams; shorelines, fishponds, and bays; and reefs and offshore islands.*
- Policy 2: Protect O‘ahu’s scenic views, especially those seen from highly developed and heavily traveled areas.*
- Policy 3: Locate roads, highways, and other public facilities and utilities in areas where they will least obstruct important views of the mountains and the sea.*

Discussion: The Project is consistent with the objectives and policies of the General Plan regarding the natural environment. Planned improvements will be developed with adequate water supply, sewage treatment, drainage, and security. The Project is not anticipated to impact listed threatened or endangered species. See *Chapter 3.0* throughout for further discussion on potential impacts and proposed mitigation measures, including construction BMPs and permanent LID measures such as a vegetated bioretention basin.

TRANSPORTATION & UTILITIES

Objective A: To create a transportation system which will enable people and goods to move safely, efficiently, and at a reasonable cost; serve all people, including the poor, the elderly, and the physically handicapped; and offer a variety of attractive and convenient modes of travel.

- Policy 1: Develop and maintain an integrated ground-transportation system consisting of the following elements and their primary purposes:
 - a. Public transportation-for travel to and from work, and travel within Central Honolulu;*
 - b. Roads and highways-for commercial traffic and travel in nonurban areas;*
 - c. Bikeways-for recreational activities and trips to work, schools, shopping centers, and community facilities; and*
 - d. Pedestrian walkways-for getting around Downtown and Waikiki, and for trips to schools, parks, and shopping centers.**
- Policy 2: Provide transportation services to people living within the Ewa, Central O‘ahu, and Pearl City-Hawaii Kai corridors primarily through a mass transit system including exclusive right-of-way rapid transit and feeder-bus components as well as through the existing highway system with limited improvements as may be appropriate.*
- Policy 6: Consider both environmental impact as well as construction and operating costs as important factors in planning alternative nodes of transportation.*
- Policy 7: Promote the use of public transportation as a means of moving people quickly and efficiently, of conserving energy, and of guiding urban development.*
- Policy 8: Make available transportation services to people with limited mobility: the young, the elderly, the handicapped, and the poor.*
- Policy 10: Discourage the inefficient use of the private automobile, especially in congested corridors and during peak-hours.*

Objective D: To maintain transportation and utility systems which will help O‘ahu continue to be a desirable place to live and visit.

- Policy 2: Use the transportation and utility systems as a means of guiding growth and the pattern of land use on O‘ahu.*
- Policy 4: Evaluate the social, economic, and environmental impact of additions to the transportation and utility systems before they are constructed.*

Discussion: The Project meets the General Plan objectives for transportation and utilities. The Project is proposed by DTS to provide a public bus transit center adjacent to the Kalauao Pearlridge Station with the purpose of facilitating multimodal public transportation connectivity. The Project site is located in the PUC, which has been planned to sustain a majority of the island's population and jobs (see *Chapter 5.9* for further discussion). As discussed in *Chapter 3.10*, approximately 10.4 percent of those aged 16-24 years old and 12.4 percent of those aged 65 years and over tend to use public transportation to commute to work (DBEDT, 2015); therefore, the Project will support the policy to make available transportation services to people with limited mobility. The Project will additionally accommodate TheHandi-van paratransit services. It is anticipated that upgraded transportation facilities could encourage a shift in the mode share of public transportation, which would support the policies articulated in the General Plan.

PHYSICAL DEVELOPMENT AND URBAN DESIGN

Objective A: To coordinate changes in the physical environment of O'ahu to ensure that all new developments are timely, well-designed, and appropriate for the areas in which they will be located.

Policy 1: Plan for the construction of new public facilities and utilities in the various parts of the Island according to the following order of priority: first, in the primary urban center; second, in the secondary urban center at Kapolei; and third, in the urban- fringe and rural areas.

Policy 8: Locate community facilities on sites that will be convenient to the people they are intended to serve.

Policy 9: Exclude from residential areas, uses which are major sources of noise and air pollution

Objective B: To develop Honolulu, 'Aiea, and Pearl City as the Island's primary urban center.

Policy 1: Stimulate development in the primary urban center by means of the City and County's capital improvement program and State and Federal grant and loan programs.

Policy 3: Encourage the establishment of mixed-use districts with appropriate design and development controls to insure an attractive living environment and compatibility with surrounding land uses.

Objective E: To create and maintain attractive, meaningful, and stimulating environments throughout O'ahu.

Policy 3: Encourage distinctive community identities for both new and existing districts and neighborhoods.

Policy 4: Require the consideration of urban-design principles in all development projects.

Policy 5: Require new developments in stable, established communities and rural areas to be compatible with the existing communities and areas.

Policy 8: Preserve and maintain beneficial open space in urbanized areas.

Policy 9: Design public structures to meet high aesthetic and functional standards and to complement the physical character of the communities they will serve.

Discussion: The proposed Project use as a bus transit center is appropriate with the site's industrial zoning and the surrounding environment. The Project is also appropriately sited within the PUC adjacent to the future Kalauao Pearlridge Station. In the long-term, the City may propose mixed uses consistent with business/mixed-used zoning proposed in the *'Aiea-Pearl City Neighborhood TOD Plan* (see *Chapter 5.10*).

CULTURE AND RECREATION

Objective A: To foster the multiethnic culture of Hawai'i.

Policy 1: Encourage the preservation and enhancement of Hawai'i's diverse cultures.

Policy 2: Encourage greater public awareness, understanding, and appreciation of cultural heritage and contributions to Hawai'i made by the City's various ethnic groups.

Policy 3: Encourage opportunities for better interaction among people with different ethnic, social, and cultural backgrounds.

Objective B: To protect O'ahu's cultural, historic, architectural, and archaeological resources.

Policy 1: Encourage the restoration and preservation of early Hawaiian structures, artifacts, and landmarks.

Policy 2: Identify, and to the extent possible, preserve and restore buildings, sites, and areas of social, cultural, historic, architectural, and archaeological significance.

Policy 3: Cooperate with the State and Federal governments in developing and implementing a comprehensive preservation program for social, cultural, historic, architectural, and archaeological resources.

Discussion: As summarized in *Chapter 3.9*, The archaeological field inspection did not identify any surface archaeological resources, as most of the Project area is paved or has been affected by other modern disturbance. It is not likely that any surface archaeological features remain; however, subsurface archaeological materials or deposits may be encountered during ground disturbance. Therefore, Keala Pono is conducting an AIS with subsurface testing to determine if remains lie beneath the surface and provide recommended mitigation measures. The subsurface testing strategy is currently being reviewed by SHPD, and the AIS will be included in the forthcoming Final EA for the Project. Construction activities will comply with State and County laws regarding preservation of historic sites, should any be discovered throughout the development of the project. Should cultural materials and/or burials be inadvertently discovered during construction, all work in the immediate area of the find will cease and SHPD will be notified.

Integration of cultural and heritage themes is planned in the architectural design and landscaping of the Pearlridge Bus Transit Center. A naturalized planting scheme will replace much of the existing asphalt parking lots, flanking the entrance and running parallel to Kamehameha Highway. The project will provide a public space and public service which will likely be used by people of diverse cultural and ethnic backgrounds, thus affording the opportunity for various groups to interact with each other.

5.9 City and County of Honolulu Land Use Ordinance Guidelines

The purpose of the LUO is to regulate land use in a manner that will encourage orderly development in accordance with adopted land use policies, including the County General Plan and development plans. The LUO is also intended to provide reasonable development and design standards. These standards are applicable to the location, height, bulk and size of structures, yard areas, off-street parking facilities, and open spaces, and the use of structures and land for agriculture, industry, business, residences or other purposes (Revised Ordinance for the City and County of Honolulu, Chapter 21).

Discussion: The current City & County zoning for the Project site is I-2, Intensive Industrial, and IMX-1, Industrial Mixed Use (*Figure 1.5*). The Project site is also proposed 'Aiea-Pearl City TOD Special District. Proposed zoning amendments to the project area will change the zoning of the subject properties to BMX-3, Community Business Mixed Use (*Figure 1.6*).

The land uses associated with the Pearlridge Bus Transit Center are consistent with both the existing and the proposed zoning designation. In the long-term, the City may pursue mixed-use development and upgraded, permanent transit facilities. The Project will therefore be designed to ensure that any future development will reduce impacts to bus and Rail transit services, such as interruption of service, to the extent practical.

5.10 City and County of Honolulu Primary Urban Center Development Plan

The island of O‘ahu is divided into eight Development Plan areas. Two areas are identified as “development plans,” (DPs) which provide guidance for future growth and development, while the other six areas are identified as “sustainable communities plans” (SCP), which aim to maintain the region’s character and ensure modest development. Each regional plan implements the objectives and policies of the General Plan for the City and County of Honolulu and provides direction on public policy, investment, and decision-making within each respective region. Together with the General Plan, they guide population and land use growth over a 20- to 25-year time span.

The project site is located within the region encompassed by the Primary Urban Center Development Plan (PUC DP). The PUC DP was last revised in June 2004 by Ordinance No. 04-14 and is currently being updated. The 2004 PUC DP’s vision for the PUC focuses on the long-term protection of community resources, the preservation of its residential character, and the adoption of public improvement programs and development regulations that reflect a stable population. The PUC DP establishes the region’s role in O‘ahu’s development pattern by defining policies in the Land Use and Transportation and Infrastructure and Public Facilities areas. As of August 2020, the updated PUC DP has not been released. The update will expand on topics including housing affordability and types; mobility improvements including rail; infrastructure improvement priorities; creating livable age-friendly communities; location and types of new development; planning for climate change and SLR; creating a diverse and prosperous economy; and, preserving and enhancing parks, open spaces, and natural features. The following sections highlight excerpts of the PUC DP that are particularly relevant to the Project.

Section 3.5 *Land Use and Transportation: Develop a Balanced Transportation System*

Policies:

- *Implement land use strategies to achieve a balanced transportation system. To improve the quality of life in the Primary Urban Center and to accommodate growth, development initiatives and regulatory controls should promote the growth of sustainable and appropriate alternative urban travel modes such as transit, walking, and bicycling.*
- *Improve the public transit system, including development of a rapid transit component. Improvements to the transit system should be targeted to accommodating trans-PUC travel and making neighborhood service more convenient. A rapid transit component is needed to serve the high-volume east-west corridor, connect activity centers, and provide transportation capacity in place of increased roadways.*
- *Implement Transportation Demand Management strategies. Due to limited land area and high costs, it is increasingly necessary to shift from increasing roadway and parking capacity to policies and practices that reward use of transit and other alternative modes.*
- *Enhance and improve pedestrian mobility. Create special pedestrian districts and corridors and a regional network of pedestrian facilities. Comprehensively address pedestrian safety concerns related to vehicle speeding and excessive volumes on local streets and neighborhood collector streets.*

Guidelines:

- *Identify and stimulate transit-oriented development on potential infill and redevelopment properties within the rapid transit corridor. Examples of development stimulators include tax incentives, development code amendments, and public infrastructure investments.*

Discussion: The Project directly fulfills the PUC DP's goal of creating a balanced transportation system. As discussed throughout this EA, the bus transit center will serve as a centralized multi-modal hub that will serve existing public transit users and may

Section 4.6. Infrastructure and Public Facilities: Stormwater Systems

Policies:

- *Require methods of retaining or detaining stormwater for gradual release into the ground as the preferred strategy for the management of stormwater. Where feasible, utilize open spaces including parking lots, landscaped areas, parks, and golf courses to detain or infiltrate stormwater flows to reduce their volume and runoff rates.*
- *Manage stormwater flows through best management practices to minimize stormwater runoff and peak discharge rates.*
- *Preserve stream and estuarine habitats.*

Guidelines:

- *Integrate planned improvements to the drainage system into the open space network by emphasizing the use of retention basins, the creation of passive recreational areas, and recreational access for pedestrians and bicycles without jeopardizing public safety. Support development of shared-use paths and parks along Manoa and Palolo Streams, Nuuanu Stream and Kapalama Canal.*

Discussion: As discussed throughout this EA, the Project will incorporate BMPs to minimize stormwater runoff and impacts to water quality. Design of the Project will integrate LID measures, such as a vegetated bioretention basin.

5.11 'Aiea-Pearl City Neighborhood TOD Plan

DPP has prepared neighborhood TOD plans that integrate land use and transportation planning around the rail stations in anticipation of Rail completion. The *'Aiea-Pearl City Neighborhood TOD Plan* (TOD Plan) presents a community vision for the existing neighborhoods surrounding the Leeward Community College, Pearl Highlands, and Kalauao (Pearlridge^e) rail stations. The goal of the TOD Plan is to foster livable communities that take full advantage of transit—specifically, creating new transportation options while encouraging economic growth and attractive redevelopment. The Aiea-Pearl City Rail station areas are envisioned as compact, pedestrian-friendly environments that provide various housing, employment, and recreational opportunities. Each of the three station areas are envisioned to have unique and different development opportunities.

The Kalauao Pearlridge Station, located within a major urban center and regional destination, offers opportunities for new development, the future re-orientation of Pearlridge Center, and improved access to the Pearl Harbor Historic Trail (which includes Pearl Harbor Bike Path) and shoreline. The nearby Pearlridge Center is the second largest mall in Hawaii and a major economic driver for the Kalauao Pearlridge Station area.

The intent of the Plan is to create a mixed-use regional center surrounding the station. Further, the TOD Plan explicitly recommends a bus transit facility makai of the Kalauao Pearlridge Station as part of its Phase 1 improvements to provide easy connection between Rail and local buses, improving access to surrounding neighborhoods.

The Planning Principles outlined in the TOD Plan and are applicable to the Project are as follows:

- *Create Access and Views to Water and Pearl Harbor Historic Trail*
- *Create a Comfortable and Lively Pedestrian Environment*
- *Provide Multimodal Access to and from Stations*

Discussion: The Project is a direct fulfillment of Phase 1 of the TOD Plan. The purpose of the Project is to provide multimodal connectivity at the Kalauao Pearlridge Station. Access to the Pearl Harbor Bike Path will be provided at the southeast end of the site. Design of the Project will adhere to design standards set forth in the TOD Plan to the extent practical. Sidewalks and shared use paths are included throughout to enable pedestrians and bicyclists to safely traverse throughout the site. Landscaping will include shade trees to enhance the pedestrian environment. Heights of bus shelters and the comfort station will not exceed the district's height limit of 60 feet.

In the long-term, the City has plans to pursue a mixed-use transit-oriented affordable housing development with upgraded permanent transportation facilities at this location. This long-term project is in alignment with the TOD Plan and the City's long-range shift in development patterns along the Rail. The Project site's zoning according to the TOD Plan is BMX-3, which will accommodate potential future mixed-use development (see *Figure 1.6*). The Project will be subject to TOD Special District regulations once adopted by the Honolulu City Council.

5.12 City and County of Honolulu Special Management Area

The Project site is located within the SMA, which was established to preserve, protect, and where possible, to restore the natural resources of the coastal zone of Hawai'i. Special controls on development within the SMA are necessary to avoid permanent loss of valuable resources and foreclosure of management options. In the City and County of Honolulu, DPP is the agency responsible for reviewing proposed development in the SMA, and approval by the Honolulu City Council is required. Review guidelines are articulated in Section 25-3.2, ROH. These guidelines are derived from Section 205A-26, HRS, which establishes the State CZM law. See *Chapter 5.4* for the Project's consistency with State CZM law.

Early consultation with DPP confirms that a SMA-Major permit is required of the Project (see *Figure 1.4* and *Chapter 7.0*). The SMA review guidelines are provided below:

Sec. 25-3.2 Review Guidelines

- (a) *All Development in the SMA shall be subject to reasonable terms and conditions set by the council in order to ensure that:*
- (1) *Adequate access, by dedication or other means, to publicly owned or used beaches, recreation areas, and natural reserves is provided to the extent consistent with sound conservation principles;*
 - (2) *Adequate and properly located public recreation areas and wildlife preserves are reserved;*
 - (3) *Provisions are made for solid and liquid waste treatment, disposition, and management which will minimize adverse effects upon special management area resources; and*

- (4) *Alteration to existing landforms and vegetation, except crops, and construction of structures shall 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.*

Discussion: The Project meet the above guidelines and provide access to the Pearl Harbor Bike Path and Historic Trail, which extends from Waipahu to Pearl Harbor. Topography at the site is generally flat throughout, and site work will include limited grading and excavation for building the foundation and installation of utilities. Site work is not anticipated to result in adverse impacts to existing landforms and will conform to State and County standards.

- (b) *No development shall be approved unless the council has first found that:*
 - (1) *The development will not have any substantial, adverse environmental or ecological effect except such adverse effect is minimized to the extent practicable and clearly outweighed by public health and safety, or compelling public interests. Such adverse effect shall include, but not be limited to, the potential cumulative impact of individual developments, each one of which taken in itself might not have a substantial adverse effect, and the elimination of planning options;*
 - (2) *The development is consistent with the objectives and policies set forth in Section 25-3.2 and area guidelines contained in Section 205A-26, Hawai'i Revised Statutes; and*
 - (3) *The development is consistent with the County General Plan, Development Plans, Zoning and subdivision codes and other applicable ordinances.*

Discussion: The Project is not anticipated to result in adverse environmental effects, as discussed in Chapter 3.0. Additionally, the Project is consistent with relevant State and County plans, as discussed throughout Chapter 5.0 of this EA.

- (c) *The Council shall seek to minimize, where reasonable:*
 - (1) *Dredging, filling or otherwise altering any bay, estuary, salt marsh, river mouth, slough, or lagoon;*
 - (2) *Any development which would reduce the size of any beach or other area usable for public recreation;*
 - (3) *Any development which would reduce or impose restrictions upon public access to tidal and submerged lands, beaches, portions of rivers and streams within the special management area and the mean high tide line where there is no beach;*
 - (4) *Any development which would substantially interfere with or detract from the line of sight toward the sea from the State highway nearest the coast; and*
 - (5) *Any development which would adversely affect water quality, existing areas of open water free of visible structure, existing and potential fisheries and fishing grounds, wildlife habitats, or potential or existing agricultural uses of land.*

Discussion: The Project will not involve dredging or alteration of water resources and will not reduce the size of beach or usable area for recreation. As discussed, the Project will provide direct access for bus transit center users to the Pearl Harbor Bike Path. The Project will not substantially interfere with views toward the ocean as discussed in Chapter 3.11. Additionally, with the implementation of mitigation measures discussed in Chapter 3.4, adverse impacts to water quality are not anticipated.

5.13 O‘ahu Regional Transportation Plan (ORTP) 2040

The objective of the O‘ahu Regional Transportation Plan (ORTP) is to guide the development of transportation on our island through the year 2040. It presents both a vision of an improved transportation system to serve the needs of Oahu’s population as well as specific projects that will achieve that vision. ORTP 2040 includes recommendations for improving the full range of transportation options available to island residents—automobile, truck, bus, rail, bicycle, and pedestrian.

The ORTP 2040 vision is articulated below:

“In 2040, Oahu will be a place where we will have efficient, well-maintained, safe, secure, convenient, appropriate, and economical choices in getting from place to place. Our transportation system will move us and the goods we use in a manner that supports the island’s high quality of life, natural beauty, economic vitality, and land use policies by supporting appropriate density development and avoiding urban sprawl. This system will promote energy conservation and economic sustainability as well as the protection of our ports of entry, preparation for emergency situations, and changes in global climate patterns.”

The plan outlines eight regional goals, each accompanied with regional objectives. The most relevant goals and objectives to the Project are the following:

1. *Transportation Facilities - Provide an inclusive, multi-modal transport system whose connectedness provides efficient means for users desiring to move about this island by bicycle, freight carrier, pedestrian facility, road, transit service, and intermodal connectors.*

Regional Objectives:

- 1.A. *Improve surface transportation system efficiency*
- 1.B. *Build a balanced and integrated multi-modal transportation network*

2. *Transportation Operations and Services - Develop, operate, maintain, and improve Oahu's island-wide transportation system to ensure the efficient, dependable, safe, secure, convenient, and economical movement of people and goods.*

Regional Objectives:

- 2.A. *Improve congestion*

4. *Natural Environment - Develop, operate, maintain, and improve Oahu's transportation system in a manner that sustains environmental quality.*

Regional Objectives:

- 4.A. *Meet or exceed noise, air, and water quality standards set by Federal, State, and City agencies*
- 4.B. *Reduce greenhouse gas emissions from transportation sources*
- 4.C. *Adapt the surface transportation network to all aspects of climate change*

6. *Land Use and Transportation Integration - Develop, operate, maintain, and improve Oahu's transportation system in a manner that integrates effective land use and transportation with established sources of funding in a fair and equitable manner*

Regional Objectives:

- 6.A. *Support Transit-Oriented Development and other land use development policies that reduce vehicular trip-making and vehicle miles traveled*

7. Infrastructure Condition - Improve and maintain Oahu's transportation system in a state of good repair

Regional Objectives:

7.A. Improve and maintain transportation system in a state of good condition

The ORTP 2040 further recommends a list of mid-range and long-term priority projects for funding and construction. The construction of transit centers at various locations island-wide to support transit operations is listed as Mid-Range Projects (2009-2029) as Project No. 604.

Discussion: The Pearlridge Bus Transit Center supports the goals and objectives of the ORTP 2040 and will represent a direct fulfillment of projects listed for recommended construction. The proposed interim Pearlridge Bus Transit Center will support the Kalauao Pearlridge Station, which is currently under construction. The station will provide multimodal public transportation connections necessary for maintaining and upgrading the City's critical transit infrastructure. As discussed throughout this EA, BMPs and LID measures are proposed throughout construction and operation to mitigate the potential for adverse impacts to surrounding natural resources. However, no adverse impacts are anticipated. In the long-term, the City may propose mixed-use redevelopment at the site in alignment with a wider shift towards TOD.

5.14 2019 O'ahu Bike Plan Update

In 1994, the Honolulu City Council and Mayor adopted Ordinance 94-39 (Revised Ordinances of Honolulu Section 2-12.1), which directed that a bikeway system master plan for urban Honolulu be prepared and updated every five years. DTS prepared the initial Honolulu Bicycle Master Plan, which was adopted by City Council in September 1999. In 2012, the *O'ahu Bike Plan* broadened the scope of bicycle planning to include the entire island and addressed integration with the future Rail system. The *O'ahu Bike Plan 2019 Update* builds off of the foundation provided in its predecessor 2012 plan and guides the continued growth of bicycling as a safe, convenient, affordable, healthy, and fun transportation option. The plan's vision for cycling on O'ahu is articulated below:

"O'ahu is a bicycle-friendly community where bicycling is a safe, viable, and popular travel choice for residents and visitors of all ages and abilities."

The plan advances the four following goals in order to meet the vision:

1. To encourage and promote bicycling as a safe, convenient, and pleasurable means of travel.
2. To enhance cooperation between roadway users.
3. To increase the mode share of bicycle trips.
4. To be recognized by the League of American Bicyclists as a gold level Bicycle-Friendly Community.

The 2019 update supplements the 2012 plan with six key recommendations to focus the City's efforts to support bicycling:

1. Commit to Vision Zero
2. Develop seamless connections between bikes and transit.
3. Expand encouragement and education efforts.
4. Establish a comprehensive bikeway maintenance program.
5. Implement a consistent signage and wayfinding program.SZ
6. Evaluate bicycle facilities and programs.

In the vicinity of the Project, the *2019 O’ahu Bike Plan Update* proposes bike lanes on Kamehameha Highway (Project 1-113) and Kanuku Street (Project 1-114) and a protected bike lane on Kaonohi Street from Kamehameha Highway to Moanalua Road (Project 1-115).

Discussion: The Pearlridge Bus Transit Center supports the vision, goals, and recommendations articulated in the O’ahu Bike Plan 2019 Update. Pearl Harbor Bike Path, which is used by both cyclists and pedestrians, bounds the southern portion of the Project site. The path’s adjacency to the proposed Pearlridge Bus Transit Center will encourage multimodal activity, enabling users of the path to connect to bus and Rail services safely and conveniently. Bicycle parking will also be provided at the facility. The provision of connection to other modes of transport may encourage increased use of public transportation or cycling, which is a shift that will be critical to meeting the City and State’s climate change goals.

5.15 Honolulu Complete Streets Ordinance

The Honolulu Complete Streets Ordinance was passed by City Council and signed into law in 2012, establishing the complete streets policy for the City and County of Honolulu. The policy adopted the following objectives for complete streets principles:

- (1) Improve safety;
- (2) Apply a context sensitive solution process that integrates community context and the surrounding environment, including land use;
- (3) Protect and promote accessibility and mobility for all;
- (4) Balance the needs and comfort of all modes and users;
- (5) Encourage consistent use of national industry best practice guidelines to select complete streets design elements;
- (6) Improve energy efficiency in travel and mitigate vehicle emissions by providing non-motorized transportation options;
- (7) Encourage opportunities for physical activity and recognize the health benefits of an active lifestyle;
- (8) Recognize complete streets as a long-term investment that can save money over time;
- (9) Build partnerships with stakeholders and organizations statewide;
- (10) Incorporate trees and landscaping as integral components of complete streets.

Discussion: As the City’s transportation department, DTS is required under SLH, Act 54 to ensure that the Project is consistent with Complete Streets principles. The Pearlridge Bus Transit Center is sited adjacent to the Kalauao Pearlridge Station and will accommodate multimodal public transportation. Sidewalks and shared use paths are integrated into the site design to ensure safety of pedestrians and bicyclists. Landscaping, including shade trees, and appropriate lighting will be provided to create an inviting atmosphere for pedestrians and transit users. Access to the adjacent Pearl Harbor Bike Path is provided at the southeast end of the site, and bicycle racks will be provided. These features will encourage opportunities for physical activity. Additionally, the Project includes installation of four electric bus charging bays, which will help TheBus fleet improve energy efficiency and mitigate vehicle emissions.

ⁱ Notably, at the time of its adoption in September 2014, the Kalauao Station was referred to as the “Pearlridge Station” and has since been renamed. For the purposes of this section, the station will be referred to by its new name, Kalauao Pearlridge Station, as it is referred to throughout this EA.

Findings Supporting the Determination

Chapter 6

Findings Supporting the Determination

6.1 Determination of Finding of No Significant Impact (FONSI)

Based on a review of the significance criteria outlined in Chapter 343, HRS and Chapter 11-200.1-13, HAR, the development of the Pearlridge Bus Transit Center has been determined to not result in significant adverse effects on the natural or human environment. It has been determined by DTS that an EIS will not be required, and that a FONSI be issued for this Project.

6.2 Reasons Supporting the Determination

The potential effects of the Pearlridge Bus Transit Center have been fully examined and discussed in this EA. As stated earlier, there are no significant environmental impacts expected to result from the planned improvements. This determination is based on the assessments as presented below for criterion (1) to (13) (Chapter 11-200.1-13(b), HAR).

(1) Irrevocably commit a natural, cultural or historic resource.

The proposed Project is not anticipated to result in the loss or destruction of any natural resources. As discussed in *Chapter 3.4*, no endangered or threatened plant or animal species or critical habitat were identified on the site. Mitigation measures discussed in *Chapter 3.4* will be employed to minimize potential impacts to Hawaiian seabirds or Hawaiian hoary bat that may fly over the Project site.

Historical properties, cultural resources, and wahi kanu have been documented in studies conducted specifically for the Project site. As discussed in *Chapters 3.8 and 3.9* of this EA, a CIA and LRFI were prepared for the Project in 2020. An AIS will be subsequently prepared and incorporated into the Final EA.

If any cultural or archaeological resources are unearthed, or ancestral remains are inadvertently discovered, the DLNR, SHPD, the OIBC Kona moku representative and known cultural descendants will be duly notified. The treatment of these resources and iwi kupuna will be conducted in strict compliance with applicable historic preservation and burial laws and code of conduct. With the prescribed mitigation measures, the Project will not involve a known loss of existing cultural, archaeological, or historical resources.

(2) Curtail the range of beneficial uses of the environment.

The Project will not curtail the range of beneficial uses of the environment. Construction of the new bus transit center will be on existing developed land for industrial uses. The site is currently being used for the Rail construction laydown area. The proposed uses are compatible with surrounding uses in the area.

The purpose of the Project is to construct a new bus transit center to serve as a major bus hub for the 'Aiea-Pearl City region, as well as improve multimodal transportation connectivity at the Kalauao Pearlridge Station. Accordingly, the Project will provide a beneficial impact to the City's residents and will help the City and State meet their climate change and renewable energy goals.

- (3) *Conflict with the State's environmental policies or long-term environmental goals established by law.*

The Project does not conflict with the State's long-term environmental policies or goals and guidelines as expressed in the State Environmental Policy, Chapter 343, HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders. The Project supports the State's environmental goals overall. The new bus transit center will serve as a major bus hub for the 'Aiea-Pearl City region, as well as improve multimodal transportation connectivity at the Kalauao Pearlridge Station. Convenient and accessible multimodal transportation system will be critical for attracting more public transportation users. Shifting users from single-occupancy vehicles to public transportation will result in a reduction in GHG emissions. Reducing GHG emissions is the key to mitigating the climate change effects in the State. The transit center will also include electric bus charging stations, helping the City and State meet their renewable energy goals.

- (4) *Have a substantial adverse effect on the economic welfare, social welfare, or cultural practices of the community and State.*

The Project will result in short-term economic benefits during construction and long-term economic benefits during operation. These benefits include direct, indirect, and induced employment opportunities and multiplier effects, but not at a level that would generate significant economic activity. Operation of the bus transit center may result in several long-term paid positions. The bus transit center will make it more convenient for bus and Rail users to connect between the two modes of transportation. The Project, in conjunction with the Rail, may result in an increase use of public transportation overall. Should more public transportation users increase, traffic congestion may be reduced, which will enhance the quality of life for residents overall.

No cultural practices are anticipated to be affected by the Project.

- (5) *Have a substantial adverse effect on public health.*

The Project is compatible with existing surrounding land uses and is not expected to affect public health. However, there may be temporary impacts to air quality from dust and temporary degradation of acoustic environment in the immediate vicinity resulting from construction activities. Operation of the bus transit center will not have significant impacts to the air quality and acoustic environment of the Project area. The Project will comply with State and County regulations during construction and will implement best management practices to minimize temporary and long-term impacts. The facility is expected to have long-term public health benefits from reduced GHG emissions resulting from a modal shift from single-occupancy vehicles to public transportation, as well as from increased physical activities such as walking and biking activities that are facilitated as part of the Project.

- (6) *Involve adverse secondary impacts, such as population changes or effects on public facilities.*

No adverse secondary impacts to population or public facilities are anticipated as a result of the Project. The bus transit center will be a public facility for bus and Rail users. The Project will also enhance pedestrian and bicycle connectivity via the proposed multi-use path that connects the Pearl Harbor Bike Path with the City bike facilities. Increased use is expected on the site and will require additional security measures, including lighting or on-site security personnel.

- (7) *Involve a substantial degradation of environmental quality.*

The Project will not involve a substantial degradation of environmental quality on-site or in the surrounding environment. Construction impacts related to noise and air quality are temporary and will be minimized by implementing construction and erosion control BMPs. Long-term significant impacts to air and water quality, noise, and natural resources are not anticipated.

- (8) *Is individually limited but cumulatively have substantial adverse effect upon the environment or involved a commitment for larger actions.*

The development and implementation of the Project will not have significant impact on the environment. There are no anticipated cumulative effects on the environment as the Project is not intended as a commitment to a larger action by DTS. In the future, the City may redevelop the site in alignment with the City's long-range mixed-use neighborhood TOD plan.

- (9) *Have a substantial adverse effect on a rare, threatened or endangered species, or its habitat.*

The Project site does not contain known rare, threatened, or endangered species or critical habitat. As outlined in *Chapter 3.7*, to avoid potential impacts to Hawaiian hoary bats, tree disturbance will be limited during bat birthing and pup rearing season, in the unlikely event that they may inhabit at the site. Additionally, mitigation measures as outlined in *Chapter 3.4* to minimize impacts to Hawaiian seabirds that may occasionally fly over the Project site will be implemented. No impacts are anticipated.

- (10) *Have a substantial adverse effect on air or water quality or ambient noise levels.*

Temporary impacts associated with construction are identified throughout *Chapter 3.0* of this EA. Short-term effects on air, water quality, and ambient noise levels during construction will be mitigated through adherence with State and City regulations and mitigation measures as discussed throughout this EA. No detrimental long-term impacts to air, water, or acoustic quality are anticipated from the Project.

- (11) *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, freshwater, or coastal waters.*

The Project site lies within Flood Zone "X", an area determined to be outside area with 0.2% annual chance of flood and outside of the 500-year floodplain. Located at approximately 200 feet inland from the coast, the Project area is outside of the tsunami evacuation zone and SLRXA. However, the Project is located within the extreme tsunami evacuation zone. In case of extreme tsunamis, users of the facility will need to evacuate to higher grounds. No long-term impacts are anticipated. See *Chapters 3.2, 3.3, and 3.5* for further discussion.

(12) Have a substantial adverse effect on scenic vistas and viewplanes, during day or night, identified in county or state plans or studies.

Short-term impacts to visual resources are related to construction, as discussed in *Chapter 3.11*. In the long-term, the Project will not substantially impact any scenic vistas or viewplanes identified in State or City plans. The bus transit facility will not have structures that are higher than one story and will be beautifully landscaped. The facility will be visible from Kamehameha Highway and along the Pearl Harbor Bike Path. Final design treatments to minimize the visual impact of the transit center on the surrounding neighborhood may include landscape screening.

(13) Require substantial energy consumption or emit substantial greenhouse gases.

Construction of the Project will not require substantial energy consumption relative to other similar projects. Lighting throughout the transit center and electric bus charging station will increase electrical demand at this location. The comfort station will be designed to obtain LEED Silver for New Construction V4 certification pursuant to City Ordinance 06-06, Relating to Green Building Standards for City Facilities. The Project is not expected to generate vehicular traffic at the site, as discussed in *Chapter 3.13*. The increased bus traffic on the site is not expected to result in a substantial increase in GHGs. Overall, the Project will have a positive effect on GHG emissions.

6.3 Summary

Based on the information and findings in this EA, it is determined that the Project will have no significant impact on the environment. Further evaluation of the Project's impacts through the preparation of an EIS is not warranted. The EA recommends mitigation measures to alleviate impacts when such impacts are identified. A Finding of No Significant Impact (FONSI) is issued for the Project.

The Pearlridge Bus Transit Center will support the Kalauao Pearlridge Station by providing bus connections to and from the Rail station. The Project is an important component in creating and integrated multimodal transportation system on O'ahu. This will help increase public/alternative mode transportation users in consistent with the City's and State's transportation and climate change-related goals. Overall, the Project will provide public benefit while resulting in minimal impacts to the surrounding environment.

**List of Agencies, Organizations and
Individuals Receiving Copies of the EA**

Chapter 7

List of Agencies, Organizations and Individuals Receiving Copies of the EA

7.1 Consultation List

Early consultation on the Project was carried out with various agencies and stakeholder groups on March 5, 2020 as part of the scoping process for this Project. The Draft EA was published in *The Environmental Notice* on October 23, 2020. Publication of the Draft EA was followed by a 30-day public comment period. A total of 12 State and City agencies or agency divisions and community organizations commented on the Project. Parties contacted in preparation of the Draft EA process, Draft EA comments received, and those that will receive a publication notification of the Final EA are identified in *Table 7.1* below. Comment letters received during the Draft EA public comment period are provided in *Appendix H*.

Table 7.1 Agencies, Organizations and Individuals Receiving Copies of the EA					
Respondents and Distribution	Early Consultation	Received Early Consultation Comments	Received Draft EA	Draft EA Comments Received	Receiving Final EA/ FONSI
Federal Agencies					
U.S. Fish and Wildlife Service - Pacific Islands Fish and Wildlife Office	X	X	X		X
U.S. Navy, Joint Base Pearl Harbor-Hickam (JBPHH)	X	X	X		X
State of Hawai'i Agencies					
Department of Accounting and General Services			X	X	X
Department of Business, Economic Development & Tourism (DBEDT) - Office of Planning	X	X	X		X
DBEDT - State Energy Office	X		X		X
Department of Health (DOH)	X		X		X
DOH - Clean Water Branch			X		X
DOH - Wastewater Branch			X		X
DOH - Clean Air Branch				X	X

Table 7.1 Agencies, Organizations and Individuals Receiving Copies of the EA

Respondents and Distribution	Early Consultation	Received Early Consultation Comments	Received Draft EA	Draft EA Comments Received	Receiving Final EA/ FONSI
Department of Land and Natural Resources (DLNR) – Land Division	X		X	X	X
DLNR – Engineering Division			X	X	X
DLNR – Land Division, O’ahu District			X	X	X
DLNR – Office of Conservation and Coastal Lands	X				X
DLNR – State Historic Preservation Division	X		X		X
Department of Transportation – Highways Division	X	X	X	X	X
O’ahu Island Burial Council			X		X
Office of Hawaiian Affairs	X		X		X
City and County of Honolulu Agencies					
Board of Water Supply	X	X	X	X	X
Department of Design and Construction	X	X	X		X
Department of Environmental Services	X		X		X
Department of Facility Maintenance	X	X	X	X	X
Department of Parks and Recreation – Urban Forestry Division	X	X		X	X
Department of Planning and Permitting	X	X	X	X	X
Honolulu Authority for Rapid Transportation	X		X		X
Honolulu Fire Department	X	X	X	X	X
Honolulu Police Department	X	X	X	X	X
Office of Climate Change, Sustainability, and Resiliency			X		X
Elected Officials					
U.S. Senator Brian Schatz			X		X
U.S. Senator Mazie Hirono			X		X
U.S. Representative Ed Case, First Congressional District			X		X
Senator Bennette Misalucha – State Senate District 16			X		X

Table 7.1 Agencies, Organizations and Individuals Receiving Copies of the EA					
Respondents and Distribution	Early Consultation	Received Early Consultation Comments	Received Draft EA	Draft EA Comments Received	Receiving Final EA/ FONSI
Representative Gregg Takayama - State House District 34			X		X
Mayor Rick Blangiardi*			X		X
Council Member Brandon Elefante Honolulu City Council District 8			X		X
Chair William B. Clark 'Aiea Neighborhood Board No. 20	X		X		X
Chair Larry Veray Pearl City Neighborhood Board No. 21	X		X		X
Community Groups, Individuals, and Consulted Parties					
Hawaiian Civic Club of Honolulu			X		X
International Union of Bricklayers and Allied Craftworkers Local #1 of Hawai'i				X	X
Libraries					
Hawai'i State Library			X		X
'Aiea Library			X		X
Pearl City Library			X		X
Utilities					
Hawaiian Electric Company			X		X
Hawaiian Telcom			X		X
Spectrum			X		X
Other					
Honolulu Star-Advertiser			X		X

* Former Mayor Kirk Caldwell received the Draft EA.

7.2 Summary of Comments

A summary of comments received during the Draft EA comment period by major topics and associated responses is provided in *Table 7.2* below. Refer to comment letters in *Appendix H*.

Table 7.2 DEA Summary of Comments and Responses

Comments	Commenter	Responses
Maintenance		
Please note that the City maintains the Pearl Harbor Bike Path (TMK: 9-8-009:003).	DFM	DTS acknowledges the comment.
Jurisdiction		
Kamehameha Highway is under the jurisdiction of the Honolulu Authority for Rapid Transportation.	DFM	DTS acknowledges the comment.
Public Safety		
HPD would like to address public safety as it relates to emergency and law enforcement response for the propose bus transit center and the future mixed-use development of the surrounding area(s). This includes potential security issues due to the increase in pedestrian and vehicular traffic around the proposed developments. Therefore, HPD would like to be included when these sections are planned or discussed with the stakeholders in the area, as there may be a need for additional police services at that time.	HPD	DTS will continue to keep HPD apprised of the Project and will include HPD as a stakeholder throughout the outreach process.
Construction Impacts and Best Management Practices (BMPs)		
Standard BMPs proposed for fugitive dust in compliance with HAR, Chapter 11-60.1-33 on Fugitive Dust.	DOH-CAB	DTS acknowledges the comment. Standard BMPs for fugitive dust will be implemented.
The Project’s compliance with the City’s Rules Relating to Water Quality will be verified at the time that the grading plans are submitted to the DPP for review.	DPP	DTS acknowledges the comment. The Project will comply with the City’s Rules Relating to Water Quality.

Table 7.2 DEA Summary of Comments and Responses

Comments	Commenter	Responses
No additional stormwater runoff will be permitted in the HDOT ROW, including culverts. All additional stormwater runoff from the project site shall be managed and mitigated onsite.	HDOT	DTS acknowledges the comment. The Project includes LID features to manage stormwater on site, such as a drainage swale and retention basins. The Project will comply with the City's Rules Relating to Water Quality.
HPD anticipates short-term impacts related to vehicular traffic. HPD recommends that all necessary signs, lights, barricades, and other safety equipment be installed and maintained by the contractor during the construction phase.	HPD	DTS acknowledges that comment. Mitigation measures will be implemented to mitigate potential traffic-related impacts and safety measures will be maintained during the construction phase.
Fire Code		
No additional comments; refer to comments provided on April 1, 2020.	HFD	DTS acknowledges the comment.
Employment		
We appreciate that the project would generate positive economic effects and create construction jobs in our local economy.	Local 1	DTS acknowledges the comment.
Construction wages of this project will be subject to HRS Chapter 104 as a result of the utilization of City and County funds. The prevailing wages required by HRS Chapter 104 are key to supporting an economically vibrant middle class here in the islands. At a time where there is so much economic uncertainty, a project like the Pearlridge Bus Transit Center will help to buoy our local construction industry.	Local 1	DTS acknowledges the comment.
We appreciate that the Pearlridge Bus Transit Center will interface with the rail project to provide transportation alternatives for people throughout 'Aiea, Pearl City, and Central O'ahu.	Local 1	DTS acknowledges the comment.

Table 7.2 DEA Summary of Comments and Responses

Comments	Commenter	Responses
Urban Design		
We ask that TheHandi-Van and Kiss-N-Ride area be designed in coordination with adjacent Kamehameha Schools redevelopment plan to create a pedestrian-prioritized, mixed-use shared street or “woonerf” to support this vision, as identified in the Aiea-Pearl City Neighborhood TOD Plan.	DPP	DTS acknowledges the comment and is currently working with Kamehameha Schools to coordinate the future development.
The Project should adhere to urban design principles described in the TOD Plan, and it will be subject to the TOD Special District regulations once adopted by the Honolulu City Council.	DPP	DTS understands the development would be subject to TOD Special District regulations once adopted by the Honolulu City Council.
Creating a walkable environment along Kamehameha Highway is important because it is envisioned to be an active street for transit riders to walk to and from the transit stations in all directions.	DPP	DTS acknowledges the comment.
At minimum, street trees, such as Rainbow Shower, Queens Hospital White Shower, or Monkey Pod to maintain consistency with nearby trees should be provided along Kamehameha Highway, between the road and sidewalk (assuming no conflicts), to provide shade and a sense of protection from fast moving vehicles.	DPP	DTS acknowledges the comment. The selection and location of street trees will require coordination and approval from the State HDOT as the sidewalk is within HDOT jurisdiction. Sight line and safety consideration will also be considered.
Our observations of sidewalks in high pedestrian traffic areas (i.e., TOD neighborhoods) has also found that at least eight to 10 feet is necessary to comfortably pass side-by-side and accommodate users. We recommend the minimum width of the sidewalk be eight to 10 feet.	DPP	DTS acknowledges the comment. The sidewalk for the Project, both along Kamehameha Highway and within the Project are at least 10-feet-wide.
In areas where riders are waiting for busses, taxis, or TheHandi-Vans, we recommend planting more canopy trees. Where possible, locate trees	DPP	DTS acknowledges the comment. Additional protective landscaping will be incorporated where practicable.

Table 7.2 DEA Summary of Comments and Responses

Comments	Commenter	Responses
<p>between the curb and the sidewalk so pedestrians feel protected from passing vehicles. Combined with hedges or other landscaping, the design layout could use this as a natural railing or fence that guides pedestrians to use proper crosswalks and deter them from jay-walking between the bus station islands.</p>		
<p>Impacts should be minimized through good fence design (e.g., wrought iron fence or another see-through design to provide public safety and awareness through visual connections) and safeguards to ensure that gate closures do not limit users from traversing between the Pearl Harbor Historic Trail and Kamehameha Highway.</p>	DPP	<p>DTS acknowledges the comment. Fencing design will consider visual connections and public safety. Gate closures may only limit users traversing between the Pearl Harbor Historic Trail and Kamehameha Highway after hours when the transit station is closed.</p>
<p>Traffic Impacts</p>		
<p>Mitigation for direct impacts to State facilities will be provided at no cost to the State. The City shall dedicate ROW for the recommended transportation mitigation improvements to the State, as required and approved by HDOT. Regional improvements will be provided on a prorated basis. These improvements shall be constructed on a schedule acceptable to HDOT.</p>	HDOT	<p>DTS acknowledges the comment.</p>
<p>Traffic – Revisions to the MAR (Appendix D)</p>		
<p>A permit to perform work upon state highways shall be required for any work within the highway ROW. Construction plans prepared by a Hawaii licensed engineer shall be submitted for review and approval prior to applying for a permit to perform work.</p>	HDOT	<p>DTS acknowledges the comment.</p>
<p>The MAR should include additional traffic safety analysis for the proposed driveways on Kamehameha Highway and Kanuku Street. The analysis should include sight distance</p>	HDOT	<p>The MAR (<i>Appendix D</i>) has been revised to note that a minimum stopping sight distance of 305 feet in the ‘ewa direction on the highway should be provided at the outbound driveways (one from the bus center and one from the Kiss & Ride area). These requirements will be included on the final construction plans and are</p>

Table 7.2 DEA Summary of Comments and Responses

Comments	Commenter	Responses
<p>requirements, various design vehicle turning movements, and potential conflicts with nearby intersections or driveways. Provide justification for length of throat for all in-bound driveways. HDOT recommends that a deceleration lane be provided for the in-bound driveways because the right-turn in-bound-only driveway may cause vehicles to backup into Kamehameha Highway.</p>		<p>based on a design speed of 40 mph (i.e., 5 mph above the posted limit of 35 mph). This will require that no vertical elements above 2.5 feet be installed in this area, and that tree canopies be pruned to no less than 8 feet to account for a higher driver eye height for bus drivers.</p> <p>The closest driveways to the Project driveways on Kamehameha Highway are the Best Buy parking lot driveway connecting to Kamehameha Highway approximately 40 feet west of the in-bound-only driveway for buses, and the westernmost, outbound-only driveway for the shopping center containing Ashley Furniture and Homeworld Furniture approximately 20 feet east of the proposed project driveway that will serve TheHandi-Van and private vehicle pick-up and drop-off. Operations at the Best Buy driveway are not expected to result in any substantial issues because the Project driveway is in-bound only, and the Project driveway will only serve buses such that the number of vehicles turning into the site will be limited. In the case of the furniture store driveway, the number of instances where vehicles will be exiting the adjacent driveways will be limited given the size of the furniture store lot, and the limited turnover that typically occurs at the store.</p> <p>There are no queueing issues anticipated for the driveway connecting to Kanuku Street because no substantial traffic volume will conflict with buses turning into the Project site. Buses will be able to bypass any vehicles entering the main Best Buy parking lot (located immediately east of the store) by using the median lane of the driveway.</p> <p>The in-bound driveways on Kamehameha Highway are being designed to allow vehicles to turn into the site with limited effect to traffic in the curbside travel lane and similar to driveways serving other parcels along this corridor. Bus turning templates (now included in the technical appendix to the MAR) show that buses will not need to encroach into the adjacent travel lane to complete turning movements.</p> <p>For the one in-bound only driveway on Kamehameha Highway, no delays are anticipated for in-bound traffic due to vehicle congestion. If the bus bay closest to Kamehameha Highway is already occupied and the entering driver is destined for that location, drivers will be instructed to continue into the site and park elsewhere until the space becomes available. The only other movement that could conflict with in-bound buses is controlled by a yield sign, requiring drivers to yield to entering vehicles. Articulated buses are not permitted to use the stop closest to the in-bound Kamehameha Highway driveway. It is noted that only 15 buses will make this movement during each peak hour, or approximately one bus every four</p>

Table 7.2 DEA Summary of Comments and Responses

Comments	Commenter	Responses
		<p>minutes. A deceleration lane is not recommended due to the relatively low volume of right-turning traffic, and this design would be consistent with the design of numerous other Kamehameha Highway driveways in the vicinity of the project.</p> <p>Finally, the Kiss & Ride driveway will serve private vehicles and TheHandi-Van vehicles. The first 100 feet of this driveway are for TheHandi-Van parking only, and private vehicles are provided with a lane to bypass these parking stalls to access the pick-up/drop-off turnaround area well within the project site. This driveway is expected to only serve 35 in-bound vehicles in each of the peak hours.</p>
<p>The MAR should have for each scenario and at all study intersection, figures that show laneage and volumes, and a table with delay and LOS for each movement and overall LOS if applicable.</p>	<p>HDOT</p>	<p>The MAR includes figures that show laneage and volumes and a table with delay and overall LOS for each scenario and all study intersections. The LOS for each movement is presented on the Synchro worksheets provided in Appendix D of the MAR (<i>Appendix D</i>), and a table has also been added summarizing the LOS by movement.</p>
<p>The MAR should include all future planned developments in the area including (but not limited to) the development at TMK (1) 9-8-013: 013 and 015, “Live, Work, Play Aiea” (the former Kamehameha Drive-In property) with the Future (2025) traffic estimates. Analysis of existing conditions should reflect the conditions prior to HART construction. Congestion on Kamehameha Highway was heavy before HART construction, the use of 2010/2011 data as a base before applying annual growth rate needs additional justification. Provide a comparison to the highest peak and daily volumes before HART construction. Kamehameha Highway speed limit will remain at 35 mph after HART construction.</p>	<p>HDOT, DPP</p>	<p>Discussions with DPP Traffic Review Branch and the current project schedule indicate that Live, Work, Play ‘Aiea will not start construction until the beginning of 2023 at the earliest, and it will be built out over an extended period of time beyond 2025. Given that the majority of the project will be built after this Project opens, thus Live, Work, Play ‘Aiea is not included in the forecast and the DPP Traffic Review Branch concurs will this approach.</p> <p>The Existing Conditions evaluated in the MAR reflect on-the-ground observed conditions at the time the study was initiated consistent with standard environmental practice. However, for evaluating impacts under future conditions, higher volumes from counts collected prior to HART construction were used and increasing them over a 15-year period to 2025 conditions. This additional growth will also account for the initial phases of the Live, Work, Play Aiea project noted above.</p> <p>The 2010/2011 traffic count data was used because it was the most recent available data prior to HART construction that included detailed turning-movement-level counts. A comparison of available HDOT data from between 2010 and 2013 (and, at one location, from 2014) before HART construction began indicated some growth at selected locations but did not include turning movement data at any of the study locations. Furthermore, some locations showed decreased volumes (e.g., in 2012). Even if traffic volumes were increased to account for larger growth between 2010 and 2013 than assumed in the MAR, the study intersections</p>

Table 7.2 DEA Summary of Comments and Responses

Comments	Commenter	Responses
		<p>would be anticipated to operate acceptably and no additional significant operations impacts are expected.</p> <p>The MAR will be revised to reflect a 35 mph speed limit on Kamehameha Highway after HART construction.</p>
<p>The MAR should provide recommended mitigation and analysis for Kamehameha Highway and Kanuku Street intersection. The PM eastbound left turn movement has a LOS of F and other movements have LOS E. The MAR should note that HART eliminated one of the westbound left-turn lanes at this intersection.</p>	<p>HDOT</p>	<p>Mitigation is not typically recommended for any intersection where the projected LOS will operate a desirable level (i.e., LOS D or better). In addition, recommending improvements for all individual turning movements would often result in excessive roadway infrastructure that is only needed during the peak hours. Furthermore, lane additions and/or roadway widenings would also have negative secondary impacts to bicycle and pedestrian travel by increasing active travelers to vehicle conflicts. In the case of the movement noted in the comment, the improvement required to reduce delay for the eastbound left-turn movement would be to allocate additional green time to this phase and decrease the green time for the westbound through phase. However, this would be detrimental to westbound travel, which is the primary traffic flow during the PM peak hour. Alternatively, a third westbound through lane or a second eastbound left-turn could be added, but neither of these additions are feasible within the existing right-of-way. It is also noted that despite LOS F operations for the eastbound left-turn movement, the queues are projected to be accommodated within the available storage.</p> <p>The other movements operating at LOS F or E could be mitigated by reducing the overall cycle length, which would be detrimental to corridor progression. Accordingly, no additional improvements were recommended at this location.</p>
<p>The MAR Table 6 and Table 10 should include queue analysis for the Kamehameha Highway and Pali Momi Street intersection's westbound left-turn. This intersection signal timing should already be coordinated with the other two signals along Kamehameha Highway, verify the need to modify the signal timing as a potential improvement.</p>	<p>HDOT</p>	<p>The MAR has been revised to include the westbound left-turn queueing; it is noted that the Project does not add any traffic to this movement (<i>Appendix D</i>). The analysis does reflect that the Kamehameha Highway and Pali Momi Street intersections are coordinated; the referenced potential improvement was to coordinate the signal at Pali Momi Street in-bound/Pali Momi Street outbound to the north of Kamehameha Highway, which is uncoordinated according to the signal timing data provided by DTS.</p>
<p>The MAR should provide additional mitigation and analysis for project related pedestrian impacts. The report indicates increased pedestrian demands from the project and the rail station to the intersections of Kamehameha Highway and</p>	<p>HDOT</p>	<p>It is important to note that the majority of the increased pedestrian demand analyzed in the MAR will be associated with the Rail station and not the Pearlridge Bus Transit Center. The Project is expected to add fewer than 10 pedestrians to any individual facility beyond the sidewalk fronting the Project site and connecting to adjacent traffic signals. Furthermore, because the majority of the bus routes</p>

Table 7.2 DEA Summary of Comments and Responses

Comments	Commenter	Responses
<p>Kaonohi Street and Kamehameha Highway and Kanuku Street. Pedestrian impacts should be mitigated in conjunction with the traffic impacts at these intersections. Recommend mitigation to be done to provide a safe accessible route between Pearlridge Shopping Center and the bus transit center. This should include improving the asphalt path segment adjacent to the Sumida watercress farm. Improvements to sidewalks, refuge and median islands, crosswalks, driveways and curb ramps should be considered for safety, accessibility, and traffic impacts. Use of figures should be used to show specific locations of improvements.</p>		<p>serving the Project also serve the Pearlridge Shopping Center, it is much less likely that pedestrians will walk from the project site to the shopping center.</p> <p>The MAR has been revised to clarify the proportion of Rail demand vs. bus demand. Curb ramps and sidewalks will be upgraded to comply with ADA standards along the Project frontage with Kamehameha Highway. The requested improvement to upgrade the asphalt path adjacent to the watercress farm should be a HART improvement rather than part of the Project because the Rail project is expected to generate a greater number of pedestrians. A figure summarizing improvements and their locations has been added to the MAR (Figure ES-1 of <i>Appendix D</i>).</p>
<p>The MAR 3.1.4 Existing Pedestrian Activity states, “Anecdotal evidence indicates that the existing raised pedestrian median or island on the mauka side of the highway and ewa side of Kaonohi Street is too small to accommodate the pedestrian volume...”. Please expand and clarify this observation and if it has been field verified. Identify the bus stop locations and time periods this occurs. Provide figures showing the crosswalk and island layout.</p>	<p>HDOT</p>	<p>It was not possible to field-verify the issue at the time this comment was received due to the ongoing COVID-19 pandemic that has substantially reduced transit ridership on many routes. Once travel conditions return to normal, the need for this improvement can be field-verified. The MAR has been revised to include additional data provided by City & County of Honolulu regarding alightings at the adjacent bus stop, as well as a figure clarifying the location of the crosswalk and island as well as proximate bus stops (see page 14 of <i>Appendix D</i>).</p>
<p>The MAR includes scenarios for modifying signal timing at the Kamehameha Highway and Kaonohi Street intersection to provide a leading pedestrian interval or a pedestrian-only phase. Provide additional data and analysis showing the significant impact of pedestrians from the development of the project and rail station that is driving the need for these modifications. For pedestrian safety the MAR should not be limited to modifying the signal timing, it should also check the existing conditions of the entire route</p>	<p>HDOT</p>	<p>The majority of the increased pedestrian demand analyzed in the MAR will be for the Rail station. The Project will also add some pedestrian volume to this intersection, and the proposed signal modifications are designed to better facilitate pedestrian movement across the highway and at the intersection. These Complete Streets improvements are intended to encourage use of bus and Rail transit, which helps to minimize increases in overall vehicular traffic at this location. Any signal timing modifications implemented as part of Project improvements will be coordinated with and approved by HDOT. The MAR has been updated to include illustrations of the waiting areas and crosswalks at the Kamehameha Highway/Kaonohi Street intersection (see page 14 of <i>Appendix D</i>).</p>

Table 7.2 DEA Summary of Comments and Responses

Comments	Commenter	Responses
(sidewalks, waiting areas, crosswalks, curb ramps, etc.)		
The MAR should address the connectivity to the City roadways.	HDOT	Connectivity to City roadways is addressed in the MAR with regard to circulation. Exiting buses that need to turn left at Kaonohi Street were assumed to use Kanuku Street instead of the Project outbound driveway to access Kamehameha Highway to provide an acceptable transition to access the left-turn lanes at Kaonohi Street. Private vehicles exiting the Kiss & Ride driveway and destined for northbound Kaonohi Street or westbound Kamehameha Highway are assumed to travel eastbound on Kamehameha Highway and U-turn at Pali Momi Street. This pattern was already included in the MAR. In addition, the MAR has been revised to address traffic on Kaonohi Street at Moanalua Loop and at Moanalua Road.
Due to existing traffic conditions, impacts to the following intersections should be included in the report: Kamehameha Highway and Hekaha Street; Kaonohi Street and Moanalua Loop; and Moanalua Road and Kaonohi Street.	DPP	DTS acknowledges the comment. The MAR will expand qualitative discussions on impacts to these intersections. Kamehameha Highway and Hekaha Street intersection LOS was analyzed in Appendix D of the MAR.
Climate Change		
The project site is immediately adjacent to the projected six-foot sea level rise inundation area as depicted by the NOAA Sea Level Rise Viewer. While the DEA assesses the project site and interim development as outside of this area, the adjacent Pearl Harbor Historic Trail is impacted. Therefore, the Project should consider future interaction with the PHHT, in case it is elevated, through development of best practices consistent with the Mayor’s Directive 18-2 and the Honolulu Climate Change Commission’s Sea Level Rise Guidance (June 5, 2018). An estimated timeframe for the interim/short-term use would also be helpful for these preparations.	DPP	DTS acknowledges the comment. The Project does not include improvements to the Pearl Harbor Historic Trail. The applicant will coordinate with the Joint Base Pearl Harbor Hickam on future improvements to the PHHT. The timeframe for the interim use and future redevelopment of the site has not been determined.

Table 7.2 DEA Summary of Comments and Responses

Comments	Commenter	Responses
Approvals Related to Access Easement over Parcel 11		
A subdivision application is required for access easements over Parcel 11, and for the consolidation of the other lots if a Conditional Use Permit for Joint Development is not obtained.	DPP	DTS acknowledges the comment and will obtain the necessary approvals.
Utilities (Sewer and Water)		
We note that a sewer connection application (2020/SCA-0869) was approved on June 30, 2020.	DPP	DTS acknowledges the comment.
Existing water system is adequate to accommodate the proposed development. The final decision on the availability of water will be confirmed when the building permit application is submitted for approval.	BWS	DTS acknowledges the comment.
When water is made available, the applicant will be required to pay BWS Water System Facilities Charges for resource development, transmission, and daily storage.	BWS	DTS acknowledges the comment.
Water conservation measures are required for all proposed developments. These measures include utilization of nonpotable water for irrigation using rain catchment, drought tolerant plants, xeriscape landscaping, efficient irrigation systems, such as a drip system and moisture sensors, and the use of Water Sense labeled ultra-low flow water fixtures and toilets.	BWS	DTS acknowledges the comment.
BWS Rules and Regulations require the use of nonpotable water for irrigation of large landscape areas to reduce the use of nonpotable water. BWS Kalauao Spring nonpotable water system is in the vicinity of the Pearlridge TOD area and this project. Therefore, the proposed bus transit center is required to connect to the nonpotable	BWS	Subsequent consultation with BWS was conducted, and confirmed that the Project has low irrigation demand. Therefore, the Project is not required to construct an extension of the pipeline and connection to the Kalauao Spring nonpotable water system. Instead, per BWS recommendations, an on-site nonpotable water system with an irrigation system point of connection will be designed for the Project to

Table 7.2 DEA Summary of Comments and Responses

Comments	Commenter	Responses
water system. Pipeline extensions along Kamehameha Highway from the Kalauao Spring pump station to the Pearlridge TOD area should be coordinated with BWS.		facilitate connection to the Kalauao Spring nonpotable water system when it becomes available.
<p>Due to the proposed irrigation demands, the BWS agrees to not require the extension of the pipeline and connection to the Kalauao Spring nonpotable water system.</p> <p>The BWS recommends the developer design the on-site nonpotable water system with an irrigation system point of connection fronting the street near the potable water meter to facilitate the transfer to the Kalauao Spring nonpotable water system when it becomes available.</p>	BWS	Per this recommendation, an on-site nonpotable water system with an irrigation system point of connection will be designed for the Project to facilitate the connection to the Kalauao Spring nonpotable water system when it becomes available.
The proposed project is subject to BWS Cross-Connection Control and Backflow Prevention requirements prior to the issuance of the Building Permit Applications.	BWS	DTS acknowledges the comment.
Flood Zone		
The owner of the project property and/or their representative is responsible to research the Flood Hazard Zone designation for the project.	DLNR	A discussion on flood zones is provided in <i>Chapter 3.6</i> of the EA.

7.3 Public Involvement

The Draft EA was published by OEQC in *The Environmental Notice* on October 23, 2020. Publication of the Draft EA was followed by a 30-day public comment period. During pre-scoping, agencies, organizations and persons were consulted and will continue to be informed throughout the planning process. During the public comment period, DTS made presentations to the 'Aiea Neighborhood Board No. 20 on November 9, 2020 and the Pearl City Neighborhood Board No. 21 on November 24, 2020 to inform the community of the Draft EA publication. The following community questions and concerns were raised and received verbal responses:

- Beautification of the Pearl Harbor Bike Path: The scope of the Project does not include improvements to the bike path. However, landscaping will be included in the Project and will beautify the surroundings, including the area of the site adjacent to the bike path.
- Traffic Impacts of the Live, Work, Play, 'Aiea project: A MAR was prepared for the Project and provided in the Draft EA. During the Draft EA comment period, Fehr and Peers consulted with the DPP Traffic Review Branch on the Live, Work, Play, 'Aiea project. Discussions indicated that the project will not start construction until the beginning of 2023 at the earliest, and it will be built out over an extended period of time beyond 2025. Given that the majority of the project will be built after the Pearlridge Bus Transit Center opens, this project is not included in the forecast and the DPP Traffic Review Branch concurs with this approach.
- Request to review the Rail/Bus Integration Plan: The Kamehameha Highway Bus/Rail Integration Plan (2014) is currently being updated by DTS. The DTS Transportation Mobility is consulting with the neighborhood boards and community for input on the updated plan.

Contact information was also collected from community members that wanted to be added to the Project's contact list. DTS is developing a public involvement plan to ensure the community is kept apprised of construction. Stakeholders listed in *Chapter 7.0* will receive copies of the Final EA.

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Chapter 8

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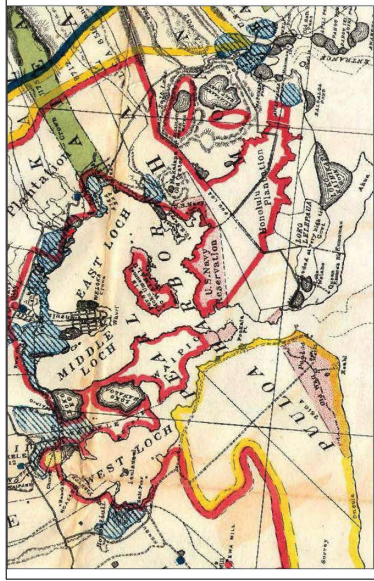
Appendices

Appendix A

**Cultural Impact Assessment for or the
Proposed DTS Bus Transit Station,
Waimalu Ahupua‘a, ‘Ewa District, Island
of O‘ahu, Hawai‘i**

**FINAL—Cultural Impact Assessment for the Proposed DTS
Bus Transit Station, Waimalu Ahupua'a, Ewa District, Island
of O'ahu, Hawai'i**

TMK: (1) 9-8-009:005 (por.), 014, 015, and 016



Prepared For:
City and County of Honolulu
650 S. King Street
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July 2020



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**FINAL—Cultural Impact Assessment for the Proposed DTS
Bus Transit Station, Waimalu Ahupua‘a, ‘Ewa District, Island
of O‘ahu, Hawai‘i**

TMK: (1) 9-8-009:005 (por.), 014, 015, and 016

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MANAGEMENT SUMMARY

Keala Pono Archaeological Consulting prepared a cultural impact assessment for TMK: (1) 9-8-009-005 (por.), 014, 015, and 016 in Waimalu Ahupua'a, Ewa District, on the island of O'ahu, where a bus transit center is proposed. The current study took the form of background research and an ethnographic survey consisting of three interviews with community members, all of which are included in this report.

The background research synthesizes traditional and historic accounts and land use history for the Waimalu area. Community consultations were performed to obtain information about the cultural significance of the subject property and the surrounding area, as well as to address possible concerns of the community members regarding the effects of the proposed project on places of cultural and traditional importance.

Background research, which consisted of archival research, identified former rice lands in the project area. Also in the vicinity are fishponds, lo'i deposits, LCA kuleana lots, subsurface fire pits, and charcoal concentrations, as well as human burials associated with a subsurface cultural layer. Interviews with individuals knowledgeable about the project lands produced information on its cultural history. The interviewees mentioned three archaeological sites: one of the first churches in the region, an unbreakable stone, and a heiau in Hālaawa. Two mo'olelo were also mentioned, one regarding the unbreakable stone and another about a shark guarding the harbor.

Concerns and recommendations for the project were also brought up by interviewees, however most agreed that previous development has already affected the area. Concerns include possible increases in traffic during construction, the potential for negative impact of construction to nearby small businesses, safety concerns for users of the bus terminal, and possible effects on the natural environment. It was recommended to consult with the community and local cultural practitioners in regard to naming the facility and to find out additional information about known sites and the location of undocumented sites that may be located in the area.

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INTRODUCTION

At the request of G70 on behalf of the City and County of Honolulu, Keala Pono Archaeological Consulting conducted a cultural impact assessment (CIA) for TMK: (1) 9-8-009-005 (por.), 014, 015, and 016 in Waimalu Ahupua'a, Ewa District, on the island of O'ahu, where a bus transit center is proposed. This work was designed to identify any cultural resources or practices that occur in the area and to gain an understanding of the community's perspective on the proposed activity on the property.

The report begins with a description of the project area and a historical overview of land use and archaeology in the region. The next section presents methods and results of the ethnographic survey. Results are summarized and recommendations are made in the final section. Hawaiian words, flora and fauna, and technical terms are defined in a glossary at the end of the document. Also included are appendices with documents relevant to the ethnographic survey including full transcripts of the interviews.

Project Location and Description

TMK: (1) 9-8-009-005 (por.), 014, 015, and 016 are adjacent parcels that lie within Waimalu Ahupua'a, Ewa District, on the island of O'ahu (Figure 1). The block of properties is bounded by Kamehameha Highway to the north; the Pearl Harbor Bike Path to the south; Best Buy electronics store to the west; and Home World furniture store to the east. The project area covers 1.36 ha (3.36 ac.) on four TMK parcels.

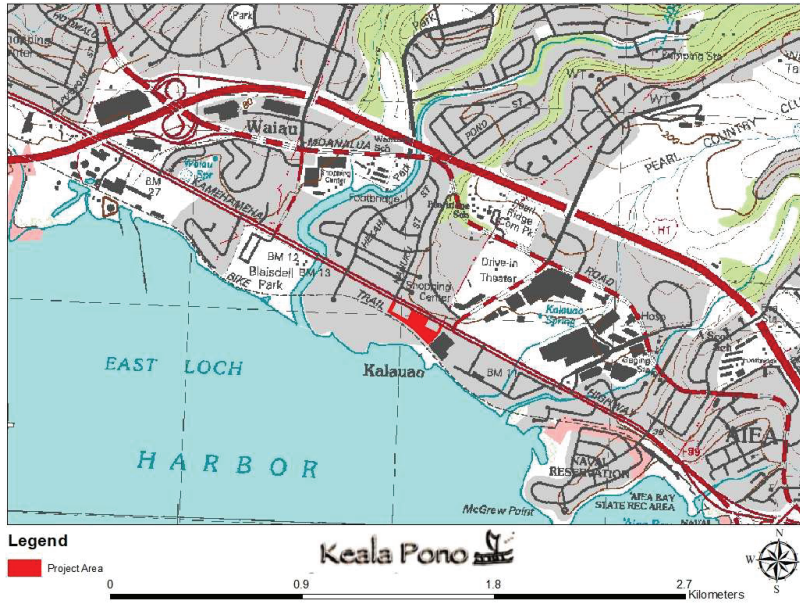
TMK: (1) 9-8-009-005 is a .809 ha (2 ac.) parcel owned by the City and County of Honolulu. TMK: (1) 9-8-009-0014 is a .093 ha (10,001 sf) lot owned by the City and County of Honolulu. TMK: (1) 9-8-009-015 is a .111 ha (12,000 sf) property owned by the City and County of Honolulu. TMK: (1) 9-8-009-016 is a .809 ha (2 ac.) lot owned by the City and County of Honolulu. The project will encompass all of parcels 014, 015, and 016 and a portion of parcel 005 (Figure 2).

The block of properties has been extensively modified by modern development. On the west side is the parking lot for the Best Buy store, which is asphalt paved with scattered areas of landscaping. On the east is the City's rail line field office and construction laydown area. Around the field office is an asphalt paved parking lot, as well as several warehouse structures. There are also dirt roads and parking lots in this area. East of the City's rail line field office and adjacent to Kamehameha Highway is an entry station for the City's rail line and its associated infrastructure.

The Department of Transportation Services is proposing to construct a bus transit center facility on TMK: (1) 9-8-009-005 (por.), 014, 015, and 016. The bus transit center will be located adjacent to the Kalanua Pearbridge Station. The bus transit center will utilize access easement through the adjacent Best Buy parcel [TMK: (1) 9-8-009-011] to accommodate buses traveling to and from the 'ewa direction. The bus transit center will include as many as eight bus bays, a Handi-Van stop, passenger waiting shelters, a comfort station, an operator's lounge, and electric bus charging stations. The project will support the rail station operation.

Physical Environment

Topography in the project area is relatively flat, and there is little vegetation on the properties, consisting mostly of koa haole, grasses and weeds, as well as landscaped plants. The project lies at roughly 2 m (7 ft) above mean sea level (amsl), and rainfall averages approximately 75 cm (30 in.) per year (Giambelluca et al. 2013). The closest sources of fresh water are Kalanua Stream, a non-perennial watercourse that is roughly 500 m (.3 mi.) to the east of the project area and Waimalu Stream, an intermittent drainage that lies approximately 600 m (.4 mi.) to the west of the project.



Layer Credits: USGS Topographical Map 1997

Figure 1. Project area on a USGS Waipahu quadrangle (USGS 1997).

The parcels are situated makai of Kamehameha Highway, approximately 80 m (260 ft.) inland from the coast at Pearl Harbor. The Ko'olau Mountain Range marks the mauka boundary of Waialua Ahupua'a. The Ko'olau volcano is relatively old, having ceased activity approximately one million years ago (Macdonald et al. 1983:298). Pearl Harbor formed as the island of O'ahu sank and the river valleys of the Ko'olau Mountains submerged (Macdonald et al. 1983:424). This is described further in the classic geological text *Volcanoes in the Sea*:

...during the Kaena (plus-29–30-meter) stand a delta of silt and sand grew into the bay near Aiea and Pearl City. ...Later, sea level dropped to the Waipio (minus-18-meter) level, and the streams flowing across the sediments in the old bay, cut valleys into them. ...The sea level rose again, to the Waianalua stand, 7.5 meters above present sea level. The valleys were drowned, branching embayments were formed, and again sediments were deposited at the head of the bay. ... (Macdonald et al. 1983:425–426)

Soils within the project area consist of Honouliuli clay 0–2% slopes (HxA); Keaau clay, saline, 0–2% slopes (KmbA); and Pearl Harbor clay (Ph) (Figure 3). In the vicinity of the project area are Lahaina silty clay 3–7% slopes (LaB); Waipahu silty clay, 6–12% slopes (WzC); and water (W) (Foote et al. 1972). Honouliuli soils developed in alluvium and are often utilized for pasture, sugarcane, truck crops, and orchards (Foote et al. 1972:43). Keaau soils developed on alluvium that was deposited over reef or coral sand and are typically utilized for sugarcane and pasture (Foote et al. 1972:65). Pearl Harbor soils developed in alluvium and are generally used for taro, sugarcane, and pasture (Foote et al. 1972:112). Lahaina series soils developed from weathered igneous rock and are mostly used for sugarcane and pineapple (Foote et al. 1972:78). Waipahu series soils developed in alluvium and are often used for sugarcane and housing (Foote et al. 1972:134).

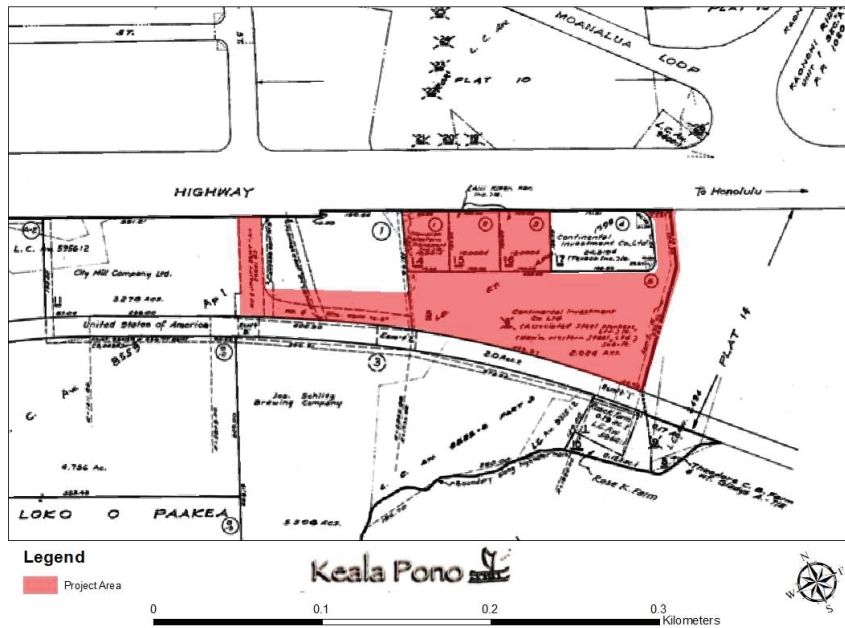


Figure 2. Project area shown on TMK plat (1) 9-8-009 (State of Hawai'i 1937).

BACKGROUND

A historic review of Waimalu Ahupua'a is provided below, to offer a better holistic understanding of the use and occupation of the project area. In the attempt to record and preserve both the tangible (e.g., traditional and historic archaeological sites) and intangible (e.g., mo'olelo, 'olelo no'eau) culture, this research assists in the discussion of anticipated finds. Research was conducted at the Hawai'i State Library, the University of Hawai'i at Mānoa libraries, the SHPD library, and online on the Waihoia 'Aina database and the State of Hawai'i Department of Accounting and General Services (DAGS) website. Historical maps, archaeological reports, Māhele data, and historical reference books were among the materials examined.

Waimalu and Pu'uloa (Pearl Harbor) in Pre-Contact Times

Waimalu is one of 12 ahupua'a in the 'Ewa Moku, or district, of O'ahu on the leeward side of the Ko'olau Mountain Range. The ahupua'a of Waimalu extends from the northern shoreline of Pearl Harbor to the Ko'olau Mountains and borders Waiau Ahupua'a to the east and Kalaauo Ahupua'a to the west. The current project area lies on the Waimalu side of the ahupua'a border with Kalaauo. Waimalu translates to "sheltered water" (Pukui et al. 1974:225) which may refer to the sheltered waters of Pearl Harbor. Traditionally, the island known as Moku'ume'ume (now known as Ford Island) was part of Waimalu Ahupua'a. According to McAllister (1933:102), the name translates to "Isle of Strife" due to regional chiefs that had been in conflict for fishing rights on the island. Additionally, several fishponds were located along the Pearl Harbor coastline including Loko Pa'auu, Loko Opu, and Loko Pa'akea in the project vicinity. Further traditional information on the area surrounding the project in Waimalu can be found in the study of regional place names.

Place Names

One often overlooked source of history is the information embedded in the Hawaiian landscape. Hawaiian place names "usually have understandable meanings, and the stories illustrating many of the place names are well known and appreciated...The place names provide a living and largely intelligible history" (Pukui et al. 1974:xii). Several place names associated with the study area are listed in the *Place Names of Hawaii* (Pukui et al. 1974), along with the meanings of the names and/or comments about the specific locales:

- 'Aiea. Land section, mill, village, bay, stream...west of Honolulu, O'ahu...*Lit., Notokestrum* tree. (Pukui et al. 1974:7)
- 'Ewa. Plantation, plantation town...and quadrangle west of Pearl Harbor, O'ahu. *Lit.*, crooked. (Kāne and Kamaloa threw a stone to determine district boundaries. The stone was lost but was found later at Pih-o-Kāhe... (Pukui et al. 1974:28)
- Kalaauo. Land section and stream...A battle was fought in the area between here and 'Aiea Heights from November 16 to December 12, 1794; Ka-lani-ko-pule defeated and killed Ka-ko-ka-lani, chief of Maui, Moloka'i, Lana'i, and Kaua'i...*Lit.*, the multitude [of] clouds. (Pukui et al. 1974:75)
- Moku'ume'ume. Old name for Ford Island, Pearl Harbor, O'ahu. Water was brought for melons raised here. *Lit.*, 'ume game island (famous for this sexual game). (Pukui et al. 1974:156)
- Pa'akea...Fishpond near Pearl Harbor, O'ahu. *Lit.*, coral bed, limestone. (Pukui et al. 1974:173)
- Pu'uloa...Land section, camp, salt works...old name for Pearl Harbor, O'ahu; it is said that breadfruit were brought here from Samoa...*Lit.*, long hill. (Pukui et al. 1974:200-201)
- Waiau...Land division and village...*Lit.*, swirling water. (Pukui et al. 1974:221)
- Waimalu Hill (1,450 feet high), land section, town...and stream debouching at Pearl Harbor, O'ahu; the Spaniard Francisco de Paula Marin had a home here...*Lit.*, sheltered water. (Pukui et al. 1974:225)

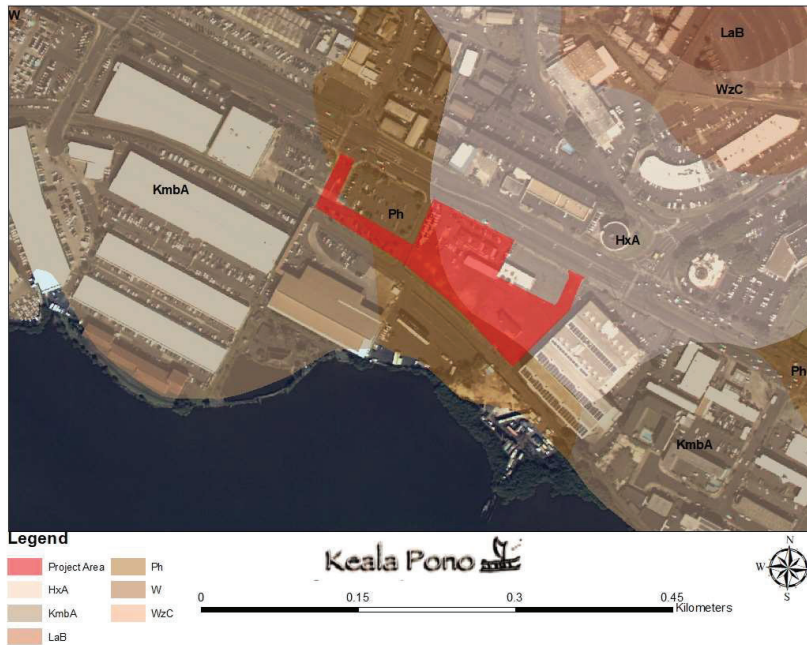


Figure 3. Soils in the vicinity of the project area. Data from Foote et al. (1972).

Subsistence and Traditional Land Use

The geography and traditional land use of 'Ewa Moku is described by Handy et al. (1972). Kalo, 'uhi, mai'a, and 'awa are noted for the region, although it is not clear if these were grown specifically in Waimalu.

The salient feature of 'Ewa, and perhaps its most notable difference, is its spacious coastal plain, surrounding the deep bays ('lochs) of Pearl Harbor, which are actually the drowned seaward valleys of 'Ewa's main streams, Waikēle and Waipi'o... The lowlands, bisected by ample streams, were ideal terrain for the cultivation of irrigated taro. The hinterland consisted of deep valleys running far back into the Ko'olau range. Between the valleys were ridges, with steep sides, but a very gradual increase of altitude. The lower parts of the valley sides were excellent for the culture of yams and bananas. Farther inland grew the 'awa for which the area was famous. The length or depth of the valleys and the gradual slope of the ridges made the inhabited lowlands much more distant from the wao, or upland jungle, than was the case on the windward coast. Yet the wao here was more extensive, giving greater opportunity to forage for wild foods in famine time. (Handy et al. 1972:469)

Handy et al. (1972) continue by describing 'Ewa Moku as providing a variety of resources, such as birds, wauke, mamaki, olonā, as well as wild mai'a and 'uhi:

In the interior was the same avifauna, including the birds whose feathers were prized for feather capes, helmets, and lei making. In fact this, with its spacious wao inland, was the region where these birds were most numerous. There were more extensive areas also where wauke and mamaki, which supplied bast for the making of tapa, grew in abundance. In fact, 'Ewa was famous for its mamaki. There was, too, much olona grown in the interior, and wild bananas and yams flourished. (Handy et al. 1972:470)

The native kalo to 'Ewa was rather unique and described as producing a tasty variety of poi. Called kāi, it is said to have made a poi that was a favorite of ali'i, and sometimes reserved for them. Kāi is defined as "a variety of taro, the corms of which are fragrant when cooked and, though tough, yield excellent poi. Kinds are qualified by the terms 'ele'ele, kea, ke'oke'o (said to be reserved for chiefs), koi, nenene, pala, 'ula'ula, uliuli, welo, 'eka" (Pukui 2003). It was so famous that 'Ewa became known as Kāi o 'Ewa (Handy et al. 1972).

Waimalu, as part of the larger 'Ewa District, was in a well-watered coastal environment, ideal for irrigation of lo'i. In the pre-contact period the coastal flats of Waimalu were developed into agricultural terraces largely irrigated by Waimalu Stream and Waipi Spring (Handy 1940:81).

A saying, *'Ewa, ka āina o nā ali'i*, or *'Ewa, land of chiefs*, originated because the district was known as a favorite residence for chiefs (Sterling and Summers 1978:1), likely due to its abundant fishponds. Several fishponds (loko) were constructed surrounding Waimalu in times past. According to McAllister (1933), three of these fishponds, Loko Pa'ānu, Loko Opiu, and Loko Pa'akea were all built by a chiefess of O'ahu, Kalamaunia. McAllister indicated that Kalamaunia lived in the vicinity of Kalauao, at Kuki'iahu. McAllister also notes that this location was the Battle of Kuki'iahu, which occurred sometime after European contact:

Kalamikupele.... assisted by "a force of armed seamen from the English vessels 'Kackal' and 'Prince Lebov' under the command of Captain Brown," defeated his uncle, Kaeo, who was proceeding to Kauai with a large force, but turned upon Kalamikupele, in order to divert the energy of his warriors, which was centered on mutiny. (McAllister 1933:103)

McAllister indicated that a heiau was located at Waimalu Gulch, Naulu-a-Maiheia. He described the heiau as being located on a small knoll at the mouth of the gulch. The heiau was a rectangular enclosure that measured 42 ft. by 51 ft. with walls that measured three ft. in height. An informant of McAllister's, Manuel Baptiste, of Portuguese-Hawaiian descent and the oldest kama'āina in the area, agreed that the heiau was named for its founder (McAllister 1933:104). There is a mo'olelo associated with this heiau (see below).

Another heiau was situated on the ridge that divides Waiau and Waimalu gulches. The name of this heiau was Kolokūkahu, and McAllister (1933:105) reported that its stones had been removed "some years ago."

Mo'olelo

'Ewa is defined to mean "crooked" or "strayed," which refers to a mo'olelo about how the district was named:

When Kane and Kanaloa were surveying the islands they came to Oahu and when they reached Red Hill saw below them the broad plains of what is now Ewa. To mark boundaries of land they would throw a stone and where the stone fell would be the boundary line. When they saw the beautiful land lying below them, it was their thought to include as much of the flat level land as possible. They hurled the stone as far as the Waianae range and it landed somewhere in the Waimalo section. When they went to find it, they could not locate the spot where it fell. So Ewa (strayed) became known by that name. The stone that strayed. (Sterling and Summers 1978:1)

The following legend tells of Naulu-a-Maiheia, a priest of Waimalu, who constructed Naulu-a-Maiheia Heiau: At that time there lived at Waimalu, in the district of Ewa, the celebrated priest and prophet Naulu-a-Maiheia. No one in the Hawaiian priesthood of the past was ever more feared or respected. It was thought by some that he had visited the shadowy realms of Milu, and from Paliuli had brought back the waters of life. He must have been well on in years, for, as already mentioned, he is credited with having been the priest of Laa-mai-kahiki on the romantic journey of that prince from the southern islands.

In evidence of the great sanctity of Naulu, tradition relates that his canoe was upset during a journey from Waianae, Oahu, to Kauai. He was swallowed by a whale, in whose stomach he remained without inconvenience until the monster crossed the channel and vomited him up alive on the beach at Waialua, Kauai, the precise place of his destination. At another time, when crossing to Hawaii, and beset with adverse winds, two huge black sharks, sent by Moosliu, the shark-god of Molokai, towed him to Kohala so swiftly that the sea-birds could scarcely keep him company.

He built a heiau at Waimalu, the foundations of which may still be traced, and in the inner temple of the enclosure it is asserted that Lono conversed with him freely; and at his bidding the spirits of the living (kahaoka) as well as the shades of the dead (unihipi) made their appearance; for it was believed by the ancient Hawaiians that the spirits or souls of the living sometimes separated themselves from the body during slumber or while in a condition of trance, and became visible in distant places to priests of special sanctity. (Kalākaua 1990:169-170)

Another story is centered on Moku'ume'ume Island, now referred to as Ford Island, which was traditionally considered part of Waimalu Ahupua'a. Peter Cornely visited Moku'umeume in 1819 and provided an account from the caretaker of the island, which at that time only had one family living there. The man was awakened at night by someone calling his name. He was terrified when he saw that it was the deceased ali'i Paleioholani. The ali'i told the caretaker to go the cave on the island where his iwi were laid to rest along with the iwi of several other ali'i. Paleioholani instructed the caretaker to remove the bones and take them to a place that would be safe from Chief Kaleiuku, who would come searching for them. He said that the chief wanted to bones to make arrows for shooting rats. The following day, the chief did come and search the island. The caretaker told him that Moku'ume'ume Island belonged to "a white man of whom Tameameah [Kamehameha] was very fond," to try and dissuade him from his search. The chief ignored him and removed several bundles of iwi, though not the ones of the ali'i. The next night, Paleioholani again appeared, thanking him. Cornely stated that he then toured the island and observed "hundreds of bundles of human bones, wrapped up carefully in cloth, and laid in the crevices of the rocks (McAllister 1933:102).

Another account describes a pond in Kalauao named Kahuwai, which was a bathing place for chiefs during the pre-contact period, but later was used by all locals in the area:

Kahuwai was a noted bathing place since ancient times and was guarded so that any one did not bathe in it except the chiefs. Later it was used by all. Kakuhiweva's daughters and the hero Kaleialuaka (their husband) bathed in this pool. Kaeokalani, the chief of Kauai also bathed here when he came to war here on Oahu. He was killed at Kuki'iahu. Many visitors from Hawai'i to Kauai that came to see this pool and it was well known to Ewa's inhabitants. (*Ke Au Hou* 1910 in Sterling and Summers 1978:13)

Pu'uloa, the freshwater estuary fed by the many streams coming from the uplands, provided a bounty of water and food for dwellers of this region. The confluence of land and water are natural contexts for human interaction and here, accounts from the Hawaiian inhabitants have endured to this day and provide a glimpse into the storied past of the area. In Hawaiian tradition, it is believed that every body of water is home to a mo'o, a spirit being usually in the form of a lizard, serpent, or mermaid/merman-like creature, oftentimes imbued with shape-shifter-like powers (e.g., Kamakau 1991:82-89). These mo'olelo of mo'o are traditions of supernatural beings animated by their interactions with man. Shark gods and mo'o are the two types of creatures that occur in the area as evidenced in the literary sources. These mythical creatures dominate the literary record of the Pu'uloa area. One such recorded story is that of Ka'ahu, as retold by Hawaiian scholar Mary Kawena Pukui:

Pu'uloa is the old name of that great harbor on O'ahu today called Pearl Harbor. Long ago sharks lived there ruled by a chiefess called Ka'ahu.

Ka'ahu was once a lovely girl. She and her family lived beside a little stream which flowed into Pu'uloa. Often Ka'ahu and her brother went down to the harbor to swim. For hours they swam and played about, happy as fish. A shark god liked to watch those children jump and swim. They should be sharks, he thought, and live in Pu'uloa. So he changed their form.

That night when the children did not return for dinner their parents searched for them. The mother heard her husband calling. "There are sharks in our stream," he said, "young sharks."

She came quickly to stand beside the stream and the two young sharks swam close. "They are not afraid," she said, "and see! They are opening their mouths for food. They're hungry!" She turned to her husband. "These are our children!" she exclaimed. "They have been changed to sharks and come to us, as always, for their food."

The man looked long as the two swam close, rubbing the bank and opening their mouths hungrily. Then he brought food. He gave each a drink of 'inua then peeled bananas for them. When they had eaten enough they swam away.

Next day they came again for food. All the relatives of those children heard how they were changed. "Shark sister and shark brother," they called the two. They saved food for them, hung lei about their necks and played with them in Pu'uloa. (Pukui and Curtis 1994:147)

In other traditions including those found in mele, Ka'ahu is also known as Ka'ahupāhau. The story of Mikololou, as retold by Keonaona Kapuni-Reynolds, details the connection of the shark gods with Pu'uloa.

Mikololou is a shark from Ka'ū, Hawai'i. One day Mikololou, Kua, Keali'i, Kuaokaa'ū, Pakatea and Kalani decided to visit O'ahu. When they were on their way there they met with man-eating sharks. When they reached Pu'uloa, O'ahu they met with Ka'ahupāhau. Ka'ahupāhau is the guardian of Pu'uloa and she takes care of the people of that area. When a man-eating shark is seen she changes her body into a net and calls the fishermen to beat the sharks in the net. Kahii'ukā is her brother and he is the one that hits the sharks with his long tail.

When they met with Ka'ahupāhau one of the man-eating sharks said, "Hi, those crabs look delicious." Crab is what the sharks call people so Ka'ahupāhau knew that some of those sharks were man-eaters.

Because she couldn't tell who were the good sharks and who was the man-eaters she caught all the sharks in her net. (Kapuni-Reynolds n.d.)

Next to an unnamed fishpond in Pu'uloa was Drydock No. 1, which collapsed in 1913. This area was known to be the home of Ka'ahupāhau and possibly several other shark gods of Pearl Harbor. It is said that when David R. Richards, a construction foreman, began digging the foundation for the drydock in 1909, Kūpuna Kanakaewe and Leialoha, local fishermen, told Richards that he should not dig in that place (Richards 1943:1 in Tuggle and Tomonari-Tuggle 2004:55):

"These places are tabu, they belong to the shark god, namely Kaaupahau [sic]! ...I again asked him 'What are you doing here?' He replied that he came there to feed his aumakua, KAAUPAHAU [sic], a shark god. I laughed at him for that. I asked him 'Where is that shark? I like to see him when you are

feeding him.' He then told me that I have no business to ask that question...He said they came from Keahii [a fishing place at the edge of Pu'uloa] once a week with fishes to feed Kaaupahau [sic] by diving down into the water after chanting and offering prayer, repeating it until the fishes are gone. After that he would chant and pray some more, while going to fish for more, this time for his own use and sale...They stayed several hours, then he said to me that, 'You people will be punished severely.'

Richards later lamented that there were many problems during construction, with the digging and finally the collapse of the drydock (Tuggle and Tomonari-Tuggle 2004:55). Eventually, he had a new dock blessed by a kahuna.

The literary record, which contains cultural allusions, idioms, and references is a valuable repository of the past and forms the corpus of primary source material for the area. For example, in the historical period of the late 19th century, a story appeared in the *Ka Mākaiaianā* newspaper titled "Rising to the Sky with a Balloon." A cultural reference is applied by the author in a phrase where it is alluded that the balloonist should be eaten by "the shark descendants of Ka'ahupāhau." Hence, even in the late 19th century, the presence of shark stories, and reference to it in the newspaper is notable and conveys the mythical and social interplay of the area:

Pi i ka Lewa me ka Baluna.

He lele baluna ko lalo o Manana, Ewa, i ka auwina la Poaono nei, na James W Price, he haole Amerika kaulana ma ia hana. Oiai, aole makou ilaila, ua lohe mai nae hoi ua lele oia a ma kahi paha o 1,500 kapui ke kieke i hoohau hou mai ma-kona loua a haule i ukia o ka pali. I ka pa ana o na wawaie ilalo ua hina oia i hope a eha kona poo, aole nae i kukomakou loa. Na ke kumu o ke kula olelo Enelani o Waiawa i ubai malalo maluna o ka lilo a loaia oia i ka haule ana iho a lomilomii ke poo. Ina ma ka ana aku ka makani, haule paha oia i ke kai a pau paha i ka hamaui e na mamo a Kaalupahau ma, aka, i pakele ola, ma ke kai mat ka makani a haule ai no i kula. E hana hou ana no ka oia ma keia mau iho. (*Ka Mākaiaianā* 1896:1)

Waimalu native and storyteller of the 20th century, Sarah Keli'i'olena Nākoā recorded traditions of the region revealing the lifestyle of 'Ewa residents that lived in the coastal areas of Hālaawa, 'Aiea, Waimalu, Waiuu, and Mānana. These land divisions stretch to the coast and make up ke awa lau o Pu'uloa; the many channels (or lochs) of Pearl Harbor. Insight into the naming of the harbor as "Pearl" harbor is found in Nākoā's story of Ka I'a Hāmau Leo o 'Ewa ('Ewa's silent sea creatures), a retelling of a common practice among Hawaiians fishing for pipi (pearl oyster, *Pinctada radiata*) in the shoals of the harbor (Nākoā 1979:20-23). The process of gathering the bivalve required silence (hāmau leo) so as to not cause wind or movement that would create ripples on the water, inciting the pipi to retreat.

In this tradition, Nākoā retells the route she and her grandmother would take to the shore via a single-car steam train toward a land called Pōlea, now referred to as Pearl City Peninsula. Hawaiians of the early 20th century continued to rely on the fish protein for their livelihoods as evidenced in her account. She described a certain variety of pipi with a whitish and shiny shell that was unlike other shells she had seen. This particular variety in her words were "nui a kaumaha," large and heavy. It was known for the tastiness of its meat and for something else; a pearl contained within its shell. The technique to gather the pipi was done stealthily as the fishperson approached, so the elongated tongue of the pipi would be easy to grab. Once at home, the shellfish were boiled in water and eaten. Nākoā laments the disappearance of the pipi in her lifetime (1979:23).

Oli and Mele

The noteworthy specific locales in Hawaiian culture is further bolstered by their appearances in traditional chants. An oli refers to a chant that is done without any accompaniment of dance, while a mele refers to a chant that may or may not be accompanied by a dance. These expressions of folklore have not lost their merit in today's society. They continue to be referred to in contemporary discussions of Hawaiian history, identity, and values.

Although it can be acknowledged that mo'olelo have served to maintain the collective memory and record of the Hālawā area, oli and mele nevertheless continue to provide significant insight into the region. In a mele moa for Iwikauka, an ancient high chief and ancestor to Queen Lili'uokalani, reference to Ka'ahupāhau is made. In the excerpt below, the shark god is referred to as, "the skilled one of Pu'uloa." The 'Ewa moku, with its many springs, ponds, and estuaries, is known by the epithet, "'Ewa no ke awa lau- ('Ewa- whom belongs the many bays)"; that is mentioned in the name chant below:

Auhea wale oe e ka Ohu la-e-a,

Kipu mai la i Kaala la-e-a,

Aha mai Lihue me Kalema la-e-a,

Hooho mai hale auau la-e-a,

Pehea iho Kokolea la-e-a,

Ea mai o Kaahupāhau la-e-a,

O ka olali o Puuloa la-e-a,

Ehia iho mea minamina la-e-a,

O ka ela hamau i ka leo la-e-a,

Mai Pane ae oe o makani la-e-a,

Ike ole ia aku Halawa la-e-a,

Aina i ka mole o Ewa la-e-a,

No Ewa oe no ke awa lau la-e-a,

No ka lili kai au i ka wili la-e-a,

No Honolulu i Kapuuko la-e-a,

Haina ka Inoa i lohe la-e-a,

Oulumahiehi Hoopili la-e-a,

O ka Ona nui o Waituku la-e-a,

O ka helu ekahi o Maui la-e-a. (Keapo 1868)

Ka'ahupāhau has a firm place in the oeuvre of Hawaiian song. While the preceding excerpt cites Pu'uloa and its shark god Ka'ahupāhau, Hawaiian songs made popular in the 20th century, such as Pūpū a'o 'Ewa, retell traditions from an earlier time and are remarkable in the continuation of the same theme and characters from the ancient past.

Pūpū a'o 'Ewa

Pūpū a'o 'Ewa

I ka nu'u o nā kanaka

E nane mai a e 'ike

I ka mea hou o ka 'āina

A he 'āina ua kaulana

Mai nā kūpuna mai

Alahula Pu'uloa he alahela no Ka'ahupāhau (traditional mele)

The refrain of the song can be summarized as "Pu'uloa, a path well-trod upon by Ka'ahupāhau" and can be interpreted as defining the well-traveled intersect that the estuary was for those of the past. Today however, many of the place names in the ahupua'a, in which the naval base at Pearl Harbor is located, have disappeared or have been turned into street names and names of barracks and entrances to the shipyard. Scholar John Osoro asserts that this development effectively detached the kanaka from the land by blocking access to the ocean and fresh water resources of O'ahu's largest inland waterways (2010:4). Reliance on the written mo'olelo have become essential in understanding the history of the region.

*'Ōlelo No 'eau

Like oli and mele, traditional proverbs and wise sayings, known as 'ōlelo no 'eau, have been another means by which the history of Hawaiian places has been recorded. In 1983, Mary Kawena Pukui published a volume of close to 3,000 'ōlelo no 'eau that she collected throughout the islands. The introductory chapter of that book reminds us that if we could understand these proverbs and wise sayings well, then we would understand Hawai'i well (Pukui 1983). While no 'ōlelo no 'eau about Waimānā were recorded in Pukui's book, there are many that speak of 'Ewa in general; they are listed below.

*'Āina koi 'ula i ka lepo.

Land reddened by the rising dust.

Said of 'Ewa, O'ahu. (Pukui 1983:11)

Anu o 'Ewa i ka i'a hāmau leo e. E hāmau!

'Ewa is made cold by the fish that silences the voice. Hush!

A warning to keep still. First uttered by Hi'iaka to her friend Wahine'omā'o to warn her not to speak to

Lohi'au while they were in a canoe near 'Ewa. (Pukui 1983:16)

*Ewa kai lumalumai'i.

'Ewa of the drowning sea.

An epithet applied to 'Ewa, where kauwā were drowned prior to offering their bodies in sacrifice. (Pukui 1983:47)

*Ewa nui a La'ākona.

Great 'Ewa of La'ākona.

La'ākona was a chief of 'Ewa, which was prosperous in his day. (Pukui 1983:47)

Haumāle 'Ewa i ka Moa'e.

'Ewa is disturbed by the Moa'e wind.

Used about something disturbing, like a violent argument. When the people of 'Ewa went to gather pipi (pearl oyster), they did so in silence, for if they spoke, a Moa'e breeze would suddenly blow across the water, ripping it, and the oysters would disappear. (Pukui 1983:59)

He kai puhī nehū, puhī lala ke kai o 'Ewa.

A sea that blows up nehū fish, blows up a quantity of them, is the sea of 'Ewa. (Pukui 1983:74)

He lō'ihī o 'Ewa; he pali o Nū'uamu; he kula o Kulaokahu'a; he hiki mai koe.

'Ewa is a long way off. Nū'uamu is a cliff; Kulaokahu'a is a dry plain; but all will be here before long.

Said of an unkept promise of food, fish, etc. O'ahu was once peopled by evil beings who invited canoe travelers ashore with promises of food and other things. When the travelers asked when these things were coming, this was the reply. When the visitors were fast asleep at night, the evil ones would creep in and kill them. (Pukui 1983:84)

I Waialua ka po'ina a ke kai, o ka leo ka 'Ewa e ho'olono nei.
The dashing of the waves is at Waialua, but the sound is being heard at 'Ewa.
 Sounds of fighting in one locality are quickly heard in another. (Pukui 1983:137)

Ka i'a hāmau leo o 'Ewa.
The fish of 'Ewa that silences the voice.
 The pearl oyster, which has to be gathered in silence. (Pukui 1983:145)

Ka i'a kuli lima o 'Ewa.
The gesturing fish of 'Ewa.
 The pipi, or pearl oyster: Fishermen did not speak when fishing for them but gestured to each other like deaf-mutes. (Pukui 1983:148)

Ke kai he'e nehu o 'Ewa.
The sea where the nehu come in schools to 'Ewa.
 Nehu (anchovy) come by the millions into Pearl Harbor. They are used as bait for fishing, or eaten dried or fresh. (Pukui 1983:185)

Ke one kuliima laula o 'Ewa.
The sand on which there was a linking of arms on the breadth of 'Ewa.
 'Ewa, O'ahu. The chiefs of Waikiki and Waikēle were brothers. The former wished to destroy the latter and laid his plot. He went fishing and caught a large niuhi, whose skin he stretched over a framework. Then he sent a messenger to ask his brother if he would keep a fish for him. Having gained his consent, the chief left Waikiki, hidden with his best warriors in the "fish." Other warriors joined them along the way until there was a large army. They surrounded the residence of the chief of Waikēle and linked arms to form a wall, while the Waikiki warriors poured out of the "fish" and destroyed those of Waikēle. (Pukui 1983:191)

Ku a'e 'Ewa; Noho iho 'Ewa.
Stand-up 'Ewa; Sit-down 'Ewa.
 The names of two stones, now destroyed, that once marked the boundary between the chiefs' land (Kua'e 'Ewa) and that of the commoners (Noho iho 'Ewa) in 'Ewa, O'ahu. (Pukui 1983:200)

O 'Ewa, 'ama kai 'ula I ka lepo.
'Ewa, land of the sea reddened by earth.
 'Ewa was once noted for being dusty, and its sea was reddened by mud in time of rain. (Pukui 1983:257)

Ua 'ai I ke kaa-koi o 'Ewa.
He has eaten the kaa-koi taro of 'Ewa.
 Kaa is O'ahu's best eating taro; one who has eaten it will always like it. Said of a youth or a maiden of 'Ewa, who, like the kaa taro, is not easily forgotten. (Pukui 1983:305)

There are also many 'ōlelo no'ēau that reference Pu'uloa (Pearl Harbor):
Ahahua Pu'uloa, he alahela na Ka'ahupāhau.
Everywhere in Pu'uloa is the trail of Ka'ahupāhau.
 Said of a person who goes everywhere, looking, peering, seeing all or of a person familiar with every nook and corner of a place. Ka'ahupāhau is the shark goddess of Pu'uloa (Pearl Harbor) who guarded the people from being molested by sharks. She moved about, constantly watching. (Pukui 1983:14)

E hāmau o makani mai auane'i.
Hush, lest the wind arise.
 Hold your silence or trouble will come to us. When the people went to gather pearl oysters at Pu'uloa, they did so in silence, for they believed that if they spoke, a gust of wind would ripple the water and the oysters would vanish. (Pukui 1983:34)

Ho'āhewa na niuhi ia Ka'ahupāhau.
The man-eating sharks blamed Ka'ahupāhau.
 Evil-doers blame the person who safeguards the right of others. Ka'ahupāhau was the guardian shark goddess of Pu'uloa (Pearl Harbor) who drove out or destroyed all the man-eating sharks. (Pukui 1983:108)

Ho'i aku la ka 'ōpua i ke awa lau o Pu'uloa.
The horizon cloud has gone back to the lochs of Pu'uloa.
 He has gone home to stay, like the horizon clouds that settle in their customary places. (Pukui 1983:109)

Huhui na 'ōpua i Awalau.
The clouds met at Pearl Harbor.
 Said of the mating of two people. (Pukui 1983:120)

Kālele ka uwahi o Pu'uloa.
The smoke of Pu'uloa leans over.
 Said in amusement of one who leans over, intent on his work. (Pukui 1983:156)

Ke awa lau o Pu'uloa.
The many-harbored sea of Pu'uloa.
 Pu'uloa is an early name for Pearl Harbor. (Pukui 1983:182)

Ke kai he'e nehu o 'Ewa.
The sea where the nehu come in schools to 'Ewa.
 Nehu (anchovy) come by the millions into Pearl Harbor. They are used as bait for fishing, or eaten dried or fresh. (Pukui 1983:185)

Mehameha wale no o Pu'uloa, i ka hele a Ka'ahupāhau.
Pu'uloa became lonely when Ka'ahupāhau went away.
 The home is lonely when a loved one has gone. Ka'ahupāhau, guardian shark of Pu'uloa (Pearl Harbor), was dearly loved by the people. (Pukui 1983:234)

Waimalu in the Historic Era

When the first Westerners arrived in the Hawaiian archipelago in 1778, the islands were not yet united under one sovereign. At that time, Waimalu and the entire island of O'ahu were under the rule of Chief Kahahana. In 1783, Chief Kahahana's reign was ended with the invasion and victory of Chief Kāhēkili of Maui. This would forever be the end of O'ahu's independence as a separate island kingdom. When Chief Kāhēkili died in 1794, control of O'ahu went to his son Kalanikūpule. The following year, Chief Kamehameha of Hawai'i Island invaded O'ahu to engage Kalanikūpule in battle. Kamehameha overwhelmed Kalanikūpule's warriors, effectively gaining control of all the islands from Hawai'i to O'ahu. Eventually, Kamehameha would make a

peaceful agreement with Chief Kaunuaui'i of Kaula'i, bringing that island and Ni'ihau into the fold and thereby uniting the Hawaiian archipelago under one rule (Kamakau 1996, Kamahale 1995).

It is generally accepted that in 1778 James Cook became the first westerner to see the Hawaiian Islands. Following Cook, a wave of other western explorers landed on Hawai'i's shores. Around the same time as the arrival of the first westerners to Hawai'i, O'ahu was experiencing major political changes. It was during this time, as mentioned above, that O'ahu's sovereignty ended with the invasion of the Maui chiefs, and the Maui rule was subsequently overcome by the invasion of forces from Hawai'i Island when all of the islands were united under Kamehameha I in 1795.

There are very few mentions of Waimalu in early historical records. One account comes from the English sailor Archibald Campbell who visited the area ca. 1810. He writes of the Pu'uloa vicinity:

Wymamme, or Pearl River, lies about seven miles farther to the westward. This inlet extends ten or twelve miles up the country. The entrance is not more than a quarter of a mile wide, and is only navigable for small craft; the depth of water on the bar at the highest tides, not exceeding seven feet; farther up it is nearly two miles across. There is an isle in it, belonging to Manina [Paul Marin], the king's interpreter, in which he keeps a numerous flock of sheep and goats...The flat land along shore is highly cultivated; taro root, yams, and sweet potatoes are the most common crops; but taro forms the chief object of their husbandry, being the principal article of food amongst every class of inhabitants. (Campbell 1967:114-115)

Another account of the area comes from an early visitor, George Mathison:

We passed over a long cultivated plain, varied by occasional ravines, for a distance of twenty miles, and about two o'clock reached Pearl River, so called from the pearls which are found in small quantities in its bed...The sea here forms a small bay, which has the appearance of a salt-water lake, being landlocked on every side except at the narrow entrance. Two or three small streams, too insignificant to merit the appellation of rivers discharge their united waters into the bay, which is full six miles in length and two in breadth. The adjoining low country is overflowed both naturally and by artificial means, and is well stocked with taro-plantations [sic], bananas, etc. The land belongs to many different proprietors; and on every estate there is a fishpond surrounded by a stone wall, where the fish are strictly preserved for the use of their rightful owners, or tabooed, as the natives express it. One of the particularly large dimensions belongs to the King. (Mathison 1825:416-417)

Māhele Land Tenure

The change in the traditional land tenure system in Hawai'i began with the appointment of the Board of Commissioners to Quiet Land Titles by Kamehameha III in 1845. The Great Māhele took place during the first few months of 1848 when Kamehameha III and more than 240 of his chiefs worked out their interests in the lands of the Kingdom. This division of land was recorded in the Māhele Book. The King retained roughly a million acres as his own as Crown Lands, while approximately a million and a half acres were designated as Government Lands. The Konoiki Awards amounted to about a million and a half acres, however title was not awarded until the konoiki presented the claim before the Land Commission.

In the fall of 1850 legislation was passed allowing citizens to present claims before the Land Commission for parcels that they were cultivating within the Crown, Government, or Konoiki lands. By 1855 the Land Commission had made visits to all of the islands and had received testimony for about 12,000 land claims. This testimony is recorded in 50 volumes that have since been rendered on microfilm. Ultimately between 9,000 and 11,000 kuleana land claims were awarded to kama'āina totaling only about 30,000 acres and recorded in ten large volumes.

The current project area lies on the Wainalu side of the ahupua'a boundary with Kalaaua. Wainalu Ahupua'a was awarded to Mikahela Kekau'ōnoli, a granddaughter of Kamehameha I, LCA 11216. The ahupua'a of

Kalaaua was awarded to two recipients, the half of the ahupua'a that is closest to the current project area was awarded to Laura Konia (who was either a granddaughter or grandniece of Kamehameha I), in LCA 5524, and the other half was awarded to John Meeke, a sandalwood merchant, as LCA 591. Another large award went to Charles Kama'ina in LCA 8559; 'Āpana I on this LCA lies in Wāimalu, just west of the current project area.

An additional nine kuleana LCA awards were recorded in the immediate vicinity of the project area. Table 1 provides information on the claimant, ahupua'a, and features that were recorded for the awards during the Māhele. Uses for the parcels include lo'i, kula, and housing. Also mentioned in Māhele testimony are 'ulu, a pond, a fishpond, and a stone wall.

Historic Waimalu: 19th and 20th Centuries

The agricultural industry in Waimalu steadily expanded through the 19th century from expansive tracts of traditional Hawaiian lo'i that were gradually replaced by the large-scale commercial cultivation of sugarcane and rice by the 1850s. While there were abundant water resources available for irrigation in Wāimalu, it was not until 1879 when the first artesian well was drilled in 'Ewa that the commercial agricultural industry was able to realize its full economic potential (Ellis 1995:22).

Sugar Cultivation and the Plantation Era

Sugarcane was first commercially cultivated in Wāimalu during the 1850s, on the estate of J.R. Williams, where the enterprise was then known as the Honolulu Sugar Company. The plantation stretched across the inland valleys and foothills of Wāimalu east through Hālawā with the mill and refinery located in 'Āiea (Conde and Best, 1973). Undeveloped land in the upper reaches of Wāimalu Valley required extensive landscape modification including the removal of native forests, diversion of streams, grading, and implementation of plantation infrastructure like irrigation ditches, wells, and pumping stations. Worker barracks were constructed, hospitals were built, and an extensive transportation network was established, as described by a San Francisco Chronicle article in 1910:

The most modern devices for the economic handling of cane are used on this plantation. There are thirty-six miles of main railroad and seven miles of portable track, with four locomotives and 500 cane cars. The capacity of the mill is 900 tons of raw sugar a week and 1100 tons of cane a day. This is the only mill in the islands that turns out refined sugar, and it supplies that commodity which is used in the pineapple canneries. The mill is equipped with all kinds of auxiliary shops. (*San Francisco Chronicle* 1910 in Conde and Best 1973:328)

In 1900, a change in ownership in the Honolulu Sugar Company caused a name change to the Honolulu Plantation Company. This latter enterprise constructed the sugar mill and refinery in 'Āiea mentioned above. It was a prosperous operation and helped create Old 'Āiea Town, which served as the hub for the community. Much of the 'Ewa Plain was being used for sugar production by the early 1900s, with plantations extending from the Pearl Harbor area to where the Honolulu International Airport is located today. In 1901, a narrow-gauge railway was constructed to transport cane from the fields to the Aiea Sugar Mill. However, loss of lands during the construction of U.S. military infrastructure and the U.S. involvement in WWII caused the Honolulu Plantation Company to sell all remaining assets to the Oahu Sugar Company in 1947 (Conde and Best 1973:330).

Rice Cultivation

In the 1850s, during the same period sugar agriculture in Hawai'i was developing, the commercial cultivation of rice was beginning. The demand for rice directly coincided with increasing Chinese immigration, which created a domestic market for rice cultivation and sales. Horticulturalists from the Royal Hawaiian Agricultural Society began experimenting with growing rice in Hawai'i. Following successful harvests, rice cultivation was promoted by the society and the Hawaiian Government as a promising commercial endeavor (Couller and Chun 1937). Hawaiians living in the wetter parts of Hawai'i were encouraged to convert their taro lo'i fields into rice paddies:

Table 1. LCA Awards in the Vicinity of the Project Area

LCA	Claimant	Ahupua'a	Description
2938:5	Lahilahi	Waimalu	no information
5956:1 & 2	Makani	Waimalu	stone wall & fishpond boundary
2494	Kekeo	Kalaiao	lo'i
5581	Kalamannua	Kalaiao	lo'i, kula
6156	Nua	Kalaiao	lo'i, kula
6156 B	Mahoe	Kalaiao	lo'i, kula
8525B	Kauwa	Waimalu	no information recorded
9315:2	Haki	Waimalu	lo'i, kula
9400:1	Kaoto	Waimalu and Kalaiao	lo'i, house lot, pond, breadfruit tree

Considerable effort has been made to induce the natives to be more industrious to cultivate the soil and particularly to try to [sic] the cultivation of rice... Foreigners too have begun the culture of rice in this district extensively and it was hoped their example would stimulate the natives to cultivate their own lands, but most of them choose to hire themselves to the foreigners at low wages and put their lands in the hands of the foreigners for a few dollars rather than cultivate or improve it themselves. (Mission Station Report 1862 in Devaney et al. 1982:49)

Some Chinese immigrants turned to rice farming after their plantation contracts were completed. These farmers typically leased small plots of land or formed hui with other farmers to acquire large tracts of land. The availability of former taro lo'i was reflected in the decreased demand for taro as a food staple due to the declining Native Hawaiian population. Rice paddies began to replace many of the former lo'i and were expanding within the lowlands of Pearl Harbor. Former taro lands were expanded and modified, and unused marsh and swamp land was easily converted into rice fields. Approximately 135 acres were cultivated in Waimalu and 262 acres were under cultivation in Waiaua, Mānana, and Waiau (Coulter and Chun 1937). The commercial rice industry at its height (1880–1920) had become dominated by Chinese companies who controlled most aspects of rice cultivation. Due to the U.S. annexation of Hawai'i, rice cultivation began to decline after 1920 because the U.S. limited the number of Chinese immigrants allowed in Hawai'i, which was a primary source of labor for rice farms. In addition, rice cultivation in California was increasing, which thereby eliminated an important export market from Hawai'i (Devaney et al. 1982).

The Oahu Railway and Land Company (OR&L Co.)

The concept for a railroad that circumnavigated the island of O'ahu was developed by B.F. Dillingham. His company, the Oahu Railway and Land Company (OR&L) was established in 1889. While the construction of the OR&L railroad was instrumental in aiding the transport of agricultural products for import/export, Dillingham's true motivation for creating the railroad was to connect outlying areas of O'ahu to stimulate development of lands owned by his business partners and himself. During the first year of construction, the railroad was capable of transporting passengers and freight from Honolulu Harbor to Pearl Harbor. By 1890, the railroad reached Pearl City, then reached Wai'anae by 1895, then Wai'alua by 1898 and to Kāhuku by 1899 (Kuykendall 1967). As Dillingham had intended, the railroad contributed to the development of Pearl City where a residential subdivision was planned:

...one of [Dillingham's] devices to build railway traffic during the first years of the struggling Oahu Railway and Land Company. Newspapers in 1890 carried numerous announcements of the "great land sale of Pearl City lots" at public auction, with special excursion rates on the new railway. Lots were

sold with a guarantee that O.R. and L. would transport buyers and their families between Pearl City and Honolulu for nine years at one cent per mile, second class. (Johnson 1956)

The OR&L also founded the Loch View Cemetery in 1900. The cemetery offered burial packages for the indigent, such as the opening and closing of graves and use of a funeral car from a depot in Iwilei that would deliver the casket to the cemetery. The cemetery was divided into sectors by religion, which was customary at that time (Chiddix and Stimpson 2004:49).

With the introduction of the electric streetcar and increasing use of automobiles in the 1920s, the OR&L operations and profits began to decline (Chiddix and Stimpson 2004). However, in the years preceding and during WWII, the OR&L saw a temporary jump in operations and profits as the U.S. military used the railroad to transport materials, equipment, and troops to areas where military operations and installations were expanding. After the 1941 attack on Pearl Harbor, trains were running 24 hours per day, 7 days a week to support wartime transportation and shipping needs. However, with the end of the war in 1945, use of the OR&L railroad again began to decline. The railroad suffered the transition between near-constant war time operations to nearly no demand seemingly overnight, and W.F. Dillingham, son of B.F. Dillingham, realized that the OR&L needed to cease operations in 1946:

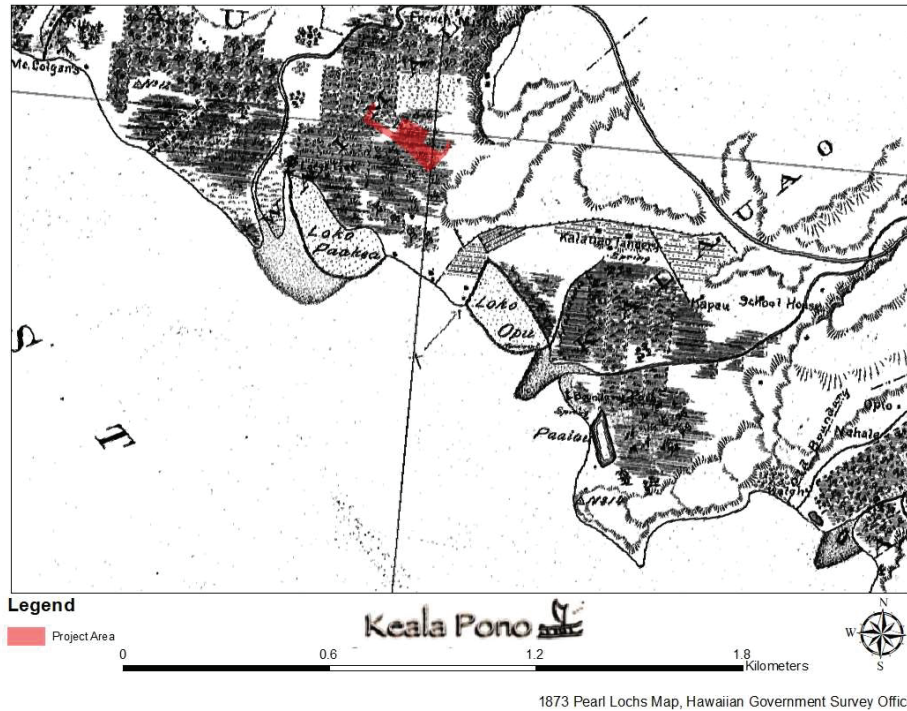
The sudden termination of the war with Japan changed not only the character of our transportation, but cut the freight tonnage to a third and the passenger business to a little above the pre-war level. With the increased cost of labor and material and the shrinkage in freight tonnage and passenger travel, it was definite that the road could not be operated as a common carrier. With no prospect of increased tonnage, and the impossibility of increasing rates against truck competition, your management has applied to the Interstate Commerce for authority to abandon its mainline. (W.F. Dillingham in Chiddix and Stimpson 2004:257)

Commercial service of the OR&L was discontinued in 1946, and shortly thereafter nearly 150 miles of track were disassembled, and operations infrastructure was either scrapped or sold. However, in 1947, one section of railroad from the Naval Ammunitions' storage magazines at Luahalei to the Pearl Harbor Naval Base was retained by the U.S. Navy for transport of materials and equipment between the two bases of operation (Treiber 2005).

Pearl Harbor Military Development

Another major factor in shaping historic-era Waimalu was the buildup of the American military. The overthrow of the Hawaiian government by mostly foreign businessmen backed by the U.S. military in 1893, and the subsequent suppressed annexation of Hawai'i by the U.S. in 1898 set the scene for permanent American presence. It should be noted that the typical narrative which chronicles the U.S. annexation is not a narrative that is accepted by all. Another equally recognized narrative explains that the overthrow of the monarchy was illegal and not accepted by large segments of both the Hawaiian and American populations at the time, and therefore Hawai'i has been under a prolonged American military occupation since then. Still, following the war with Spain in the Philippines, and worried by the expansion of Japanese influence, the U.S. viewed Hawai'i's geographic location as extremely strategically valuable. Pearl Harbor, formerly known as Pu'uloa, was selected to base American naval forces.

Discovery of the harbor in 1789 is credited to Captain Nathaniel Portlock (Clark 2002). Foreigners to Hawai'i have long recognized the potential in Pearl Harbor as military base of operations, but it was not until the Act of Annexation in 1901 when the U.S. Government retained 1,356 acres of land surrounding Pearl Harbor that the area was actively utilized for military activities. Pearl Harbor was dredged deep enough to allow for large warships to enter, with the dredging carried out by W.F. Dillingham beginning in 1903. Authorization for the establishment of the Pearl Harbor Navy Yard was given in 1908 and within the next few years, dredging of the channel and construction continued.



1873 Pearl Lochs Map, Hawaiian Government Survey Office

Figure 4. Portion of a map of Pearl Lochs and the Pu'uloa Entrance (Lyons 1873).

Heightened tension in the Pacific during the 1930s caused the expansion of military infrastructure at Pearl Harbor and around the island. In the years leading to the U.S. involvement in WWII, coordination between civilian interests and the U.S. military became commonplace. For instance, in 1940 and 1941, the 64th Coast Artillery (Anti-Aircraft) Regiment received blanket permission for use of lands from the Honolulu Plantation Company which allowed them to use all land and roads surrounding Pearl Harbor (Spalding 1945).

Pearl Harbor is most remembered for the air raid by the Imperial Japanese Navy on December 7, 1941, which launched the U.S. into WWII. After the attack on Pearl Harbor, additional infrastructure was needed to double the war effort in and around the harbor. In addition to the reconstruction of destroyed facilities, a new ammunition depot was built in Waipahu, a hospital in 'Aiea, and the Naval Yard was improved to hold additional aircraft carrier forces (Woodbury 1946). By 1944, the U.S. government acquired approximately 2,400 acres of land surrounding Pearl Harbor for military use during the war effort (Allen 1999). Following the end of WWII, much of the infrastructure was retained, but some of the former military complexes were repurposed for other public uses. A new hospital to treat Hansen's Disease patients, Hale Mohala (House of Comfort), was established in one such complex to replace Kalia Hospital that was in use since 1865 (Tayman 2006). By the mid-1900s, the imposition of the American military in Pearl Harbor irretrievably destroyed traditional Hawaiian management systems of the land and sea resources of the area.

The harbor itself is comprised of East Loch, Middle Loch, and West Loch, all of which have restricted access. The part of East Loch that is situated to the east of Moku 'ume 'ume (Ford Island) is known as Southeast Loch. In 2010, the Navy Yard integrated with the nearby U.S. Hickam Air Force Base to create Joint Base Pearl Harbor-Hickam (JBPHH), which is the command center of the U.S. Pacific Fleet. Pearl Harbor is still in active use by the U.S. military. In 1964, Pearl Harbor was deemed a National Historic Landmark District, State Inventory of Historic Places (SHHP) 50-80-13-9992 and placed on the National Register of Historic Places (NRHP). The USS Arizona, USS Bowfin and USS Utah, located within the harbor, are also considered National Historic Landmarks.

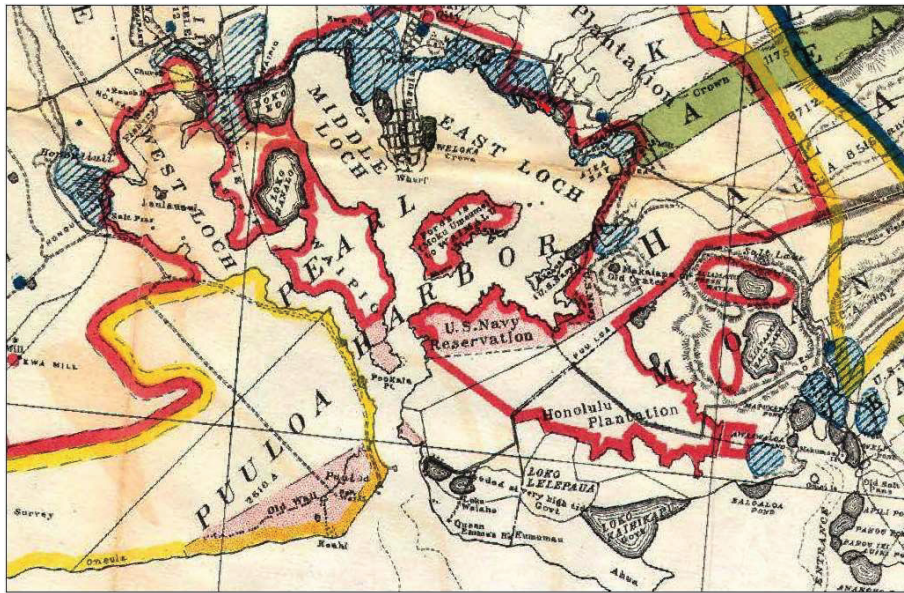
Historic Maps

Historic maps help to paint a picture of Waimalu in years past and illustrate the many changes that have taken place in the region. This section presents a selection of five maps from the 19th and 20th centuries that provide insight to the project area. Note that names are spelled as they are written on each map.

The earliest map dates to 1873 (Figure 4). Loko Paakea and Loko Opu are illustrated, and there are scattered structures between them. The word "Monument" is written along the Loko Opu wall, although it is unclear what this means. Paalau is depicted as a pond, rather than a loko that extends into the sea, and it is situated near a spring. The Government Road crosses through the ahupua'a, and a French Mission is just makai of it. A Tannery is located in Kalauao, near a spring and among dryland fields. Kalo, rushes, and dryland fields are shown in Waimalu, with the specific project area in rushes.

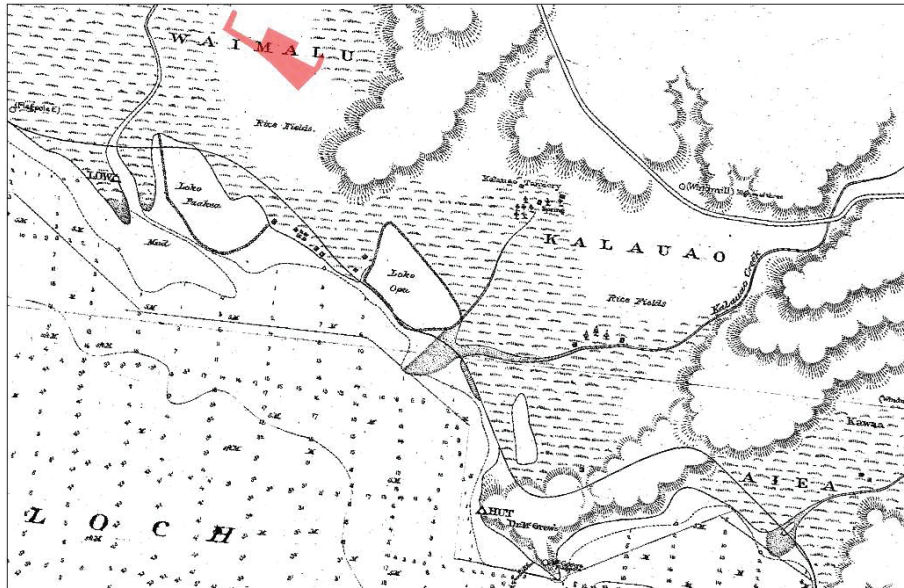
The next map (Figure 5) depicts the lands surrounding Waimalu and Kalauao in 1897. The map shows that the vicinity of the project area is cultivated in rice, with a rice mill located to the west. Loko Paakea and Loko Opu are labeled, but Loko Pa'au is illustrated with no name. A few structures are scattered at the coastline, and a settlement and Kalauao Tannery are concentrated around a spring at the border of Waimalu and Kalauao. The OR&L railroad is depicted as a solid line to the south of the project area.

A Hawaii Territory Survey map dated 1902 depicts all of O'ahu. The Pearl Harbor portion is shown here, where the fishponds at the coast and topographic features are visible (Figure 6). By this time, the U.S. Navy Reservation had been established, and what is now known as Ford Island is labeled as "Ford's Is (Moku Umeume) to Waimalu." Around Southeast Loch, U.S. Navy lands are illustrated, as well as "Makalapa Old Crater." South of the crater, were Honolulu Plantation lands.



Legend
 Project Area
 0 3.5 7 10.5 Kilometers
 Source: 1902 Land Office Map of Oahu

Figure 6. Portion of a Hawaii Territory Survey map showing the project area (Wall 1902).



Legend
 Project Area
 0 0.5 1 1.5 Kilometers
 1897 Pearl Lochs Map, Hawaiian Government Survey Office

Figure 5. Portion of a map of Pearl Lochs (Nichols 1897).

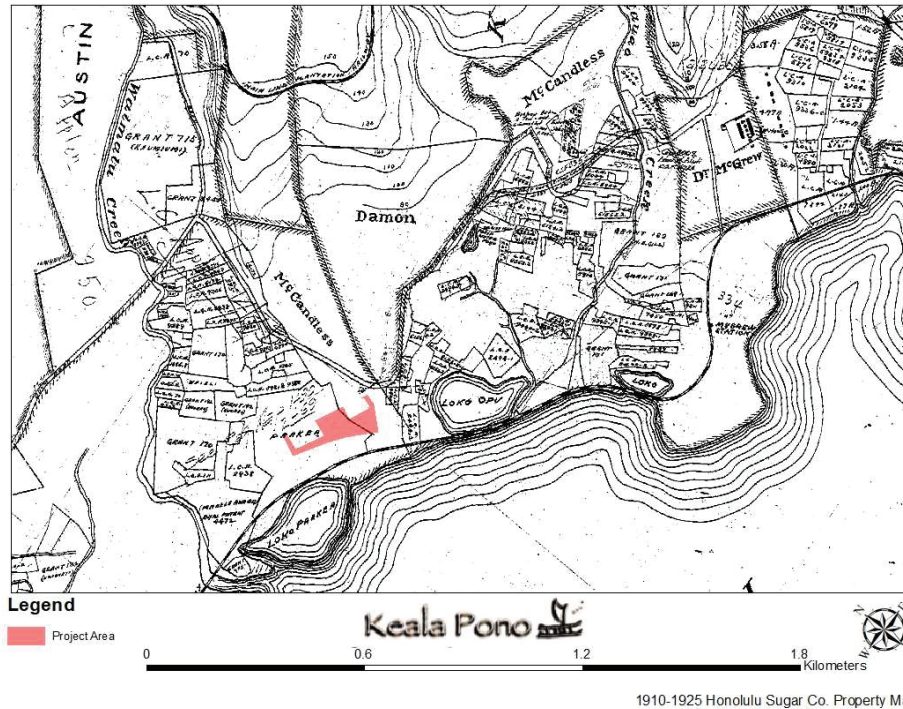


Figure 7. Portion of a map of Honolulu Sugar Co. Property (Taylor 1910–1925).

The final map dates to 1910–1925 and shows property belonging to the Honolulu Sugar Co. (Figure 7). Loko Paakea and Loko Opu are labeled, while Loko Pa'aiuu is just labeled as “Loko.” Many more structures are now shown, as well as numerous LCA plots and foreign names such as Austin, McCandless, Damon, and McGrew. Also depicted in Waimalu are the plantation railway, government road, a small freshwater pond, and a reservoir. The study area is situated on land labeled “Paakea” and “McCandless.”

Previous Archaeology

Many archaeological studies have been conducted in Waimalu. The following discussion provides information on archaeological investigations that have been carried out in the vicinity of the project area, based on reports found in the SHPD library in Kapolei, Hawaii¹ (Figure 8 and Table 2).

Some of the earliest archaeological work in the study area was conducted by J.G. McAllister in a 1933 survey of the island of O'ahu. Five archaeological sites were identified in the vicinity of the project:

- **Site 108 – Loko Pa'aiuu** measured 190 by 600 ft., was rectangular in plan view, and had one makāhā. Three sides of the fishpond were adjoined to the land where the pond was demarcated by a basalt wall roughly 2 ft. tall. The ocean side of the pond was delineated by a wall that measured 3–4 ft. wide and 2 ft. tall. The pond was fed by the fresh water sources that fed the surrounding taro patches. It was said to have been built by chiefess Kalaimanua (McAllister 1933:103).
- **Site 109 – Loko Opu** covered 10.5 ac. and was enclosed by a 2,700 ft.-long wall. The fishpond was also said to have been built by chiefess Kalaimanua (McAllister 1933:103).
- **Site 110 – Kuki'i'iahu** was the home of chiefess Kalaimanua, who was said to have built Loko Pa'aiuu, Loko Opu, and Loko Pa'akea (McAllister 1933:103). The place was also the location of the Battle of Kuki'i'iahu (see Subsistence and Traditional Land Use section).
- **Site 111 – Loko Pa'akea** was a large fishpond formerly located on the eastern side of Waimalu Stream and was said to have been built by chiefess Kalaimanua, who lived just east of the pond. McAllister recorded this site as covering 12 ac., with a basalt and coral wall that was 850 ft. long, 6 ft. wide, and 4 ft. high with one makāhā. One smaller, adjoining fishpond was recorded, which was thought to be recent at the time (McAllister 1933:103–104).
- **Site 112 – Naulu-a-Maiheha Heiau** was a large heiau with an adjacent enclosure formerly located near the mouth of the Waimalu Gulch on a small knoll. The heiau was thought to have been built by Naulu-a-Maiheha in the 12th century (McAllister 1933:104–105). Thrum (1906:46) reported that the Naulu-a-Maiheha heiau foundations were observed in 1880 but not identified when the area was visited in 1906.

An archaeological surface survey was conducted in support of the Pearl Promenade Project, near Pearlridge Shopping Center (Simoto 1986). One historic property was identified, a remnant of the OR&L Railroad right-of-way (SIHP 50-80-12-9714). No traditional cultural resources were identified as the entire area was filled in and graded. No further archaeological work was recommended.

An archaeological evaluation was completed on previously collected environmental samples (Dega and O'Rourke 2003). No archaeological materials were identified but stratigraphic sequences were observed that represented historic period fill events likely associated with 20th century military use of the area. This evaluation also mentioned an inadvertent discovery of human remains, the report of which was not found at the SHPD library. The remains were identified at the Neal Blaisdell Park in 2000. They consisted of incomplete sets of two individuals within an associated cultural layer (SIHP 50-80-12-6383).

Another inadvertent burial discovery was made at Neal Blaisdell Park where three human skulls and other human skeletal remains were identified (Shikina 2011). Naval Facilities Engineering command archaeologists conducted the preliminary investigations and found that the skeletal remains were likely from a traditional Hawaiian or historic-era burial site located inland approximately 10–14 ft. from the shoreline.

Table 2. Previous Archaeological Studies in the Vicinity of the Project Area

Author/Year	Location	Type of Study	Results
McAllister 1933	Island-Wide	Archaeological Survey	Recorded five sites in the project vicinity: Loko Pa'aua (Site 108), Loko Opu (Site 109), Kukū'ihū (Site 110), Loko Pa'akea (Site 111), and Naulu-a-Māheua Heiau (Site 112).
Sinoto 1986	Kalaauo	Archaeological Survey	Recorded SIHP 50-80-12-9714, an OR&L railroad remnant.
Dega and O'Rourke 2003	Neal Blaisdell Park	Archaeological Evaluation Report	Noted SIHP 50-80-12-6383, burials in a cultural layer, as a previous finding.
Shikina 2001	Neal Blaisdell Park	Burial Report	Identified three human burials. No SIHP numbers were assigned.
Sroat et al. 2012	Kamehameha Hwy.	Archaeological Inventory Survey	Documented SIHP 50-80-09-7150, a lo'i deposit.
Sroat et al. 2013	Kamehameha Hwy.	Supplemental Archaeological Inventory Survey	No historic properties were identified.
Filimoeala and Allen 2014	Waiuu	Archaeological Monitoring	Recorded SIHP 50-80-09-7569, a lo'i deposit; -7570, a fire pit; and -7571, two charcoal concentrations.
Filimoeala and Rieth 2014	Waiuu	Archaeological Inventory Survey	No historic properties were identified; a single glass bottle was found.

An archaeological inventory survey was conducted in support of the Construction Phase 2 of the proposed Honolulu High Capacity Transit Corridor (Sroat et al. 2012). One historic property was identified within Test Trench E7. This is SIHP 50-80-09-7150, consisting of two cultural deposits containing charcoal and decomposing organic material consistent with former lo'i soils. The deposits were identified within LCA 9385, which was historically documented as containing lo'i. Radiocarbon dating of charcoal samples recovered from stratum IIIa yielded two date ranges of AD 1430-1530 and 1540-1635. Stratum IIIb yielded a date range of AD 1414-1480. The trenches located closest to the current project area were E12, E13, E14, E15, PRS-1, PRS-2, and PRS-3. No historic properties were identified in these trenches. A supplemental AIS was conducted in support of the Kalaauo Pearlfridge Station for Phase 2 of the proposed Honolulu High Capacity Transit Corridor (Sroat et al. 2013). An additional three test trenches were excavated, PRS-4, -5, and -6. No remnants of SIHP 7150 or any other historic property were identified within any of the three trenches.

Archaeological monitoring was completed in support of the Waiuu Sewer Rehabilitation Project that identified a total of three archaeological sites (Filimoeala and Allen 2014). SIHP 50-80-09-7569 is a subsurface charcoal-rich deposit associated with traditional Hawaiian agricultural practices. Radiocarbon dating yielded two date ranges of AD 1518-1593 and 1618-1664. SIHP 50-80-09-7570 is a fire pit feature of an unknown age, and SIHP 50-80-09-7571 consisted of two charcoal concentrations (Features 1 and 2). Feature 1 contained post-contact material and Feature 2 was thought to date from the late pre-contact to early post-contact era.

An archaeological inventory survey was conducted at 98-113 Kaulike Drive in support of a new house construction (Filimoeala and Rieth 2014). A surface survey and three test trenches were completed, but aside from one early- to mid-19th century-era glass bottle, no historic properties were identified. Because there were no findings, the report was presented as an archaeological assessment.

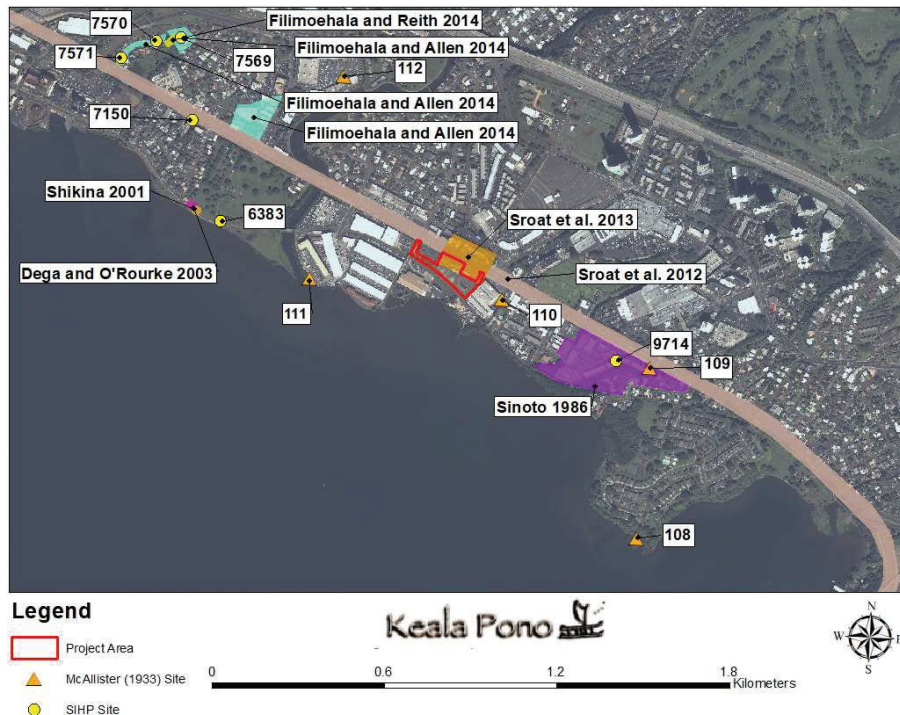


Figure 8. Previous archaeological studies and known archaeological sites in the project vicinity.

Summary and Settlement Patterns

In pre-contact times, the Waimalu region was an area utilized for traditional agriculture. Kalo was grown in the marshy coastal lowlands and along major waterways. Three significant loko (fishponds) were in the project vicinity: Loko Pa'iaiu, Loko Opu, and Loko Pa'akea. However, these fishponds have since been filled in, and the kalo lands were developed with modern roads and buildings. Naulu-a-Maitea Heiau was in the area, though it was reported destroyed by 1906 by McAllister in 1933.

In the post-contact era, sugar cultivation was a driving force for the economy, and cane fields, mills, ditches, the OR&L railroad, and other infrastructure forever changed the landscape. The rice industry also became a profitable endeavor, particularly for Chinese immigrants looking to make their way in Hawai'i. According to historic maps, the vicinity surrounding the current project area was not rice cultivation until at least the late-19th century. Not much remains of the sugar industry today, but remnants of the OR&L railroad can still be found.

Previous archaeological studies were conducted to the north and east of the current project, and lo'i deposits (SHP -7/50) were identified to the west of the project area. The closest known archaeological site to the current project lies approximately 100 m to the east. It consists of Kukū'iahu (Site 110), which was the home of chiefess Kalaimanua and the site of a famous battle. Other studies in the vicinity have identified a variety of historic properties, including an OR&L railroad remnant, another lo'i deposit, a fire pit, and charcoal concentrations. Human burials were discovered at Neal Blaisdell Park associated with a cultural layer.

The entire subject property has undergone extensive previous disturbance, and it is not likely that any surface archaeological features remain. Nevertheless, subsurface archaeological materials or deposits may be encountered during construction, as evidenced by the subsurface finds of previous studies in the vicinity. Archaeological features that might be found in the study area include remains of agricultural activity (pondfield deposits and other features associated with lo'i, as well as rice paddies and/or sugarcane fields and infrastructure), remnants of past habitation (cultural layers, fire pits, remains associated with the LCAs in the area), human burials, and vestiges of the OR&L railroad.

ETHNOGRAPHIC SURVEY

There are some things that cannot be found in the archives, in textbooks, or at the library. It is here, through the stories, knowledge, and experiences of our kama āina and kupuna that we are able to better understand the past and plan for our future. With the goal to identify and understand the importance of, and potential impacts to traditional Hawaiian and/or historic cultural resources and traditional cultural practices of Wāimalu, ethnographic interviews were conducted with community members who are knowledgeable about the project area.

Methods

Ethnographic interviews were conducted by telephone in May 2020. In-person interviews were not carried out due to Covid-19 physical distancing regulations in the state of Hawai'i. Guiding documents for the ethnographic interviews include The Hawai'i Environmental Council's Guidelines for Assessing Cultural Impacts, A Bill for Environmental Impact Statements, and Act 50 (State of Hawai'i). Personnel involved with this study are Windy McElroy, PhD, Principal Investigator of Keala Pono Archaeological Consulting, and Gina McGuire, MS, Ethnographer.

Interviewees were selected because they met one or more of the following criteria: 1) was referred by Keala Pono Archaeological Consulting or G70; 2) had/had ties to the project area or vicinity; 3) is a known Hawaiian cultural resource person; 4) is a known Hawaiian traditional practitioner; or 5) was referred by other cultural resource professionals. Three individuals participated in the current study. Mana'o and 'ike shared during these interviews are included in this report.

Interviews were taped over the telephone using a cellular phone recording app. Prior to or during the interviews, each person was provided with a map or aerial photograph of the subject property, the Agreement to Participate (Appendix A), and Consent Form (Appendix B), and briefed on the purpose of the Cultural Impact Assessment. Research categories were addressed in the form of open-ended questions which allowed the interviewee to answer in the manner that she was most comfortable. Follow-up questions were asked based on the interviewee's responses or to clarify what was said.

Transcription was completed by listening to recordings and typing out what was said. A copy of the edited transcript was sent to each interviewee for review, along with the Transcript Release Form (Appendix C). The Transcript Release Form provided space for clarifications, corrections, additions, or deletions to the transcript, as well as an opportunity to address any objections to the release of the document. When the forms were returned, transcripts were corrected to reflect any changes made by interviewees.

Several potential interviewees were contacted, resulting in three interviews (Table 3). The ethnographic analysis process consisted of examining each transcript and organizing information into research themes, or categories. Research topics include: connections to the project lands, mo'olelo, oli, and place names, archaeological sites, gathering practices, change through time, and concerns and recommendations for the project. Edited transcripts are presented in Appendices D-F.

Interviewee Backgrounds

The following section includes background information for each interviewee, in their own words. This includes information on their 'ohana and where the interviewee was born and raised. The interviewees are Mahealani Cypher, Minerva Pang, and Naomi Tully-Ungaeta.

Table 3. List of Individuals Contacted

Name	Affiliation	Method of Contact	Result of Contact
Mahelaani Cypher	Rail Station Naming Group, Alupua a Marker Project	Telephone, Email	Interviewed
Antoinette "Toni" Lee	Pearl Harbor Hawaiian Civic Club, Kupuana, Manana Elementary School	Email	Declined
Minerva Pang	Longtime resident, Kupuana, Momiilani Elementary School	Telephone	Interviewed
Naomi Tully-Ungaeta	Longtime resident, Momiilani Community Center Program Director	Telephone, Email	Interviewed

Minerva Pang

My name is Minerva Kalanuiwaokalani Pang. I was born and raised in Hoonuapo, Ka'u, Hawaii. My birth date, February 1st, 1927...I was raised in Ka'u, and I'm the number eight in my family. Four brothers and three sisters and myself, there's eight of us. So, I'm the only surviving sibling left from my family. And because I'm 93, my older sister, being 11 years older than me, she would be 104.

...So all the rest, in their 90s, 'cause they're older than me. I went to school Na'alehu, it's an intermediate school year? From Kindergarten to ninth grade. But in-between I went to Hilo too. I went to Keaukaha with my grandpa and my grandma. When they weren't feeling well my mom would go over and take care of them. I would go to Keaukaha school and one year I stayed there in Hilo. I went to Hilo Intermediate School, but I came back and finished school at Na'alehu. I was there five, six, seven, eighth, ninth grade. My grandfather was a school teacher, he taught at Wai'ohinu, the first school at Wai'ohinu. He was Moses Malakaua. He married my grandmother, Pihikula. So my grandmother's father was one of the chiefs in Ka'u, way back. They opened up the first school in Wai'ohinu, he taught there, and that's how he met my grandma. He taught there and then they opened up another school in Hoonuapo, and they moved to Hoonuapo, and they had their children...My family, my father died before I made one year old. My brothers made it to sixth grade, and my sister, and they had to quit school and go to work. My brother worked at the sugar mill. And my sister used to do laundry for the, a supervisor, in the sugar plantation. So, she used to do laundry for them and clean their house. My mom would be down by the beach, fishing and planting. We went through a really hard life like everybody who come from there. Everybody started from working in the plantation. So when we went to school we walked three and a half miles going to school and three and a half miles walking home.

Mahelaani Cypher

I'm Mahelaani Cypher. I was born and raised in Kane'ohe, born 1946. I went to school at Benjamin Parker Elementary School, then Kamehameha, and graduated from St. Andrew's Priory. After that I went to college in Los Angeles. I have three daughters, nine grandchildren and five great grandchildren.

My grandparents, George and Elizabeth Cypher, adopted my sister and I when we were toddlers because our birth mother had to travel for work and as she was a single parent, it

became necessary for our grandparents to adopt us. So we were raised really by my grandmother because my grandfather died when we were very young. Elizabeth Cypher was a very positive influence on my life. She taught me many cultural things. She taught me about the mo'olelo, our family stories. It is from her that I find most of my inspiration to take care of the culture.

Naomi Tully-Ungaeta

So my name is Naomi Tully-Ungaeta. I was born and raised in Palisades, Pearl City. My parents, my father worked in the banking industry for a number of years. And my mom worked as a receptionist in a life insurance agency from when she was 18, straight out of high school. And they both worked in town so we would commute every day from Pearl City to my grandfather's house in Liliha. And we would drive and commute every morning. We'd leave the house at 5:30 in the morning to avoid traffic and have breakfast at my grandfather's house every day. I went to school in town due to the commute and ease of pick up and drop off, that my grandfather could help and my grandmother... I went to McKinley high school. Back in 1989.

And so, my parents both worked for the City and County of Honolulu in different departments and ended up retiring through them. They were in Palisades until ten, twelve years ago, they moved out of Palisades. I would say we were in Palisades for close to 30 something years, give or take. And my sister actually received the property from my parents and she owns the house that we grew up in.

Topical Breakouts

The following sections are extended quotations from the interviews, organized by topic. Interviewees provided information on connections to the project lands, mo'olelo, oli, and place names, archaeological and cultural sites, gathering practices, change through time, and concerns and recommendations for the proposed bus transit center.

Connections to the Project Area

[I] got married, then we lived in Makiki. So my mom and my brothers moved back to the Big Island. And then we stayed and my husband was working in Pearl Harbor. He started working there, 1941, before the war. And he got drafted, came back and went to work at Pearl Harbor. So I raised my children. I had seven children. When my youngest daughter was two years old, was 1957 we moved here. And 1958 I started hula in my home. We have a big patio, it's enclosed now, could hold about 20 students. And that's when I started hula. 1958. And I was still teaching until this virus started and I had to cancel my class, yeah? In the meantime, in 1986, my daughter told me to join the Hawaiian Studies program, so in 1986 I got hired as a kupuna for Momiilani Elementary School. So I taught there one semester and then I was helping the Pearl City Elementary School for twenty years 'cause my children went there and my grandchildren. But then Momiilani gave me the whole school, from Kindergarten to sixth, in 1989. I retired three years ago, but I told them I'd come back and help. [Minerva Pang]

Well the rail project, it stems from my participation in the '70s through 2000s and it has to do with opposing the H-3 freeway. I was always concerned about the impact of infrastructure like that on cultural sites and our Windward communities from new highways. During the 1980s and 1990s I was part of a group that advocated for transferring H-3 funds to transit because we felt that would have been a better use. We opposed the highway and we supported transit. We really didn't like heavy rail, which is what they're building, we liked a light rail. But we did agree with the rail being where it is because that's where the population of the island is. We wanted to keep infrastructure like that away from the Windward side because we wanted Windward O'ahu's cultural and natural resources

preserved. We had to discourage construction like this on the Windward side and encourage it on the Leeward side where there was more room to be urbanized with establishment of a rail system. And all the studies we had seen indicated that the rail system, as it was planned, was ideal for the alignment they planned. We were able to preserve very few of our sites. Most were destroyed. By H-3. [Minerva Pang]

I was born and raised in Palisades, Pearl City...I got the job there [Momiiani Community Center]... there were swim classes held there at the community center pool. I was a stay at home mom for a while, living in Palisades. And I came across a little flyer that was on the bulletin board looking for a program director. So I applied, been there for 13 years. [Naomi Tully-Ungacia]

Mo'olelo, Oli, and Place Names

I don't have any stories about Waimalu itself. I would have to refer you to my other committee members. I do know that we are trying to respect our cultural sites and the names of places in the work that we are doing as volunteers with our project. Trying to honor the place names of these areas because many of these sites were covered over, paved over, in development so if we can't really save all the sites, we can at least honor them by using their names. [Mahealani Cypher]

I have in the past, remembered [mo'olelo]. You know you hear the legends, and these things. But I can't remember what they were. [Naomi Tully-Ungacia]

We have a chant, this is one from my school. The chant for our school, it's called Kū Mai Au Hawai'i. We stand in the Hawai'i. Yeah? And the other chant, Nā Waiwai Oli. My teacher when I started the Hawaiian studies program, and Kalani Akana, they all are. I wanted a chant to help my school to learn so we taught the children that. We're really strict with the chant, we held before we had our meeting. We'd do the other chant and then Nā Waiwai Oli. That's the two chants I teach my school. Kindergarten to sixth grade. [Minerva Pang]

...This area was not called Pearl City, it was called Manana. Way back. It got the name Pearl City from the pearls, 'cause had so much. The pearls come from the outside of the peninsula side. And Pearl Harbor is called that because of the pearls. And then you know, you heard about this shark? Ka' ahupāhau. It's the son of Pupu a 'Ewa. This female shark would go from 'Ewa all the way to Pearl City area. Up the harbor and go back? She would protect the people from other sharks when they go out to get the oysters. When the other sharks would come in she would chase them. So the shark, Pupu a 'Ewa, the shells of 'Ewa, and at the ending they talk about her. He ala hele o Ka' ahupāhau. The pathway of the shark. When she died, in Pearl Harbor. I didn't know for a long time. My husband told me. "We tried to build this dry dock." So when the ships come in, they can't repair the ships. But you gotta go through the dry dock, yeah? But when they build the dry dock, somebody gets hurt, the thing, they just cannot build it, it would break or something would happen. A pastor would come in and bless the place. One pastor went in, he went to bless the place. He got a funny feeling, like something is there. He told them. "You cannot build this dry dock. There's something under there." So the divers went underneath, you know, there's like a cave all the way underneath. He saw the remains of the shark over there. That was her cave underneath there. So they had to break down everything to start it on the other side. And nothing happened. 'Cause that was her area, over there. After the story came out in the paper what happened, way back. That's another site, of that shark, and what she did for our people. And that's why this area is called Pearl City. The main history of this place, the ahupua'a, was Manana. [Minerva Pang]

Archaeological Sites

Unfortunately, no. I don't know of any. [Naomi Tully-Ungacia]

Way back, the first church, way back. I don't know how many years ago, they had a church. You know where Leeward College is? The first church in the Pearl City was there. They had some sites with a cemetery over there. [Minerva Pang]

Pearl City get plenty sites you know, over there, and way down, our church, over to this rock. Over there is the Mormon Church. And right in front, had a rock over there. And one day, they were trying to get rid of it. Get the story in Sites of Hawai'i. That one, they went to Waipahu. Right across from the Waipahu School, get the Mormon Church. Used to be in Pearl City. Know how powerful that rock is, yeah? They tried to break it and it survived and something happened to them. Way back, get all kind scary stories. [Minerva Pang]

Hmmm. I just know of the heiau, Kūki'iahu Heiau, which is in Hālaula Valley next to where the Board of Water Supply Halawa Shaft is located. Right next to it there is a building that is now occupied by FEMA. Underneath the building are the remnants of the heiau. It's built on top of the heiau! [Mahealani Cypher]

Kūki'iahu Heiau was dedicated to a queen, I don't remember which one. But you can still see the stone walls underneath the building on the river side. [Mahealani Cypher]

Gathering Practices

I know that the top of Pearl City is, of course. I know there are people that gather. Usually the hula halau would gather things from the mauka areas of the Waimalu Ahupua'a. Waimalu, 'Aiea, all those adjoining areas. [Mahealani Cypher]

I'm sure they do [pick flowers in Pearl City]. The hula class that utilizes our facility, they do performances periodically for senior centers and once in a while they'll perform somewhere else. They go and pick flowers to make lei, haku, or not haku. That's not the right word, the one that goes on the head. [Naomi Tully-Ungacia]

Changes Through Time

Oh yeah. Lot of changes. From when we first moved here, in 1957, the streets were not that wide, narrow, and we didn't have much traffic like we do now. And the only traffic that we had was at night. And the traffic was not like now, hardly any cars would go by. That's why this street, Ho'omalu, the meaning of this street is called peaceful and quiet. That's why they named this street, because it was quiet when I first moved here. The only thing you'd hear is the cane trucks when they go by. But it's so quiet night time, hardly any noise. But I live at this corner, it's the most noisy street now, 'cause we have ambulance and fire trucks, every day. Any time of the day they come by. They go down Kam Highway, come down Moanalua Road. But with the virus, not as much cars going past. But it's different from way back. Kids used to walk to school, 'cause it's not too far from here, going down to Pearl City Elementary School. And you walk up from here to the intermediate school. Now the traffic's so bad, parents drive in or the neighbors take them...[Minerva Pang]

Pearl City in general has grown significantly, with the Walmart and a bunch of new strip malls that have popped up in the area. And over the course of several decades, that area where Walmart is, heading towards Sam's Club. That used to be nothing but military warehouses, I believe. I remember that as a kid. It was literally like these bunkers, or these big, white warehouse-type stuff. [Naomi Tully-Ungacia]

Oh definitely. The area used to be primarily agricultural. A lot of farming and accessory businesses that surrounded the farming, like the sugar mill and those kind of things, is what I remember growing up and traveling occasionally to that side, which we did when we went to the Honohulu side. Leeward. But I remember it all being fields and fields of farmland. Now it's field and fields of subdivisions and malls and businesses and not too much farmland anymore. [Mahealani Cypher]

Concerns and Recommendations

And it's very concerning to me because this island in ancient times was able to completely sustain itself with its own food, with its own fishponds and kalo and other food products that we grew here and now we're not self-sustaining any more. And that's concerning. That's a cultural concern, that we need to make sure that we can sustain our people. I'm hoping that whatever lands are still vacant are not converted to urban land, that they are able to create either food producing or industries that support food producing. [Mahealani Cypher]

Hopefully this new transit facility will also be given a name and they invite our committee to help with the naming, and we will surely be able to provide one that is complimentary to the area's cultural history. That's what I would recommend, is asking the committee for help with the naming the facility. [Mahealani Cypher]

... I think it would generally be okay because the area already has been degraded by previous development. It all depends on what kind of toxins might be released by the facility into the 'āina or the waterways, things like that. That would be a concern. It could affect the ocean and the land nearby, not to mention water sources underground. [Mahealani Cypher]

Number one is first consult with the cultural practitioners from the area. Kehau Lum would be a good one to talk to and Bruce Keatiani would be a good one to talk to. Those folks have more knowledge about the area. Number one is to consult with the cultural practitioners of the area. Number two is to identify the sites that are already known, where they are located, and invite the community to offer additional information about sites that are not recorded, because one of the problems is a lot of the sites were never recorded officially so they're all disregarded once development is proposed. [Mahealani Cypher]

I can't say if it was for that particular spot you're talking about, but just the rail in general was creating a lot of chaos down there. You can't help, the construction is moving around, bulldozers and things like that. The entrances to these businesses was difficult to navigate and with the ever changing, "turn here," "detour here," if someone would miss the turn, forget it, we're not turning around, there's no way... So the businesses are really suffering. [Naomi Tully-Ungacia]

...So, we don't have a lot of concerns. I kind of wonder, at night, a lot of the businesses in the area they don't open late, you know? And so, there's a lot of homeless in the area. A little further down there's a park, maybe a half a mile down. And there's a lot of homeless on the bike trails, behind that park. That trail goes all the way along the waterside. Lot of homeless down there. I don't know if they cleared the area out but they always come back. You know, they wander, and if there's people waiting at the bus stop, security's always a concern. Safety. People waiting at the bus stop and if there are a lot of places open. [Naomi Tully-Ungacia]

Summary of Ethnographic Survey

The interviewees have extensive knowledge of Waimalu and the area surrounding the proposed bus transit center. One of the kūpuna was born and raised in Waimalu, while the other moved to the ahupua'a in her youth and has lived there for decades. The third interviewee has connections to Waimalu via the Rail Station Naming Group and the island-wide Ahupua'a Marker Project. Interviewees mentioned the original Hawaiian place names for the region, and two mo'olelo were shared, one about a stone that could not be broken or removed, and another regarding a shark named Ka'ahupāhau, who protected the bay and lived in a cave there.

The interviewees mentioned that the gathering of plants and flowers for hula still occurs in the upper reaches of Waimalu. They shared their knowledge of a few archaeological sites including one of the first churches in the region, an unbreakable stone, and a heiau in Hālawā.

Interviewees agree that previous development has already greatly affected the area. They also expressed a variety of concerns and recommendations. The increase in traffic during construction was a common topic and the negative impact of construction to nearby small businesses was also discussed. Safety concerns for users of the bus terminal was mentioned as well as the effect on the natural environment. Another concern was that the Waimalu community is no longer able to sustain itself, as subsistence activities in the region gave way to commercial industries. It was suggested to honor the place names of the area with an appropriate name for the transit center, based on the region's cultural history. It was also recommended to consult with the community and local cultural practitioners in regard to naming the facility and to find out additional information about known sites and the location of undocumented sites that may be located in the area.

SUMMARY AND RECOMMENDATIONS

The 'Ewa Moku, Waimalu region, and Pu'uloa (Pearl Harbor) were culturally significant as noted in song, chant, proverb, and narrative. The region had an abundance of natural resources that supported traditional subsistence activities such as fishing and kalo cultivation. Numerous fishponds dotted the shores at Pu'uloa, and laro farming was practiced in the marshlands of Waimalu. Pu'uloa was particularly important for pipi (pearl oyster) fishing. The presence of Naulu-a-maihea heiau suggests that the area was also of sacred religious importance.

The 20th century saw widespread changes to the region. Sugar and rice agriculture as well as military use significantly transformed the landscape. An OR&L railroad traversed the coast, and Pu'uloa was developed into the Navy installation that remains today.

Cultural Resources, Practices, and Beliefs Identified

Archival research and ethnographic interviews compiled for the current study revealed that Waimalu was a culturally significant area with many of the natural resources to support traditional subsistence activities such as lo'i, pipi, fishing, and at least three fishponds. Archival research revealed that lo'i deposits were identified to the west of the project area. Roughly 100 m to the east was the home of chiefess Kalaianua, Kuli'iahu Heiau, and the site of a famous battle. Other studies in the vicinity have identified a variety of historic properties, including an OR&L railroad remnant, another lo'i deposit, a fire pit, and charcoal concentrations. Human burials were discovered at Neal Blaisdell Park associated with a cultural layer. In the historic period, this region was dominated by sugar and rice cultivation and associated infrastructure such as mills, ditches, and the OR&L railroad.

The interviewees mentioned that the cultural practice of gathering plants and flowers for hula still occurs in the upper reaches of Waimalu. They shared their knowledge of a few archaeological sites including one of the first churches in the region, an unbreakable stone, and a heiau in Haliwa.

Potential Effects of the Proposed Project

Overall, the interviewees did not seem to believe that the proposed project would affect any places of cultural significance, however it was mentioned to refer to additional cultural practitioners from the area regarding the possibility of undocumented sites. One interviewee believed that previous development has already degraded any significant cultural resources in the area.

Confidential Information Withheld

During the course of researching the present report and conducting the ethnographic survey program, sensitive or confidential information was revealed. This information was withheld from the current report.

Conflicting Information

No conflicting information was obvious in analyzing the gathered sources. On the contrary, a number of themes were repeated and information was generally confirmed by independent sources.

Recommendations/Mitigations

Concerns and recommendations for the project were voiced by interviewees; however most agreed that previous development has already affected the area. Concerns include possible increases in traffic during construction, the potential for negative impact of construction to nearby small

businesses, safety concerns for users of the bus terminal, and possible effects on the natural environment. A general cultural concern raised by one of the interviewees is that the region is no longer able to sustain itself by farming and fishing as it had in the past. Recommendations for the project are that the community should be consulted in naming the new facility and that cultural practitioners should be contacted for more information regarding documented and possibly unknown undocumented sites in the area. It was suggested to honor the place names of the area with an appropriate name for the transit center based on the region's cultural history.

Summary and Conclusion

In sum, background research and oral history interviews have identified several archaeological resources in the project vicinity. There is potential for a variety of cultural and historical resources to be found within the project area, such as the remains of agricultural activity (pondfield deposits and other features associated with lo'i, as well as rice paddies and/or sugarcane fields and infrastructure), remnants of past habitation (cultural layers, fire pits, remains associated with the LCAs in the area), human burials, and vestiges of the OR&L railroad. Ethnographic interviews revealed that the practice of gathering plants and flowers is still ongoing in Waimalu, and that there are a historic church and an unbreakable stone in the region, as well as an important heiau in Haliwa.

The community should be kept informed about the construction plans, and their concerns and recommendations should be considered during all phases of the proposed work. Because of the occurrence of human burials and other archaeological sites in the region, an archaeological inventory survey is recommended to determine if any surface or subsurface cultural resources remain on the property.

GLOSSARY

ahupua'a	Traditional Hawaiian land division usually extending from the uplands to the sea.	ma'i'a	The banana, or <i>Musa</i> sp., whose fruit was eaten and leaves used traditionally as a wrapping for cooking food in earth ovens.
'aiea	The tree or shrub <i>Nothocestrum</i> , one species of which was used for fire-making and thatching poles.	mākahā	A fish pond sluice gate.
'āina	Land.	makai	Toward the sea.
ali'i	Chief, chiefess, monarch.	māmaki	<i>Pipturus</i> spp., a small native tree. Fiber from its bark was used to make a kind of coarse tapa. Sometimes spelled mamake in old texts.
'āpana	Piece, slice, section, part, land segment, lot, district.	mana'o	Thoughts, opinions, ideas.
'aumakua	Family or personal gods. The plural form of the word is 'aumākua.	mauka	Inland, upland, toward the mountain.
'awa	The shrub <i>Piper methysticum</i> , or kava, the root of which was used as a ceremonial drink throughout the Pacific.	mele	Song, chant, or poem.
'ewa	Place name west of Honolulu, used as a directional term.	mele inoa	Name chant, composed to honor someone.
hālanu	Meeting house for hula instruction or long house for canoes.	moku	District, island.
heiau	Place of worship and ritual in traditional Hawai'i.	mo'o	Lizard, dragon, water spirit.
hui	A club, association, society, company, or partnership; to join, or combine.	mo'olelo	A story, myth, history, tradition, legend, or record.
hula	The hula (traditional Hawaiian dance), a hula dancer; to dance the hula.	'ohana	Family.
'ike	To see, know, feel; knowledge, awareness, understanding.	'ōlelo no'ēau	Proverb, wise saying, traditional saying.
iwi	Bone.	oli	Chant.
kāhea	To call, cry out, or invoke.	olonā	The native plant <i>Touchardia latifolia</i> , traditionally used for making cordage.
kahuna	An expert in any profession, often referring to a priest, sorcerer, or magician.	pipi	<i>Pinctada radiata</i> , the Hawaiian Pearl Oyster. In songs this is referred to as the 'i'a hāmau leo o 'Ewa, or 'Ewa's silent sea creature, as it was believed that speaking would cause a breeze to ripple the ocean and scare the pipi.
kalo	The Polynesian-introduced <i>Colocasia esculenta</i> , or taro, the staple of the traditional Hawaiian diet.	poi	A staple of traditional Hawai'i, made of cooked and pounded taro mixed with water to form a paste.
kama'āina	Native-born.	post-contact	After A.D. 1778 and the first written records of the Hawaiian Islands made by Captain James Cook and his crew.
kanaka	Human, person, man, Hawaiian.	pre-contact	Prior to A.D. 1778 and the first written records of the Hawaiian Islands made by Captain James Cook and his crew.
koa haole	The small tree <i>Leucaena glauca</i> , historically-introduced to Hawai'i.	uhi	The yam <i>Dioscorea alata</i> , commonly grown for food.
konohiki	The overseer of an ahupua'a ranked below a chief; land or fishing rights under control of the konohiki; such rights are sometimes called konohiki rights.	'ulu	The Polynesian-introduced tree <i>Artocarpus altilis</i> , or breadfruit.
kula	Plain, field, open country, pasture, land with no water rights.	wao	A general term for inland areas, usually forested and uninhabited.
kuleana	Right, title, property, portion, responsibility, jurisdiction, authority, interest, claim, ownership.	wauke	The paper mulberry, or <i>Broussonetia papyrifera</i> , which was made into tapa cloth in traditional Hawai'i.
kumu	Teacher.	wiliwili	The tree <i>Erythrina sandwicensis</i> , whose light weight wood was used for surfboards, canoe outriggers, and net floats in ancient times.
kupuna	Grandparent, ancestor; kūpuna is the plural form.		
lei	Garland, wreath; necklace of flowers.		
lei haku	A braided lei, usually made with ferns and flowers.		
lo'i, lo'i kalo	An irrigated terrace or set of terraces for the cultivation of taro.		
loko, loko i'a	Pond, lake, pool, fishpond.		
Māhele	The 1848 division of land.		

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Agreement to Participate in the Cultural Impact Assessment for the

DTS Bus Transfer Station

Gina McGuire, Ethnographer, Keala Pono Archaeological Consulting

You are invited to participate in a Cultural Impact Assessment (CIA) for the Department of Transportation Services Bus Transfer Station in Waimalu, Ewa District on O'ahu (herein referred to as "the Project"). The Assessment is being conducted by Keala Pono Archaeological Consulting (Keala Pono), a cultural resource management firm, at the request of G70 on behalf of the City and County of Honolulu. The ethnographer will explain the purpose of the Assessment, the procedures that will be followed, and the potential benefits and risks of participating. A brief description of the Assessment is written below. Feel free to ask the ethnographer questions if the procedures need further clarification. If you decide to participate, please sign the attached Consent Form. A copy of this form will be provided for you to keep.

APPENDIX A: AGREEMENT TO PARTICIPATE

Description of the Project

This CIA is being conducted to collect information about the Project in the Waimalu, through interviews with individuals who are knowledgeable about this area, and/or about information including (but not limited to) cultural practices and beliefs, mo'olelo, mele, or oli associated with this area. The goal of this Assessment is to identify and understand the importance of any traditional Hawaiian and/or historic cultural resources, or traditional cultural practices within the Project. This Assessment will also attempt to identify any effects that the proposed development may have on cultural resources present, or once present within the Project area.

Procedures

After agreeing to participate in the Assessment and signing the Consent Form, the ethnographer will digitally record your interview and it may be transcribed in part or in full. The transcript may be sent to you for editing and final approval. Data from the interview will be used as part of the ethnographic report for this project and transcripts may be included in part or in full as an appendix to the report. The ethnographer may take notes and photographs and ask you to spell out names or unfamiliar words.

Discomforts and Risks

Possible risks and/or discomforts resulting from participation in this Assessment may include, but are not limited to the following: being interviewed and recorded; having to speak loudly for the recorder; providing information for reports which may be used in the future as a public reference; your uncompensated dedication of time; possible misunderstanding in the transcribing of information; loss of privacy; and worry that your comments may not be understood in the same way you understand them. It is not possible to identify all potential risks, although reasonable safeguards have been taken to minimize them.

Benefits

This Assessment will give you the opportunity to express your thoughts and opinions and share your knowledge, which will be considered, shared, and documented for future generations. Your sharing of knowledge may be instrumental in the preservation of cultural resources, practices, and information.

Confidentiality

Your rights of privacy, confidentiality and/or anonymity will be protected upon request. You may request, for example, that your name and/or sex not be mentioned in the Assessment material, such as in written notes, on tape, and in reports; or you may request that some of the information you provide remain off-the-record and not be recorded in any way. To ensure protection of your privacy, confidentiality and/or anonymity, you should immediately inform the ethnographer of your requests. The ethnographer will ask you to specify the method of protection and note it on the attached Consent Form.

Refusal/Withdrawal

At any time during the interview process, you may choose to not participate any further and ask the ethnographer for the tape and/or notes. If the transcription of your interview is to be included in the report, you will be given an opportunity to review your transcript, and to revise or delete any part of the interview.

Consent Form

I, _____, am a participant in the Cultural Impact Assessment for the Department of Transportation Services Bus Transfer Station (herein referred to as "the Project"). I understand that the purpose of the Assessment is to conduct oral history interviews with individuals knowledgeable about the Project and the surrounding area of Waimalu on O'ahu. I understand that Keala Pono Archaeological Consulting and/or G70 will retain the product of my participation (digital recording, transcripts of interviews, etc.) as part of their permanent collection and that the materials may be used for scholarly, educational, land management, and other purposes.

_____ I hereby grant to Keala Pono and G70 ownership of the physical property delivered to the institution and the right to use the property that is the product of my participation (e.g., my interview, photographs, and written materials) as stated above. By giving permission, I understand that I do not give up any copyright or performance rights that I may hold.

_____ I also grant to Keala Pono and G70 my consent for any photographs provided by me or taken of me in the course of my participation in the Assessment to be used, published, and copied by Keala Pono and G70 and its assignees in any medium for purposes of the Assessment.

_____ I agree that Keala Pono and G70 may use my name, photographic image, biographical information, statements, and voice reproduction for this Assessment without further approval on my part.

_____ If transcripts are to be included in the report, I understand that I will have the opportunity to review my transcripts to ensure that they accurately depict what I meant to convey. I also understand that if I do not return the revised transcripts after two weeks from the date of receipt, my signature below will indicate my release of information for the draft report, although I will still have the opportunity to make revisions during the draft review process.

By signing this permission form, I am acknowledging that I have been informed about the purpose of this Assessment, the procedure, how the data will be gathered, and how the data will be analyzed. I understand that my participation is strictly voluntary, and that I may withdraw from participation at any time without consequence.

_____	_____
Consultant Signature	Date
_____	_____
Print Name	Phone
_____	_____
Address	

Thank you for participating in this valuable study.

Transcript Release

I, _____, am a participant in the Cultural Impact Assessment for the Department of Transportation Services Bus Transfer Station (herein referred to as "the Project") and was interviewed for the Assessment. I have reviewed the transcripts of the interview and agree that the transcript is complete and accurate except for those matters delineated below under the heading "CLARIFICATION, CORRECTIONS, ADDITIONS, DELETIONS."

I agree that Keala Pono Archaeological Consulting and/or G70 may use and release my identity, biographical information, and other interview information, for the purpose of including such information in a report to be made public, subject to my specific objections, to release as set forth below under the heading "OBJECTIONS TO RELEASE OF INTERVIEW MATERIALS."

APPENDIX C: TRANSCRIPT RELEASE

CLARIFICATION, CORRECTIONS, ADDITIONS, DELETIONS:

OBJECTIONS TO RELEASE OF INTERVIEW MATERIALS:

Participant Signature

Date

Print Name

Phone

Address

TALKING STORY WITH
MAHEALANI CYPHER (MC)

May 5, 2020 / 10:30 AM/ via Telephone
Interview by Gina McGuire (GM)

GM: I'm here with Auntie Mahealani, it's May 29th. Auntie, could you begin by sharing a little about yourself?

MC: I'm Mahealani Cypher. I was born and raised in Kāne'ōhe, born 1946. I went to school at Benjamin Parker Elementary School, then Kamehameha, and graduated from St. Andrew's Priory. After that I went to college in Los Angeles. I have three daughters, nine grandchildren and five great grandchildren.

GM: Do you want to talk a little bit about your 'ohana background?

MC: My grandparents, George and Elizabeth Cypher, adopted my sister and I when we were toddlers because our birth mother had to travel for work and as she was a single parent, it became necessary for our grandparents to adopt us. So we were raised really by my grandmother because my grandfather died when we were very young. Elizabeth Cypher was a very positive influence on my life. She taught me many cultural things. She taught me about the mo'olelo, our family stories. It is from her that I find most of my inspiration to take care of the culture.

GM: Could you talk a little bit about your association to the project area?

MC: Well the rail project, it seems from my participation in the '70s through 2000s and it has to do with opposing the H-3 freeway. I was always concerned about the impact of infrastructure like that on cultural sites and our Windward communities from new highways. During the 1980s and 1990s I was part of a group that advocated for transferring H-3 funds to transit because we felt that would have been a better use. We opposed the highway and we supported transit. We really didn't like heavy rail, which is what they're building; we liked a light rail. But we did agree with the rail being where it is because that's where the population of the island is. We wanted to keep infrastructure like that away from the Windward side because we wanted Windward O'ahu's cultural and natural resources preserved. We had to discourage construction like this on the Windward side and encourage it on the Leeward side where there was more room to be urbanized with establishment of a rail system. And all the studies we had seen indicated that the rail system, as it was planned, was ideal for the alignment they planned. We were able to preserve very few of our sites. Most were destroyed. By H-3.

GM: Wow. Could you share any mana'o that you know of regarding the Waimalu area?

MC: I don't know that area that much. I know others in the station-naming group did and I would also refer you to Kēpa Maly's cultural report. I don't have any stories about Waimalu itself. I would have to refer you to my other committee members. I do know that we are trying to respect our cultural sites and the names of places in the work that we are doing as volunteers with our project. Trying to honor the place names of these areas because many of these sites were covered over, paved over, in development so if we can't really save all the sites, we can at least honor them

APPENDIX D: INTERVIEW WITH MAHEALANI CYPHER

by using their names. Hopefully this new transit facility will also be given a name and they invite our committee to help with the naming, and we will surely be able to provide one that is complimentary to the area's cultural history. That's what I would recommend, is asking the committee for help with the naming the facility.

GM: I know you're more from Ko'olau side, but in your experiences, can you talk about how you've seen this area change over time?

MC: Oh definitely. The area used to be primarily agricultural. A lot of farming and accessory businesses that surrounded the farming, like the sugar mill and those kind of things, is what I remember growing up and traveling occasionally to that side, which we did when we went to the Honolulu side. Leeward. But I remember it all being fields and fields of farmland. Now it's field and fields of subdivisions and malls and businesses and not too much farmland anymore. And it's very concerning to me because this island in ancient times was able to completely sustain itself with its own food, with its own fishponds and kalo and other food products that we grew here and now we're not self-sustaining any more. And that's concerning. That's a cultural concern, that we need to make sure that we can sustain our people. I'm hoping that whatever lands are still vacant are not converted to urban land, that they are able to create either food producing or industries that support food producing.

GM: I agree.

MC: What happens, this is what happened in our history over time. They have a farm, been there for generations, then around the perimeters of the farm, the lands are sold out by whoever and someone comes in and decides they want to build a huge subdivision and residents in that subdivision get mad because odors from the farm wash over into the urbanized area and they complain and complain, and finally the politicians take actions that force the farmers to shut down their farms. So it's saddening that they're not allowing food production where there is such a need for food.

GM: It's a little more difficult in developed areas, but do you know of any historic sites, burials, or cultural sites in the surrounding area of the project?

MC: Hmmm. I just know of the heiau. Kuki'iahu Heiau, which is in Hālawā Valley next to where the Board of Water Supply Halawa Shaft is located. Right next to it there is a building that is now occupied by FEMA. Underneath the building are the remnants of the heiau. It's built on top of the heiau!

GM: Oh my gosh.

MC: Kuki'iahu Heiau was dedicated to a queen, I don't remember which one. But you can still see the stone walls underneath the building on the river side.

GM: That's terrible. Do you think the development would impact any sites of cultural significance or access to these sites?

MC: It depends. I think it would generally be okay because the area already has been degraded by previous development. It all depends on what kind of toxins might be released by the facility into

the 'āina or the waterways, things like that. That would be a concern. It could affect the ocean and the land nearby, not to mention water sources underground.

GM: I'm glad you brought that up, cause our natural resources are cultural resources too.

MC: That's right. They would have to have a program for disposing of waste.

GM: Are you aware of any gathering practices within the Waimalu/Pearl City area?

MC: I know that the top of Pearl City is, of course. I know there are people that gather. Usually the hula hālau would gather things from the mauka areas of the Waimalu Ahupua'a, Waimalu, 'Aiea, all those adjoining areas.

GM: Great. As development continues, is there anything you would recommend to lessen adverse effects on cultural practices in the area.

MC: Number one is first consult with the cultural practitioners from the area. Kehau Lum would be a good one to talk to and Bruce Keaulani would be a good one to talk to. Those folks have more knowledge about the area. Number one is to consult with the cultural practitioners of the area. Number two is to identify the sites that are already known, where they are located, and invite the community to offer additional information about sites that are not recorded, because one of the problems is a lot of the sites were never recorded officially so they're all disregarded once development is proposed.

GM: Are you aware of any other cultural concerns the community might have.

MC: I'm not aware right now, but there are civic clubs that are in that area that you might want to reach out to- the Pearl Harbor Hawaiian Civic Club, and the Ali'i Pauahi Hawaiian Civic Club, that's Kehau's.

GM: Are there any other folks you would recommend talking to?

MC: Yes, the folks from the naming committee: Shad Kane, Hīmaleimoana Wong-Kalu, Keoni Kekekolo, and Misty Kela'i.

GM: Okay, thank you so much for your time Aunty!

TALKING STORY WITH
MINERVA PANG (MP)

May 5, 2020 / 10:30 AM / via Telephone
Interview by Gina McGuire (GM)

GM: I'm here with Auntie Minerva. It's May 5th, and we're together on the phone. This first question is if you could tell us about yourself, if you could state your name, where you were born, and where you grew up.

MP: Okay. My name is Minerva Pang. Actually, I have a K in-between, my Hawaiian name. You need that too?

GM: It's whatever you want to share.

MP: Okay. My name is Minerva Kaluhiwaokalani Pang. I was born and raised in Honoaipo, Ka'u, Hawai'i. My birth date, February 1st, 1927.

GM: Right on! Could you tell us a little bit about your 'ohama background?

MP: I was raised in Ka'u, and I'm the number eight in my family. Four brothers and three sisters and myself, there's eight of us. So, I'm the only surviving sibling left from my family. And because I'm 93, my older sister, being 11 years older than me, she would be 104.

GM: Wow.

MP: Yeah. So all the rest, in their 90s, 'cause they're older than me. I went to school Na'alehu, it's an intermediate school yeah? From Kindergarten to ninth grade. But in-between I went to Hilo too. I went to Keaukaha with my grandpa and my grandma. When they weren't feeling well my mom would go over and take care of them. I would go to Keaukaha school and one year I stayed there in Hilo. I went to Hilo Intermediate School but I came back and finished school at Na'alehu. I was there five, six, seven, eighth, ninth grade. My grandfather was a school teacher, he taught at Wai'ohinu, the first school at Wai'ohinu. He was Moses Malakaua. He married my grandmother, Pihikula. So my grandmother's father was one of the chiefs in Ka'u, way back. They opened up the first school in Wai'ohinu, he taught there, and that's how he met my grandma. He taught there and then they opened up another school in Honoaipo, and they moved to Honoaipo, and they had their children. They had five children. The oldest, my Uncle Liwia, my Auntie Emma, and then my mom was the third, Sarah Malakaua, and my Auntie Bessie, and the youngest one, Moses Junior. When they finished, I think, sixth or seventh grade, the last one was my Uncle Moses. They sent him to Kamehameha School. But just my Auntie graduated, 'cause in between my mom had to come back. And my two uncles, they joined the army, just one came back. My family, my father died before I made one year old. My brothers made it to sixth grade, and my sister, and they had to quit school and go to work. My brother worked at the sugar mill. And my sister used to do laundry for the, a supervisor, in the sugar plantation. So, she used to do laundry for them and clean their house. My mom would be down by the beach, fishing and planting. We went through a really hard life like

everybody who come from there. Everybody started from working in the plantation. So when we went to school we walked three and a half miles going to school and three and a half miles walking home.

GM: Wow.

MP: Until I reached sixth grade, and then they had a bus. My brothers were still working. They left, 1941, just before the war started, they moved here, and then got a job with the army. So they worked here. And I had one more year, my ninth grade year. I finished and then I moved here. So I was supposed to go to Kamdameha School but I didn't want to go. I went and I wanted to go to work. So, Punahou School, during the war time yeah? I saw they were hiring so I went, took a test, everything, and I didn't think they would hire me 'cause I was too young. But I was going to try anyway, I'm going to try. I went and I did everything they asked me, typing and everything, filing, I did all that, and the boss, the manager, in the main office. So they said, "You should go to this other girl who will ask for your information." So I would go to this girl and I would sit down and she was asking me personal questions like my name, birthdate, address, and all that. And I asked, "why are you asking me this?" She said, "This is your application for your job." I go, "What?" "They hired you! Hired today, you gotta come back take your picture." You wear your badge yeah? "And you start on Monday." Ah, I was so excited, I was so happy. I went to work that following Monday. Was the happiest day of my life. I was so happy. So I worked there from 1942 to 1945 but we had to move. I was 18 at the time. So that same year, my husband got drafted, we got married. My brothers too. The following year, 1946, I had my son in November. Anyways, any other questions you want to ask?

GM: I don't know if you want to talk a little bit about your knowledge and how you came to know the Pearl City area?

MP: Yeah, okay. We got married, then we lived in Makiki. So my mom and my brothers moved back to the Big Island. And then we stayed and my husband was working in Pearl Harbor. He started working there, 1941, before the war. And he got drafted, came back and went to work at Pearl Harbor. So I raised my children, I had seven children. When my youngest daughter was two years old, was 1957 we moved here. And 1958 I started hula in my home. We have a big patio, it's enclosed now, could hold about 20 students. And that's when I started hula, 1958. And I was still teaching until this virus started and I had to cancel my class, yeah? In the meantime, in 1986, my daughter told me to join the Hawaiian Studies program, so in 1986 I got hired as a kupuna for Momiiani Elementary School. So I taught there one semester and then I was helping the Pearl City Elementary School for twenty years 'cause my children went there and my grandchildren. But then Momiiani gave me the whole school, from Kindergarten to sixth, in 1989. I retired three years ago, but I told them I'd come back and help.

GM: Congratulations Auntie, that's awesome!

MP: Some wonderful years at Momiiani. I really miss them and I still go back there and visit. I go back to the classroom and see the children. It was so wonderful 'cause I learned to teach them chants in the morning, Hawaiian studies, our heritage, and culture, everything. We had workshops with everyone. We had lesson plans. We had songs and stories to tell them. Color, draw with Hawaiian language. We had so much to share with them. Kindergarten, we taught them aloha,

Hawaiian culture. First grade we talk about community, you know? Second grade, we have other things we talk about, the ocean: what we eat, what's the value, you know. Third grade, we talk about islands. We used to go on excursions, we talk about plants, work with our hands. The mountain, the ocean, the alupua'a, the mountain to the sea. And then come to fourth grade, we talk about the different names, mountains, colors of the islands. The meaning of it. Also talk about all the different stories of different islands. Fourth grade we used to visit, you know, the Big Island. We'd go from the tour from Hilo to Ka'u or the other side of the island. I would sit and talk with them all about where we were. I had so many stories to tell them. We used to go to Na'alehu and tell the stories from Pahala to Punalu'u, Honuapo, and Na'alehu. All the stories I remember telling them. We'd go to Wai'ohinu and there was the church, big huge church in Wai'ohinu, Kauhahaao. It's a Protestant Church. And I never know, when I did my family genealogy, that's the first site that ever, ever had a church built. Way back. So when the missionaries came, Ka'ahumanu, she wanted to teach the children English. So when they taught them, they'd teach the gospel too. And one day she went in and heard them preaching and she was interested, and through that session, she found out that there is a true god. The idols she was worshipping was not the true god. You know? And she preached the gospel, he's the god for heaven and earth. So we worship him. And he's our true god. So she got really interested, and she comes from Kohala and Ka'u. So they opened that church in Wai'ohinu. That was my main church. There was a small church in Honuapo and once a month we go to Wai'ohinu and meet all the people. We have a celebration, yeah? We go there. When you go to Wai'ohinu there's a park called Mark I wain. He was the one that brought this fresh tree there and planted there. And our people still go there and pick the other trees that grew. They have a book, a story about him and that place. When we went to school, we learned about him. We'd go there, all the way to South Point. They were so excited. Every Spring Break I was a girl scout leader and they'd take us on a trip. And we spent three days at South Point. Big, big area, never had houses before. And when you go there, no trees at all. And then my mom's family, say "windy, down there." But when we go, so lucky. It's not windy, it's quiet. In the meantime, we'd talk about the green sand, and the volcano too. Some of the rocks and the crystal in the rocks. If you put the green sand by the sun it's just like diamonds. I have that sand. I have that sand from South Point and black sand from Punalu'u. I take it to school to show the kids. "Amazing!" You're over there, you should go visit all these places. That side of the island, that's where the Polynesians came and landed over there with their canoes. And different Polynesians, my mom said, "all mixed, people who was coming." I bring my ukulele, I would sing this song, they sing 'em in Tongan and Maori, and when I sing that song it's all quiet, not windy. My mom says, "get spirits around there." I said, "must be listening, 'cause I'm singing that song." We used to wait for that Spring Break just to go there. Place is so big yeah, looking for all kind plants they could find....

Where we live, I remember all these plantation homes. All the people, different nationalities, Filipino, Japanese, Hawaiian, we have a lu'au at our place. They all bring something. Just family. Everybody go fishing. When you bring back a lot of fish, you share. When you go the mountain side, you bring back taro, anything else. Everybody share. The Filipinos, when they have parties, everybody invited. Same thing, the Chinese people. Hawaiian food, Japanese food... So much aloha. The community, the family community. Anyway, going back to our school. Our school has won so many awards. Three times, you know the blue ribbon award? Our principal is the reason. This year, she makes 30 years at our school. When she came to our school, she came three years after me. This year she made 30 years. I have so much memories of the Hawaiian study program

and my hula. And for my hula, I hold it in my home, and taking the girls out to perform. St. Joseph lu'au, every year. I took them down to Ala Moana Center, before never had the stadium. And the emcee was Jeff McCoy. And he'd call us up and we'd perform. We were one of the first hula groups to perform there, other groups go now. We went Aloha Tower. Keep myself busy. So I can still try and walk around, still dance. Any other questions you want to ask me?

GM: Yeah! I was wondering if you have any mo'olelo, mele, oli, place names, that you might be able to share of the Pearl City area?

MP: Yes, yeah. We have a chant, this is one from my school. The chant for our school, it's called Kū Mai Au Hawai'i. We stand in the Hawai'i. Yeah? And the other chant, Nā Waiwai Oli. My teacher when I started the Hawaiian studies program, and Kalani Akana, they all are. (38:10) I wanted a chant to help my school to learn so we taught the children that. We're really strict with the chant, we held before we had our meeting. We'd do the other chant and then Nā Waiwai Oli. That's the two chants I teach my school. Kindergarten to sixth grade. When we go on field trips, the last time the kindergartners did the two chants. We also taught them Oli Mahalo. And we went to Kualoa Ranch, and I had a little girl be the leader and start them off. And they did the whole two chants and after we finished the tour they did Oli Mahalo.

GM: Awww.

MP: Yeah. I couldn't get over it, 'cause they only Kindergarten. So that group is in fourth grade now. I hope they still remember.

GM: I'm sure they do.

MP: I had a good teacher, Kalani Akana. And anytime I'm not sure of my Hawaiian words, he would always help me. He was really, really helpful. Hawaiian stories, anything. He was such a good kumu for all of us. Anything you need to know, Hawaiian stories or anything, he'd be good to know.

GM: Okay.

MP: I would always call him asking for help. Is there another question?

GM: In your experience living in Pearl City, could you talk about how you've seen it change over time?

MP: Oh yeah. Lot of change. From when we first moved here, in 1957, the streets were not that wide, narrow, and we didn't have much traffic like we do now. And the only traffic that we had was at night. And the traffic was not like now, hardly any cars would go by. That's why this street, Ho'omalulu, the meaning of this street is called peaceful and quiet. That's why they named this street, because it was quiet when I first moved here. The only thing you'd hear is the cane trucks when they go by. But it's so quiet night time, hardly any noise. But I live at this corner, it's the most noisy street now, 'cause we have ambulance and fire trucks, every day. Any time of the day they come by. They go down Kam Highway, come down Moanalua Road. But with the virus, not as much cars going past. But it's different from way back. Kids used to walk to school, 'cause it's not too far from here, going down to Pearl City Elementary School. And you walk up from here to

the intermediate school. Now the traffic's so bad, parents drive in or the neighbors take them. When I used to drive my car, I used to take my neighbor's children in the back, in the front, and the sides, and when I took my kids to school, I took my kids too. You know what I mean, we all helped each other. They have their own cars now. I moved to the mainland in 1966, my two boys was going to college. One was going to San Jose college, the other one was going to Hayward. In 1966, my husband got transferred to the naval shipyard outside of San Francisco. So we moved to Hayward, my brother was living there. Three years then we came back. Good experience for my family, yeah? Living there, coming back. Hey, do you have another question.

GM: This next one is if you know of any important cultural sites or historic buildings near the project area. That area by Best Buy on Kamehameha Ave.?

MP: You talking about the Pearl City area?

GM: Yeah.

MP: Okay, I'm gonna talk about my church. I go to church. Way back, the first church, way back, I don't know how many years ago, they had a church. You know where Leeward College is?

GM: Yeah.

MP: The first church in the Pearl City was there. They had some sites with a cemetery over there. During night time, we used to go to the church. It was small, yeah? Then they decided to make it bigger and they wanted to build a bigger church. I think from that area they moved to the peninsula. Before they moved there, way back, people used to go to the peninsula area outside of the 'Ewa side, all the way to the Pearl City. Had a lot of oysters, way back. Lot of oysters, had a lot of pearls. And then, the king at the time, Kalākaua, I think was married to Kapi'olani? This is what I heard. They had a fundraiser to get money to build this church. 'Cause they had all these pearls yeah? So he said he'd help them and asked all these businesses to ask for donations. They got enough money to build the church. From there they came to Pearl City, my church. They wanted to name the church in honor of the older one. So they named it Kahiko o Nalani. They wanted to keep that name from the first church. Kahiko o Nalani, is called the seventh of heaven. And Kalākaua was the seventh king. So they named that church Kahiko o Nalani. Seventh of heaven, like he's the seventh king. So the church is here, you know, right below my house. My kids used to do Sunday school there and I would help out and my husband coached the baseball team. So it's still there. That would be the site. There's many other stories of Pearl City. This area was not called Pearl City, it was called Manana. Way back. It got the name Pearl City from the pearls, 'cause had so much. The pearls come from the outside of the peninsula side. And Pearl Harbor is called that because of the pearls. And then you know, you heard about this shark?

GM: The one that guards the harbor?

MP: Yeah. Ka'ahupāhau. It's the son of Pupu a 'Ewa. This female shark would go from 'Ewa all the way to Pearl City area. Up the harbor and go back? She would protect the people from other sharks when they go out to get the oysters. When the other sharks would come in she would chase them. So the shark, Pupu a 'Ewa, the shells of 'Ewa, and at the ending they talk about her. He ala hele o Ka'ahupāhau. The pathway of the shark. When she died, in Pearl Harbor, I didn't know for a long time. My husband told me, "We tried to build this dry dock." So when the ships come in,

they can repair the ships. But you gotta go through the dry dock, yeah? But when they build the dry dock, somebody gets hurt, the thing, they just cannot build it, it would break or something would happen. A pastor would come in and bless the place. One pastor went in, he went to bless the place. He got a funny feeling, like something is there. He told them, "You cannot build this dry dock. There's something under there." So the divers went underneath, you know, there's like a cave all the way underneath. He saw the remains of the shark over there. That was her cave underneath there. So they had to break down everything to start it on the other side. And nothing happened. 'Cause that was her area, over there. After the story came out in the paper what happened, way back. That's another site, of that shark, and what she did for our people. And that's why this area is called Pearl City. The main history of this place, the ahupua'a, was Manana. I wanted you to come my house. I get the book, you know, about Manana, and the people from way back, get the story about them when they moved here. Japanese people, Chinese. All kind. And it's a book about Manana. It changed to Pearl City. Pearl City get plenty sites you know, over there, and way down, our church, over to this rock. Over there is the Mormon Church. And right in front, had a rock over there. And one day, they were trying to get rid of it. Get the story in Sites of Hawai'i. That one, they went to Waipahu. Right across from the Waipahu School, get the Mormon Church. Used to be in Pearl City. Know how powerful that rock is, yeah? They tried to break it and it survived and something happened to them. Way back, get all kind scary stories.

Have you heard of Kealaninuihawi?

GM: No.

MP: Oh boy. She passed away, she's related to me 'cause her grandmother is my grandmother's sister. Her grandmother, that's the one. Somebody gets hurt or broken bones. She would kâhea, and chant, yeah, and the bones go back together. It happened to my cousin. She jumped from this bridge and broke her leg. And my aunty called her and she kâhea, she chant, and next morning she got out of bed and doctor told her she not gonna be walking the rest of her life, her legs are broken, yeah? She jumped from this bridge. Told her she gotta be in a wheelchair, she said, "No, I don't need a wheelchair." She got off the bed and walking. He said, "This is some kind of witchcraft." But Kealaninuihawi, as long as you nice to her, you okay. You not nice to her, you better watch out, 'cause your mouth gonna get swollen or something 'gon happen. So many stories about her. Yeah, I'd like to meet you one day. Come to my place, so many things I could share with you. When you come, you give me a call. Nice talking to you.

GM: I get a couple more questions if you have time, but if not that's okay.

MP: Yeah, get time. I was just going to the bank. I can call her, she can wait.

GM: The last questions, I'll just share them, about any traditional gathering practices, anything this project could do to lessen their impact on cultural practices, community concerns, and any recommendations for other people to talk story to.

MP: Oh, okay. You want somebody from Pearl City, yeah?

GM: That would be good.

MP: I know this lady. She was the manager of Pearl City Elementary School and she goes to my church. She has good memory, but only thing, you cannot talk to her over the phone. She's gonna be hundred this year. She has a good memory but I haven't seen her since this virus. At church, yeah? And this other teacher, she's older than me. She's probably older than me. She worked at Pearl City Elementary School way back. She would be good too, she has good memory. Only time I can get hold of her is at church.

GM: Oh, okay.

MP: Maybe I can contact her and she can come over when you come. But gotta see, 'cause so far I haven't gone back to church. I haven't seen her lately.

GM: Would you recommend your Kumu Kalani Akana?

MP: Yeah, he's still around. He's with OHA. But now, I think, works from home. He has a lot too, you know. But he's in a wheelchair you know, he can't walk around too much. But of course, because of this virus, you know, we all stay home. Okay, I going let you go now.

GM: Okay, thank you so much for your time and for sharing this with us, Aunty. We really appreciate it.

TALKING STORY WITH
NAOMI TULLY-UNGACTA

May 28, 2020 / 10:30 AM/ via Telephone
Interview by Gina McGuire (GM)

GM: Today is May 28th. I'm here today with Naomi. Can you start by telling us a little bit about yourself? Where you were born and grew up and went to school.

NT: Okay. My name first?

GM: That'd be great.

NT: So my name is Naomi Tully-Ungacta. I was born and raised in Palisades, Pearl City.

GM: Do you want to talk a little bit about your family background?

NT: In what respect?

GM: About what your parents did or how you grew up. Whatever you want to share.

NT: Okay. My parents, my father worked in the banking industry for a number of years. And my mom worked as a receptionist in a life insurance agency from when she was 18, straight out of high school. And they both worked in town so we would commute every day from Pearl City to my grandfather's house in Liliha. And we would drive and commute every morning. We'd leave the house at 5:30 in the morning to avoid traffic and have breakfast at my grandfather's house every day. I went to school in town due to the commute and ease of pick up and drop off, that my grandfather could help and my grandmother.

GM: That sounds like a long day.

NT: I did not attend school in Pearl City due to the fact that we had to commute every day. My parents would get off at about 4:30, 5:00 and come pick me up at my grandpa's house and we'd commute back to Pearl City. I did that, all through pre-school all the way through high school until I got my own license and I was able to commute myself to school in town. I went to McKinley high school. Back in 1989.

GM: Oh, nice! That's a good school.

NT: Yeah! And so, my parents both worked for the City and County of Honolulu in different departments and ended up retiring through them. They were in Palisades until ten, twelve years ago, they moved out of Palisades. I would say we were in Palisades for close to 30 something years, give or take. And my sister actually received the property from my parents and she owns the house that we grew up in.

GM: That's so nice.

NT: Yeah.

GM: Do you want to talk a little bit about your work with Momilani Community Center and how you are involved with the community there?

NT: I got the job there... there were swim classes held there at the community center pool. I was a stay at home mom for a while, living in Palisades. And I came across a little flyer that was on the bulletin board looking for a program director. So I applied, been there for 13 years. It was October of 2007. And we service the community by offering exercise classes and hula classes, tai chi, primarily for the kūpuna. It's primarily for the kūpuna because of the time of the class. It's a weekday

APPENDIX F: INTERVIEW WITH NAOMI TULLY-UNGACTA

mid-morning class and primarily our students are retirees or seniors. And we also offer events for graduation parties or first birthdays. And we run intersection programs for pre-school children during the breaks. And then we also have events that we run periodically. Halloween event where kids and families can come and trick or treat, play games. We also have, which is on hold right now, a monthly community bingo activity. We do have a lot of seniors and families that come and attend. Free, open to the public. Something for them to do, every first Friday of the month. But right now everything is on hold. But they really love doing it. It's something for them to do and it gets them out.

GM: So growing up in Palisades, could you talk a little bit about how you've seen the area change over the years?

NT: Well the construction impact was really severe for a number of years. It did affect our programs a lot. Just because it was just so congested and people were congested; they get off of work, they just don't want to go anywhere. They just want to stay at home. You know? So we would run programs like our bingo events, we had a farmer's market at one point in time, craft fair on a weekly basis and we noticed during the construction stages, especially during our, primarily on Kamehameha Highway. It backlogs everything because all those people take H-1, if one area is closed they try to take the other route, which congests the other side, either H-1 or Kamehameha Highway. And if there is an accident, forget it, it's just stopped. It will take you an extra hour minimum. If there's an accident that takes up an already congested area. So we had to cancel some of our events just 'cause it got too slow and the frustration. Just like, "Oh the traffic was awful." People were just, not happy. And the businesses were suffering a lot. Especially the small ones. Because of the access to the businesses was difficult to get to.

GM: This is because of road construction?

NT: Yes.

GM: Okay.

NT: I can't say if it was for that particular spot you're talking about, but just the rail in general was creating a lot of chaos down there. You can't help, the construction is moving around, bulldozers and things like that. The entrances to these businesses was difficult to navigate and with the ever changing, "turn here," "detour here," if someone would miss the turn, forget it, we're not turning around, there's no way. A lot of the left turn lanes were unavailable because of the construction so you couldn't... if you were on one side of the road and you needed to get to a business on the other side of the road and the left turn lane is blocked or unavailable, you're not gonna go 'cause there's no sense in going two miles down the road just to make a U-turn and come back the other way. So the businesses are really suffering. They did try to, a representative did try to launch a program to have a discount program to help support these businesses to encourage people to go. But it still wasn't enough to warrant the headache of trying to get to those places. I avoided it all costs. I would go Moanalua or not at all. But I had that opportunity to plan my time like that, some people don't. Running our intersection program, parents would be late, because of traffic issues and if there's one on the H-1 that's bottlenecking, closing off lanes, people try to take Kamehameha and Kamehameha would get flooded with cars and it's already partially shut down. For a couple years it was really bad. I can't remember what year that was, maybe two, three years ago. The accident thing, definitely happens all the time. One accident can... I never listened to the traffic thing so much 'cause you can look social media for any kind of accidents knowing that if there is a reported accident just forget it. Accidents, stalled car, anything effects traffic in a severe way during that time.

GM: Outside of the traffic and roadways, are there any other changes in Pearl City that you've seen over the years?

NT: Not on Kamehameha Highway. I think, due to all of the construction and the impact that it had during this time, I have not seen a lot of businesses open up. If anything they have closed or moved. Because it's not feasible to open a business during this time where all this stuff is happening, Pearl

City in general has grown significantly, with the Walmart and a bunch of new strip malls that have popped up in the area. And over the course of several decades, that area where Walmart is, heading towards Sam's Club. That used to be nothing but military warehouses, I believe. I remember that as a kid. It was literally like these bunkers, or these big, white warehouse-type stuff. There was no traffic going through there 'cause it was really nothing. That whole Kula Road now, it's really backed up too. I don't think it's all due to the popularity of the new stores that are going in there. But Moanalua Road, it's parallel to Kamehameha Highway, is quite congested now. More so than, maybe ten years ago. One road affects the other road. Whatever's going westbound, is gonna get congested.

GM: I have two questions that I'll kind of ask together. Do you know of any traditional sites, historic buildings, or cultural sites that are nearby the project area?

NT: Unfortunately, no, I don't know of any.

GM: That's totally okay. And then, if you know of any mo'olelo, mele, or oli for Pearl City?

NT: I have in the past, remembered. You know you hear the legends, and these things. But I can't remember what they were. You know you hear about them, wow that's so interesting. But I don't remember the story now.

GM: That's totally okay. Would you know of any gathering practices that are happening in Pearl City?

NT: Other than like hula gathering?

GM: Yeah, like if they're picking flowers or anything like that.

NT: I'm sure they do. The hula class that utilizes our facility, they do performances periodically for senior centers and once in a while they'll perform somewhere else. They go and pick flowers to make lei, haku, or not haku. That's not the right word, the one that goes on the head.

GM: Wiltili?

NT: Yup, they would make the headpiece or the lei and they would do it together. A lot of these ladies that take the senior hula class, they are not of Hawaiian descent but they're amazing.

GM: I love that. I think that's awesome.

NT: Yeah.

GM: My next question is if you know of any community concerns that you're aware of regarding this project.

NT: This is a bus terminal that the rail users can use to get to that primary location that they actually want to go?

GM: As I understand it, yeah.

NT: Okay. So, we don't have a lot of concerns. I kind of wonder, at night, a lot of the businesses in the area they don't open late, you know? And so, there's a lot of homeless in the area. A little further down there's a park, maybe a half a mile down. And there's a lot of homeless on the bike trails, behind that park. That trail goes all the way along the waterside. Lot of homeless down there. I don't know if they cleared the area out but they always come back. You know, they wander, and if there's people waiting at the bus stop, security's always a concern. Safety. People waiting at the bus stop and if there are a lot of places open.

GM: That's a good point. Is there anything else that you would recommend the DTS might be able to do to reduce their cultural or community impact?

NT: I don't know, I mean, like anything, looking at everything before they implement. Sometimes decisions can be made that kind of jump the gun without thinking of everything that could impact. You know? One of the things I just mentioned, security, and basically how that's going to work. I don't really have a solution but it should definitely be looked into.

GM: That's basically all my questions unless you want to add anything. Other than that, my only other question would be if you would recommend talking to any other folks?

NT: Well I did forward your email to Barry Villamil, I'm not sure if he's available to do an interview but I did reach out to him.

GM: Thanks!

NT: I don't have an email for the Kumu, but I could reach out to her, you know the older ladies don't do email. She's a Wahiawa resident, though. If I can think of more, I'll definitely share.

GM: Thank you, I really appreciate it. And thank you so much for your time.

Appendix B

Archaeological Assessment

**DRAFT—Archaeological Assessment for the Proposed DTS
Bus Transfer Station, Waimalu Ahupua'a, 'Ewa District,
Island of O'ahu, Hawaii'**

TMK: (1) 9-8-009:005 (por.), 014, 015, and 016



Prepared For:
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January 2021

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**DRAFT—Archaeological Assessment for the Proposed DTS
Bus Transfer Station, Waimalu Ahupua‘a, ‘Ewa District,
Island of O‘ahu, Hawaii‘i**

TMK: (1) 9-8-009:005 (por.), 014, 015, and 016

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January 2021



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MANAGEMENT SUMMARY

An archaeological inventory survey (AIS) was conducted for TMK: (1) 9-8-009-005 (por.), 014, 015, and 016 in Waimalu Ahupua'a, Ewa District, on the island of Oahu, where a bus transit center is proposed. This work was designed to identify any historic properties that may be located on the parcels in anticipation of the proposed construction. The archaeological work included a pedestrian survey that covered 100% of the project area, as well as test excavations consisting of six trenches. The property has been disturbed by modern use, and no archaeological remains were found on the surface or during excavation. No further work is recommended.

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INTRODUCTION

At the request of G70 on behalf of the City and County of Honolulu, Keala Pono Archaeological Consulting conducted an archaeological inventory survey (AIS) for TMK: (1) 9-8-009:005 (por.), 014, 015, and 016 in Waimalu Ahupua'a, Ewa District, on the island of O'ahu, where a bus transit center is proposed. This work was designed to identify, document, assess significance, and provide mitigation recommendations for any historic properties that may be located in the project area in anticipation of the proposed construction.

This report is drafted to meet the requirements and standards of state historic preservation law, as set out in Chapter 6E of the Hawaii Revised Statutes and Hawaii Administrative Rules (HAR) §13-276, the draft *Rules Governing Standards for Archaeological Inventory Surveys and Reports*. Due to negative findings, the AIS results are presented as an archaeological assessment per HAR §13-275-5(b)(5)(A).

The report begins with a description of the project area and a historical overview of land use, Hawaiian traditions, and archaeology in the area. The next section presents methods used in the fieldwork, followed by results of the survey. Project results are summarized and recommendations are made in the final section. Hawaiian words and technical terms are defined in a glossary at the end of the document.

Project Location and Description

TMK: (1) 9-8-009:005 (por.), 014, 015, and 016 are adjacent parcels that lie within Waimalu Ahupua'a, Ewa District, on the island of O'ahu (Figure 1). The block of properties is bounded by Kamehameha Highway to the north; the Pearl Harbor Bike Path to the south; Best Buy electronics store to the west; and Home World furniture store to the east. The project area covers 1.36 ha (3.36 ac.) on four TMK parcels.

TMK: (1) 9-8-009:005 is a .809 ha (2 ac.) parcel owned by the City and County of Honolulu. TMK: (1) 9-8-009:0014 is a .093 ha (10,001 sf) lot owned by the City and County of Honolulu. TMK: (1) 9-8-009:015 is a .111 ha (12,000 sf) property owned by the City and County of Honolulu. TMK: (1) 9-8-009:016 is a .809 ha (2 ac.) lot owned by the City and County of Honolulu. The project will encompass all of Parcels 014, 015, and 016 and a portion of Parcel 005 (Figure 2).

The block of properties has been extensively modified by modern development. On the west side is the parking lot for the Best Buy store, which is asphalt paved with scattered areas of landscaping. On the east is the Honolulu Authority for Rapid Transportation (HART) field office and construction laydown area. Around the field office is an asphalt paved parking lot, as well as several warehouse structures. There are also dirt roads and parking lots in this area. East of the HART field office and adjacent to Kamehameha Highway is an entry station for the HART rail line and its associated infrastructure.

The Department of Transportation Services is proposing to construct a bus transit center facility on TMK: (1) 9-8-009:005 (por.), 014, 015, and 016. The bus transit center will be located adjacent to the Peairidge Rail Station. The bus transit center will utilize access easement through the adjacent Best Buy parcel [TMK: (1) 9-8-009:011] to accommodate buses traveling to and from the 'ewa direction. The bus transit center will include up to eight bus bays, TheHandi-Van stop, passenger waiting shelters, a comfort station, an operator's lounge, and electric bus charging stations.

Physical Environment

Topography in the project area is relatively flat, and there is little vegetation on the properties, consisting mostly of koa haole, grasses and weeds, as well as landscaped plants. The project lies at roughly 2 m (7 ft) above mean sea level (amsl), and rainfall averages approximately 75 cm (30 in.) per year (Giambelluca et al. 2013). The closest sources of fresh water are Kalanau Stream, a non-perennial watercourse that is roughly 500 m (3 mi.) to the east of the project area and Waimalu Stream, an intermittent drainage that lies approximately 600 m (4 mi.) to the west of the project.

The parcels are situated makai of Kamehameha Highway, approximately 80 m (260 ft.) inland from the coast at Pearl Harbor. The Ko'olau Mountain Range marks the mauka boundary of Waimalu Ahupua'a. The Ko'olau volcano is relatively old, having ceased activity approximately one million years ago (Macdonald et al. 1983:298). Pearl Harbor formed as the island of O'ahu sank and the river valleys of the Ko'olau Mountains submerged (Macdonald et al. 1983:424). This is described further in the classic geological text *Volcanoes in the Sea*:

...during the Kaena (plus-29-30-meter) stand a delta of silt and sand grew into the bay near Alea and Pearl City... Later, sea level dropped to the Waipio (minus-18-meter) level, and the streams flowing across the sediments in the old bay, cut valleys into them... The sea level rose again, to the Waimanalo stand, 7.5 meters above present sea level. The valleys were drowned, branching embayments were formed, and again sediments were deposited at the head of the bay... (Macdonald et al. 1983:425-426)

Soils within the project area consist of Honouliuli clay, 0-2% slopes (HxA); Keauau clay, saline, 0-2% slopes (KmbA); and Pearl Harbor clay (Ph) (Figure 3). In the vicinity of the project area are Lahaina silty clay 3-7% slopes (LaB); Waipahu silty clay, 6-12% slopes (WzC); and water (W) (Foote et al. 1972). Honouliuli soils developed in alluvium and are often utilized for pasture, sugarcane, truck crops, and orchards (Foote et al. 1972:43). Keauau soils developed on alluvium that was deposited over reef or coral sand and are typically utilized for sugarcane and pasture (Foote et al. 1972:65). Pearl Harbor soils developed in alluvium and are generally used for taro, sugarcane, and pasture (Foote et al. 1972:112). Lahaina series soils developed from weathered igneous rock and are mostly used for sugarcane and pineapple (Foote et al. 1972:78). Waipahu series soils developed in alluvium and are often used for sugarcane and housing (Foote et al. 1972:134).

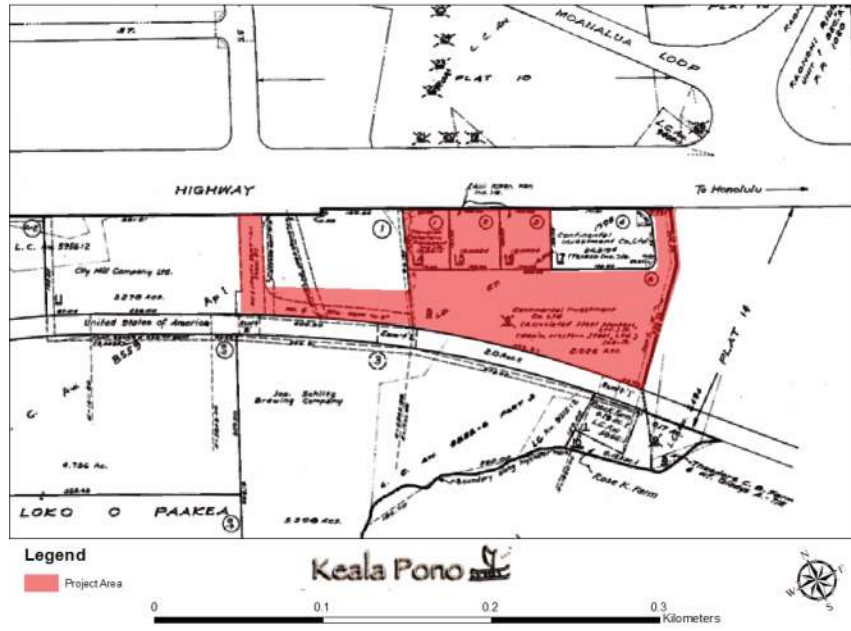
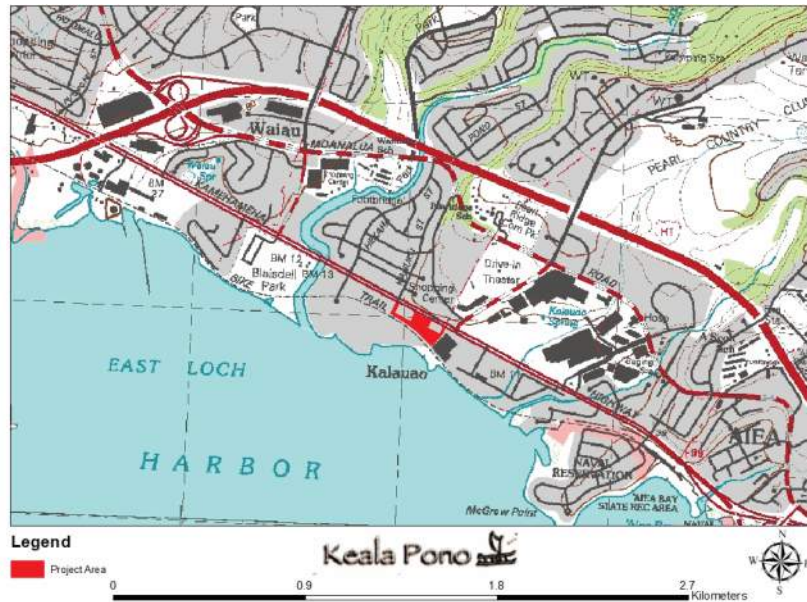


Figure 2. Project area shown on TMK plat (1) 9-8-009 (State of Hawai'i 1937).

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Layer Credits: USGS Topographical Map 1997

Figure 1. Project area on a USGS Waipahu quadrangle (USGS 1997).

3

BACKGROUND

A historic review of Waimalu Ahupua'a is provided below, to offer a better holistic understanding of the use and occupation of the project area. In the attempt to record and preserve both the tangible (e.g., traditional and historic archaeological sites) and intangible (e.g., mo'olelo, ʻōlelo no'ēau) culture, this research assists in the discussion of anticipated finds. Research was conducted at the Hawai'i State Library, the University of Hawai'i at Mānoa libraries, the SHPD library, and online on the Waiohona 'Aina database and the State of Hawai'i Department of Accounting and General Services (DAGS) website. Historical maps, archaeological reports, Māhele data, and historical reference books were among the materials examined.

Waimalu and Pu'uloa (Pearl Harbor) in Pre-Contact Times

Waimalu is one of 12 ahupua'a in the 'Ewa Moku, or district, of O'ahu on the leeward side of the Ko'olau Mountain Range. The ahupua'a of Waimalu extends from the northern shoreline of Pearl Harbor to the Ko'olau Mountains and borders Waiau Ahupua'a to the east and Kalauao Ahupua'a to the west. The current project area lies on the Waimalu side of the ahupua'a border with Kalauao. Waimalu translates to "sheltered water" (Pukui et al. 1974:225) which may refer to the sheltered waters of Pearl Harbor. Traditionally, the island known as Moku 'ume 'ume (now known as Ford Island) was part of Waimalu Ahupua'a. According to McAllister (1933:102), the name translates to "Isle of Strife" due to regional chiefs that had been in conflict for fishing rights on the island. Additionally, several fishponds were located along the Pearl Harbor coastline including Loko Pa'aiuu, Loko Opu, and Loko Pa'akea in the project vicinity. Further traditional information on the area surrounding the project in Waimalu can be found in the study of regional place names.

Place Names

One often overlooked source of history is the information embedded in the Hawaiian landscape. Hawaiian place names "usually have understandable meanings, and the stories illustrating many of the place names are well known and appreciated...The place names provide a living and largely intelligible history" (Pukui et al. 1974:xii). Several place names associated with the study area are listed in the *Place Names of Hawaii* (Pukui et al. 1974), along with the meanings of the names and/or comments about the specific locales:

- 'Aiea. Land section, mill, village, bay, stream...west of Honolulu, O'ahu...*Lit.*, *Nothocestrum* tree. (Pukui et al. 1974:7)
- 'Ewa. Plantation, plantation town...and quadrangle west of Pearl Harbor, O'ahu. *Lit.*, crooked. (Kane and Kamaloa threw a stone to determine district boundaries. The stone was lost but was found later at Pili-o-Kahē... (Pukui et al. 1974:28)
- Kalauao. Land section and stream...A battle was fought in the area between here and 'Aiea Heights from November 16 to December 12, 1794; Kalam-ku-pule defeated and killed Ka co-ka-lani, chief of Maui, Moloka'i, Lana'i, and Kaua'i...*Lit.*, the multitude [of] clouds. (Pukui et al. 1974:75)
- Moku 'ume 'ume. Old name for Ford Island, Pearl Harbor, O'ahu. Water was brought for melons raised here. *Lit.*, 'ume game island (famous for this sexual game). (Pukui et al. 1974:156)
- Pa'akea...Fishpond near Pearl Harbor, O'ahu. *Lit.*, coral bed, limestone. (Pukui et al. 1974:173)
- Pu'uloa... Land section, camp, salt works... old name for Pearl Harbor, O'ahu; it is said that breadfruit were brought here from Samoa...*Lit.*, long hill. (Pukui et al. 1974:200-201)
- Waiau... Land division and village...*Lit.*, swirling water. (Pukui et al. 1974:221)
- Waimalu Hill (1,450 feet high), land section, town...and stream debouching at Pearl Harbor, O'ahu; the Spaniard Francisco de Paula Marin had a home here...*Lit.*, sheltered water. (Pukui et al. 1974:225)



Figure 3. Soils in the vicinity of the project area. Data from Foote et al. (1972).

Subsistence and Traditional Land Use

The geography and traditional land use of 'Ewa Moku is described by Handy et al. (1972). Kalo, 'ubi, mai'a, and 'awa are noted for the region, although it is not clear if these were grown specifically in Waimalu.

The salient feature of 'Ewa, and perhaps its most notable difference, is its spacious coastal plain, surrounding the deep bays ('lohis) of Pearl Harbor, which are actually the drowned seaward valleys of 'Ewa's main streams, Waikē and Waipi'o... The lowlands, bisected by ample streams, were ideal terrain for the cultivation of irrigated taro. The hinterland consisted of deep valleys running far back into the Ko'olau range. Between the valleys were ridges, with steep sides, but a very gradual increase of altitude. The lower parts of the valley sides were excellent for the culture of yams and bananas. Farther inland grew the 'awa for which the area was famous. The length or depth of the valleys and the gradual slope of the ridges made the inhabited lowlands much more distant from the wao, or upland jungle, than was the case on the windward coast. Yet the wao here was more extensive, giving greater opportunity to forage for wild foods in famine time. (Handy et al. 1972:469)

Handy et al. (1972) continue by describing 'Ewa Moku as providing a variety of resources, such as birds, wauke, mamaki, olonā, as well as wild mai'a and 'ubi:

In the interior was the same avifauna, including the birds whose feathers were prized for feather capes, helmets, and lei making. In fact this, with its spacious wao inland, was the region where these birds were most numerous. There were more extensive areas also where wauke and mamaki, which supplied bast for the making of tapa, grew in abundance. In fact, 'Ewa was famous for its mamaki. There was, too, much olona grown in the interior, and wild bananas and yams flourished. (Handy et al. 1972:470)

The native kalo to 'Ewa was rather unique and described as producing a tasty variety of poi. Called kān, it is said to have made a poi that was a favorite of ali'i, and sometimes reserved for them. Kān is defined as "a variety of taro, the corms of which are fragrant when cooked and, though tough, yield excellent poi. Kinds are qualified by the terms 'ele'ele, kea, ke'oke'o (said to be reserved for chiefs), koi, nenene, pala, 'ula'ula, ulihii, welo, 'eka" (Pukui and Elbert 2003). It was so famous that 'Ewa became known as Kān o 'Ewa (Handy et al. 1972).

Waimalu, as part of the larger 'Ewa District, was in a well-watered coastal environment, ideal for irrigation of lo'i. In the pre-contact period the coastal flats of Waimalu were developed into agricultural terraces largely irrigated by Waimalu Stream and Waipi Spring (Handy 1940:81).

A saying, *'Ewa, ka āina o nā ali'i*, or *'Ewa, land of chiefs*, originated because the district was known as a favorite residence for chiefs (Sterling and Summers 1978:1), likely due to its abundant fishponds. Several fishponds (loko) were constructed surrounding Waimalu in times past. According to McAllister (1933), three of these fishponds, Loko Pa'ānu, Loko Opū, and Loko Pa'ākea were all built by a chiefess of O'ahu, Kalaimanuā. McAllister indicated that Kalaimanuā lived in the vicinity of Kalauao, at Kuki'i'āhu. McAllister also notes that this location was the Battle of Kuki'i'āhu, which occurred sometime after European contact:

Kalamikupele, ... assisted by "a force of armed seamen from the English vessels 'Kackal' and 'Prince Lebo', under the command of Captain Brown," defeated his uncle, Kaeo, who was proceeding to Kauai with a large force, but turned upon Kalamikupele, in order to divert the energy of his warriors, which was centered on mutiny. (McAllister 1933:103)

McAllister indicated that a heiau was located at Waimalu Gulch, Naulu-a-Maiheia. He described the heiau as being located on a small knoll at the mouth of the gulch. The heiau was a rectangular enclosure that measured 42 ft. by 51 ft. with walls that measured three ft. in height. An informant of McAllister's, Manuel Baptiste, of Portuguese-Hawaiian decent and the oldest kama āna in the area, agreed that the heiau bore the name of its founder (McAllister 1933:104). There is a mo'olelo associated with this heiau (see below).

Another heiau was situated on the ridge that divides Waiau and Waimalu gulches. The name of this heiau was Kolokūkahu, and McAllister (1933:105) reported that its stones had been removed "some years ago."

Mo'olelo

'Ewa is defined to mean "crooked" or "strayed," which refers to a mo'olelo about how the district was named:

When Kane and Kanaloa were surveying the islands they came to Oahu and when they reached Red Hill saw below them the broad plains of what is now Ewa. To mark boundaries of land they would throw a stone and where the stone fell would be the boundary line. When they saw the beautiful land lying below them, it was their thought to include as much of the flat level land as possible. They hurled the stone as far as the Waianae range and it landed somewhere in the Waimalo section. When they went to find it, they could not locate the spot where it fell. So Ewa (strayed) became known by that name. The stone that strayed. (Sterling and Summers 1978:1)

The following legend tells of Naulu-a-Maiheia, a priest of Waimalu, who constructed Naulu-a-Maiheia Heiau: At that time there lived at Waimalu, in the district of Ewa, the celebrated priest and prophet Naulu-a-Maiheia. No one in the Hawaiian priesthood of the past was ever more feared or respected. It was thought by some that he had visited the shadowy realms of Milu, and from Paliuli had brought back the waters of life. He must have been well on in years, for, as already mentioned, he is credited with having been the priest of Lae-mai-kahiki on the romantic journey of that prince from the southern islands.

In evidence of the great sanctity of Naulu, tradition relates that his canoe was upset during a journey from Waianae, Oahu, to Kauai. He was swallowed by a whale, in whose stomach he remained without inconvenience until the monster crossed the channel and vomited him up alive on the beach at Waiāluā, Kauai, the precise place of his destination. At another time, when crossing to Hawaii, and beset with adverse winds, two huge black sharks, sent by Moosili, the shark-god of Molokai, towed him to Kohala so swiftly that the sea-birds could scarcely keep him company.

He built a heiau at Waimalu, the foundations of which may still be traced, and in the inner temple of the enclosure it is asserted that Lono conversed with him freely; and at his bidding the spirits of the living (kahaoka) as well as the shades of the dead (unihipi) made their appearance; for it was believed by the ancient Hawaiians that the spirits or souls of the living sometimes separated themselves from the body during slumber or while in a condition of trance, and became visible in distant places to priests of special sanctity. (Kaliakaua 1990:169-170)

Another story is centered on Moku'ume'ume Island, now referred to as Ford Island, which was traditionally considered part of Waimalu Ahupua'a. Peter Corney visited Moku'umeume in 1819 and provided an account from the caretaker of the island, which at that time only had one family living there. The man was awakened at night by someone calling his name. He was terrified when he saw that it was the deceased ali'i Paleioholani. The ali'i told the caretaker to go the cave on the island where his iwi were laid to rest along with the iwi of several other ali'i. Paleioholani instructed the caretaker to remove the bones and take them to a place that would be safe from Chief Kaleiuku, who would come searching for them. He said that the chief wanted to bones to make arrows for shooting rats. The following day, the chief did come and search the island. The caretaker told him that Moku'ume'ume Island belonged to "a white man of whom Tameameah [Kamehameha] was very fond," to try and dissuade him from his search. The chief ignored him and removed several bundles of iwi, though not the ones of the ali'i. The next night, Paleioholani again appeared, thanking him. Corney stated that he then toured the island and observed "hundreds of bundles of human bones, wrapped up carefully in cloth, and laid in the crevices of the rocks (McAllister 1933:102).

Another account describes a pond in Kalauao named Kahuwai, which was a bathing place for chiefs during the pre-contact period, but later was used by all locals in the area:

Kahuwai was a noted bathing place since ancient times and was guarded so that any one did not bathe in it except the chiefs. Later it was used by all. Kakuhinewa's daughters and the hero Kaleialuaka (their husband) bathed in this pool. Kaeokalani, the chief of Kauai also bathed here when he came to war here on Oahu. He was killed at Kuki'āhu. Many visitors from Hawai'i to Kauai that came to see this pool and it was well known to Ewa's inhabitants. (*Ke Au Hou* 1910 in Sterling and Summers 1978:13)

Pu'uloa, the freshwater estuary fed by the many streams coming from the uplands, provided a bounty of water and food for dwellers of this region. The confluence of land and water are natural contexts for human interaction and here, accounts from the Hawaiian inhabitants have endured to this day and provide a glimpse into the storied past of the area. In Hawaiian traditions, it is believed that every body of water is home to a mo'o, a spirit being usually in the form of a lizard, reptile, or mermaid/merman-like creature, oftentimes imbued with shapeshifter-like powers (e.g., Kamakau 1991:82-89). These mo'olelo of mo'o are traditions of supernatural beings animated by their interactions with man. Shark gods and mo'o are the two types of creatures that occur in the area as evidenced in the literary sources. These mythical creatures dominate the literary record of the Pu'uloa area. One such recorded story is that of Ka'ahu, as retold by Hawaiian scholar Mary Kawena Pukui:

Pu'uloa is the old name of that great harbor on O'ahu today called Pearl Harbor. Long ago sharks lived there ruled by a chiefess called Ka'ahu.

Ka'ahu was once a lovely girl. She and her family lived beside a little stream which flowed into Pu'uloa. Often Ka'ahu and her brother went down to the harbor to swim. For hours they swam and played about, happy as fish. A shark god liked to watch those children jump and swim. They should be sharks, he thought, and live in Pu'uloa. So he changed their form.

That night when the children did not return for dinner their parents searched for them. The mother heard her husband calling. "There are sharks in our stream," he said, "young sharks."

She came quickly to stand beside the stream and the two young sharks swam close. "They are not afraid," she said, "and see! They are opening their mouths for food. They're hungry!" She turned to her husband. "These are our children!" she exclaimed. "They have been changed to sharks and come to us, as always, for their food."

The man looked long as the two swam close, rubbing the bank and opening their mouths hungrily. Then he brought food. He gave each a drink of 'awa then peeled bananas for them. When they had eaten enough they swam away.

Next day they came again for food. All the relatives of those children heard how they were changed. "Shark sister and shark brother," they called the two. They saved food for them, hung 'lei about their necks and played with them in Pu'uloa. (Pukui and Curtis 1994:147)

In other traditions including those found in mele, Ka'ahu is also known as Ka'ahupāhau. The story of Mikololou, as retold by Keonaona Kapuni-Reynolds, details the connection of the shark gods with Pu'uloa.

Mikololou is a shark from Ka'ū, Hawai'i. One day Mikololou, Kua, Keali'i, Kuaokua'i, Pakatea and Kalani decided to visit O'ahu. When they were on their way there they met with man-eating sharks. When they reached Pu'uloa, O'ahu they met with Ka'ahupāhau. Ka'ahupāhau is the guardian of Pu'uloa and she takes care of the people of that area. When a man-eating shark is seen she changes her body into a net and calls the fishermen to beat the sharks in the net. Kahi'ukā is her brother and he is the one that hits the sharks with his long tail.

When they met with Ka'ahupāhau one of the man-eating sharks said, "Hu, those crabs look delicious." Crab is what the sharks call people so Ka'ahupāhau knew that some of those sharks were man-eaters.

Because she couldn't tell who were the good sharks and who was the man-eaters she caught all the sharks in her net. (Kapuni-Reynolds n.d.)

Next to an unnamed fishpond in Pu'uloa was Drydock No. 1, which collapsed in 1913. This area was known to be the home of Ka'ahupāhau and possibly several other shark gods of Pearl Harbor. It is said that when David R. Richards, a construction foreman, began digging the foundation for the drydock in 1909, Kūpuna Kanakaewe and Leialoha, local fishermen, told Richards that he should not dig in that place (Richards 1943:1 in Tuggle and Tomonari-Tuggle 2004:55):

"These places are tabu, they belong to the shark god, namely Kaaupahau [sic]...I again asked him 'What are you doing here?' He replied that he came there to feed his aumakua, KAAUPAHAU [sic], a shark god. I laughed at him for that...I asked him 'Where is that shark? I like to see him when you are

feeding him.' He then told me that I have no business to ask that question...He said they came from Keahi [a fishing place at the edge of Pu'uloa] once a week with fishes to feed Kaaupahau [sic] by diving down into the water after chanting and offering prayer, repeating it until the fishes are gone. After that he would chant and pray some more, while going to fish for more, this time for his own use and sale...They stayed several hours, then he said to me that, 'You people will be punished severely'.

Richards later lamented that there were many problems during construction, with the digging and finally the collapse of the drydock (Tuggle and Tomonari-Tuggle 2004:55). Eventually, he had a new dock blessed by a kahuna.

The literary record, which contains cultural allusions, idioms, and references is a valuable repository of the past and forms the corpus of primary source material for the area. For example, in the historical period of the late 19th century, a story appeared in the *Ka Mākaeianana* newspaper titled "Kissing to the Sky with a Balloon." A cultural reference is applied by the author in a phrase where it is alluded that the balloonist would be eaten by "the shark descendants of Ka'ahupāhau." Hence, even in the late 19th century, the presence of shark stories, and reference to it in the newspaper is notable and conveys the mythical and social interplay of the area:

Pi i ka Lewa me ka Baluna.

He lele baluna ko lalo o Manana, Ewa, i ka auwina la Poaono nei, na James W Price, he haole Amerika kaulana ma ia hana. Oiai, aole makou ilaila, ua lohe mai nae hoi ua lele oia a ma kahi paha o 1,500 kapui ke kieke a hoohaule hou mai ma-kona loulu a haulu i ukia o ka pali. I ka pa ana o na wawaie ilalo ua hina oia i hope a eha kona poo, aole nae i kukomakou loa. Na ke kumu o ke kula olelo Enelani o Waiawa i ubai malalo maluna o ka lio a loaia oia i ka haulu ana iho a lomilomii ke poo. Ina ma ka ana aku ka makani, haulu paha oia i ke kai a pau paha i ka hamua e na mamo a Kaalupahau ma, aka, i pakele ola, ma ke kai mai ka makani a haulu ai no i kula. E hana hou ana no ka oia ma keia mua iho. (*Ka Mākaeianana* 1896:1)

Waimalu native and storyteller of the 20th century, Sarah Keli'iolena Nākoā recorded traditions of the region revealing the lifestyle of 'Ewa residents that lived in the coastal areas of Hālaawa, 'Aiea, Waimalu, Waiuu, and Mānana. These land divisions stretch to the coast and make up ke awa lau o Pu'uloa; the many channels (or lochs) of Pearl Harbor. Insight into the naming of the harbor as "Pearl" harbor is found in Nākoā's story of Ka I'a Hāmau Leo o 'Ewa ('Ewa's silent sea creatures), a retelling of a common practice among Hawaiians fishing for pipi (pearl oyster, *Pinctada radiata*) in the shoals of the harbor (Nākoā 1979:20-23). The process of gathering the bivalve required silence (hāmau leo) so as to not cause wind or movement that would create ripples on the water, inciting the pipi to retreat.

In this tradition, Nākoā retells the route she and her grandmother would take to the shore via a single-car steam train toward a land called Pōlea, now referred to as Pearl City Peninsula. Hawaiians of the early 20th century continued to rely on the fish protein for their livelihoods as evidenced in her account. She described a certain variety of pipi with a whitish and shiny shell that was unlike other shells she had seen. This particular variety in her words were "nui a kaumaha," large and heavy. It was known for the tastiness of its meat and for something else; a pearl contained within its shell. The technique to gather the pipi was done stealthily as the fishperson approached, so the elongated tongue of the pipi would be easy to grab. Once at home, the shellfish were boiled in water and eaten. Nākoā laments the disappearance of the pipi in her lifetime (1979:23).

Oli and Mele

The noteworthy specific locales in Hawaiian culture is further bolstered by their appearances in traditional chants. An oli refers to a chant that is done without any accompaniment of dance, while a mele refers to a chant that may or may not be accompanied by a dance. These expressions of folklore have not lost their merit in today's society. They continue to be referred to in contemporary discussions of Hawaiian history, identity, and values.

Although it can be acknowledged that mo'olelo have served to maintain the collective memory and record of the Hālawā area, oil and mele nevertheless continue to provide significant insight into the region. In a mele moa for Iwikauka, an ancient high chief and ancestor to Queen Lili'uokalani, reference to Ka'ahupāhau is made. In the excerpt below, the shark god is referred to as, "the skilled one of Pu'uloa." The 'Ewa moku, with its many springs, ponds, and estuaries, is known by the epithet, "'Ewa no ke awa lau- ('Ewa- whom belongs the many bays)," that is mentioned in the name chant below:

Auhea wale oe e ka Ohu la-e-a,

Kipu mai la i Kaala la-e-a,

Ala mai Lihue me Kalema la-e-a,

Hooho mai hale auau la-e-a,

Pehea iho Kokolea la-e-a,

Ea mai o Kaahupāhau la-e-a,

O ka olali o Puuloa la-e-a,

Ehia iho mea minamina la-e-a,

O ka ela hamaui i ka leo la-e-a,

Mai Pane ae oe o makani la-e-a,

Ike ole ia aku Hālawā la-e-a,

Aina i ka mōle o Ewa la-e-a,

No Ewa oe no ke awa lau la-e-a,

No ka lili kai au i ka wili la-e-a,

No Honolulu i Kapuukoalo la-e-a,

Haina ka Inoa i lohe la-e-a,

Oulumāhehi Hoopili la-e-a,

O ka Ona nui o Waiuku la-e-a,

O ka helu ekahi o Maui la-e-a. (Keapo 1868)

Ka'ahupāhau has a firm place in the oeuvre of Hawaiian song. While the preceding excerpt cites Pu'uloa and its shark god Ka'ahupāhau, Hawaiian songs made popular in the 20th century, such as Pūpū a o 'Ewa, retell traditions from an earlier time and are remarkable in the continuation of the same theme and characters from the ancient past.

Pūpū a o 'Ewa

Pūpū a o 'Ewa

I ka nu'u o nā kamaka

E nāue mai a e 'ike

I ka mea hou o ka 'āina

A he 'āina ua kaulana

Mai nā kūpuna mai

Alahula Pu'uloa he alahela no Ka'ahupāhau (traditional mele)

The refrain of the song can be summarized as "Pu'uloa, a path well-trod upon by Ka'ahupāhau" and can be interpreted as defining the well-traveled interest that the estuary was for those of the past. Today however, many of the place names in the ahupua'a, in which the naval base at Pearl Harbor is located, have disappeared or have been turned into street names and names of barracks and entrances to the shipyard. Scholar John Osorio asserts that this development effectively detached the kanaka from the land by blocking access to the ocean and fresh water resources of O'ahu's largest inland waterways (2010:4). Reliance on the written mo'olelo have become essential in understanding the history of the region.

'Ōlelo No 'eau

Like oli and mele, traditional proverbs and wise sayings, known as 'ōlelo no 'eau, have been another means by which the history of Hawaiian places has been recorded. In 1983, Mary Kawena Pukui published a volume of close to 3,000 'ōlelo no 'eau that she collected throughout the islands. The introductory chapter of that book reminds us that if we could understand these proverbs and wise sayings well, then we would understand Hawai'i well (Pukui 1983). While no 'ōlelo no 'eau about Waimālu were recorded in Pukui's book, there are many that speak of 'Ewa in general; they are listed below.

'Āina koi 'ula i ka lepo.

Land reddened by the rising dust.

Said of 'Ewa, O'ahu. (Pukui 1983:11)

Anu o 'Ewa i ka i'a hāmau leo e. E hāmanu!

'Ewa is made cold by the fish that silences the voice. Hush!

A warning to keep still. First uttered by Hi'iaka to her friend Wahine'oma'o to warn her not to speak to Lohi'au while they were in a canoe near 'Ewa. (Pukui 1983:16)

'Ewa kai lumalumai'i.

'Ewa of the drowning sea.

An epithet applied to 'Ewa, where kauwā were drowned prior to offering their bodies in sacrifice. (Pukui 1983:47)

'Ewa nui a La'akona.

Great 'Ewa of La'akona.

La'akona was a chief of 'Ewa, which was prosperous in his day. (Pukui 1983:47)

Haumāle 'Ewa i ka Moa'e.

'Ewa is disturbed by the Moa'e wind.

Used about something disturbing, like a violent argument. When the people of 'Ewa went to gather pipi (pearl oyster), they did so in silence, for if they spoke, a Moa'e breeze would suddenly blow across the water, rippling it, and the oysters would disappear. (Pukui 1983:59)

He kai pūhi nehū, pūhi lala ke kai o 'Ewa.

A sea that blows up nehū fish, blows up a quantity of them, is the sea of 'Ewa. (Pukui 1983:74)

He lō'ihi o 'Ewa; he pali o Nū'uamu; he kula o Kulaoakahu'a; he hiki mai koe.

'Ewa is a long way off. Nū'uamu is a cliff. Kulaoakahu'a is a dry plain; but all will be here before long.
Said of an unkept promise of food, fish, etc. O'ahu was once peopled by evil beings who invited canoe travelers ashore with promises of food and other things. When the travelers asked when these things were coming, this was the reply. When the visitors were fast asleep at night, the evil ones would creep in and kill them. (Pukui 1983:84)

I Waialua ka po'ina a ke kai, o ka leo ka 'Ewa e ho'olomo nei.
The dashing of the waves is at Waialua, but the sound is being heard at 'Ewa.
 Sounds of fighting in one locality are quickly heard in another. (Pukui 1983:137)

Ka i'a hāmau leo o 'Ewa.
The fish of 'Ewa that silences the voice.
 The pearl oyster, which has to be gathered in silence. (Pukui 1983:145)

Ka i'a kuli lima o 'Ewa.
The gesturing fish of 'Ewa.
 The pipi, or pearl oyster. Fishermen did not speak when fishing for them but gestured to each other like deaf-mutes. (Pukui 1983:148)

Ke kai he'e nehu o 'Ewa.
The sea where the nehu come in schools to 'Ewa.
 Nehu (anchovy) come by the millions into Pearl Harbor. They are used as bait for fishing, or eaten dried or fresh. (Pukui 1983:185)

Ke one kuliima laula o 'Ewa.
The sand on which there was a linking of arms on the breadth of 'Ewa.
 'Ewa, O'ahu. The chiefs of Waikiki and Waikēle were brothers. The former wished to destroy the latter and laid his plot. He went fishing and caught a large nihi, whose skin he stretched over a framework. Then he sent a messenger to ask his brother if he would keep a fish for him. Having gained his consent, the chief left Waikiki, hidden with his best warriors in the "fish." Other warriors joined them along the way until there was a large army. They surrounded the residence of the chief of Waikēle and linked arms to form a wall, while the Waikiki warriors poured out of the "fish" and destroyed those of Waikēle. (Pukui 1983:191)

Ku a'e 'Ewa; Noho iho 'Ewa.
Stand-up 'Ewa; Sit-down 'Ewa.
 The names of two stones, now destroyed, that once marked the boundary between the chiefs' land (Kua'e 'Ewa) and that of the commoners (Noho iho 'Ewa) in 'Ewa, O'ahu. (Pukui 1983:200)

O 'Ewa, 'aina kai 'ula I ka lepo.
'Ewa, land of the sea reddened by earth.
 'Ewa was once noted for being dusty, and its sea was reddened by mud in time of rain. (Pukui 1983:257)

Ua 'ai I ke kaa-koi o 'Ewa.
He has eaten the kaa-koi taro of 'Ewa.
 Kaa is O'ahu's best eating taro; one who has eaten it will always like it. Said of a youth or a maiden of 'Ewa, who, like the kaa taro, is not easily forgotten. (Pukui 1983:305)

There are also many 'ōlelo no 'eau that reference Pu'u'uloa (Pearl Harbor):
 Alahala Pu'u'uloa, he alahale na Ka ahupāhau.
Everywhere in Pu'u'uloa is the trail of Ka ahupāhau.
 Said of a person who goes everywhere, looking, peering, seeing all or of a person familiar with every nook and corner of a place. Ka ahupāhau is the shark goddess of Pu'u'uloa (Pearl Harbor) who guarded the people from being molested by sharks. She moved about, constantly watching. (Pukui 1983:14)

E hāmau o makani mai auane'i.
Hush, lest the wind arise.
 Hold your silence or trouble will come to us. When the people went to gather pearl oysters at Pu'u'uloa, they did so in silence, for they believed that if they spoke, a gust of wind would ripple the water and the oysters would vanish. (Pukui 1983:34)

Ho 'ahewa na nihi ia Ka ahupāhau.
The man-eating sharks blamed Ka ahupāhau.
 Evil-doers blame the person who safeguards the right of others. Ka ahupāhau was the guardian shark goddess of Pu'u'uloa (Pearl Harbor) who drove out or destroyed all the man-eating sharks. (Pukui 1983:108)

Ho'i aku la ka 'ōpua i ke awa lau o Pu'u'uloa.
The horizon cloud has gone back to the lochs of Pu'u'uloa.
 He has gone home to stay, like the horizon clouds that settle in their customary places. (Pukui 1983:109)

Huhui na 'ōpua i Awalau.
The clouds met at Pearl Harbor.
 Said of the mating of two people. (Pukui 1983:120)

Kālele ka uwahi o Pu'u'uloa.
The smoke of Pu'u'uloa leans over.
 Said in amusement of one who leans over; intent on his work. (Pukui 1983:156)

Ke awa lau o Pu'u'uloa.
The many-harbored sea of Pu'u'uloa.
 Pu'u'uloa is an early name for Pearl Harbor. (Pukui 1983:182)

Ke kai he'e nehu o 'Ewa.
The sea where the nehu come in schools to 'Ewa.
 Nehu (anchovy) come by the millions into Pearl Harbor. They are used as bait for fishing, or eaten dried or fresh. (Pukui 1983:185)

Mehameha wale no o Pu'u'uloa, i ka hele a Ka ahupāhau.
Pu'u'uloa became lonely when Ka ahupāhau went away.
 The home is lonely when a loved one has gone. Ka ahupāhau, guardian shark of Pu'u'uloa (Pearl Harbor), was dearly loved by the people. (Pukui 1983:234)

Waimalu in the Historic Era

When the first Westerners arrived in the Hawaiian archipelago in 1778, the islands were not yet united under one sovereign. At that time, Waimalu and the entire island of O'ahu were under the rule of Chief Kahahana. In 1783, Chief Kahahana's reign was ended with the invasion and victory of Chief Kāhēkili of Maui. This would forever be the end of O'ahu's independence as a separate island kingdom. When Chief Kāhēkili died in 1794, control of O'ahu went to his son Kalanikūpule. The following year, Chief Kamehameha of Hawai'i Island invaded O'ahu to engage Kalanikūpule in battle. Kamehameha overwhelmed Kalanikūpule's warriors, effectively gaining control of all the islands from Hawai'i to O'ahu. Eventually, Kamehameha would make a

peaceful agreement with Chief Kaunuaui'i of Kaua'i, bringing that island and Ni'ihau into the fold and thereby uniting the Hawaiian archipelago under one rule (Kamakau 1996, Kamahele 1995).

It is generally accepted that in 1778 James Cook became the first westerner to see the Hawaiian Islands. Following Cook, a wave of other western explorers landed on Hawai'i's shores. Around the same time as the arrival of the first westerners to Hawai'i, O'ahu was experiencing major political changes. It was during this time, as mentioned above, that O'ahu's sovereignty ended with the invasion of the Maui chiefs, and the Maui rule was subsequently overcome by the invasion of forces from Hawai'i Island when all of the islands were united under Kamehameha I in 1795.

There are very few mentions of Waimalu in early historical records. One account comes from the English sailor Archibald Campbell who visited the area ca. 1810. He writes of the Pu'u'uloa vicinity:

Wymunne, or Pearl River, lies about seven miles farther to the westward. This inlet extends ten or twelve miles up the country. The entrance is not more than a quarter of a mile wide, and is only navigable for small craft; the depth of water on the bar at the highest tides, not exceeding seven feet; farther up it is nearly two miles across. There is an isle in it, belonging to Manina [Paul Marin], the king's interpreter, in which he keeps a numerous flock of sheep and goats...The flat land along shore is highly cultivated; taro root, yams, and sweet potatoes are the most common crops; but taro forms the chief object of their husbandry, being the principal article of food amongst every class of inhabitants. (Campbell 1967:114-115)

Another account of the area comes from an early visitor, George Mathison:

We passed over a long cultivated plain, varied by occasional ravines, for a distance of twenty miles, and about two o'clock reached Pearl River, so called from the pearls which are found in small quantities in its bed...The sea here forms a small bay, which has the appearance of a salt-water lake, being landlocked on every side except at the narrow entrance. Two or three small streams, too insignificant to merit the appellation of rivers discharge their united waters into the bay, which is full six miles in length and two in breadth. The adjoining low country is overflowed both naturally and by artificial means, and is well stocked with taro-plantations [sic], bananas, etc. The land belongs to many different proprietors; and on every estate there is a fishpond surrounded by a stone wall, where the fish are strictly preserved for the use of their rightful owners, or tabooed, as the natives express it. One of the particularly large dimensions belongs to the King. (Mathison 1825:416-417)

Māhele Land Tenure

The change in the traditional land tenure system in Hawai'i began with the appointment of the Board of Commissioners to Quiet Land Titles by Kamehameha III in 1845. The Great Māhele took place during the first few months of 1848 when Kamehameha III and more than 240 of his chiefs worked out their interests in the lands of the Kingdom. This division of land was recorded in the Māhele Book. The King retained roughly a million acres as his own as Crown Lands, while approximately a million and a half acres were designated as Government Lands. The Konoiki Awards amounted to about a million and a half acres, however title was not awarded until the konoiki presented the claim before the Land Commission.

In the fall of 1850 legislation was passed allowing citizens to present claims before the Land Commission for parcels that they were cultivating within the Crown, Government, or Konoiki lands. By 1855 the Land Commission had made visits to all of the islands and had received testimony for about 12,000 land claims. This testimony is recorded in 50 volumes that have since been rendered on microfilm. Ultimately between 9,000 and 11,000 kuleana land claims were awarded to kama'āina totaling only about 30,000 acres and recorded in ten large volumes.

The current project area lies on the Waimalu side of the ahupua'a boundary with Kalaeloa. Waimalu Ahupua'a was awarded to Mikahela Kekau'ōnoli, a granddaughter of Kamehameha I, LCA 11216. The ahupua'a of

Kalaeloa was awarded to two recipients, the half of the ahupua'a that is closest to the current project area was awarded to Laura Konia (who was either a granddaughter or grandniece of Kamehameha I), in LCA 5524, and the other half was awarded to John Meeke, a sandalwood merchant, as LCA 591. Another large award went to Charles Kama'ina in LCA 8559; 'Āpana I on this LCA lies in Waimalu, just west of the current project area.

An additional nine kuleana LCA awards were recorded in the immediate vicinity of the project area. Table 1 provides information on the claimant, ahupua'a, and features that were recorded for the awards during the Māhele. Uses for the parcels include lo'i, kula, and housing. Also mentioned in Māhele testimony are 'ulu, a pond, a fishpond, and a stone wall.

Historic Waimalu: 19th and 20th Centuries

The agricultural industry in Waimalu steadily expanded through the 19th century from expansive tracts of traditional Hawaiian lo'i that were gradually replaced by the large-scale commercial cultivation of sugarcane and rice by the 1850s. While there were abundant water resources available for irrigation in Waimalu, it was not until 1879 when the first artesian well was drilled in 'Ewa that the commercial agricultural industry was able to realize its full economic potential (Ellis 1995:22).

Sugar Cultivation and the Plantation Era

Sugarcane was first commercially cultivated in Waimalu during the 1850s, on the estate of J.R. Williams, where the enterprise was then known as the Honolulu Sugar Company. The plantation stretched across the inland valleys and foothills of Waimalu east through Hālawā with the mill and refinery located in 'Aiea (Conde and Best, 1973). Undeveloped land in the upper reaches of Waimalu Valley required extensive landscape modification including the removal of native forests, diversion of streams, grading, and implementation of plantation infrastructure like irrigation ditches, wells, and pumping stations. Worker barracks were constructed, hospitals were built, and an extensive transportation network was established, as described by a San Francisco Chronicle article in 1910:

The most modern devices for the economic handling of cane are used on this plantation. There are thirty-six miles of main railroad and seven miles of portable track, with four locomotives and 500 cane cars. The capacity of the mill is 900 tons of raw sugar a week and 1100 tons of cane a day. This is the only mill in the islands that turns out refined sugar, and it supplies that commodity which is used in the pineapple canneries. The mill is equipped with all kinds of auxiliary shops. (San Francisco Chronicle 1910 in Conde and Best 1973:328)

In 1900, a change in ownership in the Honolulu Sugar Company caused a name change to the Honolulu Plantation Company. This latter enterprise constructed the sugar mill and refinery in 'Aiea mentioned above. It was a prosperous operation and helped create Old 'Aiea Town, which served as the hub for the community. Much of the 'Ewa Plain was being used for sugar production by the early 1900s, with plantations extending from the Pearl Harbor area to where the Honolulu International Airport is located today. In 1901, a narrow-gauge railway was constructed to transport cane from the fields to the Aiea Sugar Mill. However, loss of lands during the construction of U.S. military infrastructure and the U.S. involvement in WWII caused the Honolulu Plantation Company to sell all remaining assets to the Oahu Sugar Company in 1947 (Conde and Best 1973:330).

Rice Cultivation

In the 1850s, during the same period sugar agriculture in Hawai'i was developing, the commercial cultivation of rice was beginning. The demand for rice directly coincided with increasing Chinese immigration, which created a domestic market for rice cultivation and sales. Horticulturalists from the Royal Hawaiian Agricultural Society began experimenting with growing rice in Hawai'i. Following successful harvests, rice cultivation was promoted by the society and the Hawaiian Government as a promising commercial endeavor (Couller and Chun 1937). Hawaiians living in the wetter parts of Hawai'i were encouraged to convert their taro lo'i fields into rice paddies:

Table 1. LCA Awards in the Vicinity of the Project Area

LCA	Claimant	Ahupua'a	Description
2938:5	Lahilahi	Waimalu	no information
595:61 & 2	Makanike	Waimalu	stone wall & fishpond boundary
2494	Kekoa	Kalaiao	lo'i
5581	Kalamannua	Kalaiao	lo'i, kula
6156	Nua	Kalaiao	lo'i, kula
6156 B	Mahoe	Kalaiao	lo'i, kula
852:5B	Kauwa	Waimalu	no information recorded
931:5:2	Haki	Waimalu	lo'i, kula
9400:1	Kaoto	Waimalu and Kalaiao	lo'i, house lot, pond, breadfruit tree

Considerable effort has been made to induce the natives to be more industrious to cultivate the soil and particularly to try to [sic] the cultivation of rice... Foreigners too have begun the culture of rice in this district extensively and it was hoped their example would stimulate the natives to cultivate their own lands, but most of them choose to hire themselves to the foreigners at low wages and put their lands in the hands of the foreigners for a few dollars rather than cultivate or improve it themselves. (Mission Station Report 1862 in Devaney et al. 1982:49)

Some Chinese immigrants turned to rice farming after their plantation contracts were completed. These farmers typically leased small plots of land or formed hui with other farmers to acquire large tracts of land. The availability of former taro lo'i was reflected in the decreased demand for taro as a food staple due to the declining Native Hawaiian population. Rice paddies began to replace many of the former lo'i and were expanding within the lowlands of Pearl Harbor. Former taro lands were expanded and modified, and unused marsh and swamp land was easily converted into rice fields. Approximately 135 acres were cultivated in Waimalu and 262 acres were under cultivation in Waiaua, Mānana, and Waiau (Coulter and Chun 1937). The commercial rice industry at its height (1880–1920) had become dominated by Chinese companies who controlled most aspects of rice cultivation. Due to the U.S. annexation of Hawai'i, rice cultivation began to decline after 1920 because the U.S. limited the number of Chinese immigrants allowed in Hawai'i, which was a primary source of labor for rice farms. In addition, rice cultivation in California was increasing, which thereby eliminated an important export market from Hawai'i (Devaney et al. 1982).

The Oahu Railway and Land Company (OR&L Co.)

The concept for a railroad that circumnavigated the island of O'ahu was developed by B.F. Dillingham. His company, the Oahu Railway and Land Company (OR&L) was established in 1889. While the construction of the OR&L railroad was instrumental in aiding the transport of agricultural products for import/export, Dillingham's true motivation for creating the railroad was to connect outlying areas of O'ahu to stimulate development of lands owned by his business partners and himself. During the first year of construction, the railroad was capable of transporting passengers and freight from Honolulu Harbor to Pearl Harbor. By 1890, the railroad reached Pearl City, then reached Wai'anae by 1895, then Waialua by 1898 and to Kahuiku by 1899 (Kuykendall 1967). As Dillingham had intended, the railroad contributed to the development of Pearl City where a residential subdivision was planned:

...one of [Dillingham's] devices to build railway traffic during the first years of the struggling Oahu Railway and Land Company. Newspapers in 1890 carried numerous announcements of the "great land sale of Pearl City lots" at public auction, with special excursion rates on the new railway. Lots were

sold with a guarantee that O.R. and L. would transport buyers and their families between Pearl City and Honolulu for nine years at one cent per mile, second class. (Johnson 1956)

The OR&L also founded the Loch View Cemetery in 1900. The cemetery offered burial packages for the indigent, such as the opening and closing of graves and use of a funeral car from a depot in Iwilei that would deliver the casket to the cemetery. The cemetery was divided into sectors by religion, which was customary at that time (Chiddix and Simpson 2004:49).

With the introduction of the electric streetcar and increasing use of automobiles in the 1920s, the OR&L operations and profits began to decline (Chiddix and Simpson 2004). However, in the years preceding and during WWII, the OR&L saw a temporary jump in operations and profits as the U.S. military used the railroad to transport materials, equipment, and troops to areas where military operations and installations were expanding. After the 1941 attack on Pearl Harbor, trains were running 24 hours per day, 7 days a week to support wartime transportation and shipping needs. However, with the end of the war in 1945, use of the OR&L railroad again began to decline. The railroad suffered the transition between near-constant war time operations to nearly no demand seemingly overnight, and W.F. Dillingham, son of B.F. Dillingham, realized that the OR&L needed to cease operations in 1946:

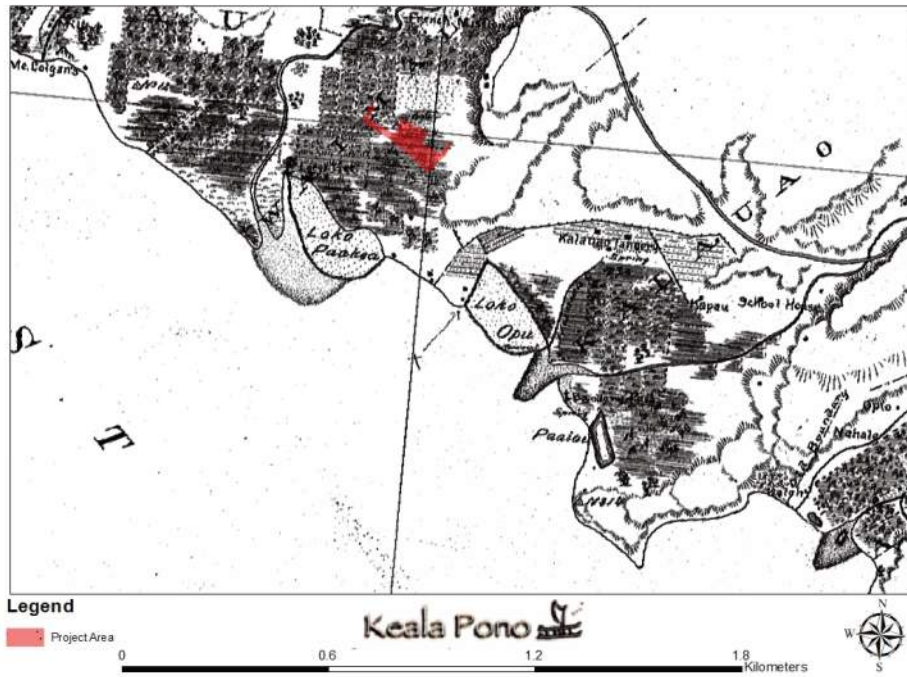
The sudden termination of the war with Japan changed not only the character of our transportation, but cut the freight tonnage to a third and the passenger business to a little above the pre-war level. With the increased cost of labor and material and the shrinkage in freight tonnage and passenger travel, it was definite that the road could not be operated as a common carrier. With no prospect of increased tonnage, and the impossibility of increasing rates against truck competition, your management has applied to the Interstate Commerce for authority to abandon its mainline. (W.F. Dillingham in Chiddix and Simpson 2004:257)

Commercial service of the OR&L was discontinued in 1946, and shortly thereafter nearly 150 miles of track were disassembled, and operations infrastructure was either scrapped or sold. However, in 1947, one section of railroad from the Naval Ammunitions' storage magazines at Luahalei to the Pearl Harbor Naval Base was retained by the U.S. Navy for transport of materials and equipment between the two bases of operation (Treiber 2005).

Pearl Harbor Military Development

Another major factor in shaping historic-era Waimalu was the buildup of the American military. The overthrow of the Hawaiian government by mostly foreign businessmen backed by the U.S. military in 1893, and the subsequent supposed annexation of Hawai'i by the U.S. in 1898 set the scene for permanent American presence. It should be noted that the typical narrative which chronicles the U.S. annexation is not a narrative that is accepted by all. Another equally recognized narrative explains that the overthrow of the monarchy was illegal and not accepted by large segments of both the Hawaiian and American populations at the time, and therefore Hawai'i has been under a prolonged American military occupation since then. Still, following the war with Spain in the Philippines, and worried by the expansion of Japanese influence, the U.S. viewed Hawai'i's geographic location as extremely strategically valuable. Pearl Harbor, formerly known as Pu'uoloa, was selected to base American naval forces.

Discovery of the harbor in 1789 is credited to Captain Nathaniel Portlock (Clark 2002). Foreigners to Hawai'i have long recognized the potential in Pearl Harbor as military base of operations, but it was not until the Act of Annexation in 1901 when the U.S. Government retained 1,356 acres of land surrounding Pearl Harbor that the area was actively utilized for military activities. Pearl Harbor was dredged deep enough to allow for large warships to enter, with the dredging carried out by W.F. Dillingham beginning in 1903. Authorization for the establishment of the Pearl Harbor Navy Yard was given in 1908 and within the next few years, dredging of the channel and construction continued.



1873 Pearl Lochs Map, Hawaiian Government Survey Office

Figure 4. Portion of a map of Pearl Lochs and the Pu'uloa Entrance (Lyons 1873).

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Heightened tension in the Pacific during the 1930s caused the expansion of military infrastructure at Pearl Harbor and around the island. In the years leading to the U.S. involvement in WWII, coordination between civilian interests and the U.S. military became commonplace. For instance, in 1940 and 1941, the 64th Coast Artillery (Anti-Aircraft) Regiment received blanket permission for use of lands from the Honolulu Plantation Company which allowed them to use all land and roads surrounding Pearl Harbor (Spalding 1945).

Pearl Harbor is most remembered for the air raid by the Imperial Japanese Navy on December 7, 1941, which launched the U.S. into WWII. After the attack on Pearl Harbor, additional infrastructure was needed to double the war effort in and around the harbor. In addition to the reconstruction of destroyed facilities, a new ammunition depot was built in Waipahu, a hospital in Aiea, and the Naval Yard was improved to hold additional aircraft carrier forces (Woodbury 1946). By 1944, the U.S. government acquired approximately 2,400 acres of land surrounding Pearl Harbor for military use during the war effort (Allen 1999). Following the end of WWII, much of the infrastructure was retained, but some of the former military complexes were repurposed for other public uses. A new hospital to treat Hansen's Disease patients, Hale Mohala (House of Comfort), was established in one such complex to replace Kalia Hospital that was in use since 1865 (Tayman 2005). By the mid-1900s, the imposition of the American military in Pearl Harbor irretrievably destroyed traditional Hawaiian management systems of the land and sea resources of the area.

The harbor itself is comprised of East Loch, Middle Loch, and West Loch, all of which have restricted access. The part of East Loch that is situated to the east of Moku'ume'ume (Ford Island) is known as Southeast Loch. In 2010, the Navy Yard integrated with the nearby U.S. Hickam Air Force Base to create Joint Base Pearl Harbor-Hickam (JBPHH), which is the command center of the U.S. Pacific Fleet. Pearl Harbor is still in active use by the U.S. military. In 1964, Pearl Harbor was deemed a National Historic Landmark District, State Inventory of Historic Places (SHHP) 50-80-13-9992 and placed on the National Register of Historic Places (NRHP). The USS Arizona, USS Bowfin and USS Utah, located within the harbor, are also considered National Historic Landmarks.

Historic Maps

Historic maps help to paint a picture of Waimalu in years past and illustrate the many changes that have taken place in the region. This section presents a selection of five maps from the 19th and 20th centuries that provide insight to the project area. Note that names are spelled as they are written on each map.

The earliest map dates to 1873 (Figure 4). Loko Paakea and Loko Opu are illustrated, and there are scattered structures between them. The word "Monument" is written along the Loko Opu wall, although it is unclear what this means. Paaiuu is depicted as a pond, rather than a loko that extends into the sea, and it is situated near a spring. The Government Road crosses through the ahupua'a, and a French Mission is just makai of it. A Tannery is located in Kalaauo, near a spring and among dryland fields. Kalo, rushes, and dryland fields are shown in Waimalu, with the specific project area in rushes.

The next map (Figure 5) depicts the lands surrounding Waimalu and Kalaauo in 1897. The map shows that the vicinity of the project area is cultivated in rice, with a rice mill located to the west. Loko Paakea and Loko Opu are labeled, but Loko Pa'aiuu is illustrated with no name. A few structures are scattered at the coastline, and a settlement and Kalaauo Tannery are concentrated around a spring at the border of Waimalu and Kalaauo. The OR&L railroad is depicted as a solid line to the south of the project area.

A Hawaii Territory Survey map dated 1902 depicts all of O'ahu. The Pearl Harbor portion is shown here, where the fishponds at the coast and topographic features are visible (Figure 6). By this time, the U.S. Navy Reservation had been established, and what is now known as Ford Island is labeled as "Ford's Is (Moku Umeume) to Waimalu." Around Southeast Loch, U.S. Navy lands are illustrated, as well as "Makalapa Old Crater." South of the crater, were Honolulu Plantation lands.

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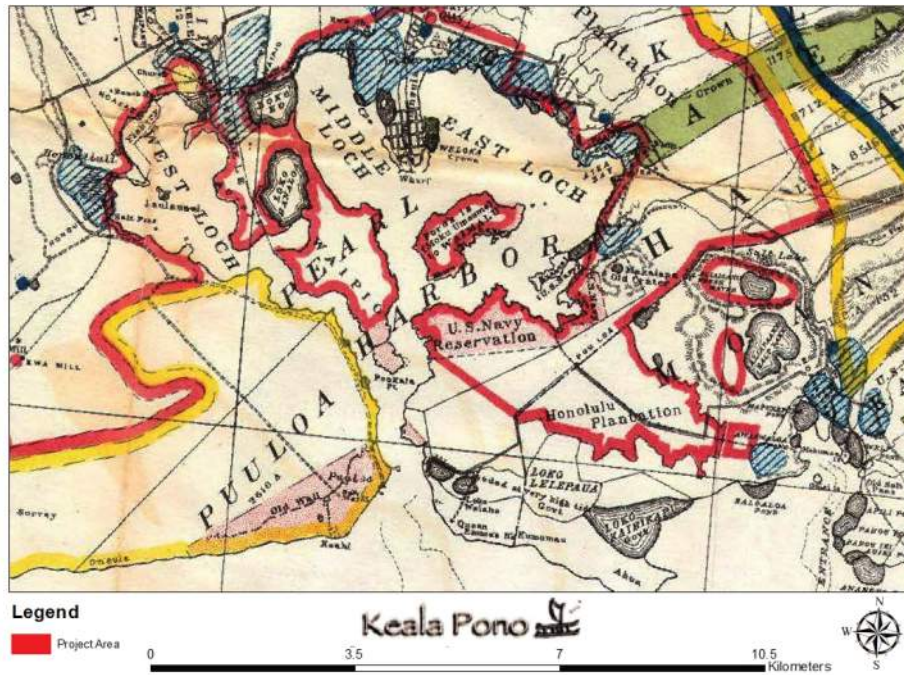


Figure 6. Portion of a Hawaii Territory Survey map showing the project area (Wall and Donn 1902).

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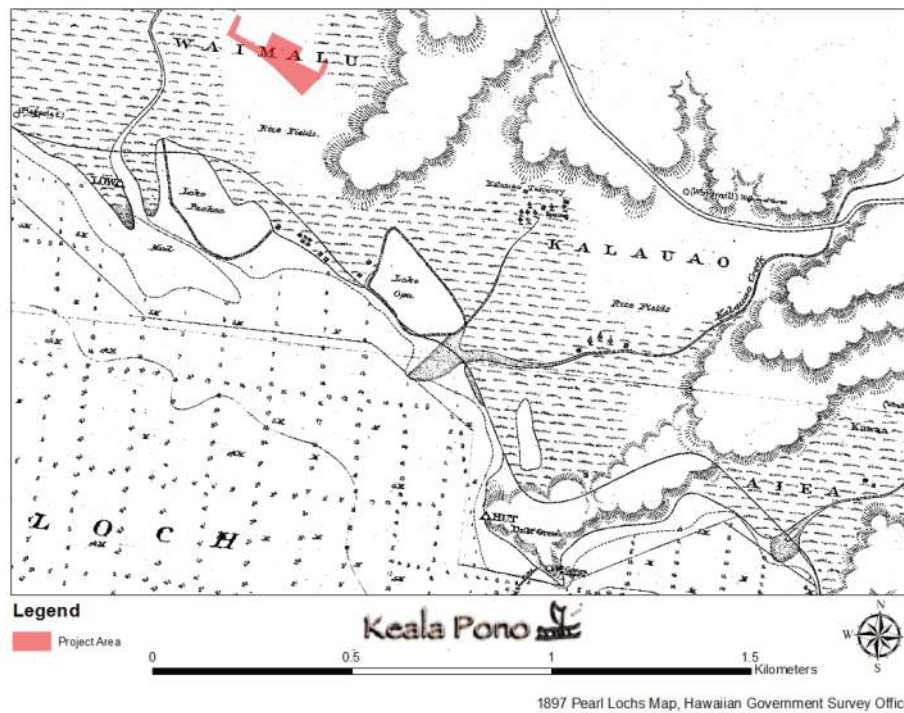


Figure 5. Portion of a map of Pearl Lochs (Nichols 1897).

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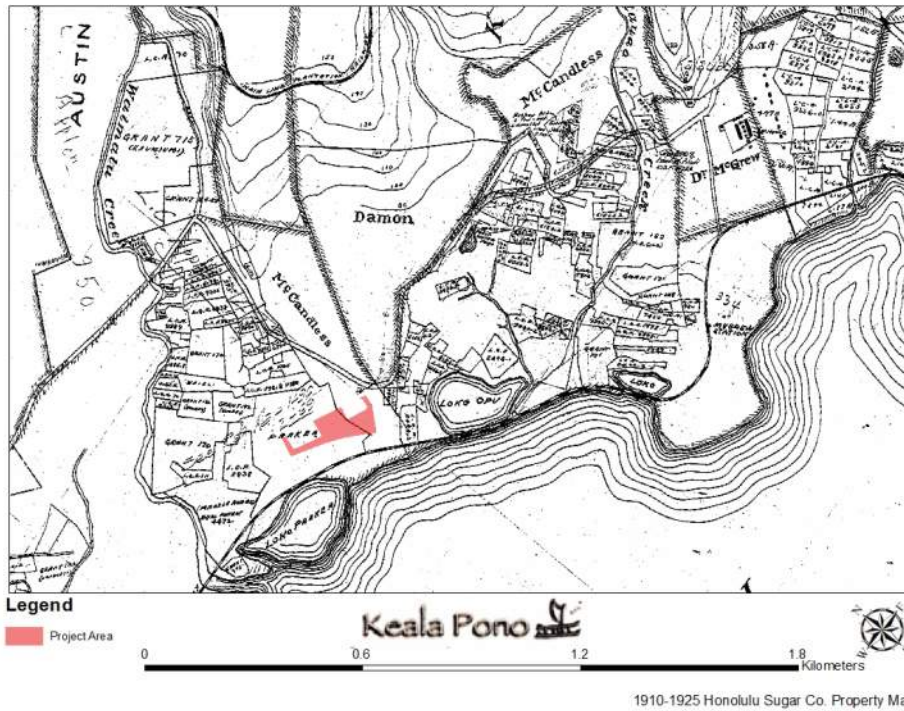


Figure 7. Portion of a map of Honolulu Sugar Co. Property (Taylor 1910–1925).

The final map dates to 1910–1925 and shows property belonging to the Honolulu Sugar Co. (Figure 7). Loko Paakea and Loko Opu are labeled, while Loko Pa'aiu is just labeled as "Loko." Many more structures are now shown, as well as numerous LCA plots and foreign names such as Austin, McCandless, Damon, and McGrew. Also depicted in Waimalu are the plantation railway, government road, a small freshwater pond, and a reservoir. The study area is situated on land labeled "Paakea" and "McCandless."

Previous Archaeology

Many archaeological studies have been conducted in Waimalu. The following discussion provides information on archaeological investigations that have been carried out in the vicinity of the project area, based on reports found in the SHPD library in Kapolei, Hawaii⁴ (Figure 8 and Table 2).

Some of the earliest archaeological work in the study area was conducted by J.G. McAllister in a 1933 survey of the island of O'ahu. Five archaeological sites were identified in the vicinity of the project:

- **Site 108 – Loko Pa'aiu** measured 190 by 600 ft., was rectangular in plan view, and had one mākhāhā. Three sides of the fishpond were adjoined to the land where the pond was demarcated by a basalt wall roughly 2 ft. tall. The ocean side of the pond was delineated by a wall that measured 3–4 ft. wide and 2 ft. tall. The pond was fed by the fresh water sources that fed the surrounding taro patches. It was said to have been built by chiefess Kalaimanuia (McAllister 1933:103).
- **Site 109 – Loko Opu** covered 10.5 ac. and was enclosed by a 2,700 ft.-long wall. The fishpond was also said to have been built by chiefess Kalaimanuia (McAllister 1933:103).
- **Site 110 – Kuki'i'ahu** was the home of chiefess Kalaimanuia, who was said to have built Loko Pa'aiu, Loko Opu, and Loko Pa'akea (McAllister 1933:103). The place was also the location of the Battle of Kuki'i'ahu (see Subsistence and Traditional Land Use section).
- **Site 111 – Loko Pa'akea** was a large fishpond formerly located on the eastern side of Waimalu Stream and was said to have been built by chiefess Kalaimanuia, who lived just east of the pond. McAllister recorded this site as covering 12 ac., with a basalt and coral wall that was 850 ft. long, 6 ft. wide, and 4 ft. high with one mākhāhā. One smaller, adjoining fishpond was recorded, which was thought to be recent at the time (McAllister 1933:103–104).
- **Site 112 – Naulu-a-Maiheha Heiau** was a large heiau with an adjacent enclosure formerly located near the mouth of the Waimalu Gulch on a small knoll. The heiau was thought to have been built by Naulu-a-Maiheha in the 12th century (McAllister 1933:104–105). Thrum (1906:46) reported that the Naulu-a-Maiheha heiau foundations were observed in 1880 but not identified when the area was visited in 1906.

An archaeological surface survey was conducted in support of the Pearl Promenade Project, near Penridge Shopping Center (Sinoto 1986). One historic property was identified, a remnant of the OR&L Railroad right-of-way (SIHP 50-80-12-9714). No traditional cultural resources were identified as the entire area was filled in and graded. No further archaeological work was recommended.

An archaeological evaluation was completed on previously collected environmental samples (Dega and O'Rourke 2003). No archaeological materials were identified but stratigraphic sequences were observed that represented historic period fill events likely associated with 20th century military use of the area. This evaluation also mentioned an inadvertent discovery of human remains. The remains were identified at the Neal Blaisdell Park in 2000. They consisted of incomplete sets of two individuals within an associated cultural layer (SIHP 50-80-12-6383).

Another inadvertent burial discovery was made at Neal Blaisdell Park where three human skulls and other human skeletal remains were identified (Shikina 2011). Naval Facilities Engineering command archaeologists conducted the preliminary investigations and found that the skeletal remains were likely from a traditional Hawaiian or historic-era burial site located inland approximately 10–14 ft. from the shoreline.

Table 2. Previous Archaeological Studies in the Vicinity of the Project Area

Author/Year	Location	Type of Study	Results
McAllister 1933	Island-Wide	Archaeological Survey	Recorded five sites in the project vicinity: Loko Pa'auu (Site 108), Loko Opu (Site 109), Kukū ihu (Site 110), Loko Pa'akea (Site 111), and Naulu-a-Māhele Heiau (Site 112).
Sinoto 1986	Kalaauo	Archaeological Survey	Recorded SIHP 50-80-12-9714, an OR&L railroad remnant.
Dega and O'Rourke 2003	Neal Blaisdell Park	Archaeological Evaluation Report	Noted SIHP 50-80-12-6383, burials in a cultural layer, as a previous finding.
Shikina 2001	Neal Blaisdell Park	Burial Report	Identified three human burials. No SIHP numbers were assigned.
Sroat et al. 2012	Kamehameha Hwy.	Archaeological Inventory Survey	Documented SIHP 50-80-09-7150, a lo'i deposit.
Sroat et al. 2013	Kamehameha Hwy.	Supplemental Archaeological Inventory Survey	No historic properties were identified.
Filimoehala and Allen 2014	Waiuu	Archaeological Monitoring	Recorded SIHP 50-80-09-7569, a lo'i deposit; -7570, a fire pit; and -7571, two charcoal concentrations.
Filimoehala and Reith 2014	Waiuu	Archaeological Inventory Survey	No historic properties were identified; a single glass bottle was found.
McElroy and Medina 2019	Current Project Area	Literature Review and Field Inspection	Noted that a variety of cultural and historical resources potentially may be found within the project area, although nothing was observed during the field inspection.
McElroy et al. 2020	Current Project Area	Cultural Impact Assessment	Community members generally agreed that previous development has affected the area. They shared concerns and recommendations for the project.

An archaeological inventory survey was conducted in support of the Construction Phase 2 of the proposed Honolulu High Capacity Transit Corridor (Sroat et al. 2012). One historic property was identified within Test Trench E7. This is SIHP 50-80-09-7150, consisting of two cultural deposits containing charcoal and decomposing organic material consistent with former lo'i soils. The deposits were identified within LCA 9385, which was historically documented as containing lo'i. Radiocarbon dating of charcoal samples recovered from stratum IIIa yielded two date ranges of AD 1430-1530 and 1540-1635. Stratum IIIb yielded a date range of AD 1414-1480. The trenches located closest to the current project area were E12, E13, E14, E15, PRS-1, PRS-2, and PRS-3. No historic properties were identified in these trenches. A supplemental AIS was conducted in support of the Pearlridge Station for Phase 2 of the proposed Honolulu High Capacity Transit Corridor (Sroat et al. 2013). An additional three test trenches were excavated, PRS-4, -5, and -6. PRS-6 was situated on the eastern end of the current project area. Stratigraphy consisted of natural sediments below several layers of fill. No remnants of SIHP 7150 or any other historic property were identified within any of the three trenches.

Archaeological monitoring was completed in support of the Waiuu Sewer Rehabilitation Project that identified a total of three archaeological sites (Filimoehala and Allen 2014). SIHP 50-80-09-7569 is a subsurface charcoal-rich deposit associated with traditional Hawaiian agricultural practices. Radiocarbon dating yielded two date ranges of AD 1518-1593 and 1618-1664. SIHP 50-80-09-

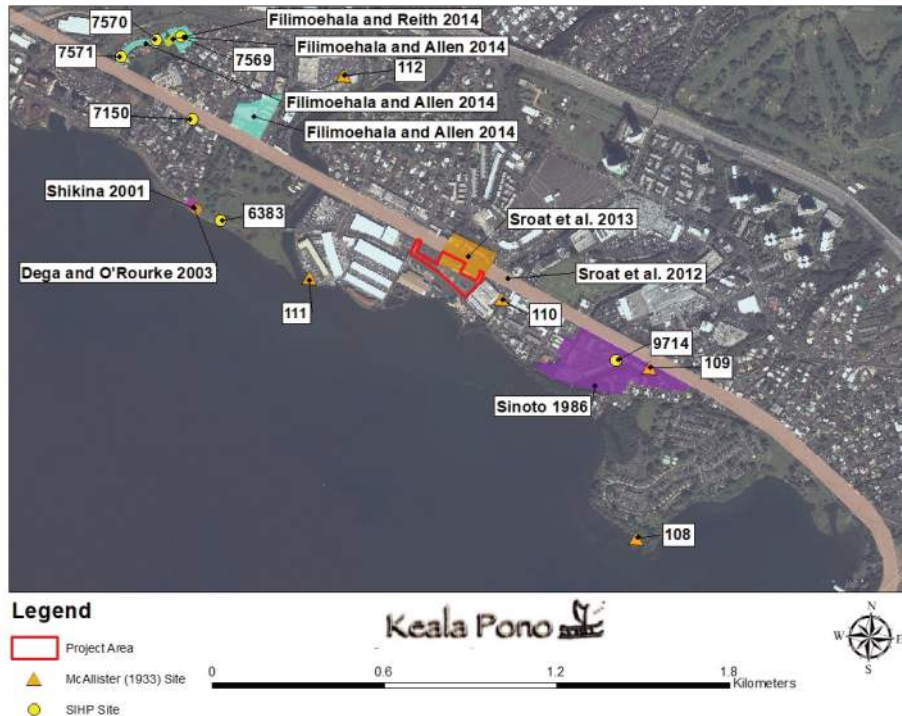


Figure 8. Previous archaeological studies in the vicinity of the project area.

7570 is a fire pit feature of an unknown age, and SHP 50-80-09-7571 consisted of two charcoal concentrations (Features 1 and 2). Feature 1 contained post-contact material and Feature 2 was thought to date from the late pre-contact to early post-contact era.

An archaeological inventory survey was conducted at 98-113 Kaulike Drive in support of a new house construction (Filimohala and Rieth 2014). A surface survey and three test trenches were completed, but aside from one early- to mid-19th century-era glass bottle, no historic properties were identified. Because there were no findings, the report was presented as an archaeological assessment.

A literature review and field inspection were conducted for the current project (McElroy and Medina 2019). Archival research determined that a variety of cultural and historical resources potentially may be found within the project area, such as remains of agricultural activity (pondfield deposits and other features associated with lo'i, as well as rice paddies and/or sugarcane fields and infrastructure), remnants of past habitation (cultural layers, fire pits, remains associated with the LCAs in the area), human burials, and vestiges of the OR&L railroad. However, no surface cultural resources were observed during the field inspection.

A cultural impact assessment for the current project interviewed three community members (McElroy et al. 2020). The interviewees generally agreed that previous development has affected the area, although they did share concerns and recommendations for the project. Concerns include possible increases in traffic during construction, the potential for negative impact of construction to nearby small businesses, safety concerns for users of the bus terminal, and possible effects on the natural environment. It was recommended to consult with the community and local cultural practitioners in regard to naming the facility and to find out additional information about known sites and the location of undocumented sites that may be located in the area.

Summary, Anticipated Finds, and Research Questions

In pre-contact times, the Waialeale region was an area utilized for traditional agriculture. Kalo was grown in the marshy coastal lowlands and along major waterways. Three significant loko (fishponds) were in the project vicinity: Loko Pa'iaiu, Loko Opu, and Loko Pa'akea. However, these fishponds have since been filled in, and the kalo lands were developed with modern roads and buildings. Naulu-a-Maitea Heiau was in the area, though it was reported destroyed by 1906 by McAlister in 1933.

In the post-contact era, sugar cultivation was a driving force for the economy, and cane fields, mills, ditches, the OR&L railroad, and other infrastructure forever changed the landscape. The rice industry also became a profitable endeavor, particularly for Chinese immigrants looking to make their way in Hawaii. According to historic maps, the vicinity surrounding the current project area was not rice cultivation until at least the late-19th century. Not much remains of the sugar industry today, but remnants of the OR&L railroad can still be found.

Previous archaeological studies were conducted to the north and east of the current project, and lo'i deposits (SHP -7150) were identified to the west of the project area. The closest known archaeological site to the current project lies approximately 100 m to the east. It consists of Kuki'iahu (Site 110), which was the home of chiefess Kalaimaui and the site of a famous battle. Other studies in the vicinity have identified a variety of historic properties, including an OR&L railroad remnant, another lo'i deposit, a fire pit, and charcoal concentrations. Human burials were discovered at Neal Blaisdell Park associated with a cultural layer.

The entire subject property has undergone extensive previous disturbance, and it is not likely that any surface archaeological features remain. Nevertheless, subsurface archaeological materials or deposits may be encountered during construction, as evidenced by the subsurface finds of previous

studies in the vicinity. Archaeological features that might be found in the study area include remains of agricultural activity (pondfield deposits and other features associated with lo'i, as well as rice paddies and/or sugarcane fields and infrastructure), remnants of past habitation (cultural layers, fire pits, remains associated with the LCAs in the area), human burials, and vestiges of the OR&L railroad.

Research questions will broadly address the identification of the above archaeological resources and may become more narrowly focused based on the kinds of resources that are found. Initial research questions are as follows:

1. Are there subsurface cultural deposits or evidence of human burials within the survey area?
Where are they located and what time period do they belong to?
2. Are there any vestiges of historic-era use of the project area, particularly subsurface remnants of the OR&L railroad?

Once these basic questions are answered, additional research questions may be developed in consultation with SHPD, tailored to the specific kinds of archaeological resources that occur in the project area.

METHODS

Pedestrian survey and subsurface testing were carried out on January 21, 2021 by Jeffrey Lapinad and Max Pinsonneault, MA, Windy McElroy, PhD served as Principal Investigator, conducting a site visit and overseeing all aspects of the project.

For the pedestrian survey, the ground surface was visually inspected for surface archaeological remains, with transects walked for the entire area. Archaeologists were spaced approximately 2 m apart. Of the 1.36 ha (3.36 ac. survey area, 100% was covered on foot. Most of the study area is open and flat with excellent visibility, and almost the entire project area has been disturbed by modern development. Nevertheless, there are scattered pockets of landscaping or invasive plants within the open areas and these were carefully inspected.

Test trenches (TR) were excavated in six locations throughout the project area. The excavation strategy was approved by SHPD beforehand via email but modified because two of the trenches could not be accessed. The SHPD-approved testing strategy called for eight trenches to be excavated in the project area: one trench on TMK: (1) 9-8-009-015; four trenches on TMK: (1) 9-8-009-005; and two trenches on the adjacent Best Buy parcel, TMK: (1) 9-8-009-011. The latter two trenches were not excavated because the Best Buy parcel could not be accessed. Excavation was accomplished with a mini-excavator (Figure 9). Vertical provenience was measured from the surface, and trenches were excavated to as deep as safely possible. Profiles were drawn and photographed, and soils were described using the USDA *Soil Survey Manual* (Soil Science Division Staff 2017), Munsell soil color charts (Munsell 2010), and a sediment texture flowchart (Thien 1979). Trench locations were recorded with a 3 m-accurate Garmin GPSmap 66st, and all trenches were backfilled after excavation.

The scale in all field photographs is marked in 10 cm increments. The north arrow on all maps points to magnetic north. Throughout this report rock sizes follow the conventions outlined in *Field Book for Describing and Sampling Soils*: Gravel <7 cm; Cobble 7–25 cm; Stone 25–60 cm; Boulder >60 cm (Schoenberger et al. 2002:2–35). No materials were collected and no laboratory analyses were conducted.



Figure 9. Excavation of TR 6. Orientation is to the east.

RESULTS

Pedestrian survey and subsurface testing were conducted in the 1.36 ha (3.36 ac.) project area. No archaeological resources were found on the surface, and excavation of six trenches did not yield any evidence of subsurface archaeological deposits or features. Stratigraphy consisted of fill, and a buried asphalt pavement was encountered in several of the trenches. Modern construction debris was noted in all six trenches, indicating prior disturbance.

Pedestrian Survey

The surface survey included 100% of the 1.36 ha (3.36 ac.) project area. No surface archaeological remains were observed within any part of the project area; any archaeological features that may have once been present are no longer there because of the extensive modern use of these lands (Figure 10). Nevertheless, there are scattered pockets of landscaping or invasive plants within the open areas and these were carefully inspected (e.g., Figure 11). Nothing of archaeological interest was found within these vegetated areas or elsewhere in the project area.

Subsurface Testing

The six test units were placed within the project area to determine the presence or absence of subsurface archaeological deposits or material (Figure 12 and Table 3). No archaeological resources were found in any of the test units, and stratigraphy consisted of fill, sometimes including a buried asphalt pavement. Details of the six excavations are as follows:

TR 1 was located on the east side of the project area (see Figure 12). The trench measured 8.1 x 7 m and was excavated to 155 cm below surface (cmbs). Stratigraphy consisted of fill and a buried asphalt pavement (Figures 13 and 14, see Table 3). Modern construction debris was noted in the uppermost layer. No archaeological deposits or materials were identified.

TR 2 was placed on the southeast side of the project area (see Figure 12). The trench measured 8.0 x 7 m and was excavated to 200 cmbs. Stratigraphy consisted of fill and a buried asphalt pavement (Figures 15 and 16, see Table 3). Modern construction debris was noted in three of the fill layers. A concrete utility jacket was encountered in Layer III. No archaeological deposits or material were identified.

TR 3 was excavated near the south property line of the project area (see Figure 12). The trench measured 9.1 x 7 m and extended to 203 cmbs. Stratigraphy consisted entirely of fill, with modern construction debris noted in two of the layers and a concrete pylon encountered in the lowest layer (Figures 17 and 18, see Table 3). No archaeological deposits or material were identified.

TR 4 was located on the north side of the project area, just in front of the HART field office (see Figure 12). The trench measured 7.5 x 7 m and was excavated to 212 cmbs. Stratigraphy consisted of the current paved road, fill, and a buried asphalt pavement with fill below it (Figures 19 and 20, see Table 3). Modern construction debris was noted in the uppermost fill layer. A concrete utility jacket was encountered in Layer II. No archaeological deposits or materials were identified.

TR 5 was placed in the central portion of the project area (see Figure 12). The trench measured 7.4 x 7 m and was excavated to 165 cmbs. Stratigraphy consisted entirely of fill (Figures 21 and 22, see Table 3). Modern construction debris was noted in the uppermost fill layers. No archaeological deposits or material were identified.



Figure 10. Area makai of the rail entry station, currently used for construction support; orientation is to the west.



Figure 11. Construction laydown area southwest of the HART field office; orientation is to the southwest. Note the patch of invasive vegetation on the right.

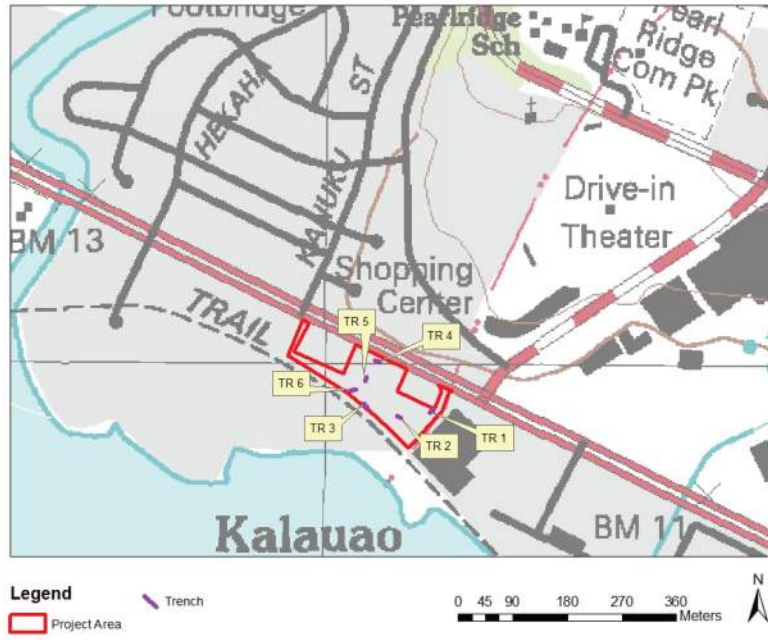


Figure 12. Trench locations on a topographic map (USGS 1997).

Table 3. (Continued)

Trench	Layer	Depth (cmts)	Munsell	Color	Texture, Moisture	Stickiness	Plasticity	Roots	Rocks	Boundary	Contents	Interpretation
TR 3	I	0-30	10YR4/4	Dark yellowish brown	Sandy clay loam, dry	Moderately sticky	Moderately plastic	10%	5%	Smooth, clear	Modern construction debris	Fill
	II	27-35	10YR8/3	Very pale brown	Sandy clay, dry	Very sticky	Very plastic	N/A	N/A	Smooth, diffuse	Coral	Fill
	III	34-70	10YR5/4	Yellowish brown	Sandy clay, wet	Very sticky	Very plastic	0%	5%	Smooth, abrupt	Modern construction debris	Fill
	IV	68-203+	2.5YR3/6	Dark red	Sandy clay, wet	Very sticky	Very plastic	0%	30%	Base of excavation	Large rocks, cement pylon	Fill
TR 4	I	0-5	N/A	N/A	Asphalt, n/a	N/A	N/A	0%	0%	Smooth, very abrupt	None	Current road
	II	5-44	10YR3/3	Dark brown	Sandy clay loam, dry	Moderately sticky	Moderately plastic	0%	20%	Smooth, very abrupt	Utility jacket, modern construction debris	Fill
	III	42-50	10YR8/3	Very pale brown	Sandy clay, dry	Very sticky	Very plastic	0%	80%	Smooth, very abrupt	Coral	Fill
	IV	50-54	N/A	N/A	Asphalt, n/a	N/A	N/A	0%	0%	Smooth, very abrupt	None	Buried pavement
	V	54-212+	10YR3/3	Dark brown	Sandy clay loam, dry	Moderately sticky	Moderately plastic	0%	20%	Base of excavation	None	Fill

Table 3. Soil Descriptions

Trench	Layer	Depth (cmts)	Munsell	Color	Texture, Moisture	Stickiness	Plasticity	Roots	Rocks	Boundary	Contents	Interpretation
TR 1	I	0-14	10YR4/4	Dark yellowish brown	Sandy clay loam, dry	Moderately sticky	Moderately plastic	0%	20%	Smooth, gradual	Modern construction debris	Fill
	II	12-34	2.5YR3/6	Dark red	Sandy clay, dry	Very sticky	Very plastic	0%	30%	Smooth, abrupt	None	Fill
	III	31-66	10YR6/1	Gray	Sandy clay, dry	Very sticky	Very plastic	0%	50%	Smooth, gradual	None	Fill
	IV	62-87	10YR2/1	Black	Asphalt, n/a	N/A	N/A	N/A	N/A	Smooth, abrupt	None	Buried pavement
	V	86-155+	10YR3/3	Dark brown	Sandy clay, wet	Very sticky	Very plastic	0%	5%	Base of excavation	None	Fill
TR 2	I	0-10	10YR4/4	Dark yellowish brown	Sandy clay loam, dry	Moderately sticky	Moderately plastic	0%	20%	Smooth, clear	Modern construction debris	Fill
	II	10-15	10YR2/1	Black	Asphalt, n/a	N/A	N/A	N/A	N/A	Smooth, abrupt	None	Buried pavement
	III	14-30	10YR5/4	Yellowish brown	Sandy clay, wet	Very sticky	Very plastic	0%	5%	Smooth, clear	Utility jacket	Fill
	IV	26-120	2.5YR3/6	Dark red	Sandy clay, wet	Very sticky	Very plastic	0%	40%	Smooth, clear	Modern construction debris	Fill
	V	115-200+	10YR3/3	Dark brown	Sandy clay loam, wet	Moderately sticky	Moderately plastic	0%	20%	Base of excavation	Modern construction debris	Fill

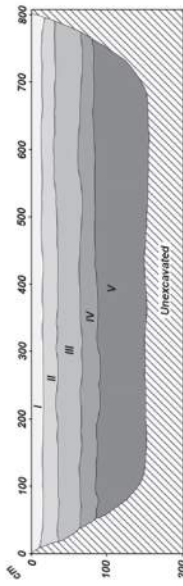


Figure 13. TR 1 east face profile drawing.



Figure 14. TR 1 east face photo.

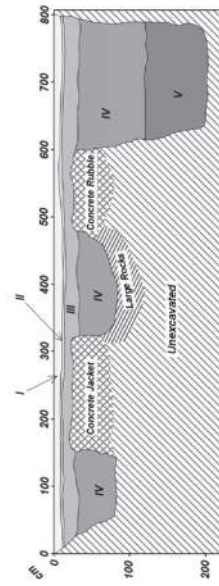


Figure 15. TR 2 north face profile drawing.

Table 3. (Continued)

Trench	Layer	Depth (cmbs)	Munsell	Color	Texture, Moisture	Stickiness	Plasticity	Roots	Rocks	Boundary	Contents	Interpretation
TR 5	Ia	0-12	2.5YR3/6	Dark red	Sandy clay, dry	Very sticky	Very plastic	50%	10%	Smooth, diffuse	Modern construction debris	Fill
	Ib	12-30	2.5YR3/6	Dark red	Sandy clay, wet	Very sticky	Very plastic	0%	25%	Smooth, clear	Modern construction debris	Fill
	II	30-165	10YR3/3	Dark brown	Sandy clay loam, wet	Moderately sticky	Moderately plastic	0%	15%	Base of excavation	None	Fill
TR 6	Ia	0-10	10YR3/3	Dark brown	Sandy clay loam, dry	Moderately sticky	Moderately plastic	20%	40%	Smooth, diffuse	Modern construction debris	Fill
	Ib	10-161+	10YR3/3	Dark brown	Sandy clay loam, wet	Moderately sticky	Moderately plastic	0%	40%	Base of excavation	None	Fill



Figure 16. TR 2 north face photo, east end of the trench.

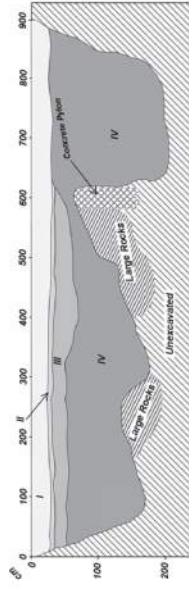


Figure 17. TR 3 north face profile drawing.



Figure 18. TR 3 north face photo.

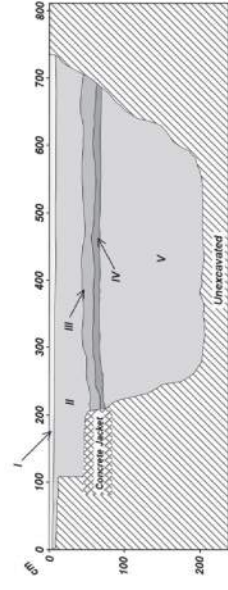


Figure 19. TR 4 south face profile drawing.



Figure 20. TR 4 south face photo.

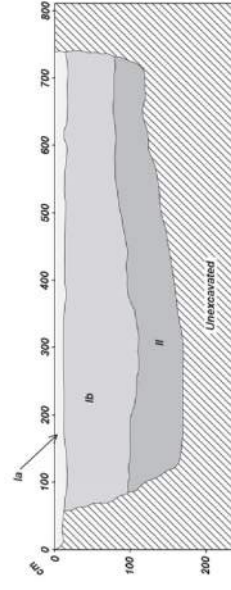


Figure 21. TR 5 east face profile drawing.



Figure 22. TR 5 east face photo.

TR 6 was excavated south side of the project area, approximately 30 m west of TR 3 (see Figure 12). The trench measured 6.4 x .7 m and extended to 161 cms. Stratigraphy consisted entirely of fill (Figures 23 and 24; see Table 3). Modern construction debris was noted in the uppermost layer. No archaeological deposits or material were identified.

Summary of Findings

Pedestrian survey of 1.36 ha (3.36 ac.) on TMK: (1) 9-8-009:005 (por.), 014, 015, and 016 in Waimalu Ahupua'a yielded no findings. The project area has been heavily disturbed by modern use. Subsurface testing, consisting of six trenches, did not identify any subsurface cultural deposits or features. Stratigraphy consisted of fill, sometimes including a buried asphalt pavement. Modern construction debris was encountered in all of the trenches, indicating previous disturbance.

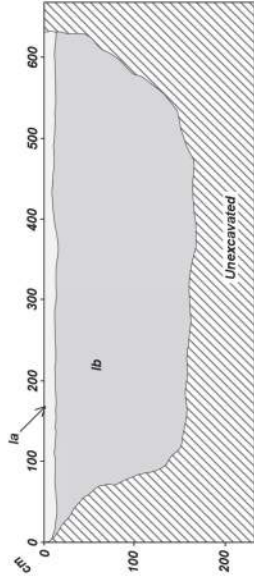


Figure 23. TR 6 southeast face profile drawing.



Figure 24. TR 6 southeast face photo.

SUMMARY AND RECOMMENDATIONS

An archaeological inventory survey was conducted on TMK: (1) 9-8-009:005 (por.), 014, 015, and 016 in Waialeale Ahupua'a, Ewa District, on the island of Oahu, where a bus transit center is proposed. The archaeological work included pedestrian survey that covered 100% of the 1.36 ha (3.36 ac.) project area, as well as test excavations consisting of six trenches.

No surface archaeological remains were found during pedestrian survey of the project area. The entire area has been disturbed by modern activity. Although pockets of vegetated areas remain on the property, nothing of archaeological interest was identified. Likewise, subsurface testing did not yield any evidence of subsurface archaeological features or deposits. Modern construction debris was encountered in all six trenches, indicating prior disturbance.

Due to negative findings, the AIS results are presented as an archaeological assessment per HAR §13-275-5(b)(5)(A). No further work is recommended.

GLOSSARY

ahupua'a	Traditional Hawaiian land division usually extending from the uplands to the sea.
'aiea	The tree or shrub <i>Nothocestrum</i> , one species of which was used for fire-making and thatching poles.
ali'i	Chief, chiefess, monarch.
'āpana	Piece, slice, section, part, land segment, lot, district.
'aumakua	Family or personal gods. The plural form of the word is 'aumākua.
'awa	The shrub <i>Piper methysicum</i> , or kava, the root of which was used as a ceremonial drink throughout the Pacific.
'ewa	Place name west of Honolulu, used as a directional term.
heiau	Place of worship and ritual in traditional Hawai'i.
hui	A club, association, society, company, or partnership; to join, or combine.
iwi	Bone.
kahuna	An expert in any profession, often referring to a priest, sorcerer, or magician.
kalo	The Polynesian-introduced <i>Colocasia esculenta</i> , or taro, the staple of the traditional Hawaiian diet.
kama'āina	Native-born.
kanaka	Human, person, man, Hawaiian.
koa haole	The small tree <i>Leucaena glauca</i> , historically-introduced to Hawai'i.
konohiki	The overseer of an ahupua'a ranked below a chief; land or fishing rights under control of the konohiki; such rights are sometimes called konohiki rights.
kula	Plain, field, open country, pasture, land with no water rights.
kuleana	Right, title, property, portion, responsibility, jurisdiction, authority, interest, claim, ownership.
lo'i, lo'i kalo	An irrigated terrace or set of terraces for the cultivation of taro.
loko, loko i'a	Pond, lake, pool, fishpond.
Māhele	The 1848 division of land.
mat'a	The banana, or <i>Musa</i> sp., whose fruit was eaten and leaves used traditionally as a wrapping for cooking food in earth ovens.
mākahā	A fish pond sluice gate.
makai	Toward the sea.
māmaki	<i>Pipturus</i> spp., a small native tree. Fiber from its bark was used to make a kind of coarse tapa. Sometimes spelled mamake in old texts.
mauka	Inland, upland, toward the mountain.
mele	Song, chant, or poem.
mele inoa	Name chant, composed to honor someone.
moku	District, island.

mo'o Lizard, dragon, water spirit.

mo'olelo A story, myth, history, tradition, legend, or record.

'olelo no'ea Proverb, wise saying, traditional saying.

oli Chant.

olona The native plant *Toucharidia latifolia*, traditionally used for making cordage.

pipi *Pinctada radiata*, the Hawaiian Pearl Oyster. In songs this is referred to as the i'a hāmau leo o 'Ewa, or 'Ewa's silent sea creature, as it was believed that speaking would cause a breeze to ripple the ocean and scare the pipi.

poi A staple of traditional Hawai'i, made of cooked and pounded taro mixed with water to form a paste.

post-contact After A.D. 1778 and the first written records of the Hawaiian Islands made by Captain James Cook and his crew.

pre-contact Prior to A.D. 1778 and the first written records of the Hawaiian Islands made by Captain James Cook and his crew.

uhi The yam *Dioscorea alata*, commonly grown for food.

'ulu The Polynesian-introduced tree *Artocarpus altilis*, or breadfruit.

wao A general term for inland areas, usually forested and uninhabited.

wauke The paper mulberry, or *Broussonetia papyrifera*, which was made into tapa cloth in traditional Hawai'i.

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Appendix C

**Preliminary Engineering Report for
Pearlridge Bus Transit Center and
Transit Oriented Development**

PRELIMINARY ENGINEERING REPORT

for

Pearlridge Bus Transit Center and Transit Oriented
Development

January 2021

Prepared for:
City and County of Honolulu
Department of Transportation Services
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Table 2 – Post Development Hydrologic Conditions

LIST OF ACRYMNS

A	Area	GPD	Gallons per day
AC	Asphalt Concrete	GPM	Gallons per minute
BMP	Best Management Practices	HART	Honolulu Rail Transit
BWS	Honolulu, Board of Water Supply	HECO	Hawaiian Electric Company
BMX-3	Business Mixed Use – 3	L	Length
C	Coefficient Factor	LID	Low Impact Design
CADD	Computer Aided Design Drawing	psi	Pounds per Square Inch Unit
CCH	City and County of Honolulu	Q	flow rate in cubic feet per sec
cfs	cubic feet per second	SCA	Sewer Connection Application
DPP	Department of Planning and Permitting	SU	Single Unit Trucks Design Vehicle
DTS	Department of Transportation Services	Tc	Time of Concentration (minutes)
DFIRM	Digital Flood Insurance Rate Map	TOD	Transit Oriented Development
FEMA	Federal Emergency Management	TMK	Tax Map Key
	Agency	UPC	Uniform Plumbing Code
FH	Fire Hydrant	WWB	Wastewater Branch
Gal	Gallons		
GIS	Geographic Information System		

1 INTRODUCTION

1.1 Overview

The Pearlridge Bus Transit Center project, under the jurisdiction of the City and County of Honolulu Department of Transportation Services (DTS), will support bus operations around the City's Pearlridge Transit Oriented Development (TOD) area adjacent to the HART Kalauao Rail Station. The station is located in Aiea, Oahu, near the Pearlridge Shopping Center. The bus transit center will allow rail passengers to make connections to their final destinations via bus routes.

Refer to Figure 1 - Vicinity Map

1.2 Purpose of Report

The purpose of this report is to assess the existing site infrastructure and determine the extent of infrastructure improvements necessary to support the proposed development of the Pearlridge Bus Transit Center.

1.3 Existing Conditions

The project site consists of five Tax Map Keys (TMK) parcels identified as (1) 9-8-009: 005, por. 011, 014, 015 and 016, for a total project area of approximately 3.30 acres.

TMK's (1)9-8-009:005, 014, 015 and 016 consist of a former car dealership building and asphalt parking lot, both of which are occupied by HART and the Kalauao Rail Station construction team. These parcels are owned by the City and County of Honolulu and consist of the majority of the improvements for the Pearlridge Bus Transit Center project.

TMK (1) 9-8-009: 011 consists of land owned by Healani Land Company Inc., used for the Best Buy retail store parking lot. The project proposed to obtain an access easement through this TMK to allow for buses to utilize a portion of the paved area and the signalized intersection at Kamehameha Highway and Kanuku Street.

All parcels are zoned as Business Mixed Use – 3 (BMX-3).

The adjacent Kalauao Rail Station is located on TMK (1) 9-8-009:017 and is not included in this Preliminary Engineering Report.

Refer to Figure 2 for the Existing Conditions Map

1.4 Soils/Topography

The site is generally flat. The parcels located along Kamehameha Highway (TMK's 9-8-009:014, 015, and 016) generally slope towards Kamehameha Highway, while the southern portions of the site, including TMK 9-8-009: 005 and por. 011, slope towards the Pearl Harbor Bike Path. The elevations generally range from 17' at the mauka side of the site to about 5' at the makai boundary of the site.

The project site is situated on the coastal plain of Pearl Harbor, south of the flows of Kō'olau Range. The site consists of three types of soils: Honouliuli clay (0-2% slopes) (HxA), Pearl Harbor Clay(Ph), and Keeau clay(0-2% slopes) (KmbA). The north and east portions soils are primarily compromised of HxA, and Ph is the soil type in the southern area.

Refer to Figure 3 for the Soils Map

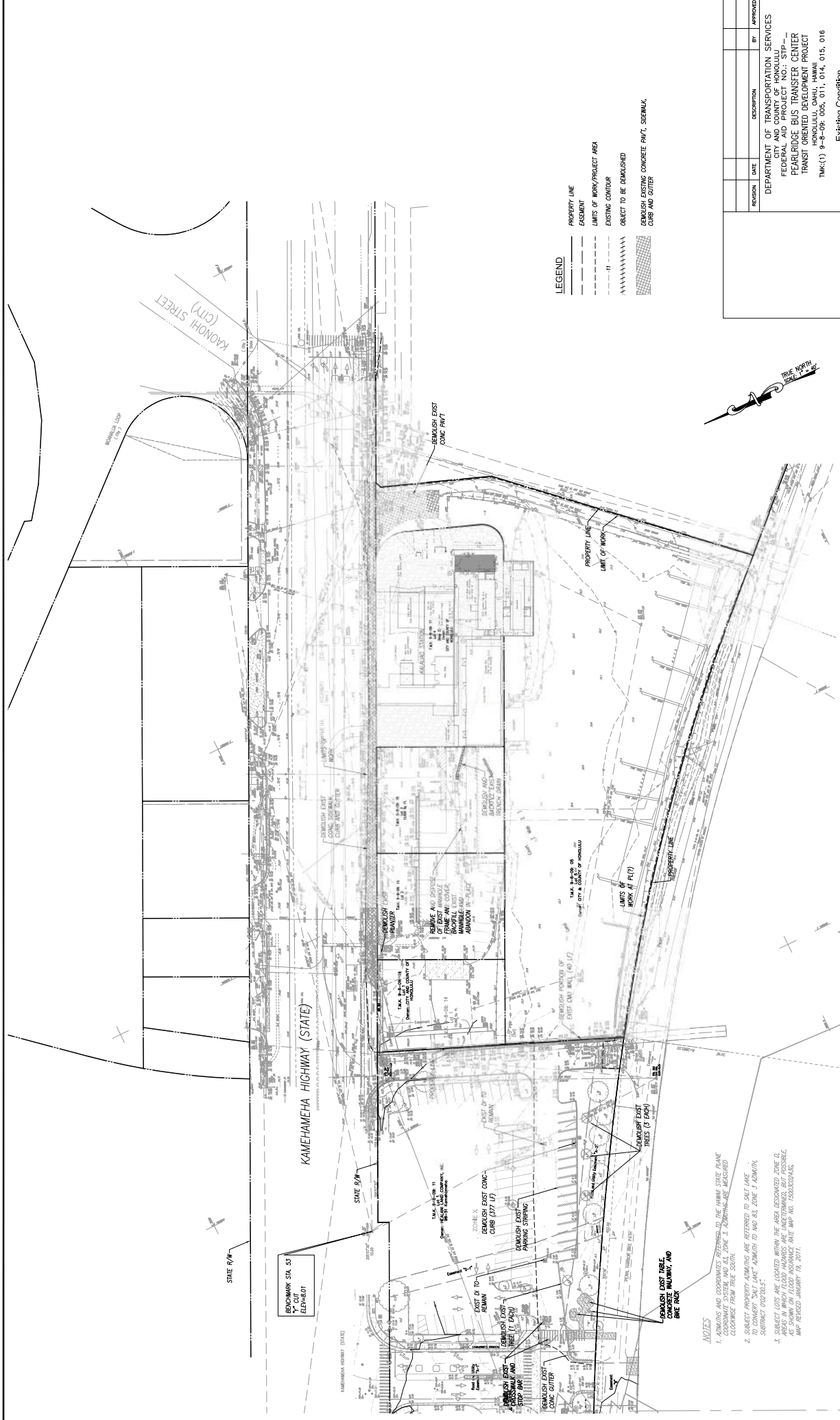
1.5 Flood Hazard

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) map, the project area is located in Zone "X", an area determined to be outside the 500-year floodplain parcel subject to any flood regulations. The project site is not located within a FEMA Special Flood Hazard Area (SFHA).

Refer to Figure 4 for the Flood Hazard Map from FEMA.

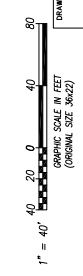


Figure 1 – Vicinity Map



LEGEND

- PROPERTY LINE
- EASEMENT
- LIMITS OF WORK/PROJECT AREA
- EXISTING CONTOUR
- OBJECT TO BE DEMOLISHED
- DEMOLISH EXISTING CONCRETE PWT, SIDEWALK, CURB AND GUTTER



REVISION	DATE	DESCRIPTION	BY	APPROVED
DEPARTMENT OF TRANSPORTATION SERVICES FEDERAL AID PROJECT NO.: STP- PEARLRIIDGE BUS TRANSFER CENTER TRANSIT ORIENTED DEVELOPMENT PROJECT HONOLULU, OAHU, HAWAII TMC(1) 9-9-09: 006, 011, 014, 015, 016				
Existing Condition STAFF DATE: JUNE 2020 AS NOTED				
APPROVED: P.T.M. APPROVED:				
PROJECT: PEARLRIIDGE SHEET NO.:				

FIGURE 2: EXISTING CONDITION AND DEMOLITION PLAN
 SCALE: 1" = 40'

- NOTES**
1. ADJUSTING AND COORDINATES REFERRED TO, THE HAWAII STATE PLANE COORDINATE SYSTEM, AND S.A. ZONE 1. ZONING ARE MEASURED COORDINATE FROM THE SOURCE.
 2. SUBJECT PROPERTY ADJUSTING ARE REFERRED TO, DIST. 1405, SUBTRACT, 0127045.
 3. SUBJECT LOTS ARE LOCATED WITHIN THE AREA DESIGNATED ZONE D. AREAS IN WHICH FLOOD HAZARDS ARE UNDETERMINED, BUT POSSIBLE, AS SHOWN ON FLOOD INSURANCE RATE MAP NO. 1503020240C, ARE REFERRED JANUARY 14, 2011.

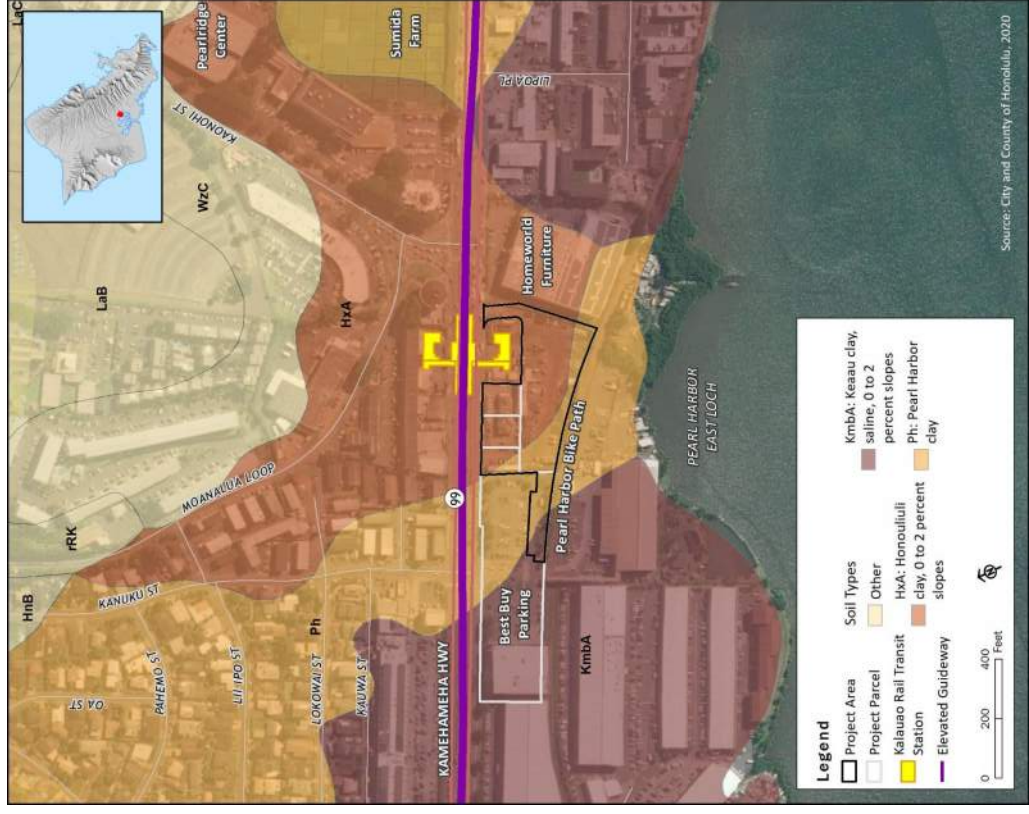


Figure 3 – Soils Map

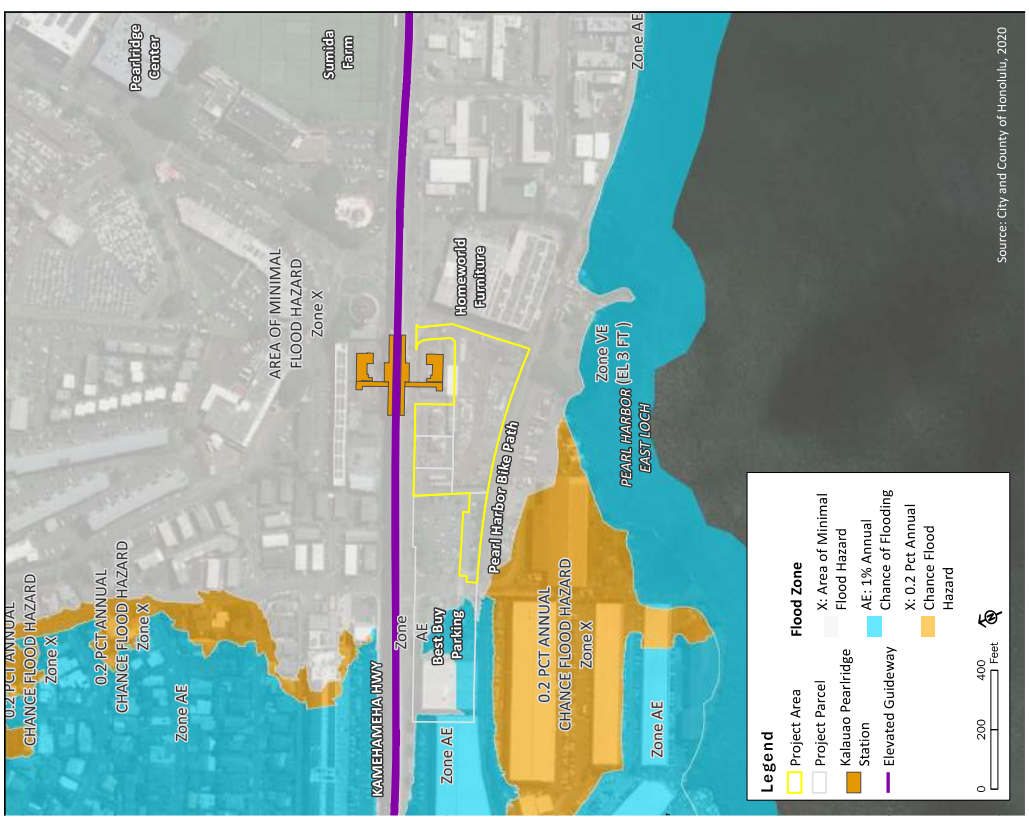


Figure 4 - Flood Map

2 EXISTING INFRASTRUCTURE

2.1 Roadways

Kamehameha Highway (State Route 99) is the primary roadway that serves the Project site. The right-of-way (ROW) is owned and maintained by the State Department of Transportation (HDOT) Highways Division. Surrounding the Project area, the ROW is approximately 90-feet-wide with three lanes in each direction.

DTS is seeking an assess easement through a portion of the Best Buy parking lot (TMK 9-8-009; por. 011) at the Kanuku Street intersection at Kamehameha Highway to provide an additional bus entry to the proposed transit center utilizing a signalized intersection with left turn pocket. Kanuku Street, on the mauka side of Kamehameha Highway, is a City and County of Honolulu (City)-owned street with a ROW of approximately 30-foot-wide and one lane in each direction.

Kaonohi Street is another major City-owned street in the vicinity of the project site but is not anticipated to be impacted by this project.

2.2 Access and Pavements

Access to the site is currently limited as it is occupied by HART and its rail station construction team. Driveway aprons from Kamehameha Highway allow vehicular access into the project site along the project's frontage. A small sidewalk is located within the highway ROW that allows pedestrians to walk along the project's frontage. The current sidewalk is in poor condition with damaged aprons interspersed along the frontage.

A large asphalt driveway is located to the Ewa end of the project site along Kamehameha Highway that appeared to be the primary access to the parking areas on property.

On-site, the existing building is located within asphalt paved surface parking lots. The site has been cleared but asphalt pavements, the buildings, and some sidewalks immediately around the buildings remain.

New sidewalks fronting the adjacent Kaluaao Rail Station will be constructed as part of the station construction contract.

2.3 Pearl Harbor Historic Trail and Bicycle Path

The Pearl Harbor Historic Trail and Bike Path is located on the makai side of the project site. The path is 5.2 miles long that serves as a pathway connecting from the Arizona Memorial and into Waipoo. The bike path is accessible from Kamehameha Highway through the Best Buy parking lot on TMK 9-8-009: 011 but is not publicly accessible through the project site. An access and utility easement however is located at the Diamond Head side of the project site, adjacent to the rail station, that connects from the Kamehameha Highway ROW to the bike path and appears to be for maintenance purposes.

The Pearl Harbor Historic Trail is located on Federal government property, but is maintained and operated by the City and County of Honolulu.

2.4 Wastewater Infrastructure

There appear to be two 6-inch sewer laterals serving TMK 9-8-009: 005 which covers a majority of the project site on the makai side. An existing 6-inch lateral is identified on the project's topographic survey, and is within Easement "A" that traverses TMK 9-8-009: 005, 011, and 014

in the makai to mauka direction. This lateral is not identified on the City's sewer database and may be a private line. However, it appears to connect to a 10-inch sewer line within the easement that extends to the City's 42-inch sewer line running parallel to and makai of the Pearl Harbor Historic Trail, according to City and County of Honolulu, Wastewater Branch records. The lateral is approximately 6' deep at the makai side of the site.

Another 6-inch lateral is located on the Diamond Head side of the site along the property's boundary with the Homeworld Furniture store lot. It appears to be connected directly into a manhole off of the City's aforementioned 42-inch main line, per City sewer database records.

Both laterals are served by the 42-inch main that runs makai of the project site. This existing sewer line continues in the Ewa direction and eventually discharges to the Honouliuli Wastewater Treatment Plant.

2.5 Existing Building Structures and Chain Link Fence

There are two existing building structures, formerly consisting of car rental company office spaces, located along Kamehameha Highway. The buildings, sidewalks and driveways are abandoned and will be demolished.

There is an existing barbed wire chain link fence along the perimeter of the entire property. The south eastern portion of the fence that borders the Pearl Harbor Bike Path as well as the easement on the diamond head side of the project site will be demolished and replaced.

2.6 Water Infrastructure

Based on BWS Distribution Maps of the area, an 8-inch BWS water main is located within the Kamehameha Highway ROW along the project frontage. An existing 2-inch (TMK 9-8-009:016) and a 1-inch (TMK 9-8-009:005) BWS water meter serve the existing structures on-site. The 2-inch meter serving TMK 9-8-009:016 is located on a main BWS lateral that splits to serve the project site as well as the adjacent HART rail station (separate meter). These laterals are all served from the 8-inch main in Kamehameha Highway.

There is no service to TMK 9-8-008:015 and 014, though service previously existed to 014.

Two fire hydrants that are approximately 200 feet apart are located on the sidewalk along Kamehameha highway. Fire hydrant #L-03681 fronts TMK 9-8-009:015, while fire hydrant #L-01052 fronts TMK 9-8-009:017 (the Kaluaao Rail Station).

BWS was contacted to obtain the available flow and pressure in the 8-inch main in Kamehameha Highway. BWS reported that Hydrant #L-03681 has a static pressure of 112 psi, and a residual pressure of 20 psi at a flow rate of 3,700 gallons per minute; and Hydrant #L01052 has a static pressure of 113 psi and a residual pressure of 28 psi at a flow rate of 4,000 gallons per minute, based on modeled flow by the Board of Water Supply.

2.7 Drainage Infrastructure

Concrete curb and gutter, thru gutters and culverts and piping collect pavement runoff from the site. Refer to **Figure 5- Hydrologic Map- Existing Conditions**.

A roadside curb inlet catch basin captures stormwater from the gutter that flows towards the Diamond Head direction of Kamehameha Highway. Stormwater entering this catch basin comes from the Kamehameha Highway road pavement fronting the site, a portion of the on-site pavements and sidewalks within the right of way, shown as Basin E-1 within Figure 5.

Runoff from Basin E-2 and E-4, consisting of the majority of on-site pavements surrounding the existing structures and asphalt parking areas, is captured by a drain inlet that discharges towards an existing drywell and a drain inlet in the makai direction of Basin E-4, respectively.

Runoff generated from Basins E-3, consisting of the makai and Diamond Head asphalt paved areas of the site, sheet flows to the Pearl Harbor Bike Path and discharges towards drainage infrastructure along the pathway and Pearl Harbor.

Stormwater from Basin E-5, consisting of runoff generated in the adjacent Best Buy parking lot, discharges into two (2) existing drain inlets located within TMK 9-8-009:011. Runoff from Basin E-6 and E-8, consisting of landscaped area around the paved areas in the Best Buy parking lot, discharge towards drainage infrastructure along the pathway and Pearl Harbor. Lastly, stormwater from Basin E-7, consisting of landscaped areas, is collected in a drain inlet located within TMK 9-8-009:011. These inlets appear to be connected and discharged through a flowage easement that cuts through the Best Buy parking lot.

2.8 Electrical and Telecom Infrastructure

The existing electrical and telecom service in the area is provided by overhead power poles running along the frontage of Kamehameha Highway and along the rear of the site adjacent to the Pearl Harbor bike path.

HART/HECO will relocate the 138-kilovolt-conductors and 46-kilovolt lines on the project site to accommodate the installation of the rail guideway and Kalauao Rail Station. The locations of these new facilities are not anticipated to impact the project site.

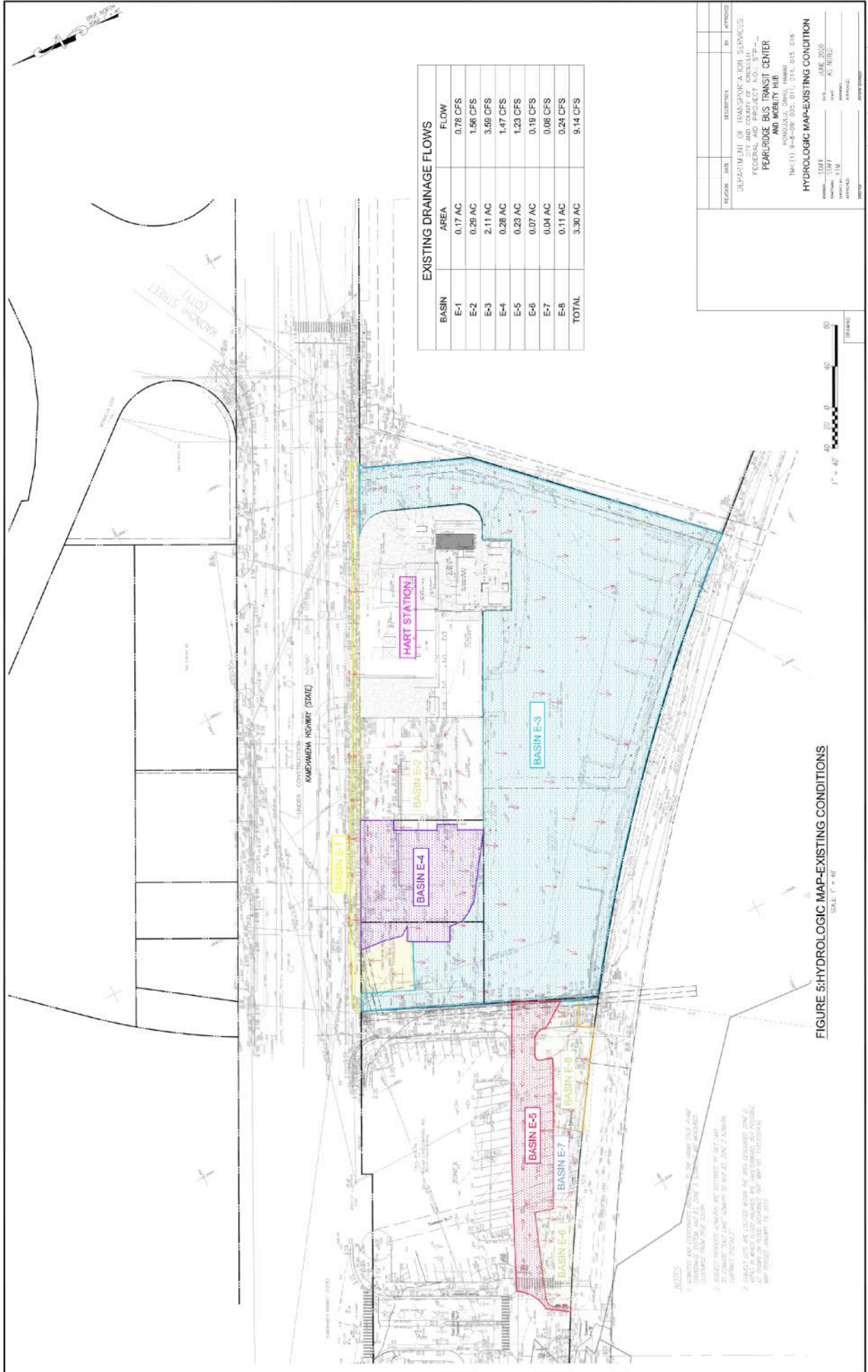
The overhead lines along the Pearl Harbor bike path have 12-kilovolt-conductors and will remain in place and are not anticipated to be impacted by the project or the rail construction.

Telecom service is available in the area via overhead and underground infrastructure.

2.9 Gas Infrastructure

Based on the topographical survey, there appears to be an existing natural gas main located in Kamehameha Highway.

Additionally, a petroleum pipeline is located along the Pearl Harbor Historic Trail and bike path and follows the makai side of the project site. It does not appear the pipeline is located on the project property. Design of the project improvements will avoid all impacts to this petroleum pipeline infrastructure.



BASIN	AREA	FLOW
E-1	0.17 AC	0.78 CFS
E-2	0.26 AC	1.56 CFS
E-3	2.11 AC	3.59 CFS
E-4	0.28 AC	1.47 CFS
E-5	0.23 AC	1.23 CFS
E-6	0.07 AC	0.19 CFS
E-7	0.04 AC	0.08 CFS
E-8	0.11 AC	0.24 CFS
TOTAL	3.30 AC	9.14 CFS

REGION: DATE: DRAWN BY: APPROVED BY:

DEPARTMENT OF TRANSPORTATION SERVICES
 FEDERAL AID PROJECT NO. SP-
**PEAR-RIDGE BUS TRANSIT CENTER
 AND MOBILITY HUB**
 HONOLULU, HAWAII

NO. 11 9-8-09 055, 011, 016, 015, 016

HYDROLOGIC MAP-EXISTING CONDITION

DATE: JUNE 2020
 DRAWN BY: A.E. WELLS
 CHECKED BY: [blank]
 APPROVED BY: [blank]

FIGURE 5: HYDROLOGIC MAP-EXISTING CONDITIONS
 SCALE: 1" = 40'

NOTES:
 1. ALL WORK SHALL BE IN ACCORDANCE WITH THE HAWAIIAN WATER CONSERVATION ACT AND THE HAWAIIAN WATER POLLUTION CONTROL ACT.
 2. ALL WORK SHALL BE IN ACCORDANCE WITH THE HAWAIIAN WATER CONSERVATION ACT AND THE HAWAIIAN WATER POLLUTION CONTROL ACT.
 3. ALL WORK SHALL BE IN ACCORDANCE WITH THE HAWAIIAN WATER CONSERVATION ACT AND THE HAWAIIAN WATER POLLUTION CONTROL ACT.
 4. ALL WORK SHALL BE IN ACCORDANCE WITH THE HAWAIIAN WATER CONSERVATION ACT AND THE HAWAIIAN WATER POLLUTION CONTROL ACT.

3 PROPOSED INFRASTRUCTURE

3.1 Roadways

No major off-site improvements are anticipated to be required to public roadways. The existing signalized intersection at Kanuku Street will be utilized to enter the bus transit center for west-bound routes. Left turn pocket improvements may be required which will consist of lengthening the pocket or re-striping.

No improvements to Kaonohi Street are anticipated as the intersection will not be used for the Bus Transit center at this time.

Improvements to Kamehameha Highway will be limited to sidewalk reconstruction and new driveway aprons and curb return entrances into the site to accommodate the buses and handi-vans that will frequent the transit center.

3.2 Access and Pavements

Once constructed, bus and vehicular access to and from the site will be provided along Kamehameha Highway.

Bus-only ingress and egress will be located on the north and west end of the site utilizing the Kanuku Street intersection and two driveways off of Kamehameha Highway, fronting the transit center. DTS is seeking an easement through a portion of the Best Buy parking lot at the Kanuku Street and Kamehameha Highway intersection to provide an west-bound bus entry and exit to and from the property via the signalized intersection and left turn pocket at Kanuku Street.

Handi Van and vehicular traffic to the site, limited to Kiss and Ride patrons, will be located at the far northeast of the site, utilizing a new driveway apron off of Kamehameha Highway, located on the Diamond Head side of the new Kalaauo Rail Station. This access will lead to a Handi-van drop off area, consisting of two Handi van drop off spots eleven feet wide, as well as the Kiss and Ride drop off area, that terminates into a mini-roundabout to allow vehicles to turn around and exit back to Kamehameha Highway.

Bus maneuvering, including the bus stops and bus turnarounds are accommodated on site and within the Best Buy parking lot easement. Permanent bus parking will not be provided on the site as all buses will depart the station once their stops or drop-off and pickups are made. Some buses however, may wait temporarily at the station, for breaks and to provide spacing within the routes between buses.

Four electric bus charging stalls will be provided, and buses may remain parked in the charging stalls temporarily.

Public vehicle parking stalls for the rail station, bus transit facility, Pearl Harbor Historic Trail, or Best Buy are not provided for on the site and parking for those uses is not allowed.

Sidewalks and crosswalks will be provided throughout the Peartridge Bus Transit Station to allow pedestrians to safely move from the bus transit center to the Kalaauo Rail Station entrance along Kamehameha Highway, or transfer to other buses on site. Pedestrians may enter the Bus Transit Center through the public sidewalks and frontage along the Kamehameha Highway ROW.

Pavements on site will consist of asphalt concrete paving for vehicular areas and concrete pavements for bus pads and vehicular drop off areas. Sidewalks will consist of concrete, and curbs and gutters will be concrete.

Refer to Figure 6 & 7 - Site and Utility Plans 1 and 2

3.2.1 Proposed Fire Access and Water Supply

Design of the sites, structures, and fire access and water supply systems for the project will be based upon the State Fire Code: National Fire Protection Agency (NFPA) 1, Uniform Fire Code, dated 2012 and all additional amendments as part of the Hawaii Administrative Rules (HAR) Title 12, Subtitle 7, Chapter 45.2 with City and County of Honolulu amendments. Additional requirements are noted in the BWS Water System Standards, dated 2002. Based upon the above referenced standards, the following criteria should be met in terms of adequate fire access and water supplies:

- Road Width = Unobstructed 20 ft.
- Road Vertical Clearance = Unobstructed 13.5 ft.
- Surface = Capable supporting 73,000 lbs and constructed with an all-weather material.
- Turning Radius = 42 ft. minimum on outside front wheel, 28.4 ft. minimum on inside rear wheel.
- Dead Ends = Provide appropriate turnaround (cul-de-sac or hammerhead).
- Signage = Required for entire length of roadway.
- Provide an adequate fire water supply, capable of supplying the required fire flow as determined by BWS Water Standards, dated 2002.
- Provide a residual pressure of 20 psi for on-site hydrants.
- Hydrant spacing at 250 ft. (applied to private driveways).
- Fire Department Connections (FDCs) for sprinkler systems should be placed on the address side of the building and within 50 ft. of an adequate water supply / fire hydrant.
- Further coordination with the Honolulu Fire Department (HFD) will be required as the design progresses.

3.3 Bicycle Facilities

Short-term bicycle parking will be provided on site via bike racks at both the transit center and the Kalaauo Rail Station. This will allow riders to park their bikes for a short period of time while using the public transportation system.

A new public access to the Pearl Harbor Historic Trail and bicycle path will be provided at the Diamond Head side of the site, where the access and maintenance area to the bike path is currently provided (but is not public). The 10-foot wide multi-use path will connect from the sidewalk on Kamehameha Highway near the rail station entrance and the driveway entrance for the Handi-vans and Kiss and Ride, follow the drop off areas, and continue makai to connect to the Pearl Harbor trail. This will provide more direct access to the trail from the transit center along with a more pleasing bicycle experience.

Bicycle riders can continue to access the trail through the Best Buy parking lot access point near the Kanuku Street intersection with Kamehameha Highway.

3.4 New Building Structures and Site Controls

A new comfort station will be constructed to service the Peartridge Bus Transit Center, that will be available to use for bus riders and transit users. The Kalaauo Rail Station will also have restroom facilities but they are located behind the ticket-controlled areas.

Adjacent to the comfort station, a new bus operator office will be constructed to use as rest and break areas for the bus drivers or can be used by maintenance, repair, and security staff. The office will contain minimal features, but consist of air conditioning and a hand sink.

The site will be fenced along the makai, Ewa, and Diamond Head sides of the site. No fencing is anticipated along the Kamehameha Highway frontage to allow for an inviting feel. Security features will be installed to deter unwanted activities on-site, and site lighting will adequately address.

Gates will be installed along the Best Buy driveway entrance and the Handi-van and Kiss and Ride driveway entrance into the site to prohibit vehicles from entering via these two access points when the station is closed. The access to the Pearl Harbor Historic Trail will also be gated and closed when the facility is closed.

3.5 Proposed Wastewater Infrastructure

The new comfort station and office will require wastewater service. The project anticipates utilizing the 6-inch sewer lateral located at the Ewa end of the site closer to the Best Buy parking lot. A Sewer Connection Application (SCA) was submitted and approved by the Department of Planning and Permitting (DPP), Wastewater Branch (WWB) on June 30, 2020 (2020/SCA-0869).

Sewage generated by the office usage is anticipated to be minimal, consisting of several employees utilizing the space throughout the day's various shifts. Each employee is anticipated to generate 25 gallons per day of wastewater usage, per "full-time equivalent" (FTE).

The comfort station sewer generation is anticipated to be higher as well as more variable, as different amounts of riders during various peak times of the day and each day of the week are anticipated. However, the comfort station will consist of a limited amount of stalls and the generation of wastewater per day is not anticipated to have a significant impact to the City's municipal sewer system.

Refer to Figure 6 & 7 - Site and Utility Plans 1 and 2

3.6 Proposed Water Infrastructure

The Peartridge Bus Transit Center water service will be supplied by the Board of Water, from the 8-inch BWS main within Kamehameha Highway. A new water meter and water lateral may be installed from the BWS main, or an existing lateral may be utilized if sufficiently sized to service the comfort station and the office. A 1-inch to 2-inch meter is anticipated to be sufficient for usage, based on the peak flows and fixtures anticipated on-site. The exact sizing will be provided during design, but no impact is anticipated to the BWS water system as the existing uses on-site were likely similar in demand.

A new irrigation lateral and meter will be required to service the significant improvements to the site's landscaping. New landscaping will be installed in all areas surrounding the pavements, sidewalks, and bus stops, within the transit center to provide an aesthetically pleasing experience to transit riders. The irrigation demand for the landscaping is anticipated to be the largest demand, as landscaping will consist of nearly 1 acre of the site. Low Impact Development (LID) features such as rain gardens and biofiltration planters, utilizing drought-tolerant plants, will help to reduce irrigation demands but will still need irrigation water to maintain healthy plants.

It is estimated that the site will require around 5,500 gpd for irrigation needs, which is not anticipated to have an impact on the BWS systems in the area.

3.6.1 Proposed Fire Protection

There are two existing offsite fire hydrants located in the Kamehameha Highway right of way that provide fire protection to project site. Refer to Figure 6- Site and Utility Maps.

According to BWS Standards Table 100-19 – Fire Flow Requirements for neighborhood business is 2,000 gallons per minute, which would cover this Transit Center, and based on pressure information from the BWS, the system is able to provide these fire flow requirements.

3.7 Proposed Drainage Infrastructure

3.7.1 Design Criteria

Site drainage infrastructure shall be designed to the City and County of Honolulu, Department of Planning and Permitting, Rules Relating to Storm Drainage, dated August 2017. Building drainage systems shall be designed to the City and County of Honolulu Revised Ordinances of Honolulu, per articles related to the Plumbing Code.

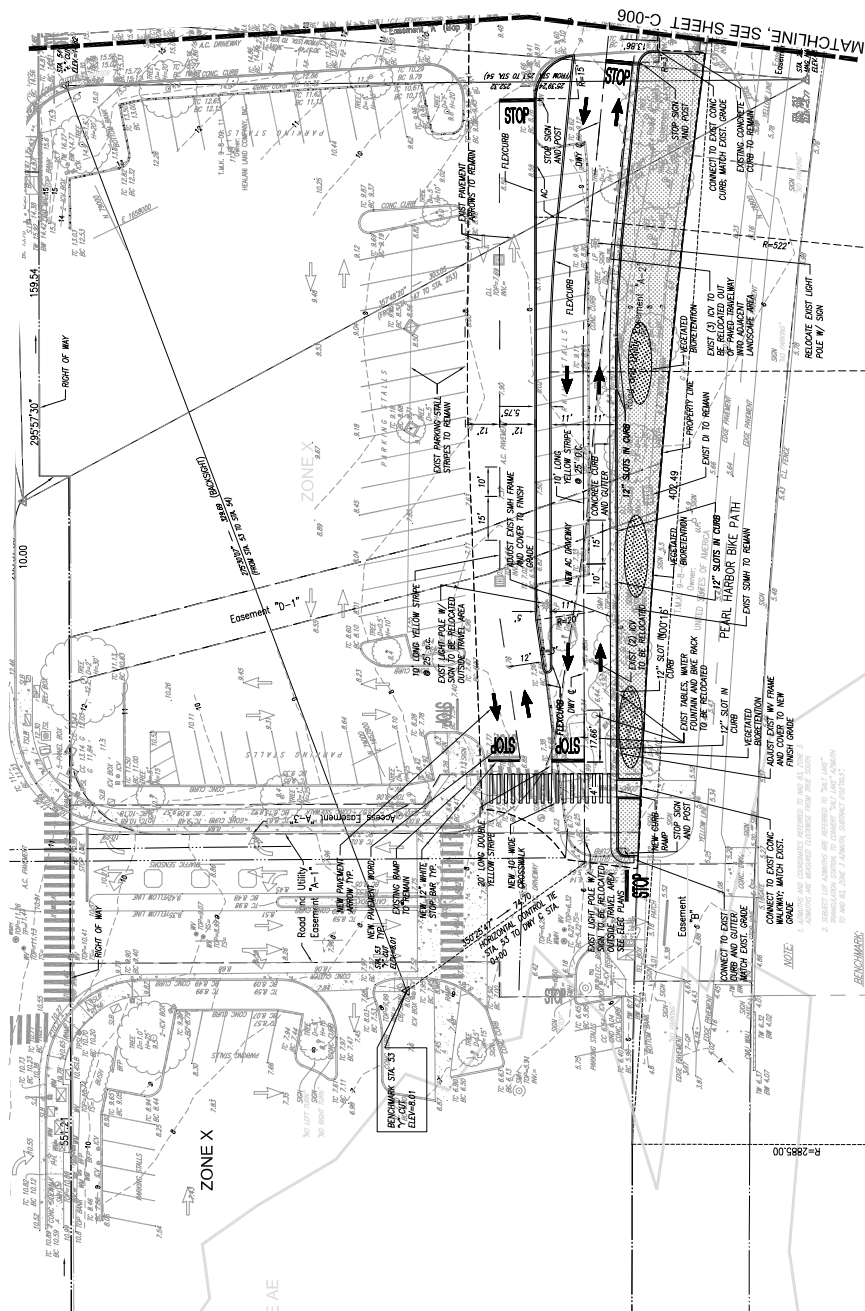
3.7.2 Hydrology

The Rational Method can be used to compute peak stormwater runoff flow rates since the total project site drainage area is less than 100 acres per the CCH Storm Drainage Standards. As required by the standards, the 10-year recurrence interval shall be used to size drainage facilities for the project.

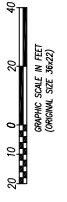
The Rational Method formula is as follows: $Q=CIA$

Where: $Q =$ Peak Runoff Flow Rate (Cubic feet per second)
 $C =$ Coefficient of Runoff
 $I =$ Rainfall intensity in inches per hour (in/hr.) for a duration equal to the time of concentration (T_c)
 $A =$ Total drainage area (acres)

Rainfall in this location for the 10-year interval was determined to be 2.29 inches from the Rules Relating to Storm Drainage Standards of Honolulu Plate 1. Using Plates 1 and 4 to determine the appropriate intensity and Correction Factor (CF) respectively, The Pre-Development runoff from the impacted project area is 9.14 cubic feet per second (cfs) and Post-Development runoff is anticipated to be 11.61 cfs for the projected project area. Refer to Tables 1 and 2.



PERSON	DATE	DESCRIPTION	BY	APPROVED
DEPARTMENT OF TRANSPORTATION SERVICES				
FEDERAL AID PROJECT NO.: STP-				
PEARLRISE BUS TRANSIT CENTER				
AND MOBILITY HUB				
HONOLULU, OAHU, HAWAII				
TRACK(1) 9-4-OR-0557, 011, 014, 015, 016				
SITE AND UTILITY PLAN 1				
DATE	JUNE 2020			
DESIGNED BY	STW	APPROVED		
DRAWN BY	AS NOTED	DATE		
CHECKED BY		DATE		
SCALE	AS NOTED	DATE		



NOTES

1. AZIMUTHS AND COORDINATES REFERRED TO THE HAWAII STATE PLANE COORDINATE SYSTEM, NAD 83, ZONE 3. AZIMUTHS ARE MEASURED

FIGURE 6: SITE AND UTILITY PLAN 1
SCALE: 1" = 20'

DATE: 06/01/20
DRAWING NO.: C005

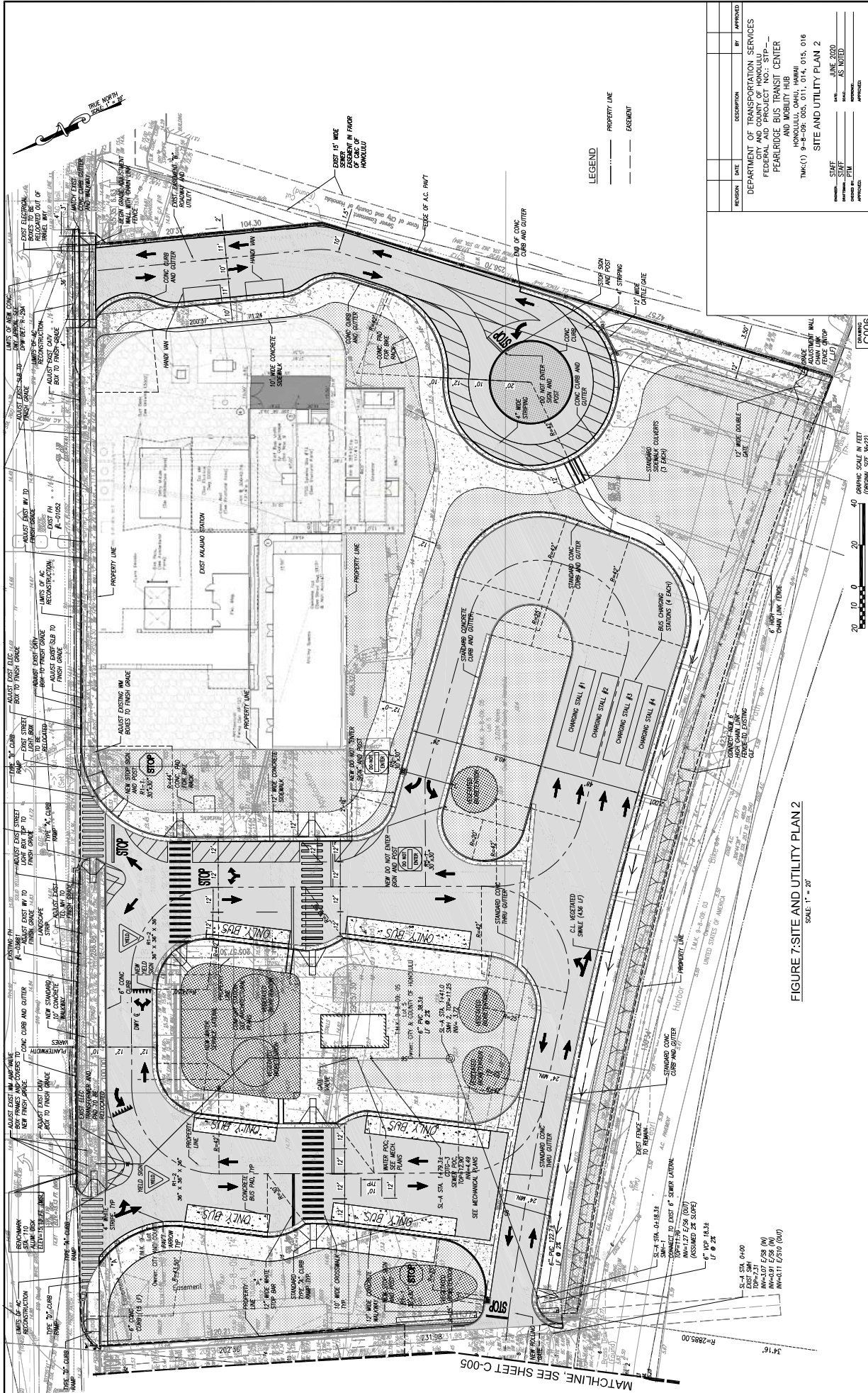


FIGURE 7: SITE AND UTILITY PLAN 2

C006

SHEET 6 OF 9 SHEETS

MATCHLINE, SEE SHEET C-005

ST-4 STA. 0+10
 SW-1 STA. 0+10
 NW-107 E/S/8 (N)
 NW-107 E/S/8 (S)
 NW-111 E/S/8 (N)
 NW-111 E/S/8 (S)

SEE MECHANICAL LAYOUT
 S-4 STA. 1+29.31
 SW-4 STA. 1+29.31
 NW-177 E/S/8 (N)
 NW-177 E/S/8 (S)

ONLY BUSES
 ONLY BUSES
 ONLY BUSES

STOP
 STOP
 STOP

ADJUST EXISTING MW ROWS TO FINISH GRADE

ADJUST EXISTING MW ROWS TO FINISH GRADE

ADJUST EXISTING MW ROWS TO FINISH GRADE

ADJUST EXISTING MW ROWS TO FINISH GRADE

ADJUST EXISTING MW ROWS TO FINISH GRADE

Table 1 Pre-Development Hydrologic Conditions:

Drainage Area	A (acres)	Weighted (C)	Tc (min.)	I(10) (in./hr.)	Q(10) (cfs)
Basin E-1	0.17	0.90	10	5.19	0.78
Basin E-2	0.29	0.90	6	5.96	1.56
Basin E-3	2.11	0.37	15	4.58	3.59
Basin E-4	0.28	0.90	6.50	5.84	1.47
Basin E-5	0.23	0.90	6	5.96	1.23
Basin E-6	0.07	0.45	6.50	5.84	0.19
Basin E-7	0.04	0.35	6.50	5.84	0.08
Basin E-8	0.11	0.42	9	5.35	0.24
Total	3.30				9.14

Table 2 Post Development Hydrologic Conditions:

Drainage Area	A (acres)	Weighted (C)	Tc (min.)	I(10) (in./hr.)	Q(10) (cfs)
Basin P-1	0.12	0.85	10	5.19	0.53
Basin P-2	0.50	0.73	7.50	5.62	2.06
Basin P-3	0.14	0.75	6	5.96	0.62
Basin P-4	0.16	0.73	10.25	5.15	0.60
Basin P-5	0.99	0.74	35	3.31	2.42
Basin P-6	0.14	0.76	6	5.96	0.63
Basin P-7	0.17	0.71	6	5.96	0.72
Basin P-8	0.43	0.59	6	5.96	1.52
Basin P-9	0.20	0.43	10.50	5.12	0.44
Basin P-10	0.13	0.90	6	5.96	0.70
Basin P-11	0.32	0.74	6.50	5.84	1.37
Total	3.30				11.61

The post development hydrologic conditions are anticipated to have a 2.47 cfs increase Q(10) from the pre-development hydrologic conditions.

This increase in flow will be mitigated by on-site Low Impact Development Best Management Practices (BMPs) that prioritize water infiltration and slow runoff velocities, increased times of concentration, and reduced peak runoff rates. Some localized or small detention systems, such as detention basins or underground chambers, may be used to reduce runoff rates leaving the project site.

As the LID BMPs and detention BMPs are designed, revised hydrology calculations will be performed to ensure that the post development stormwater runoff rate leaving the site does not exceed pre-development rates and conditions. A drainage report will be prepared for the project as part of the permitting and approval process.

Refer to Figure 8 – Hydrology Map- Post Development (Conceptual Site) Condition



PROPOSED HYDROLOGIC FLOWS

BASIN	AREA	FLOW
P-1	0.12 AC	0.53 CFS
P-2	0.50 AC	2.06 CFS
P-3	0.14 AC	0.62 CFS
P-4	0.16 AC	0.60 CFS
P-5	0.99 AC	2.42 CFS
P-6	0.14 AC	0.63 CFS
P-7	0.17 AC	0.72 CFS
P-8	0.43 AC	1.52 CFS
P-9	0.20 AC	0.44 CFS
P-10	0.13 AC	0.70 CFS
P-11	0.32 AC	1.37 CFS
TOTAL	3.30 AC	11.61 CFS

- NOTES**
1. ADMITTANCES AND COORDINATES TRANSFERRED TO THE HAWAII STATE PLANE COORDINATE SYSTEM AND ALL ZONE 3 ADMITTANCES ARE MEASURED CLOCKWISE FROM TRUE SOUTH.
 2. SUBJECT PROPERTY ADMITTANCES ARE REFERRED TO AS "THE ADMITTANCE" FOR ADMITTANCE TO AND ALL ZONE 3 ADMITTANCES SUBJECT TO ZONE 3.
 3. SUBJECT LOTS ARE LOCATED WITHIN THE AREA DESIGNATED ZONE 3. AREAS IN WHICH FLOOD HAZARDS ARE IDENTIFIED, IF POSSIBLE, ARE IDENTIFIED AS SUCH ON THE MAP AND FLOOD HAZARD MAP REVISION JANUARY 18, 2011.

FIGURE 8: HYDROLOGIC MAP-POST DEVELOPMENT CONDITION
SCALE: 1" = 40'

PERSON	DATE	DESCRIPTION	BY	APPROVED

DEPARTMENT OF TRANSPORTATION SERVICES
 FEDERAL AID PROJECT NO.: STP-
 PEARLRISE BUS TRANSIT CENTER
 AND MOBILITY HUB
 HONOLULU, OAHU, HAWAII
 TRAC(1) 9-8-09, 055, 011, 014, 015, 016

HYDROLOGIC MAP-POST DEVELOPMENT
 CONDITION
 DATE: JUNE 2020
 DRAWN BY: STP
 CHECKED BY: STP
 SCALE: AS NOTED
 PROJECT NO.:
 SHEET NO.:
 OF 9 SHEETS

3.7.3 Low Impact Design

In accordance with the City's Rules Related to Water Quality standards, the proposed project will require implementation of stormwater quality permanent BMPs, through principles of Low Impact Design (LID). Low Impact Design is the use of bioretention, biofiltration and vegetated systems to treat, absorb, and infiltrate stormwater runoff. The purpose of the water quality criteria is to reduce both the water volumes and chemical and sediment pollution associated with stormwater runoff from new development and significant redevelopment from entry to the storm drain system and receiving waters. Based on the anticipated 3.30 acres of new construction, the proposed project requires post-construction BMPs to meet these water quality requirements, as a Category A project.

Bioretention basins are landscaped depressions or shallow basins used to treat on-site stormwater runoff. There are seven (7) vegetated bioretention basins proposed in the site plan which will play a role in the drainage system and water quality treatment. Pre-treatment is also highly recommended and should be provided when treating runoff from parking lots or roads. Inflow to the vegetated bioretention basins may be piped or overland.

Biofiltration is the process of improving water quality by filtering water through biologically influenced media. They are a low energy treatment technology with the potential to provide both water quality and quantity benefits. The proposed Pearlridge Bus Transit Center will utilize this technology to treat storm water collections where retention and infiltration of stormwater is not feasible through bioretention.

Additionally, a vegetated swale is proposed at the makai side of the bus transit center's pavement. Vegetated swales are broad, shallow channels designed to convey and infiltrate stormwater runoff. The swales are vegetated along the bottom and sides of the channel, with the side vegetation at a height greater than the maximum design stormwater volume. These swales force runoff through grassed surfaces which pull out pollutants and allow for infiltration.

3.8 Proposed Electrical Service

HECO has been approached about the Pearlridge Bus Transit Center project. It is anticipated that the project would be served by both Hawaiian Electric and Hawaiian Telecom points of connection for service. Both utilities would provide these points of interconnection immediately outside of the property on overhead pole lines along the makai side of Kamehameha Highway.

An engineering service request will be submitted to evaluate the circuit capacity to ensure that power is available. The comfort station, office, and site lighting would have relatively low power demands. The four (4) electric bus charging stations and appurtenant equipment have much higher power demands. Service for these may be off of the 46 kV lines with the appropriate step-down transformers. HECO shall be coordinated with during the design process.

3.9 Gas Infrastructure

There are no anticipated impacts to Hawaii Gas lines and petroleum pipelines within the project vicinity. Work will be careful to avoid the pipelines.

4 CONCLUSION

The Pearlridge Bus Transit Center will work in concert with the HART Kaluauo Station to provide a seamless transit experience for Honolulu bus and rail riders. The transit center's adjacency to the station will allow riders to quickly make connections between The Bus and the rail along their route to their final destinations.

The existing site for the Bus Transit Center is currently in use by HART's construction team but has otherwise been unoccupied leaving this project area available to meet this critical transit infrastructure need.

The Bus and The Handi-Van will both be served by this transit center, allowing for multiple routes and Handi-Van drop-offs. A Kiss and Ride drop off area will also allow the public to drop off riders at the center to utilize both the buses and the rail station.

A comfort station will provide restroom amenities to the riders of The Bus, in addition to the restroom within the ticket-controlled areas of the rail station.

New utility infrastructure including water and sewer utilities, grading and earthwork, and new pavements are not expected to have any major impact on existing conditions or existing infrastructure systems within or around the project site. Traffic patterns within Kamehameha Highway will largely remain the same, though additional buses will be directed into the station.

As such, the City is in the process of obtaining an access easement through the adjacent Best Buy parking lot to utilize the signalized left turn at Kanuku Street, so that buses can enter the station with relative ease instead of having to find alternate routes outside of the Kamehameha Highway corridor.

The project will also serve bicyclists who choose to reach the station via Kamehameha Highway, the Pearl Harbor Historic Trail, or those who bring their bicycles onto The Bus or the rail. Short term bicycle parking will be provided and direct access to the Pearl Harbor Historic Trail will be provided from the transit center that connects to Kamehameha Highway.

The project will also provide environmental benefits. Four electric chargers will support The Bus' new electric fleet, and will be powered by HECO infrastructure within the area. Stormwater runoff generated on site will be directed to Low Impact Development features that will help treat and reduce stormwater runoff generated from the site. Landscaping will reduce impervious areas from existing conditions which will reduce runoff volumes that reach our storm drain systems and ultimately the ocean.

Finally, the Pearlridge Transit Center will provide a hub for multi-modal transportation users, connecting pedestrians, vehicle drop-offs, The Bus, The Handi-Van, and the rail together in a seamless experience that will provide safe and clean transportation benefits and reduce the volume of personal vehicles on Oahu's roadways.

Appendix D

Mobility Analysis Report (MAR) for the Proposed Pearlridge Bus Transit Center

Mobility Analysis Report (MAR) for the Proposed Pearlridge Bus Transit Center

Prepared for:
G70

January 22, 2021

SD19-0325



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1. Executive Summary

This report documents the assessment of traffic, mobility, and access with the development of the Pearlridge Bus Transit Center. The proposed project is planned in conjunction with construction of the Honolulu Authority for Rapid Transportation (HART) elevated rail transit project. The project site is located adjacent to the planned Kaluaao Pearlridge Station, approximately 0.25 mile southwest of the Pearlridge Shopping Center. The project involves construction of a bus transit hub on three (3) acres of developable and underutilized urban lands currently being used by HART for construction staging. The adjoining locations of the planned Pearlridge Bus Transit Center and the Kaluaao Pearlridge Station will create a public transportation hub and facilitate multimodal transportation connectivity.

The impacts of the proposed Pearlridge Bus Transit Center to mobility and access surrounding the project site were evaluated following guidelines established by the City & County of Honolulu Department of Planning & Permitting (DPP) Traffic Review Branch (TRB) and the State of Hawaii Department of Transportation – Highways Division (HDOT), which has jurisdiction over Kamehameha Highway. A multimodal evaluation of potential mobility effects from the project was conducted to determine potential impacts to walking, biking, transit, and traffic operations. Given the vehicular site access, the focus of the study was on the operations of the Kamehameha Highway/Kanuku Street and Kamehameha Highway/Kaonohi Street intersections, which were evaluated during the weekday morning (AM) and evening (PM) peak hour for Existing (2019) and Future (2025) conditions without and with the project. The intersections adjacent to these locations were also evaluated to ensure that any changes in proposed signal timings at the key intersections would not adversely affect the corridor. Trip generation for the facility was determined based on planned bus service detailed in the *Bus/Rail Integration Plan of the Kamehameha Highway Station Group* (April 2014, HART). The proposed project is estimated to generate 160 new peak hour vehicle trips and 146 walking or biking trips in each of the AM and PM peak hours.

Key findings of the mobility analysis are summarized below:

- The project will enhance pedestrian access and connectivity along the highway.
- The project will provide a new shared-use connection to the existing off-street Pearl Harbor Bike Path. Wayfinding signage may be provided to guide cyclists from the Pearl Harbor Bike Path to the bus transit center.
- Kiss & Ride demand for both the rail station and bus center will be served via a proposed cul-de-sac street, which will also serve Handi-Vans, located immediately east of the rail station.
- The proposed project will not provide Park & Ride stalls, but some transit users may attempt to use adjacent commercial lots or nearby residential on-street parking. Park & Ride activity at the rail station is expected to be low (i.e., projected to be nine (9) people in an hour).
- Buses will be provided with exclusive access to the bus center via three driveways: one full access driveway on Kanuku Street, one right-turn inbound-only driveway from Kamehameha Highway, and one right-turn outbound-only driveway to Kamehameha Highway.



- Traffic results indicate that both key study intersections will operate at LOS D or better, and the project is not projected to cause an impact to overall intersection delay. The addition of project traffic to the southbound right-turn movement at Kamehameha Highway/Pali Momi Street will cause the queue to extend beyond available capacity during the PM peak hour, which constitutes a significant impact. Because the queue is only expected to exceed capacity by at most one (1) vehicle, and (as the 95th percentile queue) this will occur very rarely, no mitigation is recommended at this location.
- Pedestrian enhancements consisting of a leading pedestrian interval (LPI) could be provided at the Kamehameha Highway/Kanuku Street intersection without substantially increasing overall average delays to vehicles. Similarly, modification of signal timings at the Kaonohi Street intersection could be made to provide more continuous pedestrian flow from the transit center side of Kamehameha Highway to both sides of Kaonohi Street. These improvements may be provided without substantially affecting overall intersection operations. However, at Kamehameha Highway/Kaonohi Street, vehicles will experience an average increase in delay of 10.1 seconds in the PM peak hour. Furthermore, the eastbound left turn at Kamehameha Highway/Kaonohi Street, which is the movement with the highest delay at this intersection, will experience an increase in delay of 14.5 seconds. Despite this additional delay, the projected 95th percentile queue for this movement can be accommodated by the planned storage capacity.
- A summary of recommended improvements is shown on **Figure ES-1**.



2. Introduction

This mobility analysis report (MAR) presents the study conducted by Fehr & Peers for the proposed Pearlridge Bus Transit Center, located in Aiea on the island of Oahu. This MAR was conducted in accordance with the guidelines and standards of the affected government agencies, and it addresses the potential impact of the project on all modes of travel.

The project site consists of four (4) contiguous parcels identified as TMKs (1) 9-8-009-005, 014, 015, and 016 in the Primary Urban Center (PUC). All parcels are owned by the City. In addition, the City is proposing an easement over the parcel leased by Best Buy, identified as TMK (1) 9-8-009-011, to construct a project driveway along the southern edge of the parcel. The three-acre project site is bounded by Kamehameha Highway to the north, the Pearl Harbor Bike Path to the south, Kanuku Street and Best Buy parking overflow to the west, and Homeworld Furniture store to the east. Currently, the site is being used by HART for construction staging.

2.1 Project Description

The project involves construction of a bus transit hub adjacent to the planned Kalauao Pearlridge Station, approximately 0.25 mile southwest of the Pearlridge Shopping Center, as shown on **Figure 1**. The adjoining locations of the planned Pearlridge Bus Transit Center and the Kalauao Pearlridge Station will effectively create a public transportation hub and facilitate multimodal transportation connectivity. The proposed project will serve ten (10) bus routes with 72 bus trips in the peak hours. The project site plan is shown on **Figure 2**.

2.2 Study Area

The project is anticipated to serve 72 bus trips in each peak hour, and accordingly this mobility analysis considers a focused study area of 1) Kamehameha Highway/Kanuku Street and 2) Kamehameha Highway/Kaonohi Street. The adjacent intersections to these locations were also evaluated to ensure that any changes in proposed signal timings at the key intersections would not adversely affect the corridor. This study analyzes the potential project-related traffic impacts under typical weekday AM and PM peak hour traffic conditions. The AM and PM peak hour for each intersection are identified as the highest one-hour totals of traffic at the intersection between 6:00 AM and 9:00 AM and 3:00 and 6:00 PM on a weekday.



Figure ES-1

Recommended Off-Site Multimodal Improvements



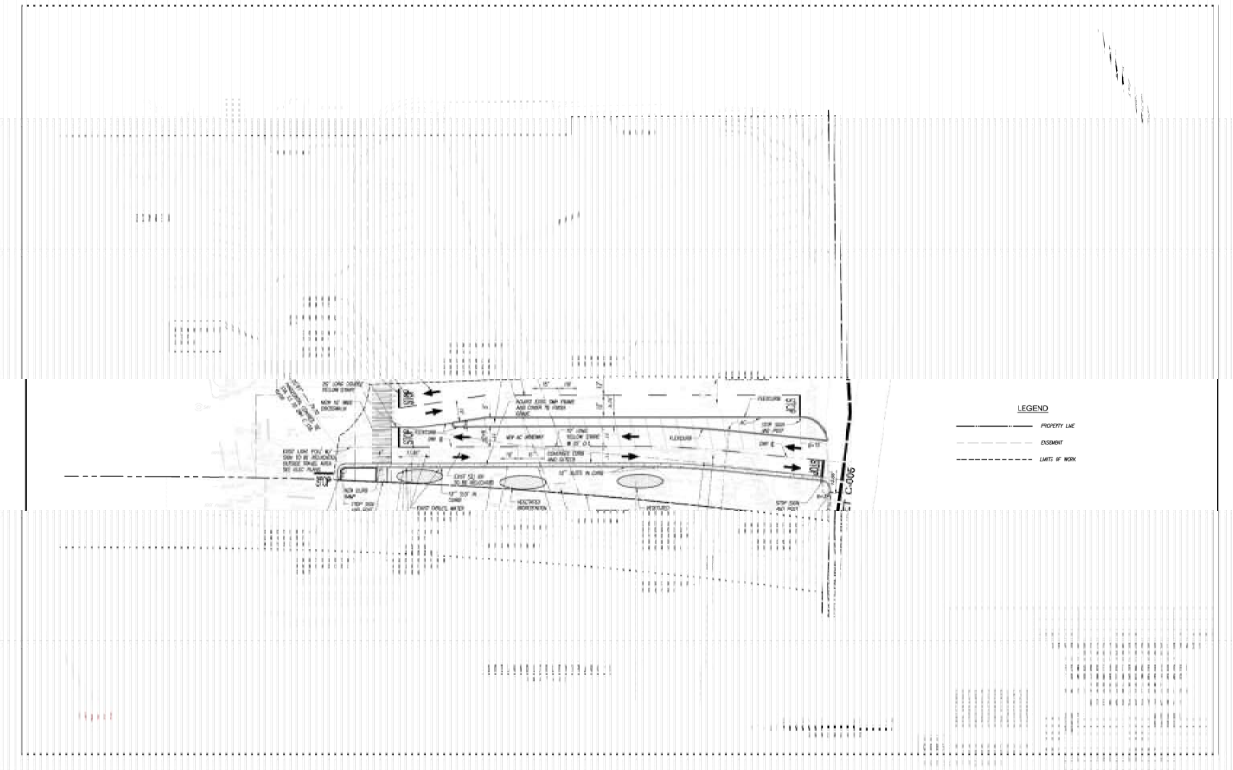


Figure 2
Project Site Plan



Legend

- Study Intersections
- Project Site



Figure 1
Project Location and Study Intersections

2.3 Study Scenarios

The operations of the study intersections were evaluated during the weekday AM and PM peak hours for the following scenarios:

- **Existing Conditions** – The analysis of existing traffic conditions is based on 2019 counts collected for the analyzed peak hour and existing intersection configurations. The existing conditions analysis also includes a description of key area roadways and a review of existing transit facilities and services near the site.
- **Future (2025) No Project Conditions** – Existing peak-hour volumes increased to account for forecasted growth in the area at the opening year of the full rail line in 2025. Traffic growth was estimated based on an annual growth factor to account for ambient growth plus traffic generated from approved (but not yet constructed) and pending developments in the study area. This scenario includes existing roadway and intersection configurations and forms the comparison baseline for identifying with-project impacts. No future bus service expansion was assumed for this scenario to overestimate the project impacts.
- **Future (2025) Plus Project Conditions** – This traffic scenario provides projected traffic volumes and an assessment of operating conditions under Baseline Conditions with the addition of forecasted project-generated traffic. The scenario includes existing roadway and intersection configurations.

2.4 Traffic Analysis Methods

The analysis of roadway operations performed for this study is based on procedures presented in the *Highway Capacity Manual 6th Edition* (HCM 6), published by the Transportation Research Board in 2016. The operations of roadway facilities are described with the term level of service (LOS). LOS is a qualitative description of traffic flow based on such factors as speed, travel time, delay, and freedom to maneuver. Six (6) levels are defined, from LOS A, with the least congested operating conditions, to LOS F, with the most congested operating conditions. LOS E represents “at-capacity” operations. Operations are designated as LOS F when volumes exceed capacity, resulting in stop-and-go conditions.

The method described in Chapter 19: Signalized Intersections of the HCM 6 was used to prepare the LOS calculations for the signalized study intersections along Kamehameha Highway. This LOS method analyzes a signalized intersection’s operation based on average control delay per vehicle. Control delay alone is used to characterize LOS for the entire intersection or for an approach. Control delay includes the initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The average control delay for signalized intersections is calculated using Synchro 10.0 analysis software and is correlated to a LOS designation as shown in **Table 1**.

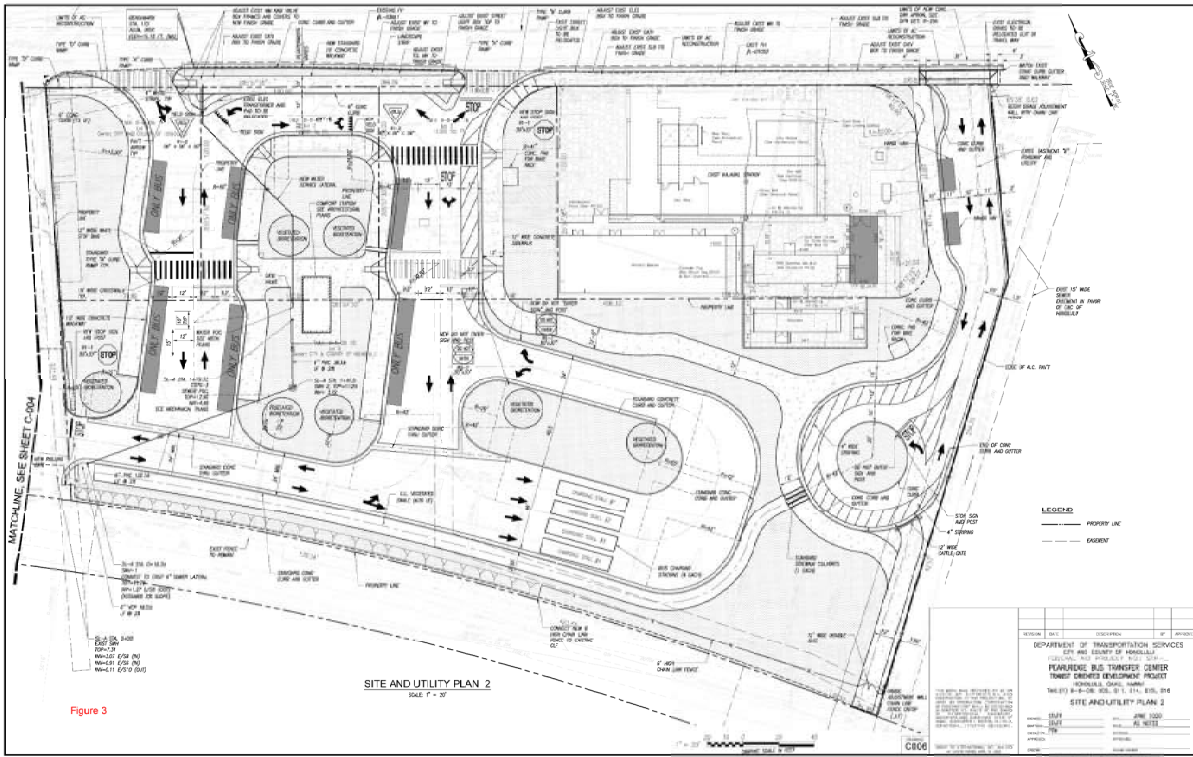


Figure 3



Table 1: Signalized Intersection LOS Definitions

Level of Service	Description	Delay in Seconds
A	Progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	≤ 10.0
B	Progression is good, cycle lengths are short, or both. More vehicles stop than with LOS A, causing higher levels of average delay.	> 10.0 to 20.0
C	Higher congestion may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level, though many still pass through the intersection without stopping.	> 20.0 to 35.0
D	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	> 35.0 to 55.0
E	This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences.	> 55.0 to 80.0
F	This level is considered unacceptable with oversaturation, which is when arrival flow rates exceed the capacity of the intersection. This level may also occur at high V/C ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be contributing factors to such delay levels.	> 80.0

Source: *Highway Capacity Manual 6th Edition*, Transportation Research Board, 2016.

The analysis of Future (2025) Conditions compares future no-project operations with conditions when the project is fully built out to determine whether project implementation is expected to result in a significant impact on the surrounding roadways. Based on previous studies conducted for the City & County of Honolulu Department of Planning and Permitting (DPP) Traffic Review Branch (TRB), the minimum desired operating standard for a signalized intersection is typically LOS D. Additionally, the Hawaii Department of Transportation (HDOT) strives to maintain LOS D intersection operations for State facilities. Both agencies usually define a significant intersection impact when the operation of an intersection or turning movement changes from LOS D or better to LOS E or F. Impacts are also defined to occur when the addition of project traffic exacerbates locations already operating or projected to operate at LOS E or F. When evaluating intersection operations at any location, other factors are considered in the analysis, such as traffic volumes and potential secondary impacts to pedestrian, bicycle, and transit travel.

Significant impacts are categorized as either a project-specific or cumulative impact. An impact is considered project-specific at a signalized intersection if the addition of project traffic is expected to degrade LOS D or better operations to LOS E or F operations. An impact is considered a cumulative impact at a signalized intersection if the addition of project trips exacerbates LOS E or F operations and increases the intersection delay by more than five (5) seconds.



Because the project is adding additional bus trips to the study area which require more storage space than passenger vehicles, a queuing analysis was also performed to determine if project traffic is expected to cause queues to exceed available capacity at the study intersections. A significant impact would also be considered if the addition of project traffic causes a queue to exceed the available turn pocket storage or exacerbates a projected storage exceedance by more than 50 feet (i.e., two (2) vehicle lengths).

The City & County of Honolulu does not publish impact criteria for pedestrian, bicycle, and transit impacts. However, these impacts are generally evaluated based on whether a proposed project would: 1) conflict with existing or planned pedestrian, bicycle, or transit facilities and services, or 2) create substantive walking, bicycling, or transit use demand without providing adequate and appropriate facilities for non-motorized mobility. Existing facilities for pedestrians, bicycles, and transit users were inventoried to evaluate the quality and scope of facilities/services currently in place. The assessments of planned pedestrian, bicycle, and transit facilities were conducted using information in planning documents, such as the *2019 Oahu Bike Plan Update* and the *Primary Urban Center Development Plan (2004)*. For these modes, if the proposed project is expected to conflict with existing or planned improvements to pedestrian and bicycle facilities, or if the project is expected to generate a substantial demand that could warrant additional transit service, then the project would be determined to have a project-specific impact to non-motorized modes of transportation.



3. Existing Conditions

This chapter describes the existing transportation network and includes a discussion of pedestrian, bicycle, and transit facilities located within the project study area. A discussion of the existing intersection LOS operation results is also included in this chapter.

3-1 Existing Site and Transportation Facilities

The existing three-acre site is currently being used by HART for construction staging. A focused data collection effort was undertaken to identify existing transportation conditions in the immediate vicinity of the proposed project. The assessment of existing conditions relevant to this study includes an inventory of the street system, traffic volumes on these facilities, and operating conditions at key intersections. Existing public transit, bicycle, and pedestrian facilities are also described.

3.1.1 Existing Roadway System

The key roadways providing access to or in the vicinity of the study area are described below.

Kamehameha Highway is a six-lane principal arterial that is under the jurisdiction of HDOT. It extends from Pearl Harbor to the south and east, and Waialua to the north and west. Adjacent to the project, the posted speed limit is currently 25 miles per hour (mph). Sidewalks or paths are provided on both sides of the roadway, but not continuously; gaps exist on the mauka side of the street between Kaonohi Street and approximately 400 feet west of Kaonohi Street, where a concrete sidewalk is intermittently replaced with a rolled asphalt path during ongoing HART construction. Additionally, the concrete sidewalk is replaced with an asphalt path on the mauka side of the street between approximately 300 feet and 880 feet east of the intersection with Kaonohi Street.

At the time of the count and field data collected in October 2019, the HART rail guideway was under construction along this portion of Kamehameha Highway, such that only one westbound lane was provided in the AM peak period, and only two westbound lanes were provided in the PM peak period. Before construction began, the posted speed limit was 35 mph. Per input from HDOT, the posted speed limit is expected to return to 35 mph once construction is complete, and accordingly the Future Conditions evaluated in this report reflects a 35 mph speed limit.

It is also noted that HART construction eliminated the second westbound left-turn lane at the Kamehameha Highway/Kanuku Street intersection. Only one westbound left-turn lane will be provided once construction is complete, as reflected in the Future Conditions evaluated in this report.

Kanuku Street is a two-lane minor collector that is under the jurisdiction of the City & County of Honolulu. It extends from Hekaha Street at its mauka terminus to Kamehameha Highway at its makai terminus, where it continues as a privately owned road to the Pearl Harbor Bike Path and various commercial driveways. The posted speed limit is 25 mph. Sidewalks are provided on both sides of the street makai of



Kamehameha Highway, but no sidewalk or shoulder is provided more than 100 feet north of the intersection with Kamehameha Highway. Makai of the highway, this street effectively operates as a driveway for the retail, commercial, and industrial uses.

Kaonohi Street is a four-lane minor arterial that is under the jurisdiction of the City & County of Honolulu. As an arterial, it extends from Kamehameha Highway at its makai terminus to Moanalua Road, where it continues as a four-lane major collector until approximately 1,300 feet past Puaali Street; from this point it continues as a two-lane major collector into the Kaonohi neighborhood where it terminates in a loop. The posted speed limit is 25 mph. Sidewalks are provided on both sides of the street.

3.1.2 Existing Transit Facilities and Services

TheBus is the main public transportation service on the Island of Oahu, where it served over 60 million riders in the fiscal year of 2019 on its fixed-route service. Within the project study area, Routes 40, 42, 51, 53, 71, 88A, and A provide service along Kamehameha Highway at stops in the vicinity of the project, and Routes 11, 20, 32, and 71 provide service along Kaonohi Street.

Route A is an express route providing service between Waipahu and the University of Hawaii, with stops through Downtown Honolulu and Aiea. Routes 11, 20, 32, 40, 42, 51, and 53 are regular service bus routes. The existing transit schedules are summarized in **Table 2**.

The nearest existing bus stops are located on Kamehameha Highway, with a stop on both sides of the highway to the east of Kanuku Street, another stop in the eastbound direction just west of Kaonohi Street, and a stop in the westbound direction just east of Kaonohi Street. All stops are provided with shelters and benches, and all stops, with the exception of the one for the eastbound direction just east of Kanuku Street, are provided with trash bins. Kamehameha Highway does not have shoulders or other features to allow for bus pull-outs, such that buses serving these stops block through vehicles in the curbside lane.

3.1.3 Existing Bicycle Activity

The roadways in the study area do not provide separate bicycle facilities and have a minimal amount of bicycle activity. Based on the peak period traffic counts, only three (3) bicyclists were observed in the AM peak period. In the PM peak period, 20 bicycles were observed, with the majority counted at the Kamehameha Highway/Kanuku Street intersection. Of the bicycles observed, seven (7) were traveling eastbound on Kamehameha Highway through the Kanuku Street intersection, while only four (4) were observed departing eastbound from the Kamehameha Highway/Kaonohi Street intersection.

In addition to the roadways, a separate bike facility is provided by the Pearl Harbor Bike Path, which extends from Waipahu to Pearl Harbor. This two-way bike path provides a low-stress alternative to east-west bicycle travel along Kamehameha Highway. Near the project, the Pearl Harbor Bike Path can be accessed via either of the two driveways serving the Best Buy parking lots.



Table 2: Existing Transit Services

Route	From	To	Weekdays		Weekends	
			Operating Hours	Headway (Minutes)	Operating Hours	Headway (Minutes)
A	Waipahu	University of Hawaii	4:41 am – 10:35 pm	15 min	4:49 am – 9:47 pm	15 min
11	Honolulu	Aiea Heights	5:36 am – 10:16 pm	30 min	6:00 am – 10:09 pm	60 min
20	Waikiki	Pearlridge	4:56 am – 7:40 pm	40 min	5:49 am – 6:52 pm	50 min
32	Kalihi	Pearlridge	5:05 am – 9:51 pm	30 min	6:15 am – 9:44 pm	60 min
40	Honolulu	Makaha	12:00 am – 12:00 am	30 min	12:00 am – 12:00 am	30 min
42	Waikiki	Ewa Beach	3:57 am – 2:59 am	30 min	4:26 am – 3:00 am	30 min
51	Honolulu	Wahiawa	4:10 am – 2:21 am	30 min	3:57 am – 2:23 am	30 min
53	Honolulu	Pacific Palisades	4:37 am – 11:27 pm	30 min	5:28 am – 10:54 pm (only between Pearl City and Pacific Palisades)	60 min
71	Pearlridge	Newtown	5:41 am – 6:08 pm	45 min	-	-
88A	Ala Moana Center	North Shore	-	-	-	-

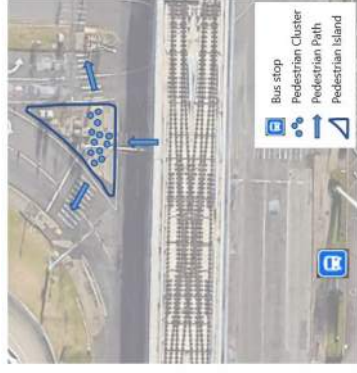
Source: Fehr & Peers, 2020; TheBus.org.

3.1.4 Existing Pedestrian Activity

The study area has a moderate amount of pedestrian activity, with counts between 70 and 205 pedestrians passing through each intersection during the peak periods. The highest pedestrian volumes occur at the Kamehameha Highway/Kaonoahi Street intersection. The demand is split fairly evenly between the north pedestrian crossing and the west pedestrian crossing. Anecdotal evidence indicates that the existing raised pedestrian median or island on the mauka side of the highway and ewa side of Kaonoahi Street is too small to accommodate the pedestrian volume after transit patrons alight a bus(es) on the mauka side of the highway (bus stop #691) and cross the street. See below for a conceptual figure illustrating this issue. This is caused in part by the fact that the signal phasing for the mauka-bound and then Ewa-Diamond Head pedestrian movements is not directly sequential. As such, pedestrian volumes build and exceed the physical capacity of the island, which includes multiple utility cabinets.



Pedestrians alight from the bus on the mauka side of the highway and cross mauka-bound



Pedestrians cluster on the pedestrian island until the Ewa-Diamond Head crossing phase is activated

Data from fall 2018 provided by the City & County of Honolulu (see **Appendix F**) indicates that as many as 17 bus passengers may alight at bus stop #691 within a 5-minute period. The highest volumes typically occur between 10:00 AM and 3:00 PM.

3.1.5 Collision History

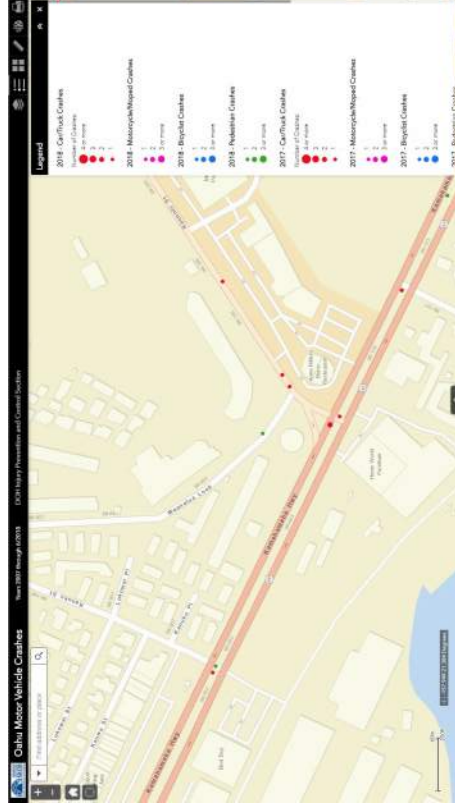
Collision data was reviewed to identify the occurrence of collisions by mode in the study area. According to the Hawaii State Office of Planning data, five (5) collisions occurred at the study intersections from 2016 through June 2018. A screenshot of the data is shown below. **Table 3** details the locations, dates, and types of crashes. As shown, the majority of incidents were vehicle collisions. One (1) pedestrian-related collision was recorded at Kamehameha Highway/Kanuku Street during this period, and no bicycle-related collisions were recorded in the study area.

Table 3: Collision History 2016 Through June 2018

Location	Crash Type	Year	Number of Crashes
Kamehameha Hwy/Kanuku St	Car/Truck	2016	1
Kamehameha Hwy/Kanuku St	Pedestrian	2017	1
Kamehameha Hwy/Kaonoahi St	Car/Truck	2016	2
Kamehameha Hwy/Kaonoahi St	Car/Truck	2018	1

Source: Fehr & Peers, 2020; Hawaii State Office of Planning.





Source: <http://hlistatgis.maps.arcgis.com/apps/webappviewer/index.html?id=2ad9ab2c4c0649dabb46763edd8b5>

3-2 Existing Traffic Volumes/Lane Configurations

Operations of the two (2) key study intersections were evaluated for the weekday AM and PM peak hours. Traffic counts were collected during the weekday peak periods in October 2019 while local schools were in session. The weekday peak hours of traffic for the study area occurred between the hours of 6:00 and 7:00 AM, and from 4:30 to 5:30 PM.

Existing lane configurations and signal controls were obtained through field observations. Signal timing data was obtained from the City & County of Honolulu Department of Transportation Services for intersections along Kamehameha Highway from Hekaha Street to Pali Momi Street. The additional intersections outside of the immediate study area were incorporated into the analysis of future conditions to account for the effect of corridor coordination. However, these additional intersections were not included in the existing conditions analysis because recent count data and field observations were not obtained prior to the substantial reduction in traffic resulting from the COVID-19 pandemic and corresponding shelter-in-place orders.

Field observations confirmed that the signal timing data was in operation with the following exceptions:

- The signal timing sheet for Kamehameha Highway/Kaonohi Street indicates that all phases operate with a Max recall, which would indicate that the signal should operate with fixed split timing for all phases. During observations, split times for each phase were observed to vary, indicating that this is not the case. Because of this observation and the fact that the Max recalls



would be inconsistent with the rest of the corridor, the signal was instead assumed to operate with no recalls except for the major, coordinated movements.

- The signal timing plan for the corridor indicates that the PM peak hour should operate with a cycle length of 160 seconds. During field observations, cycle lengths were instead observed to be 220 seconds. It was assumed that this adjusted cycle length was for construction conditions only, such that for this analysis the cycle length for the PM peak hour during Existing Conditions was assumed to be 220 seconds, while the cycle length for the PM peak hour during all Future Conditions was assumed to be 160 seconds.

At the time of the data collection, long-term construction of the HART rail guideway was occurring along Kamehameha Highway, which reduced the available capacity along this roadway. Based on a review of previous traffic studies and historic HDOT count information, it is acknowledged that the existing volumes are lower than typical volumes served on this facility during the peak hours prior to rail construction. It is also acknowledged that there is substantial variation day-to-day in peak hour traffic volumes according to historic count data (see **Appendix A**).

Due to the long-term nature of the construction, the Existing Conditions evaluated in this study reflect and were compared to field observations made during the ongoing construction conditions. **Figure 3** presents the existing peak hour turning movement volumes, corresponding lane configurations, and traffic control devices. Traffic count data sheets are provided in **Appendix B**.

3-3 Existing Intersection Operations

Peak hour intersection capacity analysis was performed for the study intersections using the methodology described in **Section 2.4** and the recently collected peak hour traffic count data. **Table 4** summarizes the results of the intersection operations analysis for Existing Conditions. Detailed LOS worksheets are provided in **Appendix D**. As shown in **Table 4**, overall intersection conditions are LOS C or better at both locations and in both peak hours.

Table 4: Existing (2019) Intersection Levels of Service

Intersection	Traffic Control	Peak Hour	Intersection Delay (sec/veh) ¹	Intersection LOS	Worst Movement	Worst Movement LOS
1. Kamehameha Hwy/Kanuku St	Signalized	AM	11.4	B	EBL	F
		PM	9.5	A	EBL	F
2. Kamehameha Hwy/Kaonohi St	Signalized	AM	17.6	B	EBL	F
		PM	27.0	C	EBL	F

Source: Fehr & Peers, 2020.

Notes:

¹ Whole intersection weighted average stopped delay expressed in seconds per vehicle for signalized intersections.



A summary of queue results under Existing Conditions is provided in **Appendix E**. In the PM peak hour, several queues exceed the available capacity, including the following:

- The northbound shared left-turn/through lane at Kamehameha Highway/Kanuku Street
- The eastbound left-turn at Kamehameha Highway/Kaonohi Street
- The westbound approach at Kamehameha Highway/Kaonohi Street

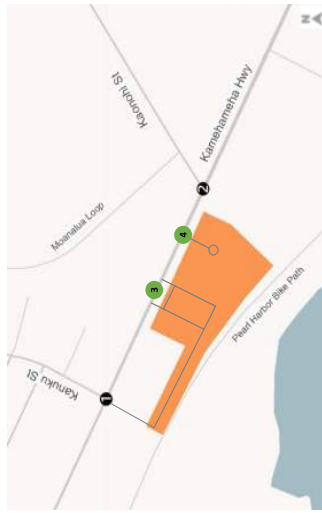
Although not analyzed quantitatively, it is noted that the unsignalized intersection of Kaonohi Street/Moanalua Loop is located in close proximity to the Kamehameha Highway/Kaonohi Street intersection. Vehicles turning right from Moanalua Loop would be blocked when southbound queues extend beyond 100 feet, and vehicles turning left from Moanalua Loop for from Kaonohi Street would be blocked with southbound queues extend beyond 125 feet. Both calculated and observed queues were 125 feet or more, indicating that queued vehicles block the Moanalua Loop intersection some of the time.

Additionally, through anecdotal evidence and discussions with DPP, it is noted that there is congestion at Kaonohi Street/Moanalua Road in the northbound left-turn pocket in the PM peak hour. Both intersections along Kaonohi Street were qualitatively analyzed to evaluate potential project impacts.

3.3.1 Consistency with Field Observations

The operations results provided in **Table 4** are generally consistent with field observations, and in most cases, the queues provided in **Table E-1** were reasonably estimated. One notable exception is the westbound approach to Kamehameha Highway/Kaonohi Street, which is calculated to only queue to 274 feet in the AM peak hour, but was observed to queue through and past the intersection with Lipoa Place. This discrepancy is possibly due to the “friction” caused by construction conditions and limiting capacity beyond what a single lane would typically provide. Other instances of variation between estimated and observed queues are noted in **Appendix E**.

Despite these isolated movements with greater variation between observed and calculated conditions, calculated intersection operations and queue length estimates are generally reflective of observed conditions, and therefore no adjustments to the Synchro default inputs were made.



1. Kamehameha Hwy/Kanuku St	2. Kamehameha Hwy/Kaonohi St	3. Kamehameha Hwy/Bus Driveways	4. Kamehameha Hwy/Kiss & Ride Dwy
<p> 9 (50) 9 (50) 24 (70) 1,063 14 (38) 44 (35) 57 (687) 238 (1,526) 6 (5) 2 (42) 52 (101) 1,705 (682) 11 (24) 10 (29) 1,718 (682) 15 (47) </p>	<p> 57 (687) 238 (1,526) 52 (101) 1,705 (682) </p>	<p>Intersection Does Not Exist under this scenario</p>	<p>Data not collected under this scenario</p> <p>Intersection Does Not Exist under this scenario</p>
<p> 11 (13) 11 (13) 37 (21) 37 (21) </p>	<p> 37 (21) 37 (21) </p>		

Study Intersection
 Project Driveway (right-in/right-out)
 LOS: **A-C** **D** **E** **F**
 AM PM
 XX (XX) AM (PM) Peak Hour Traffic Volume
 Lane Configuration
 Signalized
 Peak Hour Traffic Volumes and Lane Configurations - Existing (2019) Conditions

*This intersection consists of three signals

Figure 3



4. Future (2025) No Project Conditions

To evaluate the potential impacts of traffic generated by the proposed project on the surrounding street system, it was necessary to first develop estimates of future traffic conditions in the area without the project. Future traffic conditions without the project reflect traffic increases due to regional growth and development. This scenario is referred to as baseline or “no project” conditions. The forecasted future traffic volumes were then used as a baseline to identify impacts on the roadway system from the project. Development of this future traffic scenario is described in this chapter.

4.1 Future (2025) No Project Traffic Estimates

The following section summarizes the growth assumptions used to estimate the amount of traffic that would be added to existing intersection volumes to develop volume estimates for Future (2025) No Project Conditions.

4.1.1 Adjustment for Non-Construction Conditions

As noted in **Chapter 3**, existing conditions traffic data was collected during ongoing, long-term construction activities, and those volumes were notably lower than typical volumes in the corridor. To substantiate this conclusion, a comparison was made with historic counts to identify what dataset would be most appropriate to develop future forecasted volumes. Historic count data from 2010 and 2011 was available as part of previous analysis¹ in the study area. The existing 2019 volumes were found to be considerably lower than the historic data, and we interpret this reduction as the effect of long-term construction along the Kamehameha Highway corridor. Accordingly, the 2010/2011 data was determined to be more appropriate for use as the initial baseline dataset for the future conditions analysis.

4.1.2 Areawide or Ambient Growth

A growth factor is typically applied to the baseline traffic volumes to account for future regional growth. For this study, this factor was derived from historic daily traffic count data and the Oahu Metropolitan Planning Organization (OahuMPO) regional travel demand model, which includes a baseline model in addition to a future year network, land uses, and other pertinent socio-economic information. The 2012 model base year scenario daily traffic volumes were compared to those for the Year 2040 forecast. The comparison demonstrated that volumes along Kamehameha Highway near the project site are expected to increase at an annual rate of 0.5%, while growth along Kanuku Street and Kaonoahi Street is expected to

¹ Final Environmental Impact Statement: Live, Work, Play 'Aiea, certified August 27, 2012, prepared by PBR Hawaii & Associates, Inc.



be less. To provide a conservative forecast, the 0.5% annual growth factor was assumed for all turning movements in the study area (see **Appendix C**).

Thus, the 0.5% annual growth factor was applied to the 2010/2011 count volumes, compounded over the 15-year timeframe (2010 to 2025) to when the HART elevated rail is expected to open for service and the bus transit center would be fully operational.

Pedestrian volumes were assumed to be the larger projection based on historic data or existing data, similarly using a 0.5% annual growth factor, such that the volumes were taken to be worst case. Bicycle count data was not collected as part of the historic counts, and therefore future volumes were estimated using existing count data and a 0.5% annual growth rate.

In addition to ambient growth, specific planned projects in the study area should also be accounted for. The only planned project in the immediate vicinity of the project is the Live, Work, Play mixed-use development to be constructed at the southwest corner of Kaonoahi Street and Moanalua Road. Discussions with DPP and the current project schedule indicate Live, Work, Play will be built out by 2030. Construction is anticipated to start within the next two to three years. Given that the bulk of the project will be built after this project opens, this particular project is not included in the forecast.

4.1.3 Future Transportation Improvements

The HART elevated rail currently under construction will extend along the median of Kamehameha Highway in the vicinity of the project. Once construction is complete, Kamehameha Highway will again include three through lanes in each direction, as well as dedicated left-turn pockets at the Kanuku Street and Kaonoahi Street intersections. Future (2025) No Project lane configurations were determined based on the latest approved HART design plans, dated August 18, 2015.

The HART elevated rail system will provide a high-quality and reliable transit alternative to east-west travel on Kamehameha Highway. Previous rail analysis² in the project study area projected a substantial mode shift from driving to rail, with a forecasted reduction in the westbound direction of 3% and 10% in the AM and PM peak hours, respectively, and a reduction in the eastbound direction of 16% and 3% in the AM and PM peak hours, respectively. For the purposes of this report, only 50% of these anticipated reductions were applied to future eastbound through and westbound through traffic at each intersection to present a worst-case scenario of traffic conditions.

Figure 4 illustrates the forecasted peak hour traffic volumes and lane configurations for Future (2025) No Project Conditions.

² Final Environmental Impact Statement: Live, Work, Play 'Aiea, certified August 27, 2012, prepared by PBR Hawaii & Associates, Inc.



4.2 Future (2025) No Project Intersection Levels of Service

Levels of service (LOS) calculations were conducted to evaluate the operating levels of the study intersections under Future (2025) No Project Conditions with the forecasted growth in traffic. The results of the LOS analysis for the study intersections are presented in **Table 5**. The corresponding LOS calculation sheets are included in **Appendix D**, including intersections outside of the study area that were included to account for the coordinated signals along Kamehameha Highway. The analysis results indicate that future operations once construction is complete will be similar to existing operations during construction, and the intersections operate at LOS C or better during both peak hours.

Table 5: Future (2025) No Project Intersection Levels of Service

Intersection	Traffic Control	Peak Hour	Intersection Delay (sec/veh) ¹	Intersection LOS	Worst Movement	Worst Movement LOS
1. Kamehameha Hwy/Kanuku St	Signalized	AM PM	6.4 17.8	A B	EBL EBL	F F
2. Kamehameha Hwy/Kaonoahi St	Signalized	AM PM	16.3 31.4	B C	EBL WBT	F F*

Source: Fehr & Peers, 2020.

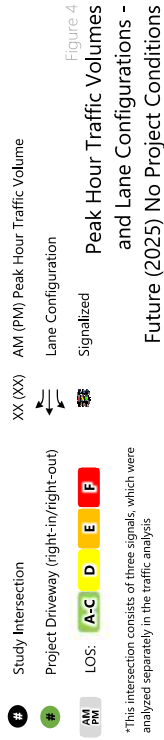
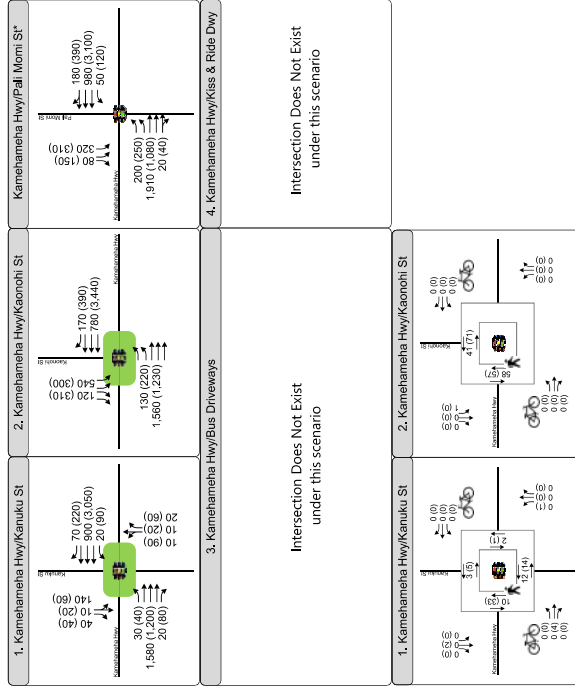
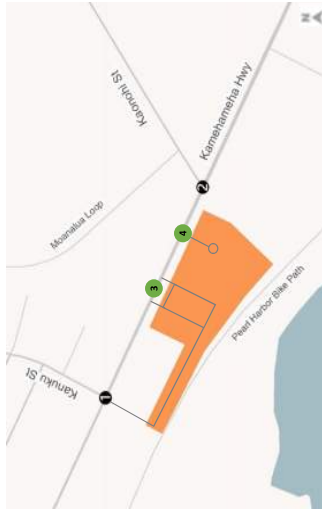
Notes:

¹Whole intersection weighted average stopped delay expressed in seconds per vehicle for signalized intersections.

* LOS F is due to the vehicle-to-capacity ratio exceeding 1.00.

Table 6 summarizes the results of the queue analysis for select movements under Future No Project Conditions. These movements were selected by identifying which turning movements with limited storage capacity will have additional project trips added (see **Section 5** for project trip assignments). A summary of all movements along with detailed queue reports are provided in **Appendix E**, including intersections outside of the immediate study area that were included to account for the coordinated signals along Kamehameha Highway.

Because the project will add traffic to Kamehameha Highway/Pali Momi Street, queues at this location were also evaluated, even though observations during existing conditions were not conducted. This intersection was not originally included in the study intersections. Given the ongoing COVID-19 pandemic, it was not possible to conduct follow-up observations. As shown, the queues in the northbound shared left-turn/through lane at Kamehameha Highway/Kanuku Street and the westbound approach to Kamehameha Highway/Kaonoahi Street will exceed the available capacity in the PM peak hour, as they do under existing conditions. Additionally, the westbound left-turn lane and the westbound approach at Kamehameha Highway/Pali Momi Street will exceed available capacity in the PM peak hour. Based on anecdotal observations, queues under existing conditions are at or near capacity, such that these results are to be expected.



Under Future (2025) No Project Conditions, the reported congestion and queueing issues at Kaonohi Street/Moanalua Loop and Kaonohi Street/Moanalua Road is also expected to be exacerbated.

Table 6: Future (2025) No Project Intersection Queues

Intersection	Peak Hour	Movement	Capacity	95 th Percentile Queue (ft) ¹
1. Kamehameha Hwy/Kanuku St.	AM	EBL	250	65
		WBL	250	55
		NBL/T	125	46
		NBR	125	0
	PM	SBL/T	> 200	237
		SBR	75	26
		EBL	250	89
		WBL	250	82
		NBL/T	125	168
		NBR	125	42
2. Kamehameha Hwy/Kaonohi St.	AM	SBL/T	> 200	125
		SBR	75	23
		EBL	200	93
		SBR	400	28
	PM	EBL	200	175
		SBR	400	44
		EBL	450	169
		WBL	125	110
		SBR	225	51
		EBL	450	162
Kamehameha Hwy/Pali Momi St.	AM	WBL	125	110
	PM	WBL	125	148
		SBR	225	223

Source: Fehr & Peers, 2020.

Notes:

¹ Queues that exceed available capacity highlighted in **bold**.



5. Project Traffic Estimates

This section describes the anticipated number of vehicle trips and the directionality of those trips that would result from implementation of the proposed project. Future traffic added to the roadway system by the project is estimated using a three-step process: (1) project trip generation, (2) trip distribution, and (3) trip assignment. The first step estimates the amount of project-generated traffic that would be added to the roadway network. The second step estimates the direction of travel to and from the project site. The new trips are assigned to specific street segments and intersection turning movements during the third step. This process is described in more detail in the following sections.

5.1 Project Trip Generation Estimates

Based on the *Bus/Rail Integration Plan for the Kamehameha Highway Station Group* (HART, 2014), which is the latest available plan for bus activity at the Pearlridge Bus Transit Center, the project is anticipated to serve 72 total bus trips in each of the peak hours. Routes A, 11, 32, 42, 53, and 71 will be discontinued, while a modified route 54 and new routes 541, 542, 543, 544, 545, 546, and 548 will provide new service to the study area. Planned service by direction is summarized in **Table 7**. No trip credit or reduction was applied for discontinued or rerouted bus service.

In addition to bus trips, there will also be pedestrian, bicycle, Kiss & Ride, and Park & Ride trips to the project or to the HART rail station. Park & Ride stalls will not be provided at the project site, but it is anticipated that some transit users may attempt to use adjacent commercial lots or nearby residential on-street parking, and therefore an estimate of these trips is included for traffic analysis purposes. Daily demand for each mode is based on the *Bus/Rail Integration Plan*, and a factor of 15% was assumed to be the share of trip demand for each of these modes in each peak hour. The total demand by mode is summarized in **Table 8**. It is important to note that this demand is for the Kalauo Pearlridge Station and the Pearlridge Bus Transit Center combined, and it is anticipated that the rail station will generate a larger demand for each mode (except for bus trips) than the proposed project.



Table 7: Planned Transit Service at the Proposed Project

Route	From	To	Peak Hour Trips			Headway (min)	
			In	Out	Total	Peak	Mid-Day
40	Honolulu	Makaha	3	3	6	20 min	20 min
40	Makaha	Honolulu	3	3	6	20 min	20 min
51	Honolulu	Wahiawa	4	4	8	15 min	15 min
51	Wahiawa	Honolulu	4	4	8	15 min	15 min
54	Pearlridge	Honolulu	4	4	8	15 min	20 min
541	Halawa Heights	Pearlridge	4	4	8	15 min	30 min
542/546	Pearlridge	Aiea Heights/Kaahumanu	2	2	4	30 min	60 min
542/546	Aiea Heights/Kaahumanu	Pearlridge	2	2	4	30 min	60 min
543/545	Pearlridge	Kaonohi/Royal Summit/ Newtown	2	2	4	30 min	60 min
543/545	Kaonohi/Royal Summit/ Newtown	Pearlridge	2	2	4	30 min	60 min
544	Pearlridge	Kilnoe Street	2	2	4	30 min	60 min
548	Pearl City	Pearlridge	2	2	4	30 min	60 min
548	Pearlridge	Pearl City	2	2	4	30 min	60 min
Total Trips			36	36	72		

Source: Fehr & Peers, 2020; Bus/Rail Integration Plan for the Kamehameha Highway Station Group (HART, 2014).

Table 8: Forecasted Project Trips by Mode

Mode	Daily Demand	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Walk	441	66	66	132	66	66	132
Bike	49	7	7	14	7	7	14
Kiss & Ride	230	35	35	70	35	35	70
Park & Ride	60	9	9	18	9	9	18

Source: Fehr & Peers, 2020; Bus/Rail Integration Plan for the Kamehameha Highway Station Group (HART, 2014).



5.2 Project Trip Distribution and Assignment

The route alignment of each planned bus route is shown on **Figure 5**. As shown, buses generally travel along Kamehameha Highway, and most routes also include Kaonohi Street. Eastbound buses arriving at the transit center are assumed to enter the project site via the inbound Kamehameha Highway driveway. Westbound buses arriving at the transit center will need to use the Kanuku Street driveway. Eastbound buses exiting the transit center could exit the outbound Kamehameha Highway driveway; however, several bus routes must then make the eastbound left turn to head mauka-bound on Kaonohi Street, and it may be difficult given the proximity of the outbound driveway to the Kaonohi Street intersection. These buses are instead assumed to exit the project site via the Kanuku Street driveway to provide a longer distance over which to make the necessary lane changes. Westbound buses exiting the transit center will all need to use the Kanuku Street driveway.

The distribution of other, non-bus project trips on the network was based on 2010/2011 turning movement volumes and complementary land uses. Similarly as for buses existing onto Kamehameha Highway, it may be difficult for vehicles to exit the Kiss & Ride driveway and cross into the eastbound left-turn lane; therefore, vehicles destined for northbound Kaonohi Street or westbound Kamehameha Highway were assumed to exit traveling eastbound on Kamehameha Highway and to U-turn at Pali Momi Street. The project trip assignment for each turning movement at the study intersections and project driveways is shown on **Figure 6**.



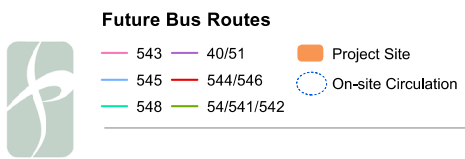
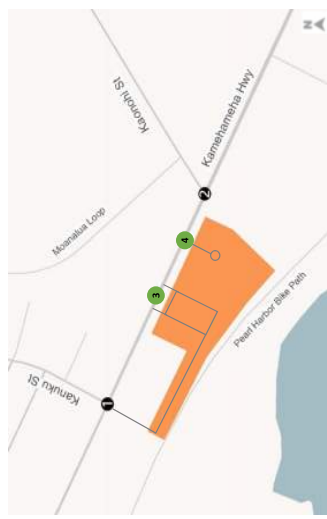


Figure 5

Planned Bus Service Routes



1. Kamehameha Hwy/Kanuku St	2. Kamehameha Hwy/Kaonohi St	Kamehameha Hwy/Fall Momi St
<p>21+15 (10-15) 6 (3) 21+7 (1+4) 2 (4) 21 (21) 12 (24) 2 (4) 19 (2+4)</p>	<p>35+7+20 (35+4+20) 15 (15) 35+7+20 (35+4+20) 7 18+1+21 (38+3+21) 3+1 (5+2) 12 (24) 21+6+7 (0+2+7) 0 (0)</p>	<p>12 (24) 21+6+7 (0+2+7) 0 (0) 8+2+7 (18+3+7) 0 (0)</p>
3. Kamehameha Hwy/Bus Driveways		
<p>21+3+25 (43+6+25) 35+7+20 (35+4+20) 15 (15) 7+27 (4+27) 35 (35) 35 (35)</p>		
1. Kamehameha Hwy/Kanuku St	2. Kamehameha Hwy/Kaonohi St	4. Kamehameha Hwy/Kiss & Ride Dwy
<p>35+7+20 (35+4+20) 15 (15) 35+7+20 (35+4+20) 7 18+1+21 (38+3+21) 3+1 (5+2) 12 (24) 21+6+7 (0+2+7) 0 (0)</p>	<p>35+7+20 (35+4+20) 15 (15) 35+7+20 (35+4+20) 7 18+1+21 (38+3+21) 3+1 (5+2) 12 (24) 21+6+7 (0+2+7) 0 (0)</p>	<p>21+3+25 (43+6+25) 35+7+20 (35+4+20) 15 (15) 7+27 (4+27) 35 (35) 35 (35)</p>

- Study Intersection
- XX Kiss & Ride Trips
- XX Park & Ride Trips
- XX Bus Trips
- XX Signalized
- XX Project Driveway (right-in/right-out)
- XX AM (PM) Peak Hour Traffic Volume

*This intersection consists of three signals, which were analyzed separately in the traffic analysis

Figure 6

Project Trip Assignment



6. Future (2025) Plus Project Conditions

This section describes the analysis of potential impacts on the roadway system due to projected future increases in traffic, including traffic generated by the project in 2025. The Future (2025) Plus Project roadway network is the same network assumed under the Future No Project scenario. The analysis compares the project levels of service (LOS) at each study intersection with and without the addition of project-generated trips to determine potential impacts to the transportation network.

6.1 Future (2025) Plus Project Intersection Levels of Service

To forecast the peak hour operating conditions at each study intersection, the project trip assignment was superimposed on Future (2025) No Project traffic volumes to yield Future (2025) Plus Project volumes. As previously mentioned, no credit was taken for discontinued or modified bus service in the project area.

Figure 7 presents the forecasted Future (2025) Plus Project AM and PM peak hour volumes. The peak hour volumes were used to analyze operations using the LOS methodology described in **Section 2.4**. The addition of bus traffic was additionally accounted for by adjusting the heavy vehicle percentage as an input to the LOS calculation.

The comparative LOS analysis results for the study intersections under Future (2025) Without and With Project conditions are presented in **Table 9**. Detailed LOS results are included in **Appendix D**, including intersections outside of the study area that were included to account for the coordinated signals along Kamehameha Highway. The results presented in **Table 9** indicate that under Future (2025) Plus Project conditions, operations are largely unchanged with the addition of project-generated traffic. The largest effect is seen at Kamehameha Highway/Kaonoahi Street, where project traffic increases the average delay by 11.6 seconds, degrading LOS C operations to LOS D. Therefore, the project is not forecasted to cause a significant impact at the intersection level at the study locations.

Table 10 summarizes the results of the queue analysis for the study intersections under Future Without and With Project Conditions, and detailed queue reports are provided in **Appendix E**, including intersections outside of the study area that were included to account for the coordinated signals along Kamehameha Highway. As shown, project traffic generally does not increase queues by more than 50 feet (i.e., two car lengths or one standard bus length). Locations that experience queue increases beyond that in the AM peak hour are the westbound left-turn lane and the eastbound approach at Kamehameha Highway/Kanuku Street, where queues are still contained within available storage, and in the PM peak hour are the westbound approaches to Kamehameha Highway/Kaonoahi Street and Kamehameha Highway/Pali Momi Street, where project traffic increases queues by up to 185 feet. These queues exceed available capacity and extend into upstream intersections both without and with the project.

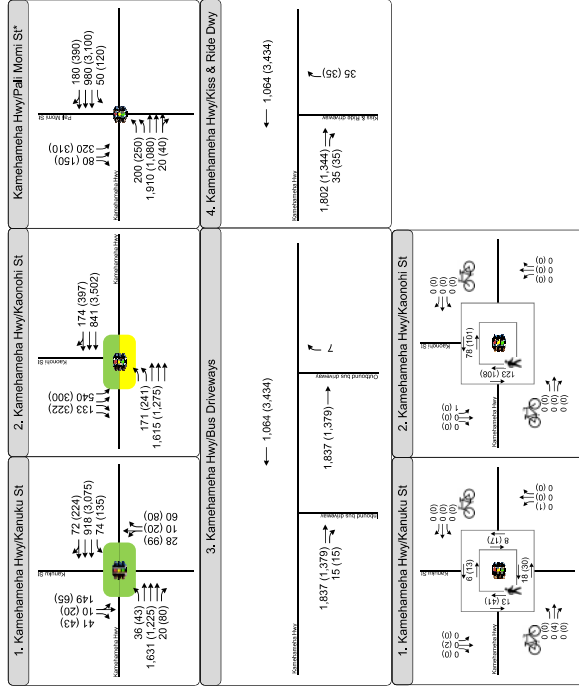
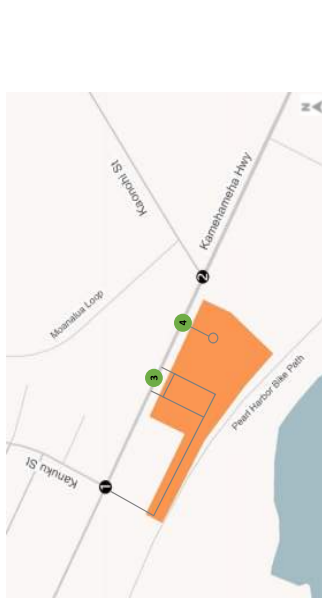


Figure 7
Peak Hour Traffic Volumes and Lane Configurations - Future (2025) Plus Project Conditions

*This intersection consists of three signals, which were analyzed separately in the traffic analysis.

Table 10: Future (2025) Without and With Project Intersection Queues

Intersection	Peak Hour	Movement	Capacity	95 th Percentile Queue (ft)	
				Future No Project Conditions	Future Plus Project Conditions
1. Kamehameha Hwy/Kanuku St	AM	EBL	250	65	77
		WBL	250	55	148
		NBL/T	125	46	75
		NBR	125	0	44
		SBL/T	> 200	237	252
	SBR	75	26	27	
	PM	EBL	250	89	92
		WBL	250	82	117
		NBL/T	125	168	183
		NBR	125	42	48
SBL/T		> 200	125	133	
2. Kamehameha Hwy/Kaonohi St	AM	SBR	75	23	26
		EBL	200	93	132
		SBR	400	28	30
		EBL	200	175	188
		SBR	400	44	45
	PM	EBL	450	169	178
		WBL	125	110	107
		SBR	225	51	76
		EBL	450	162	180
		WBL	125	148	146
Kamehameha Hwy/Pali Momi St	PM	SBR	225	223	240

Source: Fehr & Peers, 2020.

Notes:

¹ Queues that exceed available capacity highlighted in **bold**.

These results indicate that additional capacity is needed for the northbound approach at Kamehameha Highway/Kanuku Street both without and with the project traffic. Since the project does not add more than 50 feet (i.e., two (2) vehicle lengths) to this movement, this does not constitute a significant impact. However, this queue could be reduced by restriping the northbound approach with a separate left-turn lane and a shared through/right-turn lane; this restriping is projected to reduce the queue to 155 feet in the PM peak hour, which still exceeds the available capacity. It is noted that this improvement would not require a signal modification. However, because the projected average queue of 111 feet in the PM peak



Table 9: Future (2025) Without and With Project Intersection Levels of Service

Intersection	Traffic Control	Peak Hour	Future No Project Conditions				Future Plus Project Conditions				Change in Delay	
			Intersection Delay (sec/veh) ¹	Intersection LOS	Worst Movement	Worst Movement LOS	Intersection Delay (sec/veh) ¹	Intersection LOS	Worst Movement	Worst Movement LOS	Intersection	Worst Movement
1. Kamehameha Hwy/Kanuku St	Signalized	AM	6.4	A	EBL	F	8.2	A	EBL	F	+1.8	-3.5
		PM	17.8	B	EBL	F	20.4	C	EBL	F	+2.6	-1.0
2. Kamehameha Hwy/Kaonohi St	Signalized	AM	16.3	B	EBL	F	16.5	B	EBL	F	+0.2	-2.2
		PM	31.4	C	WBT	F*	42.0	D	WBT	F*	+10.6	+16.8

Source: Fehr & Peers, 2020.

Notes:

¹ Whole intersection weighted average stopped delay expressed in seconds per vehicle for signalized intersections.

* LOS F is due to the vehicle-to-capacity ratio exceeding 1.00.



hour can be accommodated within available storage, this improvement should only be implemented if on-site queuing becomes a problem at this location.

The results also show that adding project traffic to the southbound right-turn movement at Kamehameha Highway/Pali Momi Street will cause the queue to extend beyond available capacity during the PM peak hour, which constitutes a significant impact. Because the queue is only expected to exceed capacity by at most one (1) vehicle, and because (as the 95th percentile queue) this will occur very rarely, no mitigation is recommended at this location. If desired, one potential improvement would be to modify the signal timing at Pali Momi Street Inbound/Pali Momi Street Outbound to be coordinated with the two signals along Kamehameha Highway, which would effectively increase storage capacity by ensuring vehicles are not trapped between signals.

It is also noted that this calculation does not differentiate between standard and articulated buses, and accordingly the projected queues could be approximately 20 feet longer than calculated (assuming one articulated bus per cycle). This adjustment would exacerbate locations where queues are already projected to exceed available capacity, but would not result in any additional locations queuing beyond available capacity.

Although not analyzed quantitatively, as noted under Existing Conditions, the southbound queue at Kamehameha Highway/Kaonohi Street blocks the Kaonohi Street/Moanalua Loop intersection. This queuing issue is expected to be exacerbated under Future (2025) No Project Conditions. The project is not projected to substantially increase queue lengths. However, the improvement would be to install “Keep Clear” signage and striping to maintain access for Moanalua Loop both to and from Kaonohi Street.

Additionally, as noted under Existing Conditions, there is congestion at Kaonohi Street/Moanalua Road in the northbound left-turn pocket in the PM peak hour. This congestion is also expected to be exacerbated under Future (2025) No Project Conditions. There is only one bus route that would add traffic to the northbound left-turn movement at this intersection, route 548, which will only have two (2) buses per hour traveling in this direction. Therefore, the project is not expected to substantially exacerbate this existing issue.



7. Multimodal Assessment

This chapter includes a review of the site access and on-site facilities and circulation for buses, other vehicles, pedestrians, and bicyclists.

7.1 Transit Facilities and Services

Bus access and egress to/from the site will be provided via three driveways: 1) a full-access driveway on Kanuku Street which will be located immediately south of the existing Best Buy overflow parking lot driveway, 2) a right-turn inbound-only driveway from eastbound Kamehameha Highway located approximately 300 feet east of Kanuku Street and 30 feet east of the Best Buy driveway on Kamehameha Highway, and 3) a right-turn outbound-only driveway to eastbound Kamehameha Highway located immediately west of the planned rail station and approximately 1,200 feet east of the inbound driveway. In addition to buses, access is also provided for Handi-Vans, which provide public transit service for persons with disabilities, as well as private vehicles for pick-up/drop-off. These vehicles will access the site via a separate right-turn in/right-turn out driveway located immediately east of the planned rail station, which will terminate in a cul-de-sac with no vehicular connection to the bus circulation area.

Note that a minimum stopping sight distance of 305 feet in the ewa direction on the highway should be provided at the outbound driveways (one from the bus center and one from the Kiss & Ride area). These requirements will need to be included on the final construction plans (prepared by others) and are based on a design speed of 40 mph (i.e., 5 mph above the posted limit of 35 mph). This will require that no vertical elements above 2.5 feet be installed in this area, and that all tree canopies be pruned to no less than 8 feet to account for a higher driver eye height for bus drivers.

To minimize conflicts between buses and vehicles circulating within the Diamond Head Best Buy parking lot, a new two-way, bus-only driveway will be constructed. This separate driveway will connect Kanuku Street to the bus transit center and allow buses to utilize the traffic signal at Kanuku Street to access the site.

The site plan includes bus bays, bus charging spots, and two-way circulation throughout the transit center. Private vehicles will be prohibited from accessing these areas of the site via “Bus Only” or similar signage located at each relevant driveway. Vehicle turning templates were evaluated to determine appropriate space for both standard and articulated buses to maneuver through the site, as well as into and out of each applicable driveway. Bus turning templates are provided in **Appendix G**.

The proposed project is a bus transit center, and accordingly the provided service and amenities are deemed sufficient to serve the forecasted transit patron demand by design.



7.2 Other Vehicle Facilities

Kiss & Ride and Handi-Van Vehicles will only circulate along the cul-de-sac driveway located immediately east of the rail station. Signing and curb markings will indicate appropriate locations for drivers of each of these vehicle types to stop and load/unload passengers.

Emergency access will be provided via Kanuku Street and the project driveways along Kamehameha Highway.

While it is anticipated that some number of transit center users will use the adjacent commercial lots or residential on-street parking for Park & Ride service, it is expected that the number of users doing this will be low, approximately nine (9) people in an hour. In consultation with the affected property owners, signage and enforcement should be used to discourage this activity if appropriate.

7.3 Bicycle Facilities

Within the project study area, implementation of the proposed project is not expected to conflict with any existing bikeways or planned bicycle facilities included in the *2019 Oahu Bike Plan Update*.

Bicyclists will access the site via the roadway network or the Pearl Harbor Bike Path, a high-quality, two-way bicycle path that extends from Pearl Harbor to the east to Waipahu to the west. A shared-use connection for bicyclists and pedestrians linking the Pearl Harbor Bike Path to the site will be provided in the southeast corner of the site. Wayfinding signage may be provided to guide cyclists from the Pearl Harbor Bike Path to the bus transit center. The shared-use path will provide on-site bicycle access to both the bus center and rail station. Bike racks will be provided at the southeast corner of the rail station.

7.4 Pedestrian Facilities

Within the project study area, implementation of the proposed project is not expected to conflict with any existing or planned pedestrian facilities, according to the *Primary Urban Center Development Plan (2004)*.

Pedestrians will access the site via existing sidewalks along Kamehameha Highway and new proposed sidewalk sections where the project fronts the highway, excluding the portion immediately fronting the HART rail station. The one-way project driveways will be made as narrow as possible while providing appropriate bus turning radii, and high-visibility crosswalks will be installed to make these crossings comfortable for pedestrians.

Sidewalks and crosswalks are provided on site to connect pedestrians between bus stops and between the bus center and rail access. Sidewalks throughout the site, including the one along the highway frontage of the transit center, will be designed to be eight (8) feet wide to provide sufficient space for pedestrians consistent with the City & County of Honolulu *Aiea-Pearl City Neighborhood TOD Plan* (September 2014) guidelines, the City & County of Honolulu *Complete Streets Design Manual* guidelines, and best practices. The shared-use path located to the south of the rail station provides a connection between Kiss & Ride or



Handi-Van and the bus center, and also provides a lower-stress connection from the Kamehameha Highway/Kaonohi Street intersection or the rail station and the bus center.

As noted under Existing Conditions, anecdotal evidence indicates that the raised median island in the mauka-ewa corner of the Kamehameha Highway/Kaonohi Street intersection does not provide sufficient capacity for crossing pedestrians to stage between pedestrian phases. It was observed that when a bus unloads, there is occasionally a cluster of pedestrians that fills the waiting area of the refuge island. This issue will be exacerbated by additional pedestrian demand from the bus center in the future. In addition, pedestrian demand is expected to increase at the Kanuku Street intersection as transit patrons access both transit facilities. As noted under **Section 5.1**, it is anticipated that the rail station will generate a larger pedestrian demand than the proposed project.

To enhance safety for people traversing these intersections, various pedestrian improvements were analyzed at these locations, including the following:

- Modifying the signal timing to provide a leading pedestrian interval for all crossings with a conflicting permitted movement at both intersections.
- Modifying the signal timing at the Kaonohi Street intersection to allow consecutive pedestrian phases for pedestrians departing the transit center via a pedestrian-only phase.

Each scenario is detailed in the following sections.

7.4.1 Leading Pedestrian Interval

A leading pedestrian interval (LPI) is a period during which all vehicles have a red light, and the pedestrian phase is provided with at least three (3) seconds for pedestrians to start crossing. This increases pedestrian safety by allowing pedestrians to get further into the intersection before a permitted turn would occur, increasing pedestrian visibility to drivers. LPI treatments were tested at the Kamehameha Highway/Kanuku Street intersection as one of the two primary access points for pedestrians accessing the proposed transit center. It was determined that an LPI would not be beneficial for Kamehameha Highway/Kaonohi Street, because there are no permitted turn movements that would conflict with pedestrians on either crossing, and accordingly an LPI was not applied for this location. The LPI was modeled by increasing the red time of each phase that immediately precedes a relevant pedestrian crossing.

7.4.2 Pedestrian-Only Phase

While the rail station provides access to both the makai and mauka sides of Kamehameha Highway, the Pearlridge Bus Transit Center is located at street level on the makai side of the street, such that project-generated pedestrian traffic is expected to use the signalized intersections to cross Kamehameha Highway instead of traveling through the rail station. It is anticipated that pedestrian traffic traveling to the project site will be somewhat dispersed, with transit riders arriving over time before bus departures. However, pedestrians departing from the transit center will be more clustered, with numerous transit riders alighting buses at one time. Therefore, pedestrians crossing at Kamehameha Highway/Kaonohi Street are most likely to cross in larger groups, first northbound and then eastbound or westbound.



A phase that is devoted only to pedestrian movement could be implemented at Kaonohi Street to facilitate pedestrian progression across the intersection. By providing a pedestrian-only phase for the east-west crossing immediately after the north-south crossing phase, the clustering of pedestrians on the pedestrian island located in the northwest corner of the intersection would be minimized. By reassigning time from the southbound phases and eastbound left-turn phases only, the eastbound and westbound traffic progression can remain largely unchanged.

Additional green time could be provided to the eastbound through and westbound through movements during this pedestrian crossing phase if desired by HDOT and/or the City & County of Honolulu Department of Transportation Services. However, in the westbound direction this phasing would be atypical and inconsistent with driver expectations, because the westbound direction would first get a green light, then would transition to red while the opposing left-turn phase was served, and then would again get a green light without cycling through the southbound movement.

In the eastbound direction, a potential concern would be that traffic would progress through the intersection towards Lipoa Place and queue there for a longer period than occurs now. This could cause spillback, such that vehicles would spill back to the intersection at Kaonohi Street. While these vehicles should be able to flush out without interfering with other movements, the spillback could cause drivers to behave aggressively to avoid stopping in the intersection.

For these reasons, the results presented below assume that the new crossing phase is conservatively assumed to be pedestrian-only, without any additional green time provided to vehicles. The pedestrian-only phase was modeled by introducing a dummy phase for the northbound approach that was assigned a pedestrian recall mode that serves no vehicles, which assumes that the pedestrian-only phase is called during every cycle of the signal. The LPI described in **Section 7.4.1** was also assumed for this scenario.

7.4.3 Other Modifications Considered

The same pedestrian enhancement described above could be implemented without requiring reduction in vehicle phase splits with a lagging left-turn phase for eastbound vehicles on the highway. Providing a lagging left-turn phase would allow the east-west pedestrian crossing to immediately follow the north-south pedestrian crossing. This would also provide an optimized pedestrian crossing for clusters leaving the transit center as described in **Section 7.4.2**.

Changing to a lagging left-turn phase would potentially be problematic if the eastbound left-turn queue were to extend beyond the available storage. However, this is not the case under any Future scenario. A lagging eastbound left-turn phase will also have the potential to interfere with eastbound and westbound traffic progression because the Kamehameha Highway roadway is coordinated. This is particularly critical in the PM peak hour when the westbound direction is the peak direction of travel. During this period, the signal timing would require modification to minimize progression issues through this intersection. Given the fact that westbound traffic is extremely congested in the PM peak hour under the Future Plus Project Conditions, this modification is not recommended for Kamehameha Highway.



Another modification that would benefit pedestrians would be to remove one southbound right-turn lane on the southbound approach to Kamehameha Highway. This would increase visibility of pedestrians for vehicles who are turning right on red, and the additional space could be allocated to additional pedestrian refuge island space to better accommodate the large volumes of pedestrians. Because this improvement would require more substantial physical modifications to the intersection, it is not analyzed as part of this report.

7.4.4 Intersection Level of Service Results with Pedestrian Enhancements

The results of each of these pedestrian enhancements under Future Plus Project Conditions are summarized below in **Table 11**. Detailed LOS results for intersection movements and corresponding LOS calculation sheets are included in **Appendix D**. The results presented in **Table 11** indicate that an LPI and/or a pedestrian-only phase can be provided at the study intersections as proposed without substantially affecting overall intersection operations. However, at Kamehameha Highway/Kaonohi Street, vehicles will experience an average increase in delay of 10.1 seconds in the PM peak hour. Furthermore, the eastbound left turn at Kamehameha Highway/Kaonohi Street, which is the movement with the highest delay at this intersection, will experience an increase in delay of 14.5 seconds. Despite this additional delay, the projected 95th percentile queue for this movement could be accommodated by the planned storage capacity (see detailed queuing reports in **Appendix E**).



Table 11: Future Plus Project Comparison of Pedestrian Enhancement Intersection Levels of Service

Intersection	Traffic Control	Peak Hour	No Enhancements			Leading Pedestrian Interval			Pedestrian-Only Phase			Change in Delay compared to No Enhancements									
			Intersection Delay (sec/veh) ¹	Intersection LOS	Worst Movement(s)	Intersection Delay (sec/veh) ¹	Intersection LOS	Worst Movement(s)	Intersection Delay (sec/veh) ¹	Intersection LOS	Worst Movement(s)	Intersection Delay (sec/veh) ¹	Intersection LOS	Worst Movement(s)	Intersection Delay (sec/veh) ¹	Intersection LOS	Worst Movement(s)				
1. Kamehameha Hwy/Kanuku St	Signalized	AM	8.2	A	EBL	8.2	A	EBL	8.2	A	F	8.2	A	EBL	F	8.2	A	EBL	F	0.0	0.0
		PM	20.4	C	EBL	26.2	C	EBL	14.7	B	F	14.7	B	EBL	F	14.7	B	EBL	F	-3.7	0.0
2. Kamehameha Hwy/Kaonohi St	Signalized	AM	16.5	B	EBL	16.5	B	EBL	21.3	C	F	21.3	C	EBL	F	21.3	C	EBL	F	+4.8	+16.7
		PM	42.0	D	WBT EBL	42.0	D	WBT EBL	52.1	D	F* E	52.1	D	WBT EBL	F* E	52.1	D	WBT EBL	F* E	+10.1	+15.1 +14.5

Source: Fehr & Peers, 2020.

Notes:

¹ Whole intersection weighed average stopped delay expressed in seconds per vehicle for signalized intersections.

* LOS F is due to the vehicle-to-capacity ratio exceeding 1.00.



HDOT Historic Counts

Roadway			HDOT										
			Year	AM			PM			Daily			
				SB/EB	NB/WB	Tot	SB/EB	NB/WB	Tot	SB/EB	NB/WB	Tot	
Kanuku		Hekaha to Pahemo	2013	145	65	210	74	170	244	1336	1546	2882	
				140	68	208	71	167	238	1419	1552	2971	
			2016	86	75	161	105	49	154	1160	995	2155	
				50	97	147	92	66	158	1029	987	2016	
Kaonohi		Moanalua Lp to Moanalua Rd	2013	972	262	1234	515	470	985	9187	6101	15288	
				422	411	833	361	484	845	6550	5814	12364	
			2016	406	426	832	388	449	837	5742	6126	11868	
				453	492	945	436	549	985	6168	6494	12662	
Kam Hwy	B72009901854	between Puu Poni Street and H-1	2013	2118	617	2735	892	194	2386	18250	19627	37877	
				1884	554	2438	1064	1349	2413	16772	21926	38698	
	B72009901928	Overpass at median guardrail	2018	1382	275	1657	680	1128	1808	11717	12683	24400	
				794	854	1648	656	1181	1837	11811	13322	25133	
				2019	837	871	1708	546	1290	1836	11714	13556	25270
					1334	313	1647	680	1128	1808	11609	12765	24374
	B72009902025		at Kalauao Stream Bridge	2013	3067	603	3670	1440	2480	3920	26958	26693	53651
					2773	790	3563	1349	2501	3850	26962	26893	53855
				2018	1919	559	2478	1243	1670	2913	19356	18238	37594
					1226	1469	2695	1219	1854	3073	21108	19343	40451
2019				2006	498	2504	1183	1737	2920	20411	17435	37846	
				1502	1316	2818	2074	1712	3786	25331	18152	43483	

Appendix A: Historic Traffic Count Data

DATE OF COUNTS:
OCTOBER 14 & 16, 2010 and
MAY 10 & 14, 2011

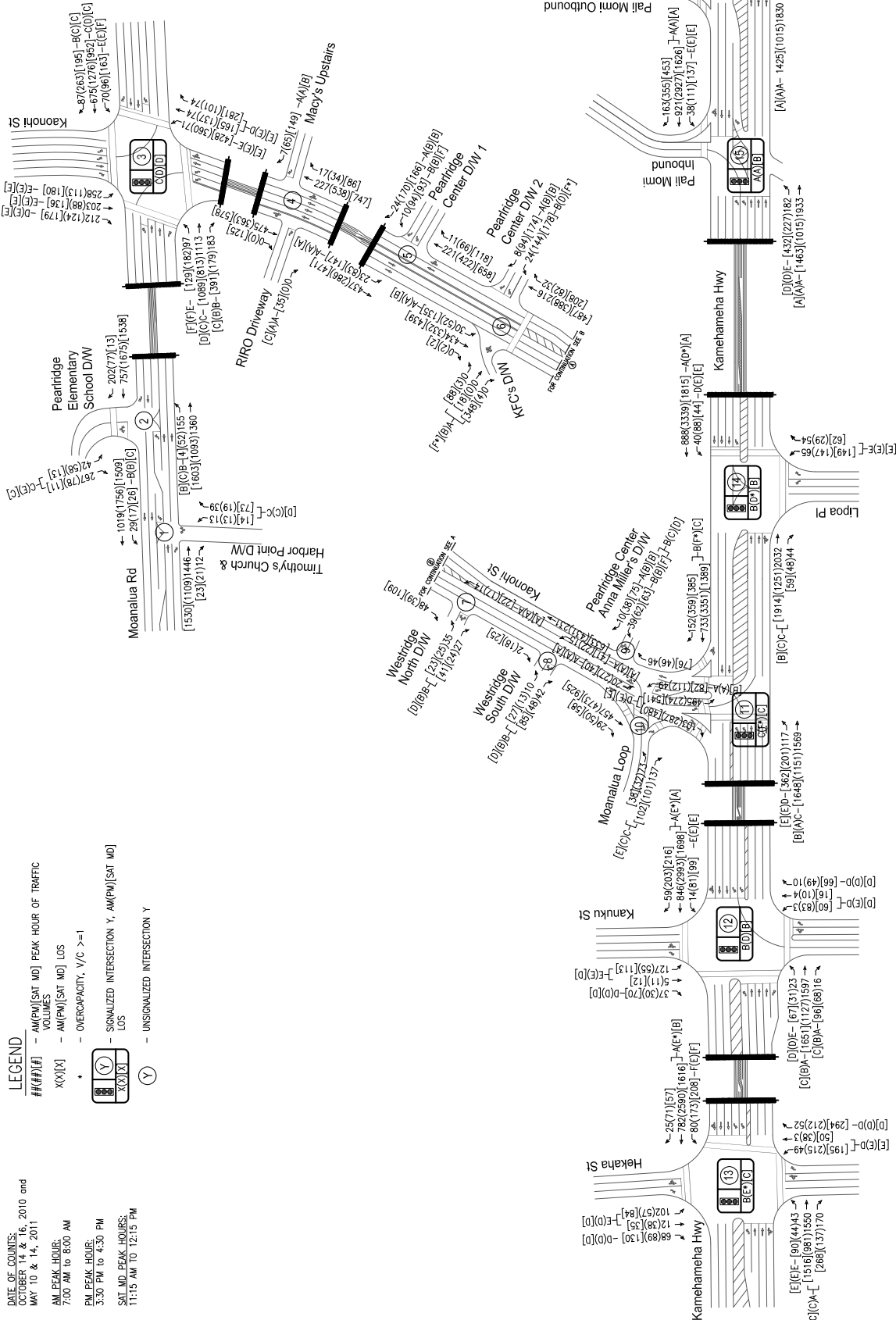
AM PEAK HOUR:
7:00 AM to 8:00 AM

PM PEAK HOUR:
3:30 PM to 4:30 PM

SAT. MD. PEAK HOURS:
11:15 AM TO 12:15 PM

LEGEND

##(##)## - AM(PM)(SAT MD) PEAK HOUR OF TRAFFIC VOLUMES
X(X)X - AM(PM)(SAT MD) LOS
* - OVERCAPACITY, V/C >= 1
X(X)X - SIGNALIZED INTERSECTION Y, AM(PM)(SAT MD) LOS
Y - UNSIGNALIZED INTERSECTION Y



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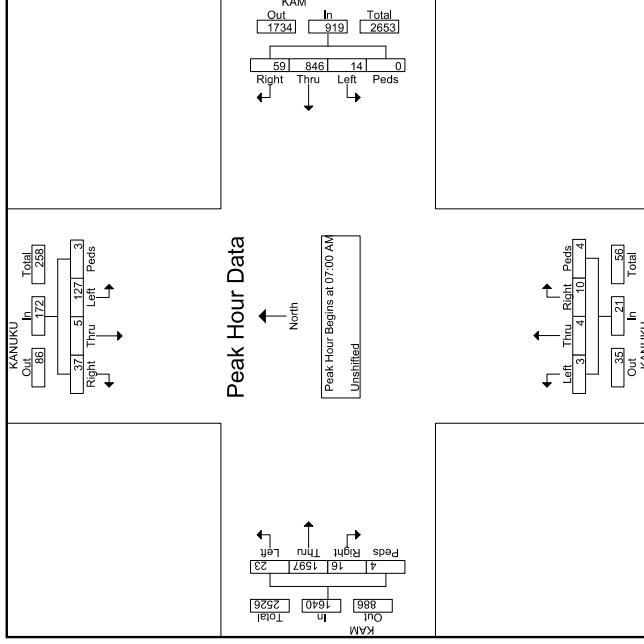
File Name : AM_Kanuku - Kamehameha new
 Site Code : 00000000
 Start Date : 5/10/2011
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Start Time	KANUKU From North			KAM From East			KANUKU From South			KAM From West			Int. Total				
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left					
06:30 AM	2	1	28	1	12	86	2	2	1	0	3	352	2	1	495		
06:45 AM	5	2	36	3	14	175	2	0	3	1	1	466	2	4	716		
Total	7	3	64	4	26	261	4	0	5	3	2	818	4	5	1211		
07:00 AM	6	1	40	1	14	163	3	0	0	1	1	3	444	4	3	684	
07:15 AM	7	2	41	0	17	219	2	0	4	3	0	3	418	10	1	728	
07:30 AM	13	0	23	2	16	217	4	0	2	1	1	5	408	3	0	696	
07:45 AM	11	2	23	0	12	247	5	0	4	0	1	5	327	6	0	644	
Total	37	5	127	3	59	846	14	0	10	4	3	16	1597	23	4	2752	
08:00 AM	5	3	23	0	14	186	2	0	5	0	2	8	257	4	7	516	
08:15 AM	5	1	13	1	17	201	3	0	4	1	1	2	3	232	5	0	489
Grand Total	54	12	227	8	116	1494	23	0	24	8	6	31	2904	36	16	4968	
Approach %	17.9	4	75.4	2.7	7.1	91.5	1.4	0	51.1	17.7	12.8	19.1	1	97.2	1.2	0.5	
Total %	1.1	0.2	4.6	0.2	2.3	30.1	0.5	0	0.5	0.2	0.1	0.2	0.6	58.5	0.7	0.3	

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Start Time	KANUKU From North			KAM From East			KANUKU From South			KAM From West			Int. Total							
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left								
07:00 AM	6	1	40	1	48	14	163	3	0	180	0	0	1	2	3	444	4	3	454	
07:15 AM	7	2	41	0	50	17	219	2	0	238	4	3	0	1	8	3	418	10	1	432
07:30 AM	13	0	23	2	38	16	217	4	0	237	2	1	1	1	5	5	408	3	0	416
07:45 AM	11	2	23	0	36	12	247	5	0	264	4	0	1	1	6	5	327	6	0	338
Total	37	5	127	3	172	59	846	14	0	919	10	4	3	4	21	16	1597	23	4	1640
% App. Total	21.5	2.9	73.8	1.7	6.4	92.1	1.5	0	47.6	19	14.3	19	1.0	656	800	899	575	333	903	945



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Start Time	KAONOHI From North			KAMEHAMEHA From East			KAONOHI From South			KAMEHAMEHA From West			Int. Total			
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left				
06:30 AM	14	0	122	18	118	0	0	0	0	0	0	0	583	20	15	904
06:45 AM	18	0	157	27	142	0	0	0	0	0	0	0	514	37	9	913
Total	32	0	279	45	260	0	0	0	0	0	0	0	1097	57	24	1819
07:00 AM	27	0	125	27	161	0	0	0	0	0	0	0	434	16	17	818
07:15 AM	22	0	145	35	155	0	0	0	0	0	0	0	422	29	18	838
07:30 AM	22	0	111	3	36	212	0	0	0	0	0	0	397	37	4	822
07:45 AM	32	0	114	12	54	190	0	0	0	0	0	0	316	35	15	768
Total	103	0	495	38	152	718	0	0	0	0	0	0	1569	117	54	3246
08:00 AM	40	0	95	33	221	0	0	0	0	0	0	0	337	23	9	767
08:15 AM	28	0	79	17	47	184	0	0	0	0	0	0	253	26	14	648
Grand Total	203	0	948	89	277	1383	0	0	0	0	0	0	3286	223	101	6480
Approach %	16.4	0	76.5	7.2	16.7	83.3	0	0	0	0	0	0	90.9	6.2	2.8	
Total %	3.1	0	14.6	4.3	21.3	0	0	0	0	0	0	0	50.2	3.4	1.6	

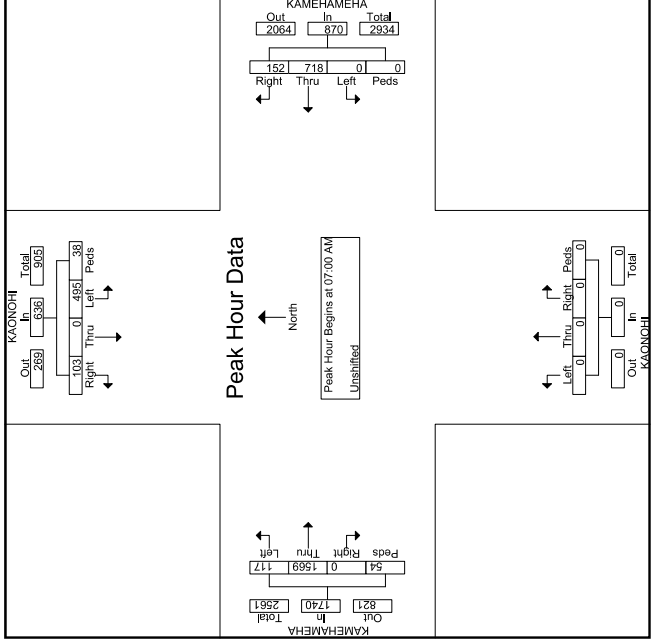
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Start Time	KAONOHI From North			KAMEHAMEHA From East			KAONOHI From South			KAMEHAMEHA From West			Int. Total			
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left				
07:00 AM	27	0	125	11	163	0	0	188	0	0	0	0	434	16	17	467
07:15 AM	22	0	145	12	179	35	155	0	0	0	0	0	422	29	18	838
07:30 AM	22	0	111	3	36	212	0	0	0	0	0	0	397	37	4	822
07:45 AM	32	0	114	12	54	190	0	0	0	0	0	0	316	35	15	768
Total	103	0	495	38	636	152	718	0	0	0	0	0	1569	117	54	3246
% App. Total	16.2	0	77.8	6	17.5	82.5	0	0	0	0	0	0	90.2	6.7	3.1	
PHF	805	0	853	792	888	704	847	0	0	0	0	0	904	791	750	968

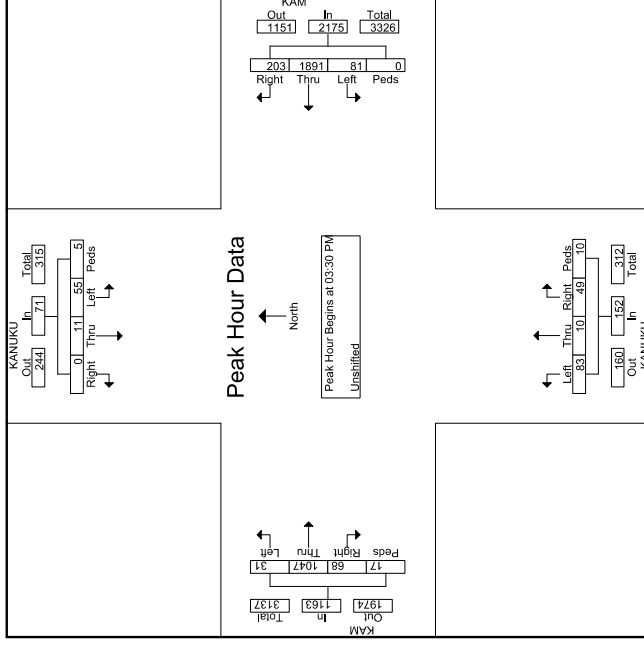


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	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left				
03:30 PM	0	4	13	0	13	20	0	13	24	2	19	268	14	6	900	
03:45 PM	0	4	18	0	12	25	0	12	23	4	15	275	4	3	906	
Total	0	8	31	0	25	45	0	25	47	6	34	543	18	9	1806	
04:00 PM	0	2	7	0	12	15	0	12	15	2	14	242	10	7	864	
04:15 PM	0	1	17	0	12	21	0	12	21	2	20	262	3	1	891	
04:30 PM	0	1	14	0	9	17	0	9	19	1	7	284	11	1	872	
04:45 PM	0	3	15	0	23	17	0	23	1	16	252	3	3	886		
Total	0	7	53	0	42	10	0	42	78	6	57	1040	27	12	3513	
05:00 PM	0	3	16	0	14	24	0	14	13	8	16	249	4	2	824	
05:15 PM	0	2	15	0	9	16	0	9	16	3	7	226	6	10	875	
05:30 PM	0	3	14	0	8	17	0	8	13	1	11	179	4	4	842	
05:45 PM	0	4	17	0	12	28	0	12	15	2	8	199	8	2	792	
Total	0	12	62	0	43	85	0	43	57	14	42	853	22	18	3333	
Grand Total	0	27	146	0	110	195	0	110	30	182	26	133	2436	67	39	8652
Approach %	0	14.1	76	0	9.7	86.7	0	31.6	8.6	52.3	7.5	5	91.1	2.5	1.5	
Total %	0	0.3	1.7	0.2	6.1	54.5	2.3	0	1.3	0.3	2.1	0.3	1.5	28.2	0.8	0.5

Start Time	KANUKU From North			KAM From East			KANUKU From South			KAM From West			Int. Total				
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left					
03:30 PM	0	4	13	0	18	20	0	13	24	2	19	268	14	6	900		
03:45 PM	0	4	18	0	25	25	0	12	23	4	15	275	4	3	906		
04:00 PM	0	2	7	0	18	15	0	12	15	2	31	242	10	7	864		
04:15 PM	0	1	17	0	10	17	0	12	21	2	20	262	3	1	872		
04:30 PM	0	1	14	0	9	17	0	9	19	1	7	284	11	1	886		
04:45 PM	0	3	15	0	23	17	0	23	1	16	252	3	3	886			
Total	0	11	55	0	71	93	0	71	83	10	152	1047	31	17	3561		
% App. Total	0	15.5	77.5	0	9.3	86.9	0	9.3	86.9	3.7	0	32.2	6.6	54.6	6.6	5.8	
PHF	.000	.688	.764	.417	.710	.832	.961	.810	.000	.989	.942	.833	.865	.625	.905	.850	.952



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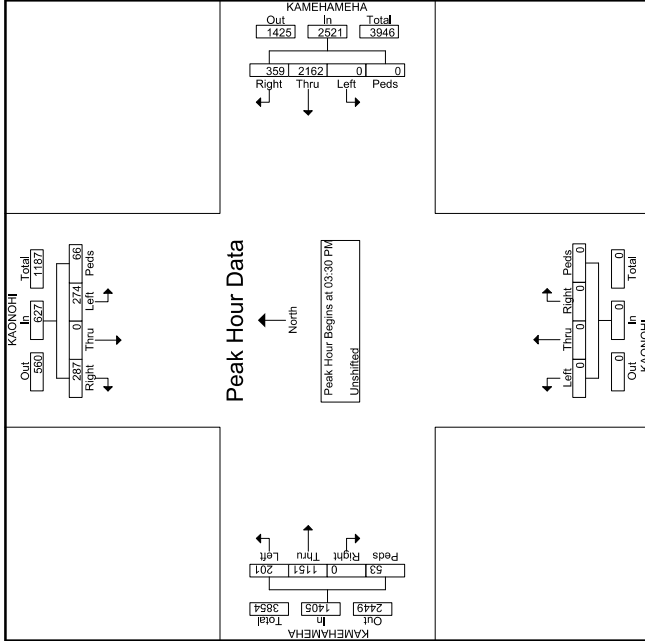
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	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		Peds		
03:00 PM	70	0	86	14	89	409	0	0	0	0	0	0	262	50	8	988
03:15 PM	76	0	58	20	83	445	0	0	0	0	0	0	278	35	21	1016
03:30 PM	68	0	58	20	70	536	0	0	0	0	0	0	288	63	10	1113
03:45 PM	70	0	71	14	81	519	0	0	0	0	0	0	284	43	14	1096
Total	284	0	273	68	323	1909	0	0	0	0	0	0	1112	191	53	4213
04:00 PM	74	0	83	21	107	527	0	0	0	0	0	0	300	44	17	1173
04:15 PM	75	0	62	11	101	580	0	0	0	0	0	0	279	51	12	1171
04:30 PM	81	0	83	18	76	507	0	0	0	0	0	0	269	65	20	1119
04:45 PM	72	0	73	10	98	575	0	0	0	0	0	0	255	48	7	1138
Total	302	0	301	60	382	2189	0	0	0	0	0	0	1103	208	56	4601
05:00 PM	74	0	69	13	58	454	0	0	0	0	0	0	233	52	7	960
05:15 PM	87	0	76	8	77	470	0	0	0	0	0	0	242	52	8	1020
Grand Total	747	0	719	149	840	5022	0	0	0	0	0	0	2690	503	124	10794
Approach %	46.3	0	44.5	9.2	14.3	85.7	0	0	0	0	0	0	81.1	15.2	3.7	
Total %	6.9	0	6.7	1.4	7.8	46.5	0	0	0	0	0	0	24.9	4.7	1.1	

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Start Time	KAONOHI From North			KAMEHAMEHA From East			KAONOHI From South			KAMEHAMEHA From West			Int. Total			
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		Peds		
03:00 PM	68	0	58	20	146	70	536	0	0	0	0	0	288	63	10	1113
03:15 PM	70	0	71	14	155	81	519	0	0	0	0	0	284	43	14	1096
03:30 PM	74	0	83	21	178	107	527	0	0	0	0	0	300	44	17	1173
03:45 PM	75	0	62	11	148	101	580	0	0	0	0	0	279	51	12	1171
Total	287	0	274	66	627	359	2162	0	0	0	0	0	1151	201	53	4553
% App. Total	45.8	0	43.7	10.5	14.2	85.8	0	0	0	0	0	0	81.9	14.3	3.8	
PHF	0.957	0.000	0.825	0.786	0.881	0.839	0.932	0.000	0.000	0.000	0.000	0.000	0.959	0.798	0.779	0.973



Default Comments
 Change These in The Preferences Window
 Select File/Preference in the Main Scree
 Then Click the Comments Tab

File Name : AM_Hekaha - Kamehameha - new
 Site Code : 00000000
 Start Date : 5/10/2011
 Page No : 1

Groups Printed - Unshifted

Start Time	HEKAHA From North			KAMEHAMEHA From East			HEKAHA From South			KAMEHAMEHA From West			In. Total					
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left						
06:30 AM	13	6	6	7	118	6	9	1	6	2	11	484	5	0	678			
06:45 AM	16	9	10	3	156	23	5	2	0	4	24	461	3	1	718			
Total	29	15	16	10	274	29	9	11	10	2	35	945	8	1	1396			
07:00 AM	10	2	15	7	148	13	0	6	0	9	2	29	445	9	0	695		
07:15 AM	18	3	25	9	198	21	0	3	12	6	2	35	423	5	0	762		
07:30 AM	23	5	31	3	205	24	0	3	13	1	18	4	52	369	15	0	766	
07:45 AM	17	2	31	6	231	22	0	9	21	2	16	1	54	313	14	0	740	
Total	68	12	102	25	782	80	0	15	52	3	49	9	170	1530	43	0	2963	
08:00 AM	13	6	15	6	144	33	0	3	15	0	51	264	14	0	583			
08:15 AM	7	1	13	0	9	159	30	0	4	24	1	12	2	45	212	13	0	532
Grand Total	117	34	146	4	50	1359	172	0	31	102	8	86	13	301	2971	78	2	5474
Approach %	38.9	11.3	48.5	1.3	5.1	84.3	10.7	0	1.9	48.8	3.8	41.1	6.2	9	88.6	2.3	0.1	0
Total %	2.1	0.6	2.7	0.1	0.9	24.8	3.1	0	0.6	1.9	0.1	1.6	0.2	5.5	54.3	1.4	0	0

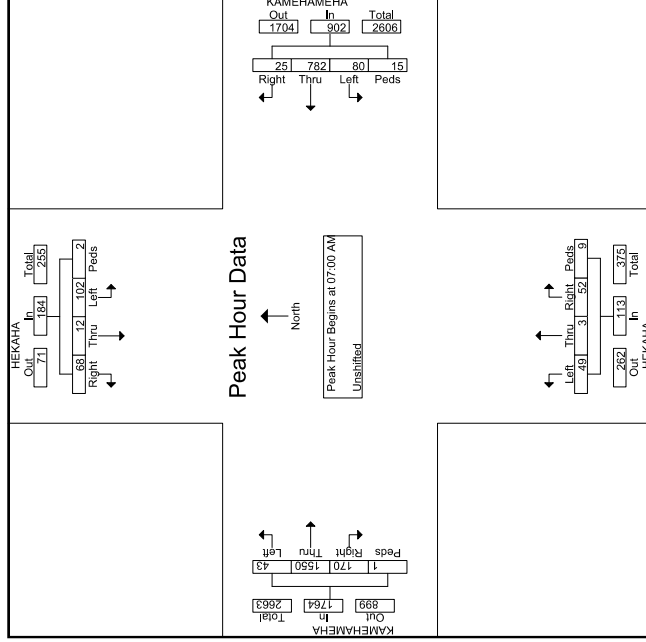
Default Comments
 Change These in The Preferences Window
 Select File/Preference in the Main Scree
 Then Click the Comments Tab

File Name : AM_Hekaha - Kamehameha - new
 Site Code : 00000000
 Start Date : 5/10/2011
 Page No : 2

Start Time	HEKAHA From North			KAMEHAMEHA From East			HEKAHA From South			KAMEHAMEHA From West			In. Total										
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left											
07:00 AM	10	2	15	0	27	7	148	13	0	9	2	17	29	445	9	0	483						
07:15 AM	18	3	25	2	48	9	198	21	0	3	231	12	0	6	20	35	423	5	0	463			
07:30 AM	23	5	31	0	59	3	205	24	0	3	235	13	1	18	4	36	52	369	15	0	436		
07:45 AM	17	2	31	0	50	6	231	22	0	9	268	21	2	16	1	40	54	313	14	0	382		
Total	68	12	102	2	184	25	782	80	0	15	902	52	3	49	9	113	170	1530	43	0	1764		
%App. Total	55.4	1.1	85.4	0	23.8	86.7	8.9	0	1.7	46	37.7	43.4	6.19	375	681	563	706	787	871	717	250	400	913

Peak Hour for Entire Intersection Begins at 07:00 AM

Start Time	Right	Thru	Left	Peds	App. Total
07:00 AM	10	2	15	0	27
07:15 AM	18	3	25	2	48
07:30 AM	23	5	31	0	59
07:45 AM	17	2	31	0	50
Total	68	12	102	2	184



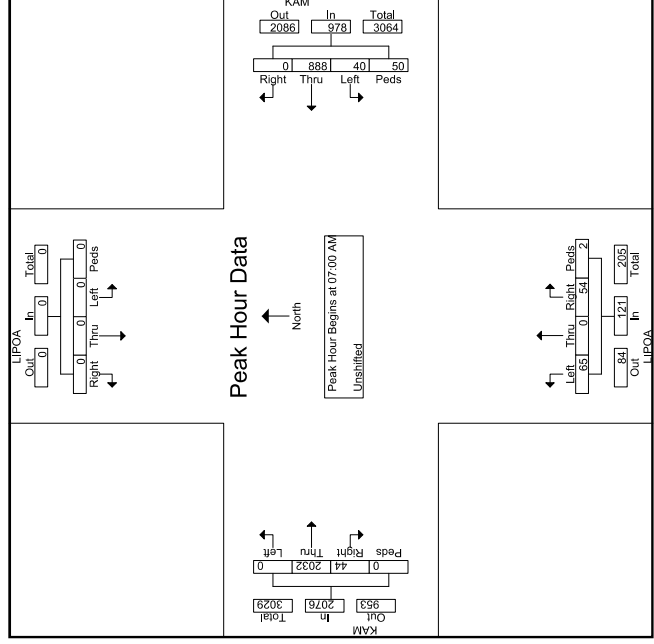
Default Comments
 Change These in The Preferences Window
 Select File/Preference in the Main Scree
 Then Click the Comments Tab

File Name : AM_Lipoa - Kamehameha new
 Site Code : 00000000
 Start Date : 5/10/2011
 Page No : 2

Start Time	LIPOA From North			KAM From East			LIPOA From South			KAM From West			Int. Total	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		
06:30 AM	0	0	0	0	145	7	0	3	17	0	9	0	0	809
06:45 AM	0	0	0	0	165	5	7	8	11	0	20	2	7	841
Total	0	0	0	0	310	12	7	11	28	0	29	2	18	1650
07:00 AM	0	0	0	0	182	8	13	5	12	0	11	0	9	822
07:15 AM	0	0	0	0	240	13	7	2	11	0	20	1	7	818
07:30 AM	0	0	0	0	218	13	6	1	19	0	16	1	13	808
07:45 AM	0	0	0	0	248	6	6	10	12	0	18	0	15	727
Total	0	0	0	0	888	40	32	18	54	0	65	2	44	3175
08:00 AM	0	0	0	0	217	15	6	1	13	0	17	1	7	615
08:15 AM	0	0	0	0	204	10	10	1	8	0	21	2	7	590
Grand Total	0	0	0	0	1619	77	55	31	103	0	132	0	76	6030
Approach %	0	0	0	0	90.9	4.3	3.1	1.7	42.6	0	54.5	2.9	1.9	98.1
Total %	0	0	0	0	26.8	1.3	0.9	0.5	1.7	0	2.2	0.1	1.3	65.2

Start Time	LIPOA From North			KAM From East			LIPOA From South			KAM From West			Int. Total	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		
07:00 AM	0	0	0	0	182	8	13	5	208	12	0	11	0	23
07:15 AM	0	0	0	0	240	13	7	2	262	11	0	20	1	32
07:30 AM	0	0	0	0	218	13	6	1	238	19	0	16	1	36
07:45 AM	0	0	0	0	248	6	6	10	270	12	0	18	0	30
Total	0	0	0	0	888	40	32	18	978	54	0	65	2	121
Total Volume	0	0	0	0	90.8	40	32	18	97.9	54	0	65.7	2	121
% App. Total	0	0	0	0	89.5	769	615	450	906	711	0	813	500	979.9
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:00 AM



Default Comments
 Change These in The Preferences Window
 Select File/Preference in the Main Scree
 Then Click the Comments Tab

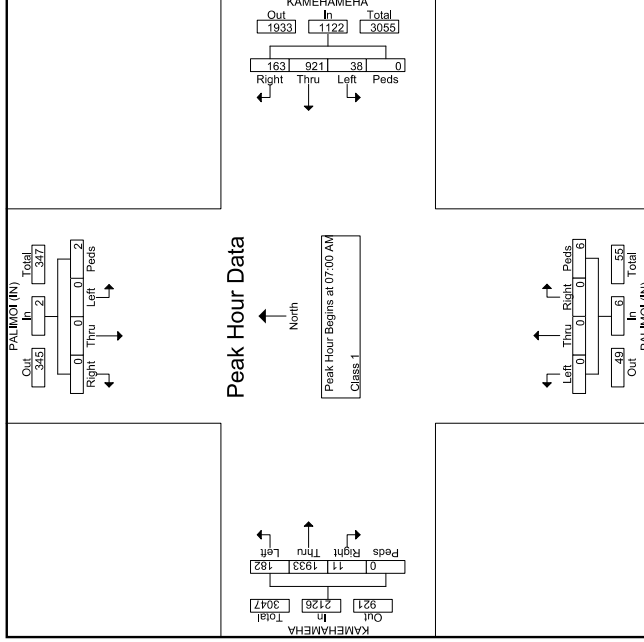
File Name : AM_Lipoa - Kamehameha new
 Site Code : 00000000
 Start Date : 5/10/2011
 Page No : 2

Default Comments
 Change These in The Preferences Window
 Select File/Preference in the Main Scree
 Then Click the Comments Tab

File Name : AM_PaliMomi (In) - Kamehameha
 Site Code : 00000000
 Start Date : 5/10/2011
 Page No : 1

Start Time	PALIMOI (IN) From North			KAMEHAMEHA From East			PALIMOI (IN) From South			KAMEHAMEHA From West			Int. Total		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left			
06:30 AM	0	0	0	23	147	3	0	0	0	0	3	626	16	818	
06:45 AM	0	0	0	34	184	7	0	0	0	1	630	25	0	881	
Total	0	0	0	57	331	10	0	0	0	4	1256	41	0	1699	
07:00 AM	0	0	0	27	201	1	0	0	0	2	560	31	0	824	
07:15 AM	0	0	1	33	259	10	0	0	0	3	525	43	0	880	
07:30 AM	0	0	1	54	215	16	0	0	0	2	482	46	0	816	
07:45 AM	0	0	0	49	246	11	0	0	1	1	366	62	0	736	
Total	0	0	2	163	921	38	0	0	0	6	1933	182	0	3256	
08:00 AM	0	0	0	49	225	7	0	0	0	3	299	53	0	636	
08:15 AM	0	0	0	58	206	16	0	0	1	3	288	50	0	622	
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	0	0	0	107	431	23	0	0	0	6	587	103	0	1258	
Grand Total	0	0	2	327	1683	71	0	0	0	7	21	3776	326	0	6213
Approch %	0	0	0	100	15.7	80.9	3.4	0	0	100	0.5	91.6	7.9	0	0
Total %	0	0	0	5.3	27.1	1.1	0	0	0	0.1	0.3	60.8	5.2	0	0

Start Time	PALIMOI (IN) From North			KAMEHAMEHA From East			PALIMOI (IN) From South			KAMEHAMEHA From West			Int. Total	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	1	33	259	10	0	0	0	3	6	525	43	0
07:30 AM	0	0	1	54	215	16	0	0	0	2	482	46	0	530
07:45 AM	0	0	0	49	246	11	0	0	0	1	1	366	62	0
Total	0	0	2	163	921	38	0	0	0	6	11	1933	182	0
Total Volume	0	0	0	14.5	82.1	3.4	0	0	0	0	0.5	90.9	8.6	0
% Appr. Total	0	0	0	100	.889	.594	.000	.917	.000	.000	.500	.458	.863	.734
PHF	.000	.000	.000	.500	.500	.500	.000	.000	.000	.500	.500	.000	.000	.896



Default Comments
 Change These in The Preferences Window
 Select File/Preference in the Main Scree
 Then Click the Comments Tab

File Name : AM_PaliMomi (In) - Kamehameha
 Site Code : 00000000
 Start Date : 5/10/2011
 Page No : 2

Default Comments
 Change These in The Preferences Window
 Select File/Preference in the Main Scree
 Then Click the Comments Tab

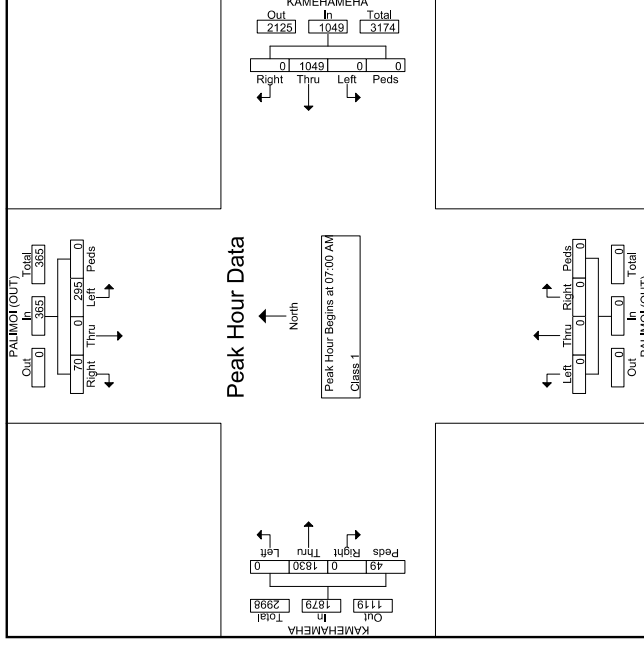
File Name : AM_PaliMomi (Out) - Kamehameha - new
 Site Code : 00000000
 Start Date : 5/10/2011
 Page No : 1

Start Time	PALIMOI (OUT) From North			KAMEHAMEHA From East			PALIMOI (OUT) From South			KAMEHAMEHA From West			Int. Total	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		
06:30 AM	7	0	93	0	170	0	0	0	0	0	574	0	6	850
06:45 AM	6	0	67	0	217	0	0	0	0	0	581	0	23	894
Total	13	0	160	0	387	0	0	0	0	0	1155	0	29	1744
07:00 AM	10	0	72	0	229	0	0	0	0	0	510	0	7	828
07:15 AM	18	0	83	0	290	0	0	0	0	0	501	0	18	910
07:30 AM	25	0	78	0	254	0	0	0	0	0	465	0	8	830
07:45 AM	17	0	62	0	276	0	0	0	0	0	354	0	16	725
Total	70	0	295	0	1049	0	0	0	0	0	1830	0	49	3293
08:00 AM	12	0	41	0	264	0	0	0	0	0	303	0	11	631
08:15 AM	14	0	45	0	274	0	0	0	0	0	264	0	12	609
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	26	0	86	0	538	0	0	0	0	0	567	0	23	1240
Grand Total	109	0	541	0	1974	0	0	0	0	0	3552	0	101	6277
Approch %	16.8	0	83.2	0	100	0	0	0	0	0	97.2	0	2.8	
Total %	1.7	0	8.6	0	31.4	0	0	0	0	0	56.6	0	1.6	

Default Comments
 Change These in The Preferences Window
 Select File/Preference in the Main Scree
 Then Click the Comments Tab

File Name : AM_PaliMomi (Out) - Kamehameha - new
 Site Code : 00000000
 Start Date : 5/10/2011
 Page No : 2

Start Time	PALIMOI (OUT) From North			KAMEHAMEHA From East			PALIMOI (OUT) From South			KAMEHAMEHA From West			Int. Total	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		
07:00 AM	10	0	72	0	82	0	229	0	0	0	0	0	510	7
07:15 AM	18	0	83	0	101	0	290	0	0	0	0	0	501	18
07:30 AM	25	0	78	0	103	0	254	0	0	0	0	0	465	8
07:45 AM	17	0	62	0	79	0	276	0	0	0	0	0	354	16
Total	70	0	295	0	365	0	1049	0	0	0	0	0	1830	49
% Appr. Total	19.2	0	80.8	0	100	0	100	0	0	0	0	0	97.4	2.6
PHF	.700	.000	.889	.000	.886	.000	.886	.000	.904	.000	.000	.000	.897	.000

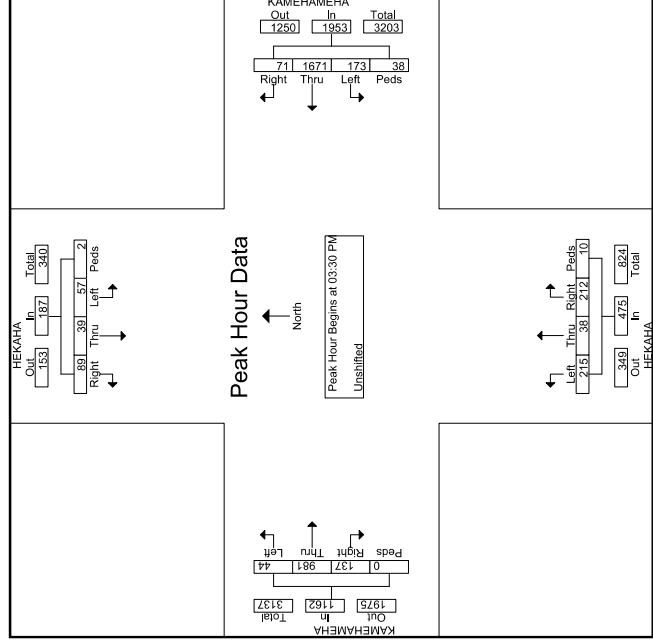


Default Comments
 Change These in The Preferences Window
 Select File/Preference in the Main Screenshot
 Then Click the Comments Tab

File Name : PM_Hekaha - Kamehameha
 Site Code : 00000000
 Start Date : 5/10/2011
 Page No : 1

Start Time	HEKAHA From North			KAMEHAMEHA From East			HEKAHA From South			KAMEHAMEHA From West			Int. Total				
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left					
03:30 PM	24	11	12	21	398	41	11	50	8	58	2	30	256	20	0	943	
03:45 PM	21	9	11	12	436	50	10	61	9	48	5	31	253	8	0	965	
Total	45	20	23	33	834	91	21	111	17	106	7	61	509	28	0	1908	
04:00 PM	17	8	16	0	17	403	46	8	53	9	55	0	40	222	8	0	902
04:15 PM	27	11	18	0	21	434	36	9	48	12	54	3	36	250	8	0	967
04:30 PM	20	8	11	0	18	398	25	9	64	14	65	4	47	247	8	0	938
04:45 PM	27	17	21	0	18	389	33	7	41	14	39	4	46	245	17	0	918
Total	91	44	66	0	74	1624	140	33	206	49	213	11	169	964	41	0	3725
05:00 PM	20	8	13	0	22	432	23	14	62	24	53	1	39	200	6	0	917
05:15 PM	27	3	9	3	17	427	27	6	32	6	38	1	22	213	13	0	844
05:30 PM	25	10	4	0	27	450	30	4	38	3	38	2	29	193	3	0	856
05:45 PM	17	11	12	0	26	482	33	5	29	9	30	1	36	199	14	0	904
Total	89	32	38	3	92	1791	113	29	161	42	159	5	126	805	36	0	3521
Grand Total	225	96	127	5	199	4249	344	83	478	108	478	23	356	2278	105	0	9154
Approach %	49.7	21.2	28	1.1	4.1	87.2	7.1	1.7	4.4	9.9	4.4	2.1	13	83.2	3.8	0	
Total %	2.5	1	1.4	0.1	2.2	46.4	3.8	0.9	5.2	1.2	5.2	0.3	3.9	24.9	1.1	0	

Start Time	HEKAHA From North			KAMEHAMEHA From East			HEKAHA From South			KAMEHAMEHA From West			Int. Total							
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left								
03:30 PM	24	11	12	21	398	41	11	50	8	58	2	30	256	20	0	943				
03:45 PM	21	9	11	12	436	50	10	61	9	48	5	31	253	8	0	965				
04:00 PM	17	8	16	0	17	403	46	8	53	9	55	0	40	222	8	0	902			
04:15 PM	27	11	18	0	21	434	36	9	48	12	54	3	36	250	8	0	967			
Total	89	39	57	2	187	1671	173	38	1953	212	38	215	10	475	137	981	44	0	1162	
% App. Total	.824	.886	.792	.500	.835	.845	.958	.865	.864	.961	.869	.792	.927	.500	.965	.856	.958	.550	.000	.949



Default Comments
 Change These in The Preferences Window
 Select File/Preference in the Main Screenshot
 Then Click the Comments Tab

File Name : PM_Hekaha - Kamehameha
 Site Code : 00000000
 Start Date : 5/10/2011
 Page No : 2

Default Comments
Change These in The Preferences Window
Select File/Preference in the Main Screenshot
Then Click the Comments Tab

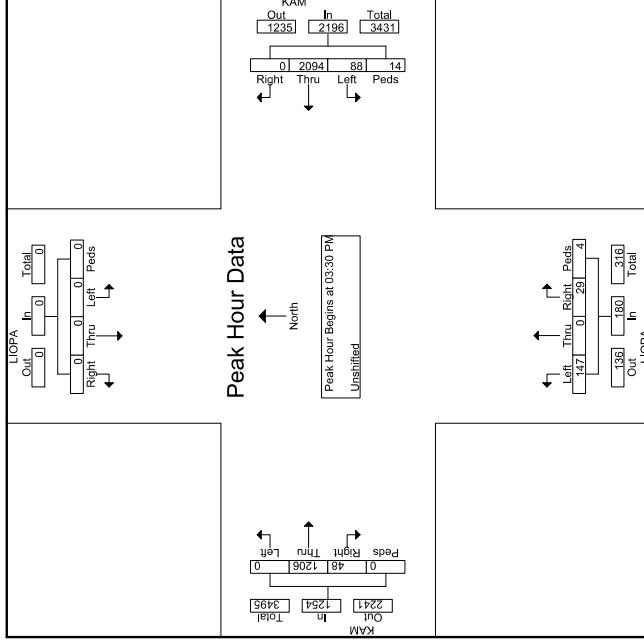
File Name : PM_Lipooa - Kamehameha
Site Code : 00000000
Start Date : 5/10/2011
Page No : 1

Start Time	LIOPA			KAM			LIOPA			KAM			LIOPA			KAM			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
03:30 PM	0	0	0	0	0	0	1	10	38	1	11	328	0	0	0	0	0	0	946
03:45 PM	0	0	0	0	0	0	4	7	31	1	11	324	0	0	0	0	0	0	944
Total	0	0	0	0	0	0	5	17	69	2	22	652	0	0	0	0	0	0	1890
04:00 PM	0	0	0	0	0	0	5	3	41	2	9	256	0	0	0	0	0	0	830
04:15 PM	0	0	0	0	0	0	4	9	37	0	17	298	0	0	0	0	0	0	910
04:30 PM	0	0	0	0	0	0	5	5	36	0	7	299	0	0	0	0	0	0	887
04:45 PM	0	0	0	0	0	0	3	9	35	0	16	297	0	0	0	0	0	0	896
Total	0	0	0	0	0	0	17	26	149	2	49	1150	0	0	0	0	0	0	3523
05:00 PM	0	0	0	0	0	0	15	3	54	0	14	268	0	0	0	0	0	0	859
05:15 PM	0	0	0	0	0	0	11	3	35	0	9	261	0	0	0	0	0	0	837
05:30 PM	0	0	0	0	0	0	16	4	31	0	11	233	0	0	0	0	0	0	868
05:45 PM	0	0	0	0	0	0	24	4	30	0	7	225	0	0	0	0	0	0	890
Total	0	0	0	0	0	0	66	14	39	0	41	987	0	0	0	0	0	0	3454
Grand Total	0	0	0	0	0	0	180	36	82	0	112	2789	0	0	0	0	0	0	8867
Approach %	0	0	0	0	0	0	3.3	0.7	18.1	0	3.9	96.1	0	0	0	0	0	0	0
Total %	0	0	0	0	0	0	59.7	2	0.9	0	1.3	31.5	0	0	0	0	0	0	0

Default Comments
Change These in The Preferences Window
Select File/Preference in the Main Screenshot
Then Click the Comments Tab

File Name : PM_Lipooa - Kamehameha
Site Code : 00000000
Start Date : 5/10/2011
Page No : 2

Start Time	LIOPA			KAM			LIOPA			KAM			LIOPA			KAM			Int. Total	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	946	
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	944	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	830	
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	910	
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3630	
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1254	
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	959	
PHF	.000	.000	.000	.000	.000	.000	.000	.962	.710	.700	.963	.725	.000	.896	.500	.918	.706	.919	.000	.925

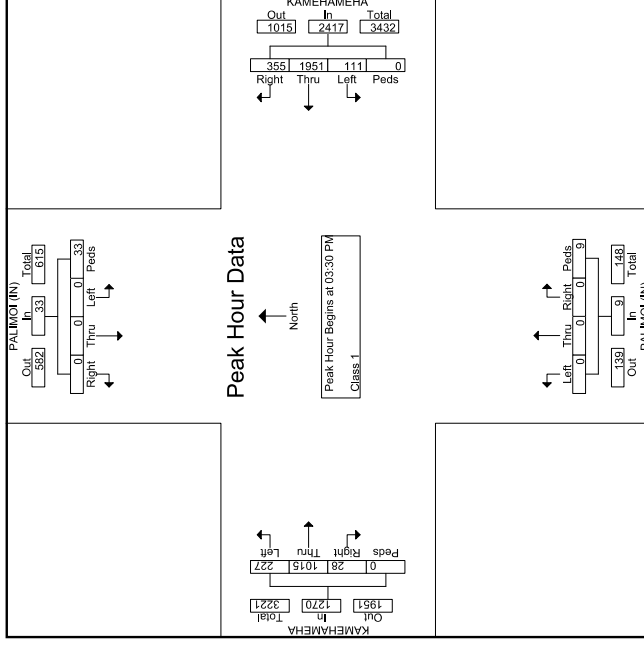


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 Then Click the Comments Tab

File Name : PM_PaliMomi (In) - Kamehameha
 Site Code : 00000000
 Start Date : 5/10/2011
 Page No : 1

Start Time	PALIMOI (IN) From North			KAMEHAMEHA From East			PALIMOI (IN) From South			KAMEHAMEHA From West			Int. Total		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left			
03:30 PM	0	0	0	12	107	475	29	0	0	2	9	261	53	0	948
03:45 PM	0	0	0	4	89	511	22	0	0	5	8	283	57	0	989
Total	0	0	0	16	196	986	51	0	0	7	17	554	110	0	1937
04:00 PM	0	0	0	10	67	469	38	0	0	1	5	209	56	0	855
04:15 PM	0	0	0	7	92	496	22	0	0	1	6	252	61	0	937
04:30 PM	0	0	0	12	86	513	29	0	0	0	14	272	38	0	964
04:45 PM	0	0	0	2	86	518	33	0	0	0	5	244	65	0	955
Total	0	0	0	31	333	1996	122	0	0	2	30	977	220	0	3711
05:00 PM	0	0	0	1	86	469	30	0	0	0	9	244	51	0	890
05:15 PM	0	0	0	15	74	446	30	0	0	1	6	190	51	0	813
05:30 PM	0	0	0	9	92	547	39	0	0	2	13	195	49	0	946
05:45 PM	0	0	0	7	98	543	48	0	0	1	10	178	59	0	944
Total	0	0	0	32	350	2005	147	0	0	4	38	807	210	0	3593
Grand Total	0	0	0	79	879	4987	320	0	0	13	85	2338	540	0	9241
Approch %	0	0	0	100	14.2	80.6	5.2	0	0	100	2.9	76.9	16.2	0	0
Total %	0	0	0	0.9	9.5	54	3.5	0	0	0.1	0.9	25.3	5.8	0	0

Start Time	PALIMOI (IN) From North			KAMEHAMEHA From East			PALIMOI (IN) From South			KAMEHAMEHA From West			Int. Total			
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left				
03:30 PM	0	0	0	12	107	475	29	0	0	2	9	261	53	0	948	
04:00 PM	0	0	0	4	89	511	22	0	0	5	8	293	57	0	989	
04:15 PM	0	0	0	7	92	496	22	0	0	1	5	209	56	0	937	
Total Volume	0	0	0	33	355	1951	111	0	0	9	28	1015	227	0	4270	
% Appr. Total	0	0	0	100	14.7	80.7	4.6	0	0	100	2.2	79.9	17.9	0	3711	
PHF	.000	.000	.000	.688	.829	.955	.730	.000	.971	.000	.450	.450	.778	.866	.930	.887



Default Comments
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 Then Click the Comments Tab

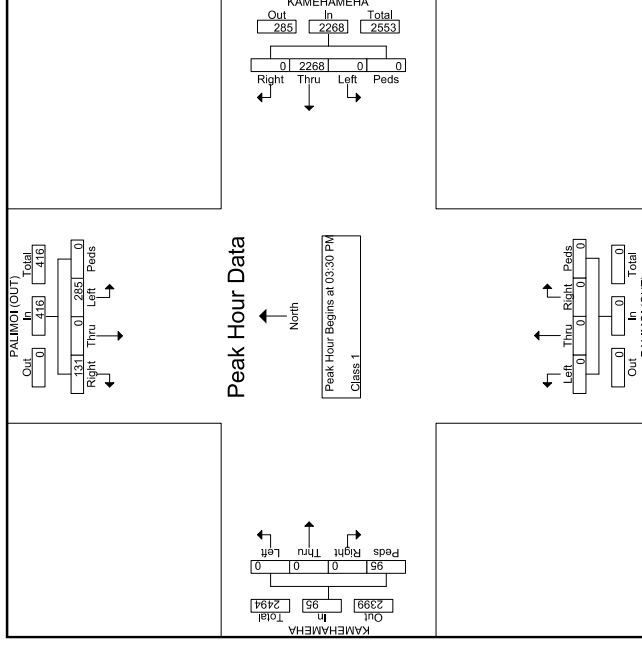
File Name : PM_PaliMomi (Out) - Kamehameha
 Site Code : 00000000
 Start Date : 5/10/2011
 Page No : 1

Start Time	PALIMOJ (OUT) From North			KAMEHAMEHA From East			PALIMOJ (OUT) From South			KAMEHAMEHA From West			Int. Total	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		
03:30 PM	38	0	79	0	560	0	0	0	0	0	0	0	26	703
03:45 PM	33	0	71	0	581	0	0	0	0	0	0	0	22	707
Total	71	0	150	0	1141	0	0	0	0	0	0	0	48	1410
04:00 PM	25	0	59	0	547	0	0	0	0	0	0	0	20	651
04:15 PM	35	0	76	0	580	0	0	0	0	0	0	0	27	718
04:30 PM	36	0	67	0	592	0	0	0	0	0	0	0	34	729
04:45 PM	31	0	65	0	588	0	0	0	0	0	0	0	13	697
Total	127	0	267	0	2307	0	0	0	0	0	0	0	94	2795
05:00 PM	27	0	67	0	543	0	0	0	0	0	0	0	14	651
05:15 PM	29	0	76	0	521	0	0	0	0	0	0	0	15	641
05:30 PM	30	0	60	0	614	0	0	0	0	0	0	0	10	714
05:45 PM	32	0	46	0	615	0	0	0	0	0	0	0	5	698
Total	118	0	249	0	2293	0	0	0	0	0	0	0	44	2704
Grand Total	316	0	686	0	5741	0	0	0	0	0	0	0	186	6909
Approach %	32.2	0	67.8	0	100	0	0	0	0	0	0	0	100	2.7
Total %	4.6	0	9.6	0	83.1	0	0	0	0	0	0	0	0	2.7

Default Comments
 Change These in The Preferences Window
 Select File/Preference in the Main Scree
 Then Click the Comments Tab

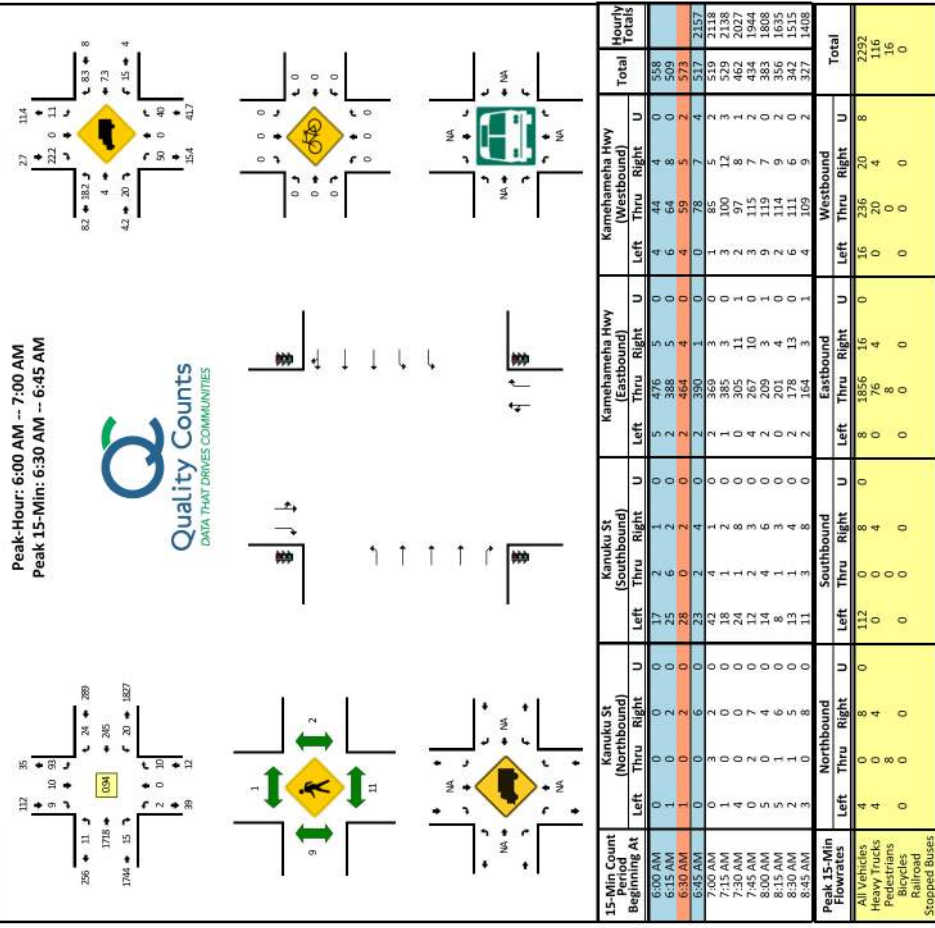
File Name : PM_PaliMomi (Out) - Kamehameha
 Site Code : 00000000
 Start Date : 5/10/2011
 Page No : 2

Start Time	PALIMOJ (OUT) From North			KAMEHAMEHA From East			PALIMOJ (OUT) From South			KAMEHAMEHA From West			Int. Total		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left			
03:30 PM	38	0	79	0	560	0	0	0	0	0	0	0	26	703	
03:45 PM	33	0	71	0	581	0	0	0	0	0	0	0	22	707	
04:00 PM	25	0	59	0	547	0	0	0	0	0	0	0	20	651	
04:15 PM	35	0	76	0	580	0	0	0	0	0	0	0	27	718	
Total Volume	131	0	285	0	2268	0	0	0	0	0	0	0	95	2779	
% Appr. Total	.862	.000	.902	.000	.889	.000	.889	.000	.976	.000	.976	.000	.000	.880	.968



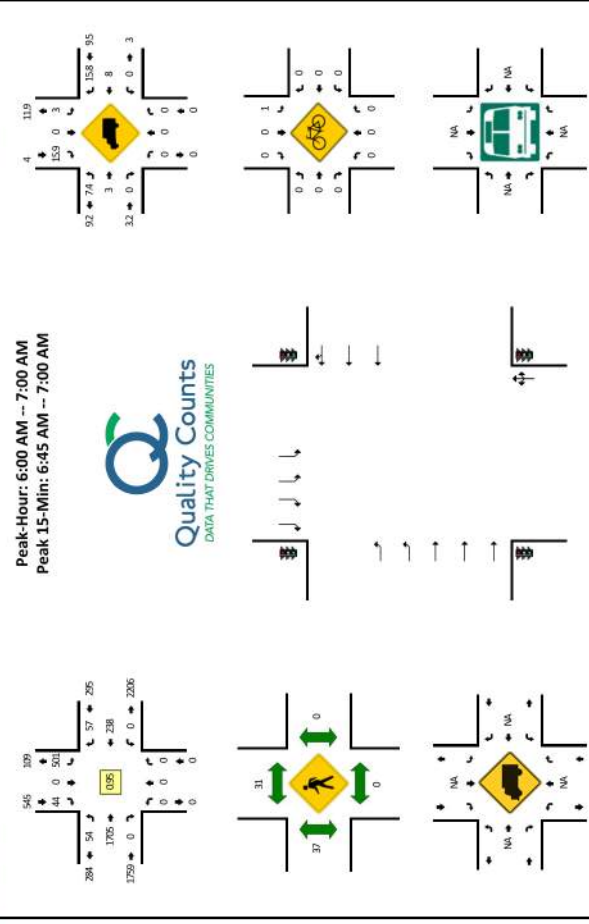
Appendix B: Existing Conditions (2019) Traffic Count Data

Type of peak hour being reported: System Peak
QC JOB #: 15100705
LOCATION: Kanuku St -- Kamehameha Hwy
CITY/STATE: Waimalu, HI
 Method for determining peak hour: Total Entering Volume
DATE: Tue, Oct 15 2019



Comments:
 Report generated on 10/25/2019 9:09 AM
 SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

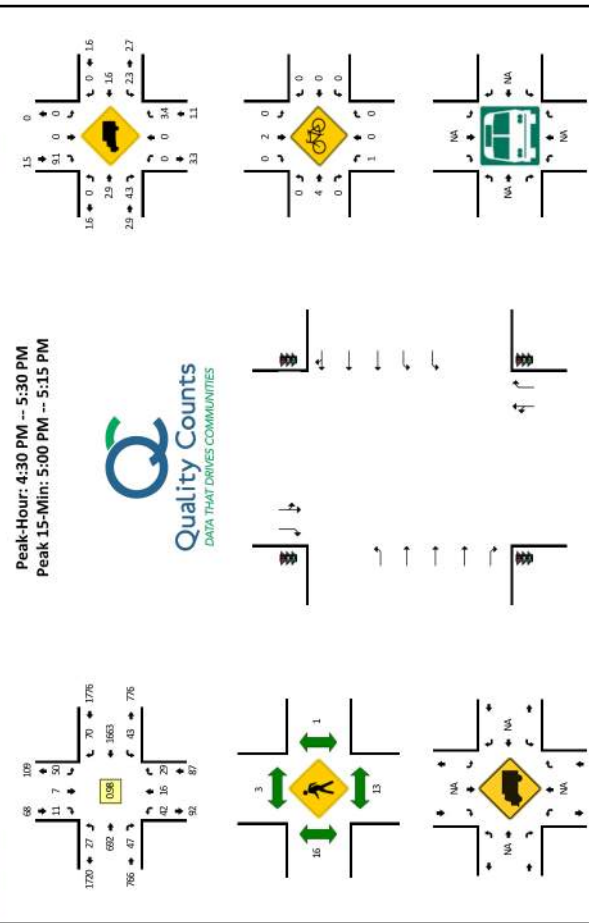
Type of peak hour being reported: System Peak
 Method for determining peak hour: Total Entering Volume
QC JOB #: 15100703
LOCATION: Kaonohi St -- Kamehameha Hwy
CITY/STATE: Waimalu, HI
DATE: Tue, Oct 15 2019



15-Min Count Beginning At	Kaonohi St (Northbound)			Kaonohi St (Southbound)			Kamehameha Hwy (Eastbound)			Kamehameha Hwy (Westbound)			Total	
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
6:00 AM	0	0	0	117	0	13	0	10	397	0	36	13	588	
6:15 AM	0	0	0	122	0	8	9	422	0	0	67	19	647	
6:30 AM	0	0	0	131	0	11	0	456	0	0	59	11	681	
6:45 AM	0	0	0	134	0	17	0	373	0	0	76	8	698	
7:00 AM	0	0	0	131	0	17	0	373	0	0	76	8	698	
7:15 AM	0	0	0	112	0	18	0	24	364	0	97	16	631	
7:30 AM	0	0	0	120	0	19	0	13	311	0	95	20	580	
7:45 AM	0	0	0	124	0	23	0	28	279	0	98	26	581	
8:00 AM	0	0	0	87	0	15	0	23	194	0	119	18	458	
8:15 AM	0	0	0	77	0	25	0	17	187	0	99	26	420	
8:30 AM	0	0	0	74	0	23	0	24	161	0	100	14	396	
8:45 AM	0	0	0	74	0	23	0	24	161	0	100	14	396	
Peak 15-Min	Flowrates	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Total
All Vehicles	0	0	0	524	0	48	0	80	1720	0	304	56	0	2732
Heavy Trucks	0	0	0	8	0	0	8	52	0	0	16	8	0	92
Pedestrians	0	0	0	46	0	0	0	64	0	0	0	0	0	112
Bicycles	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Report generated on 10/25/2019 9:09 AM
 SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: System Peak
 Method for determining peak hour: Total Entering Volume
QC JOB #: 15100706
LOCATION: Kanuku St -- Kamehameha Hwy
CITY/STATE: Waimalu, HI
DATE: Tue, Oct 15 2019



15-Min Count Beginning At	Kanuku St (Northbound)			Kanuku St (Southbound)			Kamehameha Hwy (Eastbound)			Kamehameha Hwy (Westbound)			Total		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right			
3:00 PM	14	3	13	0	14	4	3	0	197	8	9	347	13	626	
3:15 PM	28	5	11	0	15	5	3	0	188	10	8	354	18	642	
3:30 PM	21	1	6	0	13	3	0	5	195	5	1	371	17	640	
3:45 PM	1	0	0	0	0	0	0	2	179	12	0	327	17	581	
4:00 PM	11	5	9	0	11	3	2	0	179	12	0	327	17	581	
4:15 PM	15	2	8	0	11	2	6	0	184	12	1	379	22	651	
4:30 PM	9	4	6	0	11	2	3	0	182	13	2	412	20	680	
4:45 PM	16	2	8	0	10	1	2	0	167	13	1	426	15	675	
5:00 PM	9	6	4	0	15	3	2	0	189	14	1	407	20	687	
5:15 PM	8	4	11	0	14	1	4	0	158	3	0	358	15	653	
5:30 PM	11	3	8	0	12	2	7	0	159	3	2	409	21	653	
5:45 PM	11	3	8	0	12	2	7	0	159	3	2	409	21	653	
Peak 15-Min	Flowrates	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Total	
All Vehicles	36	24	16	0	60	12	8	0	24	756	56	40	1628	80	2748
Heavy Trucks	0	0	0	0	0	0	0	0	28	0	4	32	0	60	
Pedestrians	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	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Report generated on 10/25/2019 12:50 PM
 SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Method for determining peak hour: Total Entering Volume
QC JOB #: 15100704
DATE: Tue, Oct 15 2019

15-Min Count Beginning At	Kaonohi St (Northbound)			Kaonohi St (Southbound)			Kamehameha Hwy (Eastbound)			Kamehameha Hwy (Westbound)			Hours Totals			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		U		
3:00 PM	0	0	3	62	0	43	0	29	192	0	3	0	288	40	0	660
3:15 PM	0	0	1	54	0	44	0	27	262	2	2	0	314	30	0	736
3:30 PM	0	0	2	59	0	53	0	19	189	1	0	0	315	26	0	684
3:45 PM	0	0	0	53	0	51	0	23	159	0	0	0	280	14	0	570
4:00 PM	0	0	0	43	0	52	0	22	168	1	0	0	327	23	0	637
4:15 PM	0	0	2	42	0	52	0	22	168	1	0	0	327	23	0	637
4:30 PM	0	0	3	47	0	43	0	20	165	0	0	0	384	41	0	703
4:45 PM	0	0	2	49	0	60	0	29	162	0	0	0	374	39	0	714
5:00 PM	0	0	1	40	0	57	0	31	163	0	0	0	371	54	0	718
5:15 PM	0	0	1	42	0	50	0	26	152	0	0	0	352	33	0	654
5:30 PM	0	0	0	45	0	52	0	19	135	0	0	0	385	36	0	689
5:45 PM	0	0	0	62	0	52	0	19	135	0	0	0	385	36	0	689
Peak 15-Min Flows:	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	U	Total		
All Vehicles	0	0	8	160	0	228	0	124	652	0	0	0	1484	216	0	2872
Heavy Trucks	0	0	0	4	0	0	0	24	0	0	0	0	20	20	0	68
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicyclists	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Comments:
 Report generated on 10/25/2019 12:50 PM
 SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Appendix C: Annual Growth Rate Calculation

Pearlridge Annual Growth Rate Calculation
 OMPO Oahu MPO Regional Travel Demand Model - Daily Segment Volumes

Roadway	2012	2040	CAGR	Growth Applied
Kamehameha Hwy	Kaonohi to Kanuku	61,722	70,001	0.5%
	Kanuku to West	59,650	67,704	0.5%
Kanuku St	Kaonohi to East	57,002	64,749	0.5%
		178,375	202,455	0.5%
Kaonohi St	Kam to North	2,072	2,297	0.5%
	Kam to Moanalua	15,522	14,697	-0.2%
	Moanalua to North	10,723	10,181	-0.2%
	26,245	24,878	-0.2%	0.5%

Appendix D: Intersection Level of Service Reports

Table D-1: Existing (2019) Intersection Levels of Service

Intersection	Peak Hour	Movement	Existing (2019) Conditions			Intersection Delay (sec/veh) ¹	Intersection LOS
			Movement Delay (sec/veh) ¹	Movement LOS			
1. Kamehameha Hwy/Kanuku St	AM	EBL	91.4	F	11.4	B	
		EBT	7.5	A			
		EBR	4.6	A			
		WBL	89.1	F			
		WBT	0.0	A			
		WBT/R	2.3	A			
		NBL/T	64.2	E			
		NBR	64.2	E			
	SBL/T/R	72.3	E				
	PM	EBL	119.5	F	9.5	A	
		EBT	5.2	A			
		EBR	4.5	A			
		WBL	107.8	F			
		WBT	1.1	A			
WBT/R		1.1	A				
NBL/T		94.7	F				
NBR		90.2	F				
SBL/T/R	95.6	F					
2. Kamehameha Hwy/Kaonohi St	AM	EBL	103.0	F	17.6	B	
		EBT	0.4	A			
		WBT	14.0	B			
		SBL	66.6	E			
		SBR	53.5	D			
	PM	EBL	121.4	F	27.0	C	
		EBT	0.1	A			
		WBT	15.0	B			
		SBL	95.6	F			
		SBR	124.2	F			

Source: Fehr & Peers, 2020.

Notes:

¹Whole intersection weighted average stopped delay expressed in seconds per vehicle for signalized intersections.

Table D-2: Future (2025) Without and With Project Intersection Levels of Service

Intersection	Peak Hour	Movement	Future No Project Conditions				Future Plus Project Conditions				Change in Delay	
			Movement Delay (sec/veh) ¹	Movement LOS	Intersection Delay (sec/veh) ¹	Intersection LOS	Movement Delay (sec/veh) ¹	Movement LOS	Intersection Delay (sec/veh) ¹	Intersection LOS	Movement	Intersection
1. Kamehameha Hwy/Kanuku St	AM	EBL	89.9	F	6.4	A	86.4	F	8.2	A	-3.5	+1.8
		EBT	0.3	A			0.4	A			+0.1	
		EBR	0.0	A			0.0	A			0.0	
		WBL	88.8	F			78.7	E			-10.1	
		WBT	0.3	A			0.3	A			0.0	
		WBT/R	0.5	A			0.5	A			0.0	
		NBL/T	61.4	E			60.9	E			-0.5	
		NBR	60.7	E			60.1	E			-0.6	
		SBL/T	70.6	E			69.4	E			-1.2	
	SBR	60.9	E	59.7	E	-1.2						
	PM	EBL	82.5	F	17.8	B	81.5	F	20.4	C	-1.0	+2.6
		EBT	0.3	A			0.3	A			0.0	
		EBR	0.1	A			0.1	A			0.0	
		WBL	73.0	E			72.0	E			-1.0	
		WBT	2.7	A			4.5	A			+1.8	
		WBT/R	3.8	A			6.8	A			+1.0	
		NBL/T	62.1	E			60.6	E			-1.5	
		NBR	57.1	E			55.6	E			-1.5	
SBL/T		60.1	E	58.4			E	-1.7				
SBR	69.9	E	55.1	E	-14.8							
2. Kamehameha Hwy/Kaonohi St	AM	EBL	82.8	F	16.3	B	80.6	F	16.5	B	-2.2	+0.2
		EBT	0.4	A			0.4	A			0.0	
		WBT	0.2	A			0.3	A			+0.1	
		SBL	64.7	E			64.5	E			-0.2	
		SBR	51.2	D			51.4	D			+0.2	
	PM	EBL	72.9	E	31.4	C	73.9	E	42.0	D	+1.0	+10.6
		EBT	0.2	A			0.2	A			0.0	
		WBT	33.7	F*			51.8	F*			+18.1	
		SBL	66.7	E			66.5	E			-0.2	
SBR	64.1	E	64.4	E	+0.3							
3. Kamehameha Hwy/Hekaha St	AM	EBL	94.9	F	17.2	B	94.9	F	17.2	B	0.0	0.0
		EBT	14.1	B			14.4	B			+0.3	
		EBT/R	14.9	B			15.3	B			+0.4	
		WBL	76.8	E			76.8	E			0.0	
		WBT	0.3	A			0.3	A			0.0	
		WBT/R	0.5	A			0.5	A			0.0	
		NBL/T	60.8	E			60.8	E			0.0	
		NBR	57.7	E			57.7	E			0.0	
		SBL/T	63.6	E			63.6	E			0.0	
	SBR	57.8	E	57.8	E	0.0						
	PM	EBL	90.9	F	15.8	B	90.9	F	15.6	B	0.0	-0.2
		EBT	19.0	B			19.3	B			+0.3	
		EBT/R	19.6	B			19.9	B			+0.3	
		WBL	67.5	E			66.9	E			-0.6	
		WBT	1.0	A			0.8	A			-0.2	
		WBT/R	2.2	A			1.8	A			-0.4	
		NBL/T	69.8	E			69.8	E			0.0	
		NBR	48.7	D			48.7	D			0.0	
SBL/T		50.1	D	50.1			D	0.0				
SBR	47.1	D	47.1	D	0.0							

Table D-2: Future (2025) Without and With Project Intersection Levels of Service

Intersection	Peak Hour	Movement	Future No Project Conditions				Future Plus Project Conditions				Change in Delay	
			Movement Delay (sec/veh) ¹	Movement LOS	Intersection Delay (sec/veh) ¹	Intersection LOS	Movement Delay (sec/veh) ¹	Movement LOS	Intersection Delay (sec/veh) ¹	Intersection LOS	Movement	Intersection
4. Kamehameha Hwy/Lipoa Pl	AM	EBT	0.5	A	4.2	A	0.6	A	4.1	A	+0.1	-0.1
		EBT/R	1.0	A			1.1	A			+0.1	
		WBL	92.4	F			92.2	F			-0.2	
		WBT	0.1	A			0.1	A			0.0	
		NBL	90.0	F			90.0	F			0.0	
	NBR	75.4	E	75.4	E	0.0						
	PM	EBT	0.4	A	4.8	A	0.4	A	4.7	A	0.0	
		EBT/R	0.8	A			0.8	A			0.0	
		WBL	71.7	E			70.9	E			-0.8	
		WBT	0.7	A			0.7	A			0.0	
NBL		81.3	F	81.3			F	0.0				
NBR	64.9	E	64.9	E	0.0							
5. Kamehameha Hwy/Pali Momi St Inbound	AM	EBL	69.2	E	5.6	A	70.1	E	5.8	A	+0.9	+0.2
		EBT	0.4	A			0.4	A			0.0	
		EBT/R	0.8	A			0.8	A			0.0	
		WBL	68.2	E			68.2	E			0.0	
		WBT	0.3	A			0.3	A			0.0	
	WBT/R	0.5	A	0.6	A	+0.1						
	PM	EBL	70.7	E	6.3	A	69.1	E	6.5	A	-1.6	
		EBT	0.2	A			0.2	A			0.0	
		EBT/R	0.4	A			0.4	A			0.0	
		WBL	70.7	E			69.5	E			-1.2	
WBT		0.8	A	0.8			A	0.0				
WBT/R	2.5	A	2.7	A	+0.2							
6. Kamehameha Hwy/Pali Momi St Outbound	AM	EBT	0.3	A	9.6	A	0.4	A	9.7	A	+0.1	+0.1
		WBT	4.7	A			4.8	A			+0.1	
		SBL	76.4	E			75.9	E			-0.5	
		SBR	64.1	E			65.6	E			+1.5	
	PM	EBT	0.2	A	16.3	B	0.2	A	18.0	B	0.0	
		WBT	13.9	B			16.6	B			+2.7	
		SBL	70.5	E			66.6	E			-3.9	
		SBR	76.6	E			76.2	E			-0.4	
		EBL	13.6	B			14.0	B			+0.4	
		EBL/T	15.3	B			15.8	B			+0.5	
7. Pali Momi St Inbound/Pali Momi St Outbound	AM	EBT/R	15.3	B	15.4	B	15.8	B	15.9	B	+0.5	+0.5
		WBL	15.9	B			16.4	B			+0.5	
		WBR	13.9	B			14.1	B			+0.2	
		SBL/T	14.5	B			14.8	B			+0.3	
		SBT/R	14.5	B			14.8	B			+0.3	
		EBL	16.7	B			16.9	B			+0.2	
	PM	EBL/T	19.1	B	19.3	B	19.4	B	19.7	B	+0.3	
		EBT/R	19.1	B			19.5	B			+0.4	
		WBL	21.6	C			22.0	C			+0.4	
		WBR	19.0	B			19.2	B			+0.2	
SBL/T	16.9	B	17.4	B	+0.5							
SBT/R	16.7	B	17.2	B	+0.5							

Source: Fehr & Peers, 2020.

Notes:

¹ Whole intersection weighted average stopped delay expressed in seconds per vehicle for signalized intersections.

* LOS F is due to the vehicle-to-capacity ratio exceeding 1.00.

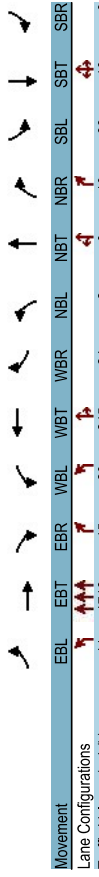


Table D-3: Future Plus Project Comparison of Pedestrian Enhancement Intersection Levels of Service

Intersection	Traffic Control	Peak Hour	No Enhancements		Leading Pedestrian Interval		Pedestrian-Only Phase	
			Delay (sec/veh) ¹	LOS	Delay (sec/veh) ¹	LOS	Delay (sec/veh) ¹	LOS
1. Kamehameha Hwy/ Kanuku St	Signalized	AM	8.2	A	8.2	A	8.2	A
		PM	20.4	C	26.2	C	14.7	B
2. Kamehameha Hwy/ Kaonohi St	Signalized	AM	16.5	B	16.5	B	21.3	B
		PM	42.0	D	42.0	D	52.1	D
3. Kamehameha Hwy/ Hekaha St	Signalized	AM	17.2	B	17.2	B	17.2	B
		PM	15.6	B	15.6	B	15.6	B
4. Kamehameha Hwy/ Lipoa Pl	Signalized	AM	4.1	A	4.1	A	4.1	A
		PM	4.7	A	4.7	A	4.7	A
5. Kamehameha Hwy/Pali Momi St Inbound	Signalized	AM	5.8	A	5.8	A	5.8	A
		PM	6.5	A	6.5	A	6.5	A
6. Kamehameha Hwy/Pali Momi St Outbound	Signalized	AM	9.7	A	9.7	A	9.7	A
		PM	18.0	B	18.0	B	18.0	B
7. Pali Momi St Inbound/ Pali Momi St Outbound	Signalized	AM	6.1	A	6.1	A	6.1	A
		PM	8.6	A	8.6	A	8.6	A

Source: Fehr & Peers, 2020.

Notes:

¹Whole intersection weighted average stopped delay expressed in seconds per vehicle for signalized intersections.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	11	17/18	15	20	245	24	2	0	10	93	10	9
Traffic Volume (veh/h)	11	1718	15	20	245	24	2	0	10	93	10	9
Future Volume (veh/h)	0	0	0	0	20	0	0	0	0	0	0	0
Initial Q (Ob) veh	1.00	0.99	1.00	1.00	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00
Ped-Bike Adj(A_pbT)	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	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h	1633	1841	1604	1678	1796	1781	1159	1870	1307	1870	1870	1574
Adj Flow Rate, veh/h	12	1828	12	21	261	25	2	0	1	99	11	7
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	18	4	20	15	7	8	50	2	40	2	2	22
Cap, veh/h	20	3849	1034	30	1254	112	219	0	128	182	17	10
Arrive On Green	0.01	0.77	0.04	1.00	1.00	1.00	1.00	0.12	0.00	0.12	0.12	0.12
Sat Flow, veh/h	1555	5025	1349	1598	1614	155	1484	0	1083	1196	142	85
Grp Volume(V), veh/h	12	1828	12	21	0	286	2	0	1	117	0	0
Grp Sat Flow(s),veh/h	1555	1675	1349	1598	0	1768	1484	0	1083	1423	0	0
Q Serve(g.s)	1.3	22.1	0.3	2.1	0.0	0.0	0.0	0.0	0.1	12.9	0.0	0.0
Cycle Q Clear(g_o, s)	1.3	22.1	0.3	2.1	0.0	0.0	0.2	0.0	0.1	13.1	0.0	0.0
Prop In Lane	1.00	1.00	1.00	1.00	1.00	0.09	1.00	1.00	1.00	0.85	1.00	0.06
Lane Grp Cap(c), veh/h	20	3849	1034	30	0	1366	219	0	128	209	0	0
V/C Ratio(X)	0.60	0.47	0.01	0.70	0.00	0.21	0.01	0.00	0.01	0.56	0.00	0.00
Avail Cap(c_a), veh/h	189	3849	1034	194	0	1365	437	0	302	438	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(i)	1.00	1.00	1.00	0.96	0.00	0.96	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	81.0	7.1	4.6	79.0	0.0	0.0	64.2	0.0	64.2	69.9	0.0	0.0
Incr Delay (d2), s/veh	10.3	0.4	0.0	10.1	0.0	0.3	0.0	0.0	0.0	2.4	0.0	0.0
Initial Q Delay(Q3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
%ile Back(Q)(50%),veh/h	0.6	7.9	0.1	1.0	0.0	0.9	0.1	0.0	0.0	4.9	0.0	0.0
Unsig. Movement Delay, s/veh	91.4	7.5	4.6	89.1	0.0	2.3	64.2	0.0	64.2	72.3	0.0	0.0
LnGrp Delay(d),s/veh	F	A	A	F	A	A	E	A	E	E	A	A
LnGrp LOS	F	A	A	F	A	A	E	A	E	E	A	A
Approach Vol, veh/h	1852			307			3			117		
Approach Delay, s/veh	8.0			8.2			64.2			72.3		
Approach LOS	A			A			E			E		
Timer - Assigned Phs	1	2	4	5	6	8						
Phs Duration (G+Y+Rc), s	8.1	132.4	24.5	7.1	133.4	24.5						
Change Period (Y+Rc), s	5.0	* 6	5.0	5.0	6.0	5.0						
Max Green Setting (Gmax), s	20.0	* 84	46.0	20.0	83.0	46.0						
Max Q Clear Time (g_c+H), s	4.1	24.1	15.1	3.3	2.0	2.2						
Green Ext Time (p_g), s	0.0	36.9	0.7	0.0	3.0	0.0						
Intersection Summary												
HCM 6th Ctrl Delay	11.4											
HCM 6th LOS	B											
Notes												
User approved pedestrian interval to be less than phase max green.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th Signalized Intersection Summary
 Existing (2019) Conditions AM
 07/15/2020

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	54	1705	238	57	501	44
Future Volume (veh/h)	54	1705	238	57	501	44
Initial Q (Ob.) veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	0.97	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No
Adj Sat Flow, veh/h	1796	1856	1781	1678	1856	1678
Adj Flow Rate, veh/h	57	1795	251	56	527	39
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh. %	7	3	8	15	3	15
Cap. veh/h	73	3620	891	199	729	302
Arrive On Green	0.08	1.00	0.64	0.64	0.21	0.21
Sat Flow, veh/h	1711	5233	1401	313	3428	1422
Grp Volume(v), veh/h	57	1795	0	307	527	39
Grp Sat Flow(s),veh/h	1711	1689	0	1714	1714	1422
Q Serve(g.s), s	5.4	0.0	0.0	13.1	23.6	3.7
Cycle Q Clear(g.o), s	5.4	0.0	0.0	13.1	23.6	3.7
Prop In Lane	1.00	1.00	0.18	1.00	1.00	1.00
Lane Grp Cap(c), veh/h	73	3620	0	1090	729	302
V/C Ratio(X)	0.79	0.50	0.00	0.28	0.72	0.13
Avail Cap(c.a), veh/h	197	3620	0	1090	1018	422
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(i)	0.87	0.87	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	74.8	0.0	0.0	13.3	60.4	52.6
Incr Delay (d2), s/veh	28.2	0.4	0.0	0.6	6.1	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back(Q)(50%),veh/h	2.9	0.1	0.0	5.4	11.0	1.4
Unsig. Movement Delay, s/veh	103.0	0.4	0.0	14.0	66.6	53.5
LnGrp Delay(d)s/veh	F	A	A	B	E	D
LnGrp LOS	F	A	A	B	E	D
Approach Vol, veh/h	1852	307	586			
Approach Delay, s/veh	3.6	14.0	65.7			
Approach LOS	A	B	E			
Timer - Assigned Phs	2		5	6	8	
Phs Duration (G+Y+Rc), s	123.9		13.0	110.9	41.1	
Change Period (Y+Rc), s	6.0		6.0	6.0	6.0	
Max Green Setting (Gmax), s	104.0		19.0	79.0	49.0	
Max Q Clear Time (g_c+H), s	2.0		7.4	15.1	25.6	
Green Ext Time (p_e), s	46.2		0.2	3.3	9.5	
Intersection Summary						
HCM 6th Ctrl Delay	17.6					
HCM 6th LOS	B					

HCM 6th Signalized Intersection Summary
 Existing (2019) Conditions PM
 07/15/2020

Movement	EBL	EBT	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	27	692	47	43	1663	70	42	16	29	50
Future Volume (veh/h)	27	692	47	43	1663	70	42	16	29	50
Initial Q (Ob.) veh	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	0.97	1.00	1.00	1.00	0.96	1.00	1.00	0.96	1.00
Work Zone On Approach	No	No	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h	1870	1870	1841	1870	1870	1870	1870	1870	1856	1870
Adj Flow Rate, veh/h	28	706	37	44	1697	70	43	16	2	51
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh. %	2	2	4	2	2	2	2	2	3	2
Cap. veh/h	36	4089	1212	56	2824	116	128	43	142	133
Arrive On Green	0.02	0.80	0.80	0.06	1.00	1.00	0.10	0.10	0.10	0.10
Sat Flow, veh/h	1781	5106	1513	1781	3478	143	1048	456	1493	1083
Grp Volume(v), veh/h	28	706	37	44	863	904	59	0	2	65
Grp Sat Flow(s),veh/h	1781	1702	1513	1781	1777	1844	1504	0	1493	1441
Q Serve(g.s), s	3.4	7.0	1.1	5.4	0.0	0.0	0.0	0.3	1.3	0.0
Cycle Q Clear(g.o), s	3.4	7.0	1.1	5.4	0.0	0.0	7.7	0.0	0.3	9.0
Prop In Lane	1.00	1.00	1.00	1.00	0.08	0.73	1.00	0.78	1.00	0.11
Lane Grp Cap(c), veh/h	36	4089	1212	56	1442	1497	171	0	142	166
V/C Ratio(X)	0.77	0.17	0.03	0.79	0.60	0.60	0.34	0.00	0.01	0.39
Avail Cap(c.a), veh/h	121	4089	1212	243	1442	1497	264	0	238	256
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(i)	1.00	1.00	1.00	0.59	0.59	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	107.3	5.1	4.5	102.4	0.0	0.0	93.5	0.0	90.2	94.1
Incr Delay (d2), s/veh	12.2	0.1	0.0	5.4	1.1	1.1	1.2	0.0	0.0	1.5
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
%ile Back(Q)(50%),veh/h	1.7	2.6	0.4	2.5	0.4	0.4	3.3	0.0	0.1	3.6
Unsig. Movement Delay, s/veh	119.5	5.2	4.5	107.8	1.1	1.1	94.7	0.0	90.2	95.6
LnGrp Delay(d)s/veh	F	A	A	F	A	A	F	A	F	A
LnGrp LOS	F	A	A	F	A	A	F	A	F	A
Approach Vol, veh/h	771			1811			61			65
Approach Delay, s/veh	9.3			3.7			94.5			95.6
Approach LOS	A			A			F			F
Timer - Assigned Phs	1	2		4	5	6	8			
Phs Duration (G+Y+Rc), s	11.9	182.2		25.9	9.5	184.6	25.9			
Change Period (Y+Rc), s	5.0	* 6		5.0	5.0	6.0	5.0			
Max Green Setting (Gmax), s	30.0	* 1.4E2		35.0	15.0	154.0	35.0			
Max Q Clear Time (g_c+H), s	7.4	9.0		11.0	5.4	2.0	9.7			
Green Ext Time (p_e), s	0.0	9.5		0.3	0.0	56.6	0.3			
Intersection Summary										
HCM 6th Ctrl Delay	9.5									
HCM 6th LOS	A									
Notes	User approved pedestrian interval to be less than phase max green. * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.									

HCM 6th Signalized Intersection Summary
 2. Kamehameha Hwy & Kaonoahi St
 Existing (2019) Conditions PM
 07/15/2020

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↑	↑↑	↑↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	106	652	1526	167	181	210
Future Volume (veh/h)	106	652	1526	167	181	210
Initial Q. (Ob.) veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach	No	No	No	No	No	No
Adj Sat Flow, veh/h	1870	1870	1796	1870	1870	1870
Adj Flow Rate, veh/h	109	672	1573	0	187	142
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh. %	2	2	2	7	2	2
Cap. veh/h	126	4250	2609	391	179	179
Arrive On Green	0.14	1.00	0.73	0.00	0.11	0.11
Sat Flow, veh/h	1781	5274	3741	0	3456	1585
Grp Volume(v), veh/h	109	672	1573	0	187	142
Grp Sat Flow(s),veh/h/ln	1781	1702	1777	0	1728	1685
Q Serve(g.s)	13.2	0.0	46.5	0.0	11.2	19.2
Cycle Q Clear(g_c), s	13.2	0.0	46.5	0.0	11.2	19.2
Prop In Lane	1.00	0.00	0.00	1.00	1.00	1.00
Lane Grp Cap(c), veh/h	126	4250	2609	391	179	179
V/C Ratio(X)	0.86	0.16	0.60	0.48	0.79	0.79
Avail Cap(c_a), veh/h	235	4250	2609	534	245	245
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(i)	0.99	0.99	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	93.3	0.0	14.0	0.0	91.5	95.0
Incr Delay (d2), s/veh	28.1	0.1	1.0	0.0	4.2	29.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back(Q(50%)),veh/ln	6.8	0.0	19.5	0.0	5.3	9.5
Unsig. Movement Delay, s/veh	121.4	0.1	15.0	0.0	95.6	124.2
LnGrp Delay(d),s/veh	F	A	B	A	F	F
LnGrp LOS	F	A	B	A	F	F
Approach Vol, veh/h	781	1573	A	329		
Approach Delay, s/veh	17.0	15.0		108.0		
Approach LOS	B	B		F		
Timer - Assigned Phs	2			5	6	8
Phs Duration (G+Y+Rc), s	189.1			21.6	167.5	30.9
Change Period (Y+Rc), s	6.0			6.0	6.0	6.0
Max Green Setting (Gmax), s	174.0			29.0	139.0	34.0
Max Q Clear Time (g_c+H1), s	2.0			15.2	48.5	21.2
Green Ext Time (p_g), s	8.7			0.5	37.6	3.7
Intersection Summary						
HCM 6th Ctrl Delay	27.0					
HCM 6th LOS	C					
Notes						
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.						

HCM 6th Signalized Intersection Summary
 1. Kanuku St & Kamehameha Hwy
 Future (2025) Without Project AM
 07/14/2020

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↑	↑↑	↑↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	30	1580	20	20	900	70
Future Volume (veh/h)	30	1580	20	20	900	70
Initial Q. (Ob.) veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach	No	No	No	No	No	No
Adj Sat Flow, veh/h	1633	1841	1604	1678	1796	1870
Adj Flow Rate, veh/h	32	1663	15	21	947	71
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh. %	18	4	20	15	7	2
Cap. veh/h	39	3723	999	30	3418	256
Arrive On Green	0.05	1.00	1.00	0.04	1.00	0.14
Sat Flow, veh/h	1555	5025	1348	1598	4654	348
Grp Volume(v), veh/h	32	1663	15	21	665	353
Grp Sat Flow(s),veh/h/ln	1555	1675	1348	1598	1733	1745
Q Serve(g.s)	3.4	0.0	0.0	2.1	0.0	0.0
Cycle Q Clear(g_c), s	3.4	0.0	0.0	2.1	0.0	1.7
Prop In Lane	1.00	1.00	1.00	1.00	0.20	0.50
Lane Grp Cap(c), veh/h	39	3723	999	30	2401	1273
V/C Ratio(X)	0.82	0.45	0.02	0.70	0.28	0.08
Avail Cap(c_a), veh/h	189	3723	999	194	2401	1273
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	1.00
Upstream Filter(i)	0.81	0.81	0.81	0.93	0.93	1.00
Uniform Delay (d), s/veh	78.0	0.0	0.0	79.0	0.0	61.2
Incr Delay (d2), s/veh	11.9	0.3	0.0	9.8	0.3	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back(Q(50%)),veh/ln	1.5	0.1	0.0	1.0	0.1	0.2
Unsig. Movement Delay, s/veh	89.9	0.3	0.0	88.8	0.3	61.4
LnGrp Delay(d),s/veh	F	A	A	F	A	E
LnGrp LOS	F	A	A	F	A	E
Approach Vol, veh/h	1770			1039	25	165
Approach Delay, s/veh	2.0			2.1	61.3	70.2
Approach LOS	A			A	E	E
Timer - Assigned Phs	1	2		4	5	6
Phs Duration (G+Y+Rc), s	8.1	128.2		28.7	9.1	127.2
Change Period (Y+Rc), s	5.0	* 6		5.0	5.0	6.0
Max Green Setting (Gmax), s	20.0	* 84		46.0	20.0	83.0
Max Q Clear Time (g_c+H1), s	4.1	2.0		19.5	5.4	2.0
Green Ext Time (p_g), s	0.0	37.1		1.0	0.0	14.8
Intersection Summary						
HCM 6th Ctrl Delay	6.4					
HCM 6th LOS	A					
Notes						
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.						

HCM 6th Signalized Intersection Summary
 2. Kamehameha Hwy & Kaonoahi St

HCM 6th Signalized Intersection Summary
 3. Hekaha St & Kamehameha Hwy

Future (2025) Without Project AM
 07/14/2020



Movement	EBL	EBT	WBL	WBR	SBL	SBR
Lane Configurations	TTT	TTT	TTT	TTT	TTT	TTT
Traffic Volume (veh/h)	130	1560	780	170	540	120
Future Volume (veh/h)	130	1560	780	170	540	120
Initial Q. (Qb) veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach	No	No	No	No	No	No
Adj Sat Flow, veh/h	1796	1856	1781	1781	1856	1678
Adj Flow Rate, veh/h	137	1642	821	0	568	79
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh. %	7	3	8	8	3	15
Cap. veh/h	184	3541	2953	0	782	571
Arrive On Green	0.11	1.00	1.00	0.00	0.23	0.23
Sat Flow, veh/h	3319	5233	5184	0	3428	2502
Grp Volume(v), veh/h	137	1642	821	0	568	79
Grp Sat Flow(s),veh/h/ln	1659	1689	1621	0	1714	1251
Q Serve(g.s), s	6.6	0.0	0.0	0.0	25.3	4.2
Cycle Q Clear(g_c), s	6.6	0.0	0.0	0.0	25.3	4.2
Prop In Lane	1.00	0.00	0.00	1.00	1.00	1.00
Lane Grp Cap(c), veh/h	184	3541	2953	0	782	571
V/C Ratio(X)	0.74	0.46	0.28	0.00	0.73	0.14
Avail Cap(c_a), veh/h	382	3541	2953	0	1018	743
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00
Upstream Filter(i)	0.89	0.89	0.97	0.00	1.00	1.00
Uniform Delay (d), s/veh	72.2	0.0	0.0	0.0	58.9	50.7
Incr Delay (d2), s/veh	10.6	0.4	0.2	0.0	5.8	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOf(50%),veh/ln	3.0	0.1	0.1	0.0	11.8	1.4
Unsig. Movement Delay, s/veh	82.8	0.4	0.2	0.0	64.7	51.2
LnGrp Delay(d),s/veh	F	A	A	A	E	D
LnGrp LOS	F	A	A	A	E	D
Approach Vol, veh/h	1779	821	A	A	647	
Approach Delay, s/veh	6.7	0.2	0.2	0.2	63.1	
Approach LOS	A	A	A	A	E	
Timer - Assigned Phs	2				5	6
Phs Duration (G+Y+Rc), s	121.3				15.2	106.2
Change Period (Y+Rc), s	6.0				6.0	6.0
Max Green Setting (Gmax), s	104.0				19.0	79.0
Max Q Clear Time (g_c+H1), s	2.0				8.6	2.0
Green Ext Time (p_g), s	38.6				0.6	11.3
Intersection Summary						
HCM 6th Ctrl Delay	16.3					
HCM 6th LOS	B					
Notes						

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

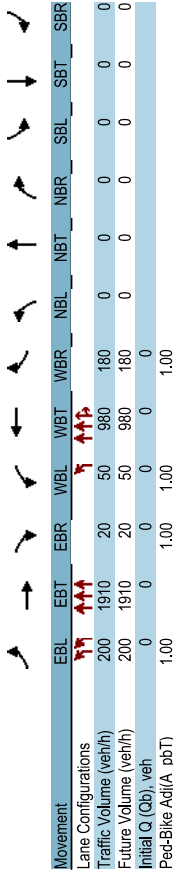


Movement	EBL	EBT	WBL	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	TTT	TTT	TTT	TTT	TTT	TTT	TTT	TTT	TTT
Traffic Volume (veh/h)	50	1530	190	90	830	30	60	110	20
Future Volume (veh/h)	50	1530	190	90	830	30	60	110	20
Initial Q. (Qb) veh	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus, Adj	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	No	No	No	No	No
Adj Sat Flow, veh/h	1870	1841	1841	1796	1796	1870	1870	1870	1870
Adj Flow Rate, veh/h	52	1577	189	93	856	29	62	10	11
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh. %	2	4	4	2	7	2	2	2	2
Cap. veh/h	98	3071	367	206	3315	112	254	38	258
Arrive On Green	0.06	0.68	0.68	0.12	1.00	1.00	0.17	0.17	0.17
Sat Flow, veh/h	1781	4545	544	3456	4871	165	1271	227	1540
Grp Volume(v), veh/h	52	1162	604	93	574	311	72	0	11
Grp Sat Flow(s),veh/h/ln	1781	1675	1738	1728	1635	1766	1498	0	1540
Q Serve(g.s), s	4.7	28.4	28.5	4.1	0.0	0.0	0.0	1.0	6.6
Cycle Q Clear(g_c), s	4.7	28.4	28.5	4.1	0.0	0.0	6.5	0.0	13.1
Prop In Lane	1.00	0.31	1.00	1.00	0.09	0.86	1.00	0.84	1.00
Lane Grp Cap(c), veh/h	98	2264	1175	206	2225	1202	292	0	258
V/C Ratio(X)	0.53	0.51	0.51	0.45	0.26	0.26	0.25	0.00	0.04
Avail Cap(c_a), veh/h	216	2264	1175	419	2225	1202	440	0	420
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(i)	1.00	1.00	1.00	0.96	0.96	0.96	1.00	1.00	1.00
Uniform Delay (d), s/veh	75.9	13.3	13.3	70.1	0.0	0.0	59.8	0.0	57.6
Incr Delay (d2), s/veh	19.0	0.8	1.6	6.7	0.3	0.5	0.9	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOf(50%),veh/ln	2.7	11.1	11.8	2.0	0.1	0.2	2.8	0.0	0.4
Unsig. Movement Delay, s/veh	94.9	14.1	14.9	76.8	0.3	0.5	60.8	0.0	57.7
LnGrp Delay(d),s/veh	F	B	B	E	A	A	E	A	E
LnGrp LOS	F	B	B	E	A	A	E	A	E
Approach Vol, veh/h	1818			978			83		149
Approach Delay, s/veh	16.7			7.6			60.4		63.0
Approach LOS	B			A			E		E
Timer - Assigned Phs	1	2		4		5	6		8
Phs Duration (G+Y+Rc), s	14.9	117.5		32.6		14.1	118.3		32.6
Change Period (Y+Rc), s	5.0	6.0		5.0		5.0	6.0		5.0
Max Green Setting (Gmax), s	20.0	84.0		45.0		20.0	84.0		45.0
Max Q Clear Time (g_c+H1), s	6.1	30.5		8.5		6.7	2.0		15.1
Green Ext Time (p_g), s	0.7	39.4		0.8		0.3	16.9		0.8
Intersection Summary									
HCM 6th Ctrl Delay	17.2								
HCM 6th LOS	B								

HCM 6th Signalized Intersection Summary
 4: Lipoa Pl & Kamehameha Hwy

HCM 6th Signalized Intersection Summary
 5: Kamehameha Hwy & Pali Momi Inbound

Future (2025) Without Project AM
 07/14/2020



Movement	EBT	EBR	WBL	WBT	NBL	NBR	SBL	SBT
Lane Configurations	↑↑↑	↑↑↑	↑	↑↑↑	↑	↑		
Traffic Volume (veh/h)	2010	50	50	940	70	60		
Future Volume (veh/h)	2010	50	50	940	70	60		
Initial Q (Qb) veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	0.97	1.00	1.00	1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Work Zone On Approach	No	No	No	No	No	No		
Adj Sat Flow, veh/h	1870	1870	1870	1767	1870	1856		
Adj Flow Rate, veh/h	2072	51	52	969	72	11		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97		
Percent Heavy Veh, %	2	2	2	2	2	3		
Cap, veh/h	4166	102	67	4250	93	82		
Arrive On Green	1.00	1.00	0.08	1.00	0.05	0.05		
Sat Flow, veh/h	5290	126	1781	4982	1781	1572		
Grp Volume(v), veh/h	1376	747	52	969	72	11		
Grp Sat Flow(s),veh/h/ln	1702	1844	1781	1608	1781	1572		
Q Serve(g.s), s	0.0	0.0	4.7	0.0	6.6	1.1		
Cycle Q Clear(g_c), s	0.0	0.0	4.7	0.0	6.6	1.1		
Prop In Lane	0.07	1.00	1.00	1.00	1.00	1.00		
Lane Grp Cap(c), veh/h	2769	1499	67	4250	93	82		
V/C Ratio(X)	0.50	0.50	0.78	0.23	0.77	0.13		
Avail Cap(c_a), veh/h	2769	1499	281	4250	475	419		
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00		
Upstream Filter(i)	0.83	0.83	0.96	0.96	1.00	1.00		
Uniform Delay (d), s/veh	0.0	0.0	75.6	0.0	77.2	74.6		
Incr Delay (d2), s/veh	0.5	1.0	16.8	0.1	12.7	0.7		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.2	0.4	2.4	0.0	3.4	0.5		
Unsig. Movement Delay, s/veh								
LnGrp Delay(d),s/veh	0.5	1.0	92.4	0.1	90.0	75.4		
LnGrp LOS	A	A	F	A	F	E		
Approach Vol, veh/h	2123			1021	83			
Approach Delay, s/veh	0.7			4.8	88.0			
Approach LOS	A			A	F			
Timer - Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	11.2	140.2		13.6		151.4		
Change Period (Y+Rc), s	5.0	6.0		5.0		6.0		
Max Green Setting (Gmax), s	26.0	79.0		44.0		110.0		
Max Q Clear Time (g_c+H1), s	6.7	2.0		8.6		2.0		
Green Ext Time (p_g), s	0.1	62.4		0.2		21.2		
Intersection Summary								
HCM 6th Ctrl Delay				4.2				
HCM 6th LOS				A				

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑	↑↑	↑	↑↑	↑	↑	↑	↑	↑	↑
Traffic Volume (veh/h)	200	1910	20	50	980	180	0	0	0	0	0
Future Volume (veh/h)	200	1910	20	50	980	180	0	0	0	0	0
Initial Q (Qb) veh	0	0	0	0	0	0					
Ped-Bike Adj(A_pbT)	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					
Work Zone On Approach	No	No	No	No	No	No					
Adj Sat Flow, veh/h	1870	1870	1870	1870	1767	1767					
Adj Flow Rate, veh/h	211	2011	21	53	1032	178					
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95					
Percent Heavy Veh, %	2	2	2	2	2	9					
Cap, veh/h	314	4326	45	162	3437	592					
Arrive On Green	0.18	1.00	1.00	0.18	1.00	1.00					
Sat Flow, veh/h	3456	5210	54	1781	4140	713					
Grp Volume(v), veh/h	211	1314	718	53	801	409					
Grp Sat Flow(s),veh/h/ln	1728	1702	1860	1781	1608	1637					
Q Serve(g.s), s	9.4	0.0	0.0	4.3	0.0	0.0					
Cycle Q Clear(g_c), s	9.4	0.0	0.0	4.3	0.0	0.0					
Prop In Lane	1.00	1.00	0.03	1.00	0.44						
Lane Grp Cap(c), veh/h	314	2826	1545	162	2670	1359					
V/C Ratio(X)	0.67	0.46	0.47	0.33	0.30	0.30					
Avail Cap(c_a), veh/h	691	2826	1545	356	2670	1359					
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00					
Upstream Filter(i)	0.76	0.76	0.76	0.96	0.96	0.96					
Uniform Delay (d), s/veh	65.2	0.0	0.0	63.1	0.0	0.0					
Incr Delay (d2), s/veh	4.0	0.4	0.8	5.1	0.3	0.5					
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0					
%ile BackOfQ(50%),veh/ln	4.1	0.2	0.3	2.1	0.1	0.2					
Unsig. Movement Delay, s/veh											
LnGrp Delay(d),s/veh	69.2	0.4	0.8	68.2	0.3	0.5					
LnGrp LOS	E	A	A	E	A	A					
Approach Vol, veh/h		2243			1263						
Approach Delay, s/veh		7.0			3.2						
Approach LOS		A			A						
Timer - Assigned Phs	1	2		5		6					
Phs Duration (G+Y+Rc), s	21.0	144.0		21.0		144.0					
Change Period (Y+Rc), s	6.0	7.0		6.0		7.0					
Max Green Setting (Gmax), s	33.0	119.0		33.0		119.0					
Max Q Clear Time (g_c+H1), s	6.3	2.0		11.4		2.0					
Green Ext Time (p_g), s	0.5	80.7		1.5		30.8					
Intersection Summary											
HCM 6th Ctrl Delay				5.6							
HCM 6th LOS				A							

HCM 6th Signalized Intersection Summary
 6. Kamehameha Hwy & Pali Momi Outbound
 07/14/2020

HCM 6th Signalized Intersection Summary
 7. Pali Momi Outbound & Pali Momi Inbound/Pali Momi St
 Future (2025) Without Project AM

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔↔	↔↔↔	↔↔↔	↔↔↔	↔↔↔	↔↔↔
Traffic Volume (veh/h)	0	1810	1110	0	320	80
Future Volume (veh/h)	0	1810	1110	0	320	80
Initial Q (Ob.) veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach	No	No	No	No	No	No
Adj Sat Flow, veh/hln	0	1870	1767	0	1870	1870
Adj Flow Rate, veh/h	0	1905	1168	0	337	13
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh. %	0	2	9	0	2	2
Cap. veh/h	0	4070	3844	0	429	197
Arrive On Green	0.00	1.00	0.80	0.00	0.12	0.12
Sat Flow, veh/h	0	5443	5141	0	3456	1585
Grp Volume(v), veh/h	0	1905	1168	0	337	13
Grp Sat Flow(s),veh/hln	0	1702	1608	0	1728	1685
Q Serve(g.s), s	0.0	0.0	10.7	0.0	15.6	1.2
Cycle Q Clear(g_c), s	0.0	0.0	10.7	0.0	15.6	1.2
Prop In Lane	0.00	0.00	0.00	0.00	1.00	1.00
Lane Grp Cap(c), veh/h	0	4070	3844	0	429	197
V/C Ratio(X)	0.00	0.47	0.30	0.00	0.79	0.07
Avail Cap(c_a), veh/h	0	4070	3844	0	901	413
HCM Platoon Ratio	1.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.87	1.00	0.00	0.94	0.94
Uniform Delay (d), s/veh	0.0	0.0	4.5	0.0	70.1	63.8
Incr Delay (d2), s/veh	0.0	0.3	0.2	0.0	6.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOf(50%),veh/hln	0.0	0.1	3.5	0.0	7.4	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	0.3	4.7	0.0	76.4	64.1
LnGrp LOS	A	A	A	A	E	E
Approach Vol, veh/h	1905	1168			350	
Approach Delay, s/veh	0.3	4.7			75.9	
Approach LOS	A	A			E	
Timer - Assigned Phs	2	4	4	4	6	6
Phs Duration (G+Y+Rc), s	138.5	26.5	26.5	26.5	138.5	138.5
Change Period (Y+Rc), s	7.0	6.0	6.0	6.0	7.0	7.0
Max Green Setting (Gmax), s	109.0	43.0	43.0	43.0	109.0	109.0
Max Q Clear Time (g_c+H1), s	2.0	17.6	17.6	17.6	12.7	12.7
Green Ext Time (p_c), s	70.8	2.9	2.9	2.9	28.9	28.9
Intersection Summary						
HCM 6th Ctrl Delay	9.6					
HCM 6th LOS	A					

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔↔	↔↔↔	↔↔↔	↔↔↔	↔↔↔	↔↔↔	↔↔↔	↔↔↔	↔↔↔	↔↔↔	↔↔↔	↔↔↔
Traffic Volume (veh/h)	50	330	20	380	0	60	0	0	0	20	20	0
Future Volume (veh/h)	50	330	20	380	0	60	0	0	0	20	20	0
Initial Q (Ob.) veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	0.96	1.00	1.00	0.97				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
Work Zone On Approach	No	No	No	No	No	No				No	No	No
Adj Sat Flow, veh/hln	1870	1870	1870	1870	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	53	347	17	400	0	18				21	21	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh. %	2	2	2	2	2	2				2	2	2
Cap. veh/h	428	847	41	790	0	342				343	389	0
Arrive On Green	0.24	0.24	0.24	0.22	0.00	0.22				0.21	0.21	0.00
Sat Flow, veh/h	1781	3529	172	3563	0	1542				1669	1988	0
Grp Volume(v), veh/h	53	183	181	400	0	18				22	20	0
Grp Sat Flow(s),veh/hln	1781	1870	1831	1781	0	1542				1787	1777	0
Q Serve(g.s), s	1.1	3.7	3.8	4.4	0.0	0.4				0.5	0.4	0.0
Cycle Q Clear(g_c), s	1.1	3.7	3.8	4.4	0.0	0.4				0.5	0.4	0.0
Prop In Lane	1.00	1.00	0.09	1.00	1.00	1.00				0.93	0.93	0.00
Lane Grp Cap(c), veh/h	428	449	439	790	0	342				367	365	0
V/C Ratio(X)	0.12	0.41	0.41	0.51	0.00	0.05				0.06	0.05	0.00
Avail Cap(c_a), veh/h	1186	1245	1218	1976	0	855				1070	1064	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00				1.00	1.00	0.00
Uniform Delay (d), s/veh	13.4	14.4	14.4	15.4	0.0	13.8				14.4	14.4	0.0
Incr Delay (d2), s/veh	0.2	0.8	0.9	0.5	0.0	0.1				0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOf(50%),veh/hln	0.4	1.5	1.5	1.6	0.0	0.1				0.2	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.6	15.3	15.3	15.9	0.0	13.9				14.5	14.5	0.0
LnGrp LOS	B	B	B	B	A	B				B	B	A
Approach Vol, veh/h	417				418					42		
Approach Delay, s/veh	15.1				15.8					14.5		
Approach LOS	B				B					B		
Timer - Assigned Phs	2	4	4	4	8	8						
Phs Duration (G+Y+Rc), s	14.3	15.8	15.8	15.8	15.0	15.0						
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0						
Max Green Setting (Gmax), s	27.0	30.0	30.0	30.0	25.0	25.0						
Max Q Clear Time (g_c+H1), s	2.5	5.8	5.8	5.8	6.4	6.4						
Green Ext Time (p_c), s	0.2	3.5	3.5	3.5	1.4	1.4						
Intersection Summary												
HCM 6th Ctrl Delay	15.4											
HCM 6th LOS	B											
Notes	User approved volume balancing among the lanes for turning movement.											

HCM 6th Signalized Intersection Summary Future Year (2025) Without Project PM
 4: Lipoa Pl & Kamehameha Hwy 07/14/2020

Movement	EBT	EBR	WBL	WBR	NBL	NBR	SBT	SBR
Lane Configurations	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑
Traffic Volume (veh/h)	1330	60	100	3530	160	40	40	100
Future Volume (veh/h)	1330	60	100	3530	160	40	40	100
Initial Q (Obs) veh	0	0	0	0	0	0	0	0
Peak-Bike Adj(A_pbT)	0.97	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
Work Zone On Approach	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1385	60	104	3677	167	22	22	100
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh. %	2	2	2	2	2	2	2	2
Cap. veh/h	3617	157	125	4203	193	171	171	381
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	5179	217	1781	5274	1781	1585	1585	1870
Grp Volume(v), veh/h	941	504	104	3677	167	22	22	100
Grp Sat Flow(s),veh/h/ln	1702	1823	1781	1702	1781	1685	1685	1870
Q Serve(g.s) s	0.0	0.0	9.1	0.0	14.8	2.0	2.0	10.0
Cycle Q Clear(g_c) s	0.0	0.0	9.1	0.0	14.8	2.0	2.0	10.0
Prop In Lane	0.12	1.00	0.0	1.00	0.0	0.0	0.0	1.00
Lane Grp Cap(c), veh/h	2457	1316	125	4203	193	171	171	381
V/C Ratio(X)	0.38	0.38	0.83	0.87	0.87	0.13	0.13	0.07
Avail Cap(c_a), veh/h	2457	1316	289	4203	490	436	436	381
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(f)	0.94	0.94	0.25	0.25	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	67.9	0.0	70.2	64.5	64.5	10.0
Incr Delay (d2), s/veh	0.4	0.8	3.8	0.7	11.1	0.3	0.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.3	4.1	0.3	7.4	0.8	0.8	0.9
Unsig. Movement Delay, s/veh								
LnGrp Delay(d),s/veh	0.4	0.8	71.7	0.7	81.3	64.9	64.9	10.0
LnGrp LOS	A	A	E	A	F	E	E	D
Approach Vol, veh/h	1445		3781		189		150	100
Approach Delay, s/veh	0.6		2.7		79.4		49.5	10.0
Approach LOS	A		A		E		D	D
Timer - Assigned Phs	1	2	4	5	6	8		
Phs Duration (G+Y+Rc), s	16.2	121.5	22.3	43.5	43.5			
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0			
Max Green Setting (Gmax), s	26.0	74.0	44.0	45.0	45.0			
Max Q Clear Time (g_c+H1), s	11.1	2.0	16.8	11.6	11.6			
Green Ext Time (p_g), s	0.2	36.1	0.5	0.8	0.8			
Intersection Summary								
HCM 6th Ctrl Delay			4.8					
HCM 6th LOS			A					

HCM 6th Signalized Intersection Summary Future Year (2025) Without Project PM
 3: Hekaha St & Kamehameha Hwy 07/14/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑
Traffic Volume (veh/h)	50	1040	150	190	2740	80	240	50	230	70	50	100
Future Volume (veh/h)	50	1040	150	190	2740	80	240	50	230	70	50	100
Initial Q (Obs) veh	0	0	0	0	0	0	0	0	0	0	0	0
Peak-Bike Adj(A_pbT)	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.97	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	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	51	1061	143	194	2796	80	245	51	64	71	51	28
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh. %	2	2	2	2	2	2	2	2	2	2	2	2
Cap. veh/h	100	2638	355	275	3081	87	317	57	361	254	173	381
Arrive On Green	0.06	0.58	0.58	0.16	1.00	1.00	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	1781	4546	612	3456	5103	145	1149	239	1504	907	722	1585
Grp Volume(v), veh/h	51	794	410	194	1857	1019	296	0	64	122	0	28
Grp Sat Flow(s),veh/h/ln	1781	1702	1753	1728	1702	1844	1388	0	1504	1629	0	1585
Q Serve(g.s) s	4.5	20.4	20.5	8.5	0.0	0.0	23.6	0.0	5.4	0.0	0.0	2.2
Cycle Q Clear(g_c) s	4.5	20.4	20.5	8.5	0.0	0.0	33.1	0.0	5.4	9.6	0.0	2.2
Prop In Lane	1.00	0.35	1.00	0.08	0.83	1.00	0.58	1.00	0.58	1.00	0.381	1.00
Lane Grp Cap(c), veh/h	100	1975	1017	275	2055	1113	375	0	361	427	0	381
V/C Ratio(X)	0.51	0.40	0.40	0.71	0.90	0.92	0.79	0.00	0.18	0.29	0.00	0.07
Avail Cap(c_a), veh/h	223	1975	1017	648	2055	1113	433	0	423	489	0	446
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(f)	1.00	1.00	1.00	0.13	0.13	0.13	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	73.4	18.4	18.4	65.5	0.0	0.0	59.1	0.0	48.2	49.7	0.0	47.0
Incr Delay (d2), s/veh	17.5	0.6	1.2	2.0	1.0	2.2	10.7	0.0	0.5	0.4	0.0	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	2.5	8.5	8.9	3.6	0.3	0.7	12.8	0.0	2.1	4.1	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	90.9	19.0	19.6	67.5	1.0	2.2	69.8	0.0	48.7	50.1	0.0	47.1
LnGrp LOS	F	B	B	E	A	A	E	A	D	D	A	D
Approach Vol, veh/h	1255		3070		360		150		150		49.5	100
Approach Delay, s/veh	22.1		5.6		66.0		49.5		49.5		10.0	10.0
Approach LOS	C		A		E		D		D		D	D
Timer - Assigned Phs	1	2	4	5	6	8						
Phs Duration (G+Y+Rc), s	17.7	98.8	43.5	14.0	102.6	43.5						
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	6.0	5.0						
Max Green Setting (Gmax), s	30.0	69.0	45.0	20.0	79.0	45.0						
Max Q Clear Time (g_c+H1), s	10.5	22.5	35.1	6.5	2.0	11.6						
Green Ext Time (p_g), s	2.2	22.9	2.5	0.3	74.4	0.8						
Intersection Summary			15.8									
HCM 6th Ctrl Delay			B									
HCM 6th LOS												

HCM 6th Signalized Intersection Summary
 5. Kamehameha Hwy & Pali Momi Inbound

HCM 6th Signalized Intersection Summary
 6. Kamehameha Hwy & Pali Momi Outbound

Future Year (2025) Without Project PM

Future Year (2025) Without Project PM

07/14/2020

07/14/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↑↑↑	↑	↑↑↑	↑↑↑							↑
Traffic Volume (veh/h)	250	1080	40	120	3100	390	0	0	0	0	0	0
Future Volume (veh/h)	250	1080	40	120	3100	390	0	0	0	0	0	0
Initial Q (Qb) veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	0.99	1.00	1.00	0.98							
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00							
Work Zone On Approach	No	No	No	No	No							
Adj Sat Flow, veh/h	1870	1870	1870	1870	1870	1870						
Adj Flow Rate, veh/h	263	1137	40	126	3263	404						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95						
Percent Heavy Veh. %	2	2	2	2	2	2						
Cap. veh/h	334	4177	147	167	3794	449						
Arrive On Green	0.19	1.00	1.00	0.19	1.00	1.00						
Sat Flow, veh/h	3456	5063	178	1781	4616	546						
Grp Volume(v), veh/h	263	764	413	126	2367	1300						
Grp Sat Flow(s),veh/h/ln	1728	1702	1837	1781	1702	1758						
Q Serve(g.s) s	11.6	0.0	0.0	10.7	0.0	0.0						
Cycle Q Clear(g_c) s	11.6	0.0	0.0	10.7	0.0	0.0						
Prop In Lane	1.00	0.10	1.00	1.00	0.31							
Lane Grp Cap(c), veh/h	334	2808	1516	167	2798	1445						
V/C Ratio(X)	0.79	0.27	0.27	0.75	0.85	0.90						
Avail Cap(c_a), veh/h	713	2808	1516	367	2798	1445						
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00						
Upstream Filter(i)	0.91	0.91	0.91	0.24	0.24	0.24						
Uniform Delay (d), s/veh	63.0	0.0	0.0	63.3	0.0	0.0						
Incr Delay (d2), s/veh	7.7	0.2	0.4	7.4	0.8	2.5						
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	5.1	0.1	0.2	4.9	0.3	1.0						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.7	0.2	0.4	70.7	0.8	2.5						
LnGrp LOS	E	A	A	E	A	A						
Approach Vol, veh/h	1440			3793								
Approach Delay, s/veh	13.1			3.7								
Approach LOS	B			A								
Timer - Assigned Phs	1	2		5	6							
Phs Duration (G+Y+R), s	21.0	139.0		21.5	138.5							
Change Period (Y+R), s	6.0	7.0		6.0	7.0							
Max Green Setting (Gmax), s	33.0	114.0		33.0	114.0							
Max Q Clear Time (g_c+H1), s	12.7	2.0		13.6	2.0							
Green Ext Time (p_c), s	1.3	28.4		1.9	111.3							
Intersection Summary												
HCM 6th Ctrl Delay		6.3										
HCM 6th LOS		A										

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↑↑↑	↑	↑↑↑	↑↑↑							↑
Traffic Volume (veh/h)	0	1080	3360	0	3100	390	0	0	0	0	0	0
Future Volume (veh/h)	0	1080	3360	0	3100	390	0	0	0	0	0	0
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						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Work Zone On Approach	No	No	No	No	No	No						
Adj Sat Flow, veh/h	0	1870	1870	0	1870	1870						
Adj Flow Rate, veh/h	0	1113	3464	0	320	154						
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97						
Percent Heavy Veh. %	0	2	2	2	2	2						
Cap. veh/h	0	4023	4023	0	452	207						
Arrive On Green	0.00	1.00	0.79	0.00	1.00	0.13						
Sat Flow, veh/h	0	5443	5443	0	3456	1585						
Grp Volume(v), veh/h	0	1113	3464	0	320	154						
Grp Sat Flow(s),veh/h/ln	0	1702	1702	0	1728	1685						
Q Serve(g.s) s	0.0	0.0	71.6	0.0	14.2	15.0						
Cycle Q Clear(g_c) s	0.0	0.0	71.6	0.0	14.2	15.0						
Prop In Lane	0.00	0.00	0.00	0.00	1.00	1.00						
Lane Grp Cap(c), veh/h	0	4023	4023	0	452	207						
V/C Ratio(X)	0.00	0.28	0.86	0.00	0.71	0.74						
Avail Cap(c_a), veh/h	0	4023	4023	0	929	426						
HCM Platoon Ratio	1.00	1.33	1.00	1.00	1.00	1.00						
Upstream Filter(i)	0.00	0.97	1.00	0.00	0.91	0.91						
Uniform Delay (d), s/veh	0.0	0.0	11.2	0.0	66.6	66.9						
Incr Delay (d2), s/veh	0.0	0.2	2.7	0.0	3.9	9.7						
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	0.0	0.1	25.3	0.0	6.6	6.7						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.2	13.9	0.0	70.5	76.6						
LnGrp LOS	A	A	B	A	E	E						
Approach Vol, veh/h	1113	3464		474								
Approach Delay, s/veh	0.2	13.9		72.5								
Approach LOS	A	B		E								
Timer - Assigned Phs	2	4		4	6							
Phs Duration (G+Y+R), s	133.1	26.9		26.9	133.1							
Change Period (Y+R), s	7.0	6.0		6.0	7.0							
Max Green Setting (Gmax), s	104.0	43.0		43.0	104.0							
Max Q Clear Time (g_c+H1), s	2.0	17.0		17.0	73.6							
Green Ext Time (p_c), s	26.5	4.0		4.0	30.3							
Intersection Summary												
HCM 6th Ctrl Delay		16.3										
HCM 6th LOS		B										

HCM 6th Signalized Intersection Summary
 2. Kamehameha Hwy & Kaonohi St

HCM 6th Signalized Intersection Summary
 3. Hekaha St & Kamehameha Hwy

Future (2025) With Project AM
 07/14/2020

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	171	1615	841	174	540	133
Future Volume (veh/h)	171	1615	841	174	540	133
Initial Q. (Qb) veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach	No	No	No	No	No	No
Adj Sat Flow, veh/h	1693	1870	1752	1752	1885	1796
Adj Flow Rate, veh/h	180	1700	885	0	588	87
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh. %	14	2	10	10	1	7
Cap. veh/h	225	3576	2831	0	791	608
Arrive On Green	0.14	1.00	1.00	0.00	0.23	0.23
Sat Flow, veh/h	3127	5274	5098	0	3483	2679
Grp Volume(v), veh/h	180	1700	885	0	588	87
Grp Sat Flow(s),veh/h/ln	1564	1702	1594	0	1742	1340
Q Serve(g.s), s	9.2	0.0	0.0	0.0	24.9	4.3
Cycle Q Clear(g_c), s	9.2	0.0	0.0	0.0	24.9	4.3
Prop In Lane	1.00	0.00	0.00	0.00	1.00	1.00
Lane Grp Cap(c), veh/h	225	3576	2831	0	791	608
V/C Ratio(X)	0.80	0.48	0.31	0.00	0.72	0.14
Avail Cap(c_a), veh/h	360	3576	2831	0	1034	796
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00
Upstream Filter(i)	0.85	0.85	0.97	0.00	1.00	1.00
Uniform Delay (d), s/veh	69.5	0.0	0.0	0.0	58.9	51.0
Incr Delay (d2), s/veh	11.2	0.4	0.3	0.0	5.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOf(50%),veh/ln	3.8	0.1	0.1	0.0	11.7	1.5
Unsig. Movement Delay, s/veh	80.6	0.4	0.3	0.0	64.5	51.4
LnGrp Delay(d),s/veh	F	A	A	A	E	D
LnGrp LOS	F	A	A	A	E	D
Approach Vol, veh/h	1880	885	A	655		
Approach Delay, s/veh	8.1	0.3	D	62.7		
Approach LOS	A	A	A	E		
Timer - Assigned Phs	2			5	6	8
Phs Duration (G+Y+Rc), s	121.5			17.9	103.7	43.5
Change Period (Y+Rc), s	6.0			6.0	6.0	6.0
Max Green Setting (Gmax), s	104.0			19.0	79.0	49.0
Max Q Clear Time (g_c+H1), s	2.0			11.2	2.0	26.9
Green Ext Time (p_g), s	41.3			0.7	12.7	10.6
Intersection Summary						
HCM 6th Ctrl Delay	16.5					
HCM 6th LOS	B					
Notes						
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.						

Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	50	1587	190	90	858	30	60	10	60
Future Volume (veh/h)	50	1587	190	90	858	30	60	10	60
Initial Q. (Qb) veh	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	1.00
Parking Bus, Adj	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	No	No	No	No	No
Adj Sat Flow, veh/h	1870	1841	1841	1870	1796	1870	1870	1870	1870
Adj Flow Rate, veh/h	52	1636	189	93	885	29	62	10	11
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh. %	2	4	4	2	7	2	2	2	2
Cap. veh/h	98	3085	356	206	3319	109	254	38	258
Arrive On Green	0.06	0.68	0.68	0.12	1.00	1.00	0.17	0.17	0.17
Sat Flow, veh/h	1781	4565	526	3456	4877	160	1271	227	1540
Grp Volume(v), veh/h	52	1199	626	93	593	321	72	0	11
Grp Sat Flow(s),veh/h/ln	1781	1675	1741	1728	1635	1767	1498	0	1540
Q Serve(g.s), s	4.7	29.8	30.0	4.1	0.0	0.0	0.0	1.0	6.6
Cycle Q Clear(g_c), s	4.7	29.8	30.0	4.1	0.0	0.0	6.5	0.0	13.1
Prop In Lane	1.00	0.30	1.00	0.09	0.86	1.00	0.84	1.00	1.00
Lane Grp Cap(c), veh/h	98	2264	1177	206	2225	1203	292	0	258
V/C Ratio(X)	0.53	0.53	0.53	0.45	0.27	0.27	0.25	0.00	0.04
Avail Cap(c_a), veh/h	216	2264	1177	419	2225	1203	440	0	420
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(i)	1.00	1.00	1.00	0.96	0.96	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	75.9	13.5	13.5	70.1	0.0	0.0	59.8	0.0	57.6
Incr Delay (d2), s/veh	19.0	0.9	1.7	6.7	0.3	0.5	0.9	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOf(50%),veh/ln	2.7	11.7	12.5	2.0	0.1	0.2	2.8	0.0	0.4
Unsig. Movement Delay, s/veh	94.9	14.4	15.3	76.8	0.3	0.5	60.8	0.0	57.7
LnGrp Delay(d),s/veh	F	B	B	E	A	A	E	A	E
LnGrp LOS	F	B	B	E	A	A	E	A	E
Approach Vol, veh/h	1877			1007	83		149		
Approach Delay, s/veh	16.9			7.4	60.4		63.0		
Approach LOS	B			A	E		E		
Timer - Assigned Phs	1	2		4	5	6	8		
Phs Duration (G+Y+Rc), s	14.9	117.5		32.6	14.1	118.3	32.6		
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0	5.0		
Max Green Setting (Gmax), s	20.0	84.0		45.0	20.0	84.0	45.0		
Max Q Clear Time (g_c+H1), s	6.1	32.0		8.5	6.7	2.0	15.1		
Green Ext Time (p_g), s	0.7	39.8		0.8	0.3	17.8	0.8		
Intersection Summary									
HCM 6th Ctrl Delay	17.2								
HCM 6th LOS	B								

HCM 6th Signalized Intersection Summary
 4: Lipoa Pl & Kamehameha Hwy

HCM 6th Signalized Intersection Summary
 5: Kamehameha Hwy & Pali Momi Inbound

Future (2025) With Project AM
 07/14/2020

Movement	EBT	EBR	WBL	WBT	NBL	NBR	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	←←←	←←←	←	←←←	←	←	←	←	←	←	←	←	←	←	←	←	←
Traffic Volume (veh/h)	2065	50	50	1005	70	60	214	1951	20	50	1033	180	0	0	0	0	0
Future Volume (veh/h)	2065	50	50	1005	70	60	214	1951	20	50	1033	180	0	0	0	0	0
Initial Q (Qb) veh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	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	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h	1856	1856	1870	1737	1870	1856	1856	1856	1856	1870	1737	1737	1737	1737	1737	1737	1737
Adj Flow Rate, veh/h	2129	51	52	1036	72	11	225	2054	21	53	1087	178	0	0	0	0	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	2	11	2	3	1	3	3	2	11	11	11	11	11	11	11
Cap, veh/h	4136	99	67	4178	93	82	317	4293	44	162	3408	558	558	558	558	558	558
Arrive On Green	1.00	1.00	0.08	1.00	0.05	0.05	0.18	1.00	1.00	0.18	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	5252	122	1781	4898	1781	1572	3483	5170	53	1781	4105	672	672	672	672	672	672
Grp Volume(v), veh/h	1412	768	52	1036	72	11	225	1341	734	53	837	428	428	428	428	428	428
Grp Sat Flow(s),veh/h/ln	1689	1830	1781	1581	1781	1572	1742	1689	1846	1781	1581	1615	1615	1615	1615	1615	1615
Q Serve(g.s), s	0.0	0.0	4.7	0.0	6.6	1.1	10.0	0.0	0.0	4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	4.7	0.0	6.6	1.1	10.0	0.0	0.0	4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.07	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.03	1.00	0.42	0.42	0.42	0.42	0.42	0.42	0.42
Lane Grp Cap(c), veh/h	2747	1488	67	4178	93	82	317	2804	1533	162	2625	1341	1341	1341	1341	1341	1341
V/C Ratio(X)	0.51	0.62	0.78	0.25	0.77	0.13	0.71	0.48	0.48	0.33	0.32	0.32	0.32	0.32	0.32	0.32	0.32
Avail Cap(c_a), veh/h	2747	1488	281	4178	475	419	697	2804	1533	356	2625	1341	1341	1341	1341	1341	1341
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(i)	0.83	0.83	0.95	0.95	1.00	1.00	0.74	0.74	0.74	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Uniform Delay (d), s/veh	0.0	0.0	75.6	0.0	77.2	74.6	65.5	0.0	0.0	63.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.6	1.1	16.6	0.1	12.7	0.7	4.6	0.4	0.8	5.1	0.3	0.6	0.6	0.6	0.6	0.6	0.6
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	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.4	2.4	0.1	3.4	0.5	4.4	0.2	0.3	2.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2
Unsig. Movement Delay, s/veh	0.6	1.1	92.2	0.1	90.0	75.4	70.1	0.4	0.8	68.2	0.3	0.6	0.6	0.6	0.6	0.6	0.6
LnGrp LOS	A	A	F	A	F	E	E	A	A	E	A	A	A	A	A	A	A
Approach Vol, veh/h	2180	0.7	1088	83	88.0	83	2300	7.4	7.4	1318	3.1	3.1	3.1	3.1	3.1	3.1	3.1
Approach Delay, s/veh	0.7	4.5	4.5	88.0	88.0	88.0	7.4	7.4	7.4	1318	3.1	3.1	3.1	3.1	3.1	3.1	3.1
Approach LOS	A	A	A	F	F	F	A	A	A	A	A	A	A	A	A	A	A
Timer - Assigned Phs	1	2	4	4	6	6	1	2	2	5	6	6	6	6	6	6	6
Phs Duration (G+Y+R), s	11.2	140.2	13.6	13.6	151.4	151.4	21.0	144.0	144.0	21.0	144.0	144.0	144.0	144.0	144.0	144.0	144.0
Change Period (Y+R), s	5.0	6.0	5.0	5.0	6.0	6.0	6.0	7.0	7.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	26.0	79.0	44.0	44.0	110.0	110.0	33.0	119.0	119.0	33.0	119.0	119.0	119.0	119.0	119.0	119.0	119.0
Max Q Clear Time (g_c+H1), s	6.7	2.0	8.6	8.6	2.0	2.0	6.3	2.0	2.0	12.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Green Ext Time (p_g), s	0.1	63.9	0.2	0.2	23.8	23.8	0.5	83.3	83.3	1.6	33.7	33.7	33.7	33.7	33.7	33.7	33.7
Intersection Summary																	
HCM 6th Ctrl Delay	4.1																
HCM 6th LOS	A																

HCM 6th Signalized Intersection Summary
6. Kamehameha Hwy & Pali Momi Outbound

HCM 6th Signalized Intersection Summary
7. Pali Momi Outbound & Pali Momi Inbound/Pali Momi St

Future (2025) With Project AM

Future (2025) With Project AM

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔↔	↔↔↔	↔↔↔	↔↔↔	↔↔↔	↔↔↔
Traffic Volume (veh/h)	0	1851	1134	0	320	109
Future Volume (veh/h)	0	1851	1134	0	320	109
Initial Q (Ob.) veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach	No	No	No	No	No	No
Adj Sat Flow, veh/hln	0	1856	1752	0	1870	1693
Adj Flow Rate, veh/h	0	1948	1194	0	337	33
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh. %	0	3	10	0	2	14
Cap. veh/h	0	4033	3807	0	432	179
Arrive On Green	0.00	1.00	0.80	0.00	0.13	0.13
Sat Flow, veh/h	0	5400	5098	0	3456	1434
Grp Volume(v), veh/h	0	1948	1194	0	337	33
Grp Sat Flow(s),veh/hln	0	1689	1594	0	1728	1434
Q Serve(g.s), s	0.0	0.0	11.2	0.0	15.6	3.4
Cycle Q Clear(g_c), s	0.0	0.0	11.2	0.0	15.6	3.4
Prop In Lane	0.00	0.00	0.00	0.00	1.00	1.00
Lane Grp Cap(c), veh/h	0	4033	3807	0	432	179
V/C Ratio(X)	0.00	0.48	0.31	0.00	0.78	0.18
Avail Cap(c_a), veh/h	0	4033	3807	0	901	374
HCM Platoon Ratio	1.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.86	1.00	0.00	0.92	0.92
Uniform Delay (d), s/veh	0.0	0.0	4.6	0.0	70.0	64.6
Incr Delay (d2), s/veh	0.0	0.4	0.2	0.0	5.9	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back(Q(50%))veh/hln	0.0	0.1	3.6	0.0	7.3	1.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	0.4	4.8	0.0	75.9	65.6
LnGrp LOS	A	A	A	A	E	E
Approach Vol, veh/h	1948	1194			370	
Approach Delay, s/veh	0.4	4.8			75.0	
Approach LOS	A	A			E	
Timer - Assigned Phs	2	4	4	4	6	6
Phs Duration (G+Y+Rc), s	138.4	26.6	26.6	26.6	138.4	138.4
Change Period (Y+Rc), s	7.0	6.0	6.0	6.0	7.0	7.0
Max Green Setting (Gmax), s	109.0	43.0	43.0	43.0	109.0	109.0
Max Q Clear Time (g_c+H1), s	2.0	17.6	17.6	17.6	13.2	13.2
Green Ext Time (p_g), s	73.2	3.0	3.0	3.0	30.1	30.1
Intersection Summary						
HCM 6th Ctrl Delay		9.7				
HCM 6th LOS		A				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	↔↔↔	↔↔↔	↔↔↔	↔↔↔	↔↔↔	↔↔↔	↔↔↔	↔↔↔	↔↔↔	↔↔↔	↔↔↔
Traffic Volume (veh/h)	53	341	20	404	0	60	0	0	0	20	25
Future Volume (veh/h)	53	341	20	404	0	60	0	0	0	20	25
Initial Q (Ob.) veh	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	0.96	1.00	1.00	0.97				1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00
Work Zone On Approach	No	No	No	No	No	No				No	No
Adj Sat Flow, veh/hln	1885	1870	1870	1826	1900	1870				1870	1885
Adj Flow Rate, veh/h	56	359	17	425	0	18				21	26
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95
Percent Heavy Veh. %	1	2	2	5	0	2				2	1
Cap. veh/h	433	852	40	789	0	350				317	438
Arrive On Green	0.24	0.24	0.24	0.23	0.00	0.23				0.21	0.21
Sat Flow, veh/h	1795	3535	167	3478	0	1543				1510	2185
Grp Volume(v), veh/h	56	189	187	425	0	18				25	22
Grp Sat Flow(s),veh/hln	1795	1870	1832	1739	0	1543				1810	1791
Q Serve(g.s), s	1.1	4.0	4.0	5.0	0.0	0.4				0.5	0.5
Cycle Q Clear(g_c), s	1.1	4.0	4.0	5.0	0.0	0.4				0.5	0.5
Prop In Lane	1.00	1.00	0.09	1.00	1.00	1.00				0.83	0.00
Lane Grp Cap(c), veh/h	433	451	441	789	0	350				379	376
V/C Ratio(X)	0.13	0.42	0.42	0.54	0.00	0.05				0.07	0.06
Avail Cap(c_a), veh/h	1158	1206	1181	1869	0	829				1050	1039
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00				1.00	1.00
Uniform Delay (d), s/veh	13.8	14.9	14.9	15.8	0.0	14.1				14.7	14.7
Incr Delay (d2), s/veh	0.2	0.9	0.9	0.6	0.0	0.1				0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0
%ile Back(Q(50%))veh/hln	0.4	1.6	1.6	1.8	0.0	0.1				0.2	0.2
Unsig. Movement Delay, s/veh											
LnGrp Delay(d),s/veh	14.0	15.8	15.8	16.4	0.0	14.1				14.8	14.8
LnGrp LOS	B	B	B	B	A	B				B	A
Approach Vol, veh/h	432	443			443					47	
Approach Delay, s/veh	15.6	16.3			16.3					14.8	
Approach LOS	B	B			B					B	
Timer - Assigned Phs	2	4	4	4	8	8					
Phs Duration (G+Y+Rc), s	14.8	16.2	16.2	16.2	15.6	15.6					
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0					
Max Green Setting (Gmax), s	27.0	30.0	30.0	30.0	25.0	25.0					
Max Q Clear Time (g_c+H1), s	2.5	6.0	6.0	6.0	7.0	7.0					
Green Ext Time (p_g), s	0.3	3.6	3.6	3.6	1.5	1.5					
Intersection Summary											
HCM 6th Ctrl Delay		15.9									
HCM 6th LOS		B									
Notes	User approved volume balancing among the lanes for turning movement.										

HCM 6th Signalized Intersection Summary
 1: Kanuku St & Kamehameha Hwy

HCM 6th Signalized Intersection Summary
 2: Kamehameha Hwy & Kaonoahi St

Future Year (2025) With Project PM
 07/14/2020

Future Year (2025) With Project PM
 07/14/2020

Movement	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	43	1225	80	135	3075	224	99	20	80	65
Future Volume (veh/h)	43	1225	80	135	3075	224	99	20	80	65
Initial Q (Qb) veh	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	0.95	1.00	1.00	0.97	0.94	0.93	0.95	0.92	0.92
Parking Bus, Adj	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	No	No	No	No	No	No
Adj Sat Flow, veh/h	1885	1841	1841	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	44	1250	49	138	3138	226	101	20	16	66
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh. %	1	4	4	17	2	2	2	2	2	2
Cap. veh/h	57	3155	934	156	3380	237	243	41	204	231
Arrive On Green	0.06	1.00	1.00	0.13	0.92	0.92	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1795	5025	1487	1570	4860	340	1169	237	1181	1107
Grp Volume(v), veh/h	44	1250	49	138	2171	1193	121	0	16	86
Grp Sat Flow(s),veh/h/ln	1795	1675	1487	1570	1702	1797	1406	0	1181	1484
Q Serve(g.s)	3.9	0.0	0.0	13.8	50.5	68.2	4.5	0.0	1.8	0.0
Cycle Q Clear(g_c), s	3.9	0.0	0.0	13.8	50.5	68.2	12.1	0.0	1.8	7.6
Prop In Lane	1.00	1.00	1.00	1.00	0.19	0.83	1.00	0.77	1.00	1.00
Lane Grp Cap(c), veh/h	57	3155	934	156	2367	1249	284	0	204	296
V/C Ratio(X)	0.78	0.40	0.05	0.89	0.92	0.95	0.43	0.00	0.08	0.29
Avail Cap(c_a), veh/h	224	3155	934	196	2367	1249	442	0	339	458
HCM Platoon Ratio	2.00	2.00	2.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00
Upstream Filter(i)	0.87	0.87	0.09	0.09	0.09	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	74.4	0.0	0.0	68.6	3.7	4.4	59.6	0.0	55.5	57.8
Incr Delay (d2), s/veh	7.1	0.3	0.1	3.5	0.7	2.4	1.0	0.0	0.2	0.5
Initial Q Delay(Q3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back(Q50%),veh/ln	1.9	0.1	0.0	5.6	3.7	4.7	4.6	0.0	0.6	3.1
Unsig. Movement Delay, s/veh	81.5	0.3	0.1	72.0	4.5	6.8	60.6	0.0	55.6	58.4
LnGrp Delay(d),s/veh	F	A	A	E	A	A	E	A	E	A
LnGrp LOS	F	A	A	E	A	A	E	A	E	A
Approach Vol, veh/h	1343		3502		137				95	
Approach Delay, s/veh	3.0		7.9		60.1				58.1	
Approach LOS	A		A		E				E	
Timer - Assigned Phs	1	2	4	5	6	8				
Phs Duration (G+Y+R), s	20.9	106.5	32.7	10.1	117.3	32.7				
Change Period (Y+Rc), s	5.0	* 6	5.0	5.0	6.0	5.0				
Max Green Setting (Gmax), s	20.0	* 79	46.0	20.0	78.0	46.0				
Max Q Clear Time (g_c+H1), s	15.8	2.0	9.6	5.9	70.2	14.1				
Green Ext Time (p_c), s	0.1	22.4	0.5	0.0	7.8	0.8				
Intersection Summary										
HCM 6th Ctrl Delay	9.0									
HCM 6th LOS	A									
Notes										
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.										

Movement	EBL	EBT	WBT	WBR	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	
Traffic Volume (veh/h)	241	1275	3502	397	300	322				
Future Volume (veh/h)	241	1275	3502	397	300	322				
Initial Q (Qb) veh	0	0	0	0	0	0				
Ped-Bike Adj(A_pbT)	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				
Work Zone On Approach	No	No	No	No	No	No				
Adj Sat Flow, veh/h	1752	1856	1870	1870	1870	1870				
Adj Flow Rate, veh/h	248	1314	3610	0	309	197				
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				
Percent Heavy Veh. %	10	3	2	2	2	2				
Cap. veh/h	304	3886	3246	546	437					
Arrive On Green	0.19	1.00	1.00	0.00	0.16	0.16				
Sat Flow, veh/h	3237	5233	5443	0	3456	2768				
Grp Volume(v), veh/h	248	1314	3610	0	309	197				
Grp Sat Flow(s),veh/h/ln	1618	1689	1702	0	1728	1384				
Q Serve(g.s)	11.8	0.0	0.0	0.0	13.2	10.3				
Cycle Q Clear(g_c), s	11.8	0.0	0.0	0.0	13.2	10.3				
Prop In Lane	1.00	1.00	1.00	0.00	1.00	1.00				
Lane Grp Cap(c), veh/h	304	3886	3246	546	437					
V/C Ratio(X)	0.82	0.34	1.11	0.57	0.57	0.45				
Avail Cap(c_a), veh/h	485	3886	3246	1058	848					
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00				
Upstream Filter(i)	0.92	0.92	0.25	0.00	1.00	1.00				
Uniform Delay (d), s/veh	63.7	0.0	0.0	0.0	62.3	61.1				
Incr Delay (d2), s/veh	10.2	0.2	51.8	0.0	4.2	3.3				
Initial Q Delay(Q3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				
%ile Back(Q50%),veh/ln	4.9	0.1	15.6	0.0	6.2	3.9				
Unsig. Movement Delay, s/veh	73.9	0.2	51.8	0.0	66.5	64.4				
LnGrp Delay(d),s/veh	E	A	F		E	E				
LnGrp LOS	E	A	F		E	E				
Approach Vol, veh/h	1562	3610	A	506						
Approach Delay, s/veh	11.9	51.8		65.7						
Approach LOS	B	D		E						
Timer - Assigned Phs	2			5	6	8				
Phs Duration (G+Y+R), s	128.7			21.0	107.7	31.3				
Change Period (Y+Rc), s	6.0			6.0	6.0	6.0				
Max Green Setting (Gmax), s	99.0			24.0	69.0	49.0				
Max Q Clear Time (g_c+H1), s	2.0			13.8	2.0	15.2				
Green Ext Time (p_c), s	24.5			1.3	66.4	10.0				
Intersection Summary										
HCM 6th Ctrl Delay	42.1									
HCM 6th LOS	D									
Notes										
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.										

HCM 6th Signalized Intersection Summary
 3: Hekaha St & Kamehameha Hwy
 Future Year (2025) With Project PM
 07/14/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	←	←	←	←	←	←	←	←	←	←	←	←
Traffic Volume (veh/h)	50	1068	150	190	2777	80	240	50	230	70	50	100
Future Volume (veh/h)	50	1068	150	190	2777	80	240	50	230	70	50	100
Initial Q (Qb) veh	0	0	0	0	0	0	0	0	0	0	0	0
Peak-Bike Adj(A_pbT)	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.97	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	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h	1870	1841	1841	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	51	1090	143	194	2834	80	245	51	64	71	51	28
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh. %	2	4	4	2	2	2	2	2	2	2	2	2
Cap. veh/h	100	2605	341	275	3082	86	317	57	361	254	173	381
Arrive On Green	0.06	0.58	0.58	0.16	1.00	1.00	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	1781	4490	588	3456	5106	143	1149	239	1504	907	722	1585
Grp Volume(v), veh/h	51	813	420	194	1881	1033	296	0	64	122	0	28
Grp Sat Flow(s),veh/h/ln	1781	1675	1728	1728	1702	1844	1388	0	1504	1629	0	1585
Q Serve(g.s), s	4.5	21.5	21.6	8.5	0.0	0.0	23.6	0.0	5.4	0.0	0.0	2.2
Cycle Q Clear(g_c), s	4.5	21.5	21.6	8.5	0.0	0.0	33.1	0.0	5.4	9.6	0.0	2.2
Prop In Lane	1.00	1.00	0.34	1.00	0.08	0.83	1.00	0.83	1.00	0.58	1.00	1.00
Lane Grp Cap(c), veh/h	100	1944	1003	275	2055	1113	375	0	361	427	0	381
V/C Ratio(X)	0.51	0.42	0.42	0.71	0.92	0.93	0.79	0.00	0.18	0.29	0.00	0.07
Avail Cap(c_a), veh/h	223	1944	1003	648	2055	1113	433	0	423	489	0	446
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(i)	1.00	1.00	1.00	0.09	0.09	0.09	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	73.4	18.6	18.6	65.5	0.0	0.0	59.1	0.0	48.2	49.7	0.0	47.0
Incr Delay (d2), s/veh	17.5	0.7	1.3	1.4	0.8	1.8	10.7	0.0	0.5	0.4	0.0	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	2.5	8.8	9.2	3.6	0.2	0.5	12.8	0.0	2.1	4.1	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	90.9	19.3	19.9	66.9	0.8	1.8	69.8	0.0	48.7	50.1	0.0	47.1
LnGrp LOS	F	B	B	E	A	A	E	A	D	D	A	D
Approach Vol, veh/h	1284			3108			360				150	
Approach Delay, s/veh	22.3			5.3			66.0				49.5	
Approach LOS	C			A			E				D	
Timer - Assigned Phs	1	2	4	5	6	8						
Phs Duration (G+Y+Rc), s	17.7	98.8	43.5	14.0	102.6	43.5						
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	6.0	5.0						
Max Green Setting (Gmax), s	30.0	69.0	45.0	20.0	79.0	45.0						
Max Q Clear Time (g_c+H1), s	10.5	23.6	35.1	6.5	2.0	11.6						
Green Ext Time (p_g), s	2.2	23.3	2.5	0.3	74.7	0.8						
Intersection Summary												
HCM 6th Ctrl Delay	15.6											
HCM 6th LOS	B											

HCM 6th Signalized Intersection Summary
 4: Lipoa Pl & Kamehameha Hwy
 Future Year (2025) With Project PM
 07/14/2020

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	←	←	←	←	←	←
Traffic Volume (veh/h)	1375	60	100	3599	160	40
Future Volume (veh/h)	1375	60	100	3599	160	40
Initial Q (Qb) veh	0	0	0	0	0	0
Peak-Bike Adj(A_pbT)	1.00	0.97	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No
Adj Sat Flow, veh/h	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1432	60	104	3749	167	22
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh. %	2	2	2	2	2	2
Cap. veh/h	3623	152	125	4203	193	171
Arrive On Green	1.00	1.00	0.14	1.00	0.11	0.11
Sat Flow, veh/h	5187	210	1781	5274	1781	1585
Grp Volume(v), veh/h	971	521	104	3749	167	22
Grp Sat Flow(s),veh/h/ln	1702	1825	1781	1702	1781	1685
Q Serve(g.s), s	0.0	0.0	9.1	0.0	14.8	2.0
Cycle Q Clear(g_c), s	0.0	0.0	9.1	0.0	14.8	2.0
Prop In Lane	0.12	1.00	1.00	1.00	1.00	1.00
Lane Grp Cap(c), veh/h	2457	1317	125	4203	193	171
V/C Ratio(X)	0.40	0.40	0.83	0.89	0.87	0.13
Avail Cap(c_a), veh/h	2457	1317	289	4203	490	436
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00
Upstream Filter(i)	0.93	0.83	0.20	0.20	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	67.9	0.0	70.2	64.5
Incr Delay (d2), s/veh	0.4	0.8	3.0	0.7	11.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.3	4.0	0.3	7.4	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.4	0.8	70.9	0.7	81.3	64.9
LnGrp LOS	A	A	E	A	F	E
Approach Vol, veh/h	1492			3853	189	
Approach Delay, s/veh	0.6			2.6	79.4	
Approach LOS	A			A	E	
Timer - Assigned Phs	1	2	4	4	6	
Phs Duration (G+Y+Rc), s	16.2	121.5	22.3	22.3	137.7	
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	6.0	
Max Green Setting (Gmax), s	26.0	74.0	44.0	44.0	105.0	
Max Q Clear Time (g_c+H1), s	11.1	2.0	16.8	16.8	2.0	
Green Ext Time (p_g), s	0.2	36.0	0.5	0.5	102.4	
Intersection Summary						
HCM 6th Ctrl Delay	4.7					
HCM 6th LOS	A					

HCM 6th Signalized Intersection Summary Future (2025) With Project AM With Ped Lead Interval
 2. Kamehameha Hwy & Kaonohi St
 10/13/2020

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	171	1615	841	174	540	133
Future Volume (veh/h)	171	1615	841	174	540	133
Initial Q (Ob.) veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach	No	No	No	No	No	No
Adj Sat Flow, veh/hln	1693	1870	1752	1663	1885	1796
Adj Flow Rate, veh/h	180	1700	885	0	588	85
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	14	2	10	16	1	7
Cap. veh/h	225	3576	2832	0	790	608
Arrive On Green	0.14	1.00	1.00	0.00	0.23	0.23
Sat Flow, veh/h	3127	5274	5098	0	3483	2679
Grp Volume(v), veh/h	180	1700	885	0	588	85
Grp Sat Flow(s),veh/hln	1564	1702	1594	0	1742	1340
Q Serve(g.s), s	9.2	0.0	0.0	0.0	24.9	4.2
Cycle Q Clear(g.c), s	9.2	0.0	0.0	0.0	24.9	4.2
Prop In Lane	1.00	1.00	0.00	0.00	1.00	1.00
Lane Grp Cap(c), veh/h	225	3576	2832	0	790	608
V/C Ratio(X)	0.80	0.48	0.31	0.00	0.72	0.14
Avail Cap(c.a), veh/h	360	3576	2832	0	1034	796
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.82	0.82	0.97	0.00	1.00	1.00
Uniform Delay (d), s/veh	69.5	0.0	0.0	0.0	58.9	50.9
Intr Delay (d2), s/veh	10.8	0.4	0.3	0.0	5.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/hln	3.8	0.1	0.1	0.0	11.7	1.5
Unsig. Movement Delay, s/veh	80.3	0.4	0.3	0.0	64.5	51.4
LnGrp Delay(d),s/veh	F	A	A	A	E	D
LnGrp LOS	F	A	A	A	E	D
Approach Vol, veh/h	1880	885	A	653		
Approach Delay, s/veh	8.0	0.3	A	62.8		
Approach LOS	A	A	A	E		
Timer - Assigned Phs	2			5	6	8
Phs Duration (G+Y+Rc), s	121.6			17.9	103.7	43.4
Change Period (Y+Rc), s	6.0			6.0	6.0	6.0
Max Green Setting (Gmax), s	104.0			19.0	79.0	49.0
Max Q Clear Time (g_c+H1), s	2.0			11.2	2.0	26.9
Green Ext Time (g_e), s	41.3			0.7	12.7	10.6
Intersection Summary						
HCM 6th Ctrl Delay	16.5					
HCM 6th LOS	B					

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary Future (2025) With Project AM With Ped Lead Interval
 3. Hekaha St & Kamehameha Hwy
 10/13/2020

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	50	1587	190	90	858	30
Future Volume (veh/h)	50	1587	190	90	858	30
Initial Q (Ob.) veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach	No	No	No	No	No	No
Adj Sat Flow, veh/hln	1870	1841	1870	1796	1870	1870
Adj Flow Rate, veh/h	52	1636	189	93	885	29
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	4	2	2	7	2
Cap. veh/h	98	3085	356	206	3319	109
Arrive On Green	0.06	0.68	0.68	0.12	1.00	0.17
Sat Flow, veh/h	1781	4565	526	3456	4877	160
Grp Volume(v), veh/h	52	1199	626	93	593	321
Grp Sat Flow(s),veh/hln	1781	1675	1741	1728	1635	1767
Q Serve(g.s), s	4.7	29.8	30.0	4.1	0.0	0.0
Cycle Q Clear(g.c), s	4.7	29.8	30.0	4.1	0.0	0.0
Prop In Lane	1.00	1.00	0.30	1.00	0.09	0.86
Lane Grp Cap(c), veh/h	98	2264	1177	206	2225	1203
V/C Ratio(X)	0.53	0.53	0.53	0.45	0.27	0.25
Avail Cap(c.a), veh/h	216	2264	1177	419	2225	1203
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.96	0.96	1.00
Uniform Delay (d), s/veh	75.9	13.5	13.5	70.1	0.0	59.8
Intr Delay (d2), s/veh	19.0	0.9	1.7	6.7	0.3	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/hln	2.7	11.7	12.5	2.0	0.1	2.8
Unsig. Movement Delay, s/veh	94.9	14.4	15.3	76.8	0.3	60.8
LnGrp Delay(d),s/veh	F	B	B	E	A	A
LnGrp LOS	F	B	B	E	A	A
Approach Vol, veh/h	1877			1007	83	149
Approach Delay, s/veh	16.9			7.4	60.4	63.0
Approach LOS	B			A	E	E
Timer - Assigned Phs	1	2		4	5	6
Phs Duration (G+Y+Rc), s	14.9	117.5		32.6	14.1	118.3
Change Period (Y+Rc), s	5.0	6.0		5.0	5.0	6.0
Max Green Setting (Gmax), s	20.0	84.0		45.0	20.0	84.0
Max Q Clear Time (g_c+H1), s	6.1	32.0		8.5	6.7	2.0
Green Ext Time (g_e), s	0.7	39.8		0.8	0.3	17.8
Intersection Summary						
HCM 6th Ctrl Delay	17.2					
HCM 6th LOS	B					

HCM 6th Signalized Intersection Summary Future (2025) With Project AM With Ped Lead Interval
 4- Lipoa Pl & Kamehameha Hwy

10/13/2020

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔↔↔	↔	↔	↔↔↔	↔	↔
Traffic Volume (veh/h)	2065	50	50	1005	70	60
Future Volume (veh/h)	2065	50	50	1005	70	60
Initial Q (Ob.) veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97	1.00	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No
Adj Sat Flow, veh/h/ln	1856	1648	1870	1737	1870	1856
Adj Flow Rate, veh/h	2129	51	52	1036	72	11
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	17	2	11	2	3
Cap. veh/h	4136	99	67	4178	93	82
Arrive On Green	1.00	1.00	0.08	1.00	0.05	0.05
Sat Flow, veh/h	5252	122	1781	4898	1781	1572
Grp Volume(v), veh/h	1412	768	52	1036	72	11
Grp Sat Flow(s),veh/h/ln	1689	1830	1781	1581	1781	1572
Q Serve(g.s), s	0.0	0.0	4.7	0.0	6.6	1.1
Cycle Q Clear(g.c), s	0.0	0.0	4.7	0.0	6.6	1.1
Prop In Lane	0.07	1.00	1.00	1.00	1.00	1.00
Lane Grp Cap(c), veh/h	2747	1488	67	4178	93	82
V/C Ratio(X)	0.51	0.52	0.78	0.25	0.77	0.13
Avail Cap(c.a), veh/h	2747	1488	281	4178	475	419
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00
Uniform Filter(I)	0.83	0.83	0.95	0.95	1.00	1.00
Upstream Delay (d), s/veh	0.0	0.0	75.6	0.0	77.2	74.6
Intr Delay (d2), s/veh	0.6	1.1	16.6	0.1	12.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOf(50%),veh/ln	0.2	0.4	2.4	0.1	3.4	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.6	1.1	92.2	0.1	90.0	75.4
LnGrp LOS	A	A	F	A	F	E
Approach Vol, veh/h	2180			1088	83	
Approach Delay, s/veh	0.7			4.5	88.0	
Approach LOS	A			A	F	
Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	11.2	140.2		13.6		151.4
Change Period (Y+Rc), s	5.0	6.0		5.0		6.0
Max Green Setting (Gmax), s	26.0	79.0		44.0		110.0
Max Q Clear Time (g_c+H1), s	6.7	2.0		8.6		2.0
Green Ext Time (p_c), s	0.1	63.9		0.2		23.8
Intersection Summary						
HCM 6th Ctrl Delay				4.1		
HCM 6th LOS				A		

HCM 6th Signalized Intersection Summary Future (2025) With Project AM With Ped Lead Interval
 5- Kamehameha Hwy & Pali Momi Inbound

10/13/2020

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔↔	↔↔↔	↔	↔	↔↔↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	214	1951	20	50	1033	180	0	0	0	0	0
Future Volume (veh/h)	214	1951	20	50	1033	180	0	0	0	0	0
Initial Q (Ob.) veh	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					
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00					
Work Zone On Approach	No	No	No	No	No	No					
Adj Sat Flow, veh/h/ln	1885	1856	1870	1870	1737	1870					
Adj Flow Rate, veh/h	225	2054	21	53	1087	178					
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95					
Percent Heavy Veh, %	1	3	2	2	11	2					
Cap. veh/h	317	4293	44	162	3408	558					
Arrive On Green	0.18	1.00	1.00	0.18	1.00	1.00					
Sat Flow, veh/h	3483	5170	53	1781	4105	672					
Grp Volume(v), veh/h	225	1341	734	53	837	428					
Grp Sat Flow(s),veh/h/ln	1742	1689	1846	1781	1581	1615					
Q Serve(g.s), s	10.0	0.0	0.0	4.3	0.0	0.0					
Cycle Q Clear(g.c), s	10.0	0.0	0.0	4.3	0.0	0.0					
Prop In Lane	1.00	0.03	0.03	1.00	0.02	0.42					
Lane Grp Cap(c), veh/h	317	2804	1533	162	2625	1341					
V/C Ratio(X)	0.71	0.48	0.48	0.33	0.32	0.32					
Avail Cap(c.a), veh/h	697	2804	1533	356	2625	1841					
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00					
Uniform Filter(I)	0.74	0.74	0.74	0.95	0.95	0.95					
Upstream Delay (d), s/veh	65.5	0.0	0.0	63.1	0.0	0.0					
Intr Delay (d2), s/veh	4.6	0.4	0.8	5.1	0.3	0.6					
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0					
%ile BackOf(50%),veh/ln	4.4	0.2	0.3	2.1	0.1	0.2					
Unsig. Movement Delay, s/veh											
LnGrp Delay(d),s/veh	70.1	0.4	0.8	68.2	0.3	0.6					
LnGrp LOS	E	A	A	E	A	A					
Approach Vol, veh/h	2300				1318						
Approach Delay, s/veh	7.4				3.1						
Approach LOS	A				A						
Timer - Assigned Phs	1	2			5						6
Phs Duration (G+Y+Rc), s	21.0	144.0			21.0						144.0
Change Period (Y+Rc), s	6.0	7.0			6.0						7.0
Max Green Setting (Gmax), s	33.0	119.0			33.0						119.0
Max Q Clear Time (g_c+H1), s	6.3	2.0			12.0						2.0
Green Ext Time (p_c), s	0.5	83.3			1.6						33.7
Intersection Summary											
HCM 6th Ctrl Delay					5.8						
HCM 6th LOS					A						

HCM 6th Signalized Intersection Summary Future (2025) With Project AM With Ped Lead Interval
 6. Kamehameha Hwy & Pali Momi Outbound

10/13/2020

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		←←←	←←←	←←←	←←←	←←←
Traffic Volume (veh/h)	0	1851	1134	0	320	109
Future Volume (veh/h)	0	1851	1134	0	320	109
Initial Q (Ob.) veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach	No	No	No	No	No	No
Adj Sat Flow, veh/h/ln	0	1856	1752	0	1870	1693
Adj Flow Rate, veh/h	0	1948	1194	0	337	33
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	3	10	0	2	14
Cap. veh/h	0	4033	3807	0	432	179
Arrive On Green	0.00	1.00	0.80	0.00	0.13	0.13
Sat Flow, veh/h	0	5400	5098	0	3456	1434
Grp Volume(v), veh/h	0	1948	1194	0	337	33
Grp Sat Flow(s), veh/h/ln	0	1689	1594	0	1728	1434
Q Serve(g_s), s	0.0	0.0	11.2	0.0	15.6	3.4
Cycle Q Clear(g_c), s	0.0	0.0	11.2	0.0	15.6	3.4
Prop In Lane	0.00	0.00	0.00	0.00	1.00	1.00
Lane Grp Cap(c), veh/h	0	4033	3807	0	432	179
V/C Ratio(X)	0.00	0.48	0.31	0.00	0.78	0.18
Avail Cap(c_a), veh/h	0	4033	3807	0	901	374
HCM Platoon Ratio	1.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.86	1.00	0.00	0.92	0.92
Uniform Delay (d), s/veh	0.0	0.0	4.6	0.0	70.0	64.6
Intr Delay (d2), s/veh	0.0	0.4	0.2	0.0	5.9	1.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.0	0.1	3.6	0.0	7.3	1.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	0.0	0.4	4.8	0.0	75.9	65.6
LnGrp LOS	A	A	A	A	E	E
Approach Vol, veh/h		1948	1194		370	
Approach Delay, s/veh		0.4	4.8		75.0	
Approach LOS		A	A		E	
Timer - Assigned Phs		2	4		4	6
Phs Duration (G+Y+Rc), s		138.4	26.6		138.4	
Change Period (Y+Rc), s		7.0	6.0		7.0	
Max Green Setting (Gmax), s		109.0	43.0		109.0	
Max Q Clear Time (g_c+H1), s		2.0	17.6		13.2	
Green Ext Time (g_e), s		73.2	3.0		30.1	
Intersection Summary						
HCM 6th Ctrl Delay			9.7			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary Future (2025) With Project AM With Ped Lead Interval
 7. Pali Momi Outbound & Pali Momi Inbound/Pali Momi St

10/13/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		←←←	←←←	←←←	←←←	←←←	←←←	←←←	←←←	←←←	←←←	←←←
Traffic Volume (veh/h)	53	341	20	404	0	60	0	0	0	20	25	0
Future Volume (veh/h)	53	341	20	404	0	60	0	0	0	20	25	0
Initial Q (Ob.) veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	0.97	1.00	1.00	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	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/ln	1885	1870	1870	1826	0	1870	0	1870	1870	1870	1885	1900
Adj Flow Rate, veh/h	56	359	17	425	0	18	0	18	21	26	26	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	2	2	5	0	2	0	2	2	1	1	0
Cap. veh/h	631	1244	59	0	0	0	0	0	363	502	0	0
Arrive On Green	0.35	0.35	0.35	0.00	0.00	0.00	0.00	0.00	0.24	0.24	0.00	0.00
Sat Flow, veh/h	1795	3538	167	0	0	0	0	0	1510	2185	0	0
Grp Volume(v), veh/h	56	189	187	0.0	0.0	0.0	0.0	0.0	25	22	0	0
Grp Sat Flow(s), veh/h/ln	1795	1870	1835						1810	1791	0	0
Q Serve(g_s), s	0.5	1.8	1.8						0.3	0.2	0.0	0.0
Cycle Q Clear(g_c), s	0.5	1.8	1.8						0.3	0.2	0.0	0.0
Prop In Lane	1.00	0.09	0.09						0.83	0.00	0.00	0.00
Lane Grp Cap(c), veh/h	631	658	645						435	430	0	0
V/C Ratio(X)	0.09	0.29	0.29						0.06	0.05	0.00	0.00
Avail Cap(c_a), veh/h	2199	2291	2247						1995	1974	0	0
HCM Platoon Ratio	1.00	1.00	1.00						1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00						1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.3	5.7	5.7						7.2	7.2	0.0	0.0
Intr Delay (d2), s/veh	0.1	0.3	0.4						0.1	0.1	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0						0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.1	0.4	0.4						0.1	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	5.4	6.1	6.1						7.2	7.2	0.0	0.0
LnGrp LOS	A	A	A						A	A	A	A
Approach Vol, veh/h		432								47		
Approach Delay, s/veh		6.0								7.2		
Approach LOS		A								A		
Timer - Assigned Phs		2							4			
Phs Duration (G+Y+Rc), s		10.9							13.6			
Change Period (Y+Rc), s		5.0							5.0			
Max Green Setting (Gmax), s		27.0							30.0			
Max Q Clear Time (g_c+H1), s		2.3							3.8			
Green Ext Time (g_e), s		0.3							3.7			
Intersection Summary												
HCM 6th Ctrl Delay									6.1			
HCM 6th LOS									A			
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM 6th Signalized Intersection SuFutureYear (2025) With Project PM With Ped Lead Interval
 3: Hekaha St & Kamehameha Hwy

10/13/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	←	←	←	←	←	←	←	←	←	←	←	←
Traffic Volume (veh/h)	50	1068	150	190	2777	80	240	50	230	70	50	100
Future Volume (veh/h)	50	1068	150	190	2777	80	240	50	230	70	50	100
Initial Q (Ob.) veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.97	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	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/hln	1870	1841	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	51	1090	143	194	2834	80	245	51	64	71	51	28
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	4	2	2	2	2	2	2	2	2	2	2
Cap. veh/h	100	2605	341	275	3082	86	317	57	361	254	173	381
Arrive On Green	0.06	0.58	0.58	0.16	1.00	1.00	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	1781	4490	588	3456	5106	143	1149	239	1504	907	722	1585
Grp Volume(v), veh/h	51	813	420	194	1881	1033	296	0	64	122	0	28
Grp Sat Flow(s),veh/hln	1781	1675	1728	1728	1702	1844	1388	0	1504	1629	0	1585
Q Serve(g.s), s	4.5	21.5	21.6	8.5	0.0	0.0	23.6	0.0	5.4	0.0	0.0	2.2
Cycle Q Clear(g.c), s	4.5	21.5	21.6	8.5	0.0	0.0	33.1	0.0	5.4	9.6	0.0	2.2
Prop In Lane	1.00	1.00	0.34	1.00	0.08	0.83	1.00	0.83	1.00	0.58	1.00	1.00
Lane Grp Cap(c), veh/h	100	1944	1003	275	2055	1113	375	0	361	427	0	381
V/C Ratio(X)	0.51	0.42	0.42	0.71	0.92	0.93	0.79	0.00	0.18	0.29	0.00	0.07
Avail Cap(c.a), veh/h	223	1944	1003	648	2055	1113	433	0	423	489	0	446
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Filter(I)	1.00	1.00	1.00	0.09	0.09	0.09	1.00	0.00	1.00	1.00	0.00	1.00
Upstream Delay (d), s/veh	73.4	18.6	18.6	65.5	0.0	0.0	59.1	0.0	48.2	49.7	0.0	47.0
Intr Delay (d2), s/veh	17.5	0.7	1.3	1.4	0.8	1.8	10.7	0.0	0.5	0.4	0.0	0.1
Initial Q Delay(Q3),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 Back(Q50%),veh/hln	2.5	8.8	9.2	3.6	0.2	0.5	12.8	0.0	2.1	4.1	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	90.9	19.3	19.9	66.9	0.8	1.8	69.8	0.0	48.7	50.1	0.0	47.1
LnGrp LOS	F	B	B	E	A	A	E	A	D	D	A	D
Approach Vol, veh/h	1284			3108			360				150	
Approach Delay, s/veh	22.3			5.3			66.0				49.5	
Approach LOS	C			A			E				D	
Timer - Assigned Phs	1	2	4	5	6	8						
Phs Duration (G+Y+Rc), s	17.7	98.8	43.5	14.0	102.6	43.5						
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	6.0	5.0						
Max Green Setting (Gmax), s	30.0	69.0	45.0	20.0	79.0	45.0						
Max Q Clear Time (g_c+H1), s	10.5	23.6	35.1	6.5	2.0	11.6						
Green Ext Time (g_e), s	2.2	23.3	2.5	0.3	74.7	0.8						
Intersection Summary												
HCM 6th Ctrl Delay	15.6											
HCM 6th LOS	B											

HCM 6th Signalized Intersection SuFutureYear (2025) With Project PM With Ped Lead Interval
 4: Lipoa Pl & Kamehameha Hwy

10/13/2020

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	←	←	←	←	←	←
Traffic Volume (veh/h)	1375	60	100	3599	160	40
Future Volume (veh/h)	1375	60	100	3599	160	40
Initial Q (Ob.) veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97	1.00	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No
Adj Sat Flow, veh/hln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1432	60	104	3749	167	22
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2
Cap. veh/h	3623	152	125	4203	193	171
Arrive On Green	1.00	1.00	0.14	1.00	0.11	0.11
Sat Flow, veh/h	5187	210	1781	5274	1781	1585
Grp Volume(v), veh/h	971	521	104	3749	167	22
Grp Sat Flow(s),veh/hln	1702	1825	1781	1702	1781	1585
Q Serve(g.s), s	0.0	0.0	9.1	0.0	14.8	2.0
Cycle Q Clear(g.c), s	0.0	0.0	9.1	0.0	14.8	2.0
Prop In Lane	0.12	1.00	1.00	1.00	1.00	1.00
Lane Grp Cap(c), veh/h	2457	1317	125	4203	193	171
V/C Ratio(X)	0.40	0.40	0.83	0.89	0.87	0.13
Avail Cap(c.a), veh/h	2457	1317	289	4203	490	436
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00
Uniform Filter(I)	0.93	0.93	0.20	0.20	1.00	1.00
Upstream Delay (d), s/veh	0.0	0.0	67.9	0.0	70.2	64.5
Intr Delay (d2), s/veh	0.4	0.8	3.0	0.7	11.1	0.3
Initial Q Delay(Q3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back(Q50%),veh/hln	0.2	0.3	4.0	0.3	7.4	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.4	0.8	70.9	0.7	81.3	64.9
LnGrp LOS	A	A	E	A	F	E
Approach Vol, veh/h	1492		3653		189	
Approach Delay, s/veh	0.6		2.6		79.4	
Approach LOS	A		A		E	
Timer - Assigned Phs	1	2	4		6	
Phs Duration (G+Y+Rc), s	16.2	121.5	22.3		137.7	
Change Period (Y+Rc), s	5.0	6.0	5.0		6.0	
Max Green Setting (Gmax), s	26.0	74.0	44.0		105.0	
Max Q Clear Time (g_c+H1), s	11.1	2.0	16.8		2.0	
Green Ext Time (g_e), s	0.2	36.0	0.5		102.4	
Intersection Summary						
HCM 6th Ctrl Delay	4.7					
HCM 6th LOS	A					

HCM 6th Signalized Intersection SuFutureYear (2025) With Project PM With Ped Lead Interval
 5. Kamehameha Hwy & Pali Momi Inbound

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔						
Traffic Volume (veh/h)	276	1099	40	120	3145	390	0	0	0	0	0	0
Future Volume (veh/h)	276	1099	40	120	3145	390	0	0	0	0	0	0
Initial Q (Ob.) veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	0.99	1.00	1.00	0.98	1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Work Zone On Approach	No	No	No	No	No	No						
Adj Sat Flow, veh/hln	1885	1870	1870	1870	1870	1870						
Adj Flow Rate, veh/h	291	1157	40	126	3311	404						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95						
Percent Heavy Veh, %	1	2	2	2	2	2						
Cap. veh/h	365	4180	144	167	3764	439						
Arrive On Green	0.21	1.00	1.00	0.19	1.00	1.00						
Sat Flow, veh/h	3483	5067	175	1781	4624	540						
Grp Volume(v), veh/h	291	777	420	126	2398	1317						
Grp Sat Flow(s),veh/hln	1742	1702	1838	1781	1702	1759						
Q Serve(g.s), s	12.7	0.0	0.0	10.7	0.0	0.0						
Cycle Q Clear(g.c), s	12.7	0.0	0.0	10.7	0.0	0.0						
Prop In Lane	1.00	0.10	0.10	1.00	0.00	0.31						
Lane Grp Cap(c), veh/h	365	2808	1516	167	2771	1432						
V/C Ratio(X)	0.80	0.28	0.28	0.75	0.87	0.92						
Avail Cap(c.a), veh/h	718	2808	1516	367	2771	1432						
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00						
Upstream Filter(I)	0.90	0.90	0.90	0.20	0.20	0.20						
Uniform Delay (d), s/veh	61.6	0.0	0.0	63.3	0.0	0.0						
Intr Delay (d2), s/veh	7.5	0.2	0.4	6.3	0.8	2.7						
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	5.6	0.1	0.2	4.8	0.3	1.1						
Unsig. Movement Delay, s/veh	69.1	0.2	0.4	69.5	0.8	2.7						
LnGrp Delay(d),s/veh	E	A	A	E	A	A						
LnGrp LOS	E	A	A	E	A	A						
Approach Vol, veh/h	1488			3841								
Approach Delay, s/veh	13.7			3.7								
Approach LOS	B			A								
Timer - Assigned Phs	1	2		5	6							
Phs Duration (G+Y+Rc), s	21.0	139.0		22.8	137.2							
Change Period (Y+Rc), s	6.0	7.0		6.0	7.0							
Max Green Setting (Gmax), s	33.0	114.0		33.0	114.0							
Max Q Clear Time (g_c+H1), s	12.7	2.0		14.7	2.0							
Green Ext Time (g_e), s	1.3	28.3		2.1	111.3							
Intersection Summary												
HCM 6th Ctrl Delay	6.5											
HCM 6th LOS	A											

HCM 6th Signalized Intersection SuFutureYear (2025) With Project PM With Ped Lead Interval
 6. Kamehameha Hwy & Pali Momi Outbound

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔						
Traffic Volume (veh/h)	0	1099	3990	0	310	165						
Future Volume (veh/h)	0	1099	3390	0	310	165						
Initial Q (Ob.) veh	0	0	0	0	0	0						
Ped-Bike Adj(A_pbT)	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						
Work Zone On Approach	No	No	No	No	No	No						
Adj Sat Flow, veh/hln	0	1870	1870	0	1870	1752						
Adj Flow Rate, veh/h	0	1133	3495	0	320	169						
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97						
Percent Heavy Veh, %	0	2	2	2	2	10						
Cap. veh/h	0	3940	3940	0	508	218						
Arrive On Green	0.00	1.00	0.77	0.00	0.15	0.15						
Sat Flow, veh/h	0	5443	5443	0	3456	1485						
Grp Volume(v), veh/h	0	1133	3495	0	320	169						
Grp Sat Flow(s),veh/hln	0	1702	1702	0	1728	1485						
Q Serve(g.s), s	0.0	0.0	79.3	0.0	13.9	17.5						
Cycle Q Clear(g.c), s	0.0	0.0	79.3	0.0	13.9	17.5						
Prop In Lane	0.00	0.00	0.00	0.00	0.00	1.00						
Lane Grp Cap(c), veh/h	0	3940	3940	0	508	218						
V/C Ratio(X)	0.00	0.29	0.89	0.00	0.63	0.77						
Avail Cap(c.a), veh/h	0	3940	3940	0	929	399						
HCM Platoon Ratio	1.00	2.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	0.00	0.96	1.00	0.00	0.89	0.89						
Uniform Delay (d), s/veh	0.0	0.0	13.2	0.0	64.1	65.7						
Intr Delay (d2), s/veh	0.0	0.2	3.4	0.0	2.4	10.5						
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	0.0	0.1	28.9	0.0	6.4	7.4						
Unsig. Movement Delay, s/veh	0.0	0.2	16.6	0.0	66.6	76.2						
LnGrp Delay(d),s/veh	A	A	B	A	E	E						
LnGrp LOS	A	A	B	A	E	E						
Approach Vol, veh/h	1133	3495		489								
Approach Delay, s/veh	0.2	16.6		69.9								
Approach LOS	A	B		E								
Timer - Assigned Phs	2	4		4	6							
Phs Duration (G+Y+Rc), s	130.5	29.5		29.5	130.5							
Change Period (Y+Rc), s	7.0	6.0		6.0	7.0							
Max Green Setting (Gmax), s	104.0	43.0		43.0	104.0							
Max Q Clear Time (g_c+H1), s	2.0	19.5		19.5	81.3							
Green Ext Time (g_e), s	27.4	4.0		4.0	22.7							
Intersection Summary												
HCM 6th Ctrl Delay	18.0											
HCM 6th LOS	B											

HCM 6th Signalized Intersection SummaryFuture (2025) With Project AM With Ped Only Phase
4- Lipoa Pl & Kamehameha Hwy

07/17/2020

Movement	EBT	EBR	WBL	WBT	NBL	NBR							
Lane Configurations	↑↑↑	↑↑↑	↑	↑↑↑	↑	↑							
Traffic Volume (veh/h)	2065	50	1005	70	60	60							
Future Volume (veh/h)	2065	50	50	1005	70	60							
Initial Q (Qb) veh	0	0	0	0	0	0							
Ped-Bike Adj(A_pbT)	0.97	1.00	1.00	1.00	1.00	1.00							
Work Zone On Approach	No	No	No	No	No	No							
Adj Sat Flow, veh/h	1856	1648	1870	1737	1870	1856							
Adj Flow Rate, veh/h	2129	51	52	1036	72	11							
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97							
Percent Heavy Veh, %	3	17	2	11	2	3							
Cap, veh/h	4136	99	67	4178	93	82							
Arrive On Green	1.00	1.00	0.08	1.00	0.05	0.05							
Sat Flow, veh/h	5252	122	1781	4898	1781	1572							
Grp Volume(v), veh/h	1412	768	52	1036	72	11							
Grp Sat Flow(s),veh/h/ln	1689	1830	1781	1581	1781	1572							
Q Serve(g.s), s	0.0	0.0	4.7	0.0	6.6	1.1							
Cycle Q Clear(g_c), s	0.0	0.0	4.7	0.0	6.6	1.1							
Prop In Lane	0.07	1.00	1.00	1.00	1.00	1.00							
Lane Grp Cap(c), veh/h	2747	1488	67	4178	93	82							
V/C Ratio(X)	0.51	0.62	0.78	0.25	0.77	0.13							
Avail Cap(c_a), veh/h	2747	1488	281	4178	475	419							
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00							
Upstream Filter(l)	0.74	0.74	0.95	0.95	1.00	1.00							
Uniform Delay (d), s/veh	0.0	0.0	75.6	0.0	77.2	74.6							
Incr Delay (d2), s/veh	0.5	0.9	16.6	0.1	12.7	0.7							
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0							
%ile BackOfQ(50%),veh/ln	0.2	0.4	2.4	0.1	3.4	0.5							
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	0.5	0.9	92.2	0.1	90.0	75.4							
LnGrp LOS	A	A	F	A	F	E							
Approach Vol, veh/h	2180	0.7	1088	83									
Approach Delay, s/veh	0.7	4.5	88.0										
Approach LOS	A	A	F										
Timer - Assigned Phs	1	2	4	4	6								
Phs Duration (G+Y+R), s	11.2	140.2	13.6	151.4									
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0									
Max Green Setting (Gmax), s	26.0	79.0	44.0	110.0									
Max Q Clear Time (g_c+H1), s	6.7	2.0	8.6	2.0									
Green Ext Time (p_g), s	0.1	63.9	0.2	23.8									
Intersection Summary													
HCM 6th Ctrl Delay							4.1						
HCM 6th LOS							A						

HCM 6th Signalized Intersection SummaryFuture (2025) With Project AM With Ped Only Phase
5- Kamehameha Hwy & Pali Momi Inbound

07/17/2020

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR					
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑					
Traffic Volume (veh/h)	214	1951	20	50	1033	180	0	0					
Future Volume (veh/h)	214	1951	20	50	1033	180	0	0					
Initial Q (Qb) veh	0	0	0	0	0	0							
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00	1.00	1.00	1.00							
Work Zone On Approach	No	No	No	No	No	No							
Adj Sat Flow, veh/h	1885	1856	1870	1870	1737	1870							
Adj Flow Rate, veh/h	225	2054	21	53	1087	178							
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95							
Percent Heavy Veh, %	1	3	2	2	11	2							
Cap, veh/h	317	4293	44	162	3408	558							
Arrive On Green	0.18	1.00	1.00	0.18	1.00	1.00							
Sat Flow, veh/h	3483	5170	53	1781	4105	672							
Grp Volume(v), veh/h	225	1341	734	53	837	428							
Grp Sat Flow(s),veh/h/ln	1742	1689	1846	1781	1581	1615							
Q Serve(g.s), s	10.0	0.0	0.0	4.3	0.0	0.0							
Cycle Q Clear(g_c), s	10.0	0.0	0.0	4.3	0.0	0.0							
Prop In Lane	1.00	0.03	1.00	0.42									
Lane Grp Cap(c), veh/h	317	2804	1533	162	2625	1341							
V/C Ratio(X)	0.71	0.48	0.48	0.33	0.32	0.32							
Avail Cap(c_a), veh/h	697	2804	1533	356	2625	1341							
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00							
Upstream Filter(l)	0.74	0.74	0.74	0.95	0.95	0.95							
Uniform Delay (d), s/veh	65.5	0.0	0.0	63.1	0.0	0.0							
Incr Delay (d2), s/veh	4.6	0.4	0.8	5.1	0.3	0.6							
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0							
%ile BackOfQ(50%),veh/ln	4.4	0.2	0.3	2.1	0.1	0.2							
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	70.1	0.4	0.8	68.2	0.3	0.6							
LnGrp LOS	E	A	A	E	A	A							
Approach Vol, veh/h	2300												
Approach Delay, s/veh	7.4												
Approach LOS	A												
Timer - Assigned Phs	1	2	5	6									
Phs Duration (G+Y+R), s	21.0	144.0	21.0	144.0									
Change Period (Y+Rc), s	6.0	7.0	6.0	7.0									
Max Green Setting (Gmax), s	33.0	119.0	33.0	119.0									
Max Q Clear Time (g_c+H1), s	6.3	2.0	12.0	2.0									
Green Ext Time (p_g), s	0.5	83.3	1.6	33.7									
Intersection Summary													
HCM 6th Ctrl Delay							5.8						
HCM 6th LOS							A						

HCM 6th Signalized Intersection SummaryFuture (2025) With Project AM With Ped Only Phase
6: Kamehameha Hwy & Pali Momi Outbound

07/17/2020

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔↔	↔↔↔	↔↔↔	↔↔↔	↔↔↔	↔↔↔
Traffic Volume (veh/h)	0	1851	1134	0	320	109
Future Volume (veh/h)	0	1851	1134	0	320	109
Initial Q (Qb) veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach	No	No	No	No	No	No
Adj Sat Flow, veh/h	0	1856	1752	0	1870	1693
Adj Flow Rate, veh/h	0	1948	1194	0	337	33
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	3	10	0	2	14
Cap, veh/h	0	4033	3807	0	432	179
Arrive On Green	0.00	1.00	0.80	0.00	0.13	0.13
Sat Flow, veh/h	0	5400	5098	0	3456	1434
Grp Volume(v), veh/h	0	1948	1194	0	337	33
Grp Sat Flow(s),veh/h/ln	0	1689	1594	0	1728	1434
Q Serve(g,s) s	0.0	0.0	11.2	0.0	15.6	3.4
Cycle Q Clear(g_c, s)	0.0	0.0	11.2	0.0	15.6	3.4
Prop In Lane	0.00	0.00	0.00	0.00	1.00	1.00
Lane Grp Cap(c), veh/h	0	4033	3807	0	432	179
V/C Ratio(X)	0.00	0.48	0.31	0.00	0.78	0.18
Avail Cap(c_a), veh/h	0	4033	3807	0	901	374
HCM Platoon Ratio	1.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(i)	0.00	0.86	1.00	0.00	0.92	0.92
Uniform Delay (d), s/veh	0.0	0.0	4.6	0.0	70.0	64.6
Incr Delay (d2), s/veh	0.0	0.4	0.2	0.0	5.9	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	3.6	0.0	7.3	1.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	0.4	4.8	0.0	75.9	65.6
LnGrp LOS	A	A	A	A	E	E
Approach Vol, veh/h		1948	1194		370	
Approach Delay, s/veh		0.4	4.8		75.0	
Approach LOS		A	A		E	
Timer - Assigned Phs		2	4		4	6
Phs Duration (G+Y+Rc), s		138.4	26.6		138.4	
Change Period (Y+Rc), s		7.0	6.0		7.0	
Max Green Setting (Gmax), s		109.0	43.0		109.0	
Max Q Clear Time (g_c+H1), s		2.0	17.6		13.2	
Green Ext Time (p_g), s		73.2	3.0		30.1	
Intersection Summary						
HCM 6th Ctrl Delay			9.7			
HCM 6th LOS			A			

HCM 6th Signalized Intersection SummaryFuture (2025) With Project AM With Ped Only Phase
7: Pali Momi Outbound & Pali Momi Inbound/Pali Momi St

07/17/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔
Traffic Volume (veh/h)	53	341	20	404	0	60	0	0	0	20	25	0
Future Volume (veh/h)	53	341	20	404	0	60	0	0	0	20	25	0
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	0.97	1.00	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	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h	1885	1870	1870	1826	0	1870	0	1870	1870	1870	1885	1900
Adj Flow Rate, veh/h	56	359	17	425	0	18	0	18	21	26	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	2	2	5	0	2	0	2	2	1	0	0
Cap, veh/h	631	1244	59	0	0	0	0	0	363	502	0	0
Arrive On Green	0.35	0.35	0.35	0.00	0.00	0.00	0.00	0.00	0.24	0.24	0.00	0.00
Sat Flow, veh/h	1795	3538	167	0	0	0	0	0	1510	2185	0	0
Grp Volume(v), veh/h	56	189	187	0.0	0.0	0.0	0.0	0.0	25	22	0	0
Grp Sat Flow(s),veh/h/ln	1795	1870	1835						1810	1791		
Q Serve(g,s) s	0.5	1.8	1.8						0.3	0.2		
Cycle Q Clear(g_c, s)	0.5	1.8	1.8						0.3	0.2		
Prop In Lane	1.00	0.09	0.09						0.83	0.83		
Lane Grp Cap(c), veh/h	631	658	645						435	430		
V/C Ratio(X)	0.09	0.29	0.29						0.06	0.05		
Avail Cap(c_a), veh/h	2199	2291	2247						1995	1974		
HCM Platoon Ratio	1.00	1.00	1.00						1.00	1.00		
Upstream Filter(i)	1.00	1.00	1.00						1.00	1.00		
Uniform Delay (d), s/veh	5.3	5.7	5.7						7.2	7.2		
Incr Delay (d2), s/veh	0.1	0.3	0.4						0.1	0.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0						0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.1	0.4	0.4						0.1	0.1		
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.4	6.1	6.1						7.2	7.2		
LnGrp LOS	A	A	A						A	A		
Approach Vol, veh/h		432								47		
Approach Delay, s/veh		6.0								7.2		
Approach LOS		A								A		
Timer - Assigned Phs		2		4								
Phs Duration (G+Y+Rc), s		10.9		13.6								
Change Period (Y+Rc), s		5.0		5.0								
Max Green Setting (Gmax), s		27.0		30.0								
Max Q Clear Time (g_c+H1), s		2.3		3.8								
Green Ext Time (p_g), s		0.3		3.7								
Intersection Summary												
HCM 6th Ctrl Delay			6.1									
HCM 6th LOS			A									

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Surfrunbury Year (2025) With Project PM With Ped Only Phase
 3: Hekaha St & Kamehameha Hwy

07/17/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	←←←	←←←	←←←	←←←	←←←	←←←	←	←	←	←	←	←
Traffic Volume (veh/h)	50	1068	150	190	2777	80	240	50	230	70	50	100
Future Volume (veh/h)	50	1068	150	190	2777	80	240	50	230	70	50	100
Initial Q (Qb) veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.97	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	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h	1870	1841	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	51	1090	143	194	2834	80	245	51	64	71	51	28
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh. %	2	4	2	2	2	2	2	2	2	2	2	2
Cap. veh/h	100	2605	341	275	3082	86	317	57	361	254	173	381
Arrive On Green	0.06	0.58	0.58	0.16	1.00	1.00	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	1781	4490	588	3456	5106	143	1149	239	1504	907	722	1585
Grp Volume(v), veh/h	51	813	420	194	1881	1033	296	0	64	122	0	28
Grp Sat Flow(s),veh/h/ln	1781	1675	1728	1728	1702	1844	1388	0	1504	1629	0	1585
Q Serve(g.s) s	4.5	21.5	21.6	8.5	0.0	0.0	23.6	0.0	5.4	0.0	0.0	2.2
Cycle Q Clear(g_c) s	4.5	21.5	21.6	8.5	0.0	0.0	33.1	0.0	5.4	9.6	0.0	2.2
Prop In Lane	1.00	1.00	0.34	1.00	0.08	0.83	1.00	0.83	1.00	0.58	1.00	1.00
Lane Grp Cap(c), veh/h	100	1944	1003	275	2055	1113	375	0	361	427	0	381
V/C Ratio(X)	0.51	0.42	0.42	0.71	0.92	0.93	0.79	0.00	0.18	0.29	0.00	0.07
Avail Cap(c_a), veh/h	223	1944	1003	648	2055	1113	433	0	423	489	0	446
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(i)	1.00	1.00	1.00	0.09	0.09	0.09	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	73.4	18.6	18.6	65.5	0.0	0.0	59.1	0.0	48.2	49.7	0.0	47.0
Incr Delay (d2), s/veh	17.5	0.7	1.3	1.4	0.8	1.8	10.7	0.0	0.5	0.4	0.0	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 BackOf(50%),veh/ln	2.5	8.8	9.2	3.6	0.2	0.5	12.8	0.0	2.1	4.1	0.0	0.9
Unsig. Movement Delay, s/veh	90.9	19.3	19.9	66.9	0.8	1.8	69.8	0.0	48.7	50.1	0.0	47.1
LnGrp Delay(d),s/veh	F	B	B	E	A	A	E	A	A	D	D	A
LnGrp LOS	F	B	B	E	A	A	E	A	A	D	D	A
Approach Vol, veh/h	1284	3108	360	660	49.5	150	49.5	150	49.5	150	49.5	150
Approach Delay, s/veh	22.3	5.3	5.3	22.3	5.3	5.3	22.3	5.3	22.3	5.3	22.3	5.3
Approach LOS	C	A	A	E	E	D	C	A	A	D	D	A
Timer - Assigned Phs	1	2	4	5	6	8	8	8	8	8	8	8
Phs Duration (G+Y+Rc), s	17.7	98.8	43.5	14.0	102.6	43.5	43.5	43.5	43.5	43.5	43.5	43.5
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	6.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	30.0	69.0	45.0	20.0	79.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
Max Q Clear Time (g_c+H1), s	10.5	23.6	35.1	6.5	2.0	11.6	11.6	11.6	11.6	11.6	11.6	11.6
Green Ext Time (p_g), s	2.2	23.3	2.5	0.3	74.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Intersection Summary												
HCM 6th Ctrl Delay	15.6											
HCM 6th LOS	B											

HCM 6th Signalized Intersection Surfrunbury Year (2025) With Project PM With Ped Only Phase
 4: Lipoa Pl & Kamehameha Hwy

07/17/2020

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	←←←	←←←	←←←	←←←	←	←
Traffic Volume (veh/h)	1375	60	100	3599	160	40
Future Volume (veh/h)	1375	60	100	3599	160	40
Initial Q (Qb) veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	0.97	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No
Adj Sat Flow, veh/h	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1432	60	104	3749	167	22
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh. %	2	2	2	2	2	2
Cap. veh/h	3623	152	125	4203	193	171
Arrive On Green	1.00	1.00	0.14	1.00	0.11	0.11
Sat Flow, veh/h	5187	210	1781	5274	1781	1585
Grp Volume(v), veh/h	971	521	104	3749	167	22
Grp Sat Flow(s),veh/h/ln	1702	1825	1781	1702	1781	1685
Q Serve(g.s) s	0.0	0.0	9.1	0.0	14.8	2.0
Cycle Q Clear(g_c) s	0.0	0.0	9.1	0.0	14.8	2.0
Prop In Lane	0.12	1.00	1.00	1.00	1.00	1.00
Lane Grp Cap(c), veh/h	2457	1317	125	4203	193	171
V/C Ratio(X)	0.40	0.40	0.83	0.89	0.87	0.13
Avail Cap(c_a), veh/h	2457	1317	289	4203	490	436
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00
Upstream Filter(i)	0.89	0.89	0.20	0.20	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	67.9	0.0	70.2	64.5
Incr Delay (d2), s/veh	0.4	0.8	3.0	0.7	11.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOf(50%),veh/ln	0.1	0.3	4.0	0.3	7.4	0.8
Unsig. Movement Delay, s/veh	0.4	0.8	70.9	0.7	81.3	64.9
LnGrp Delay(d),s/veh	A	A	E	A	F	E
LnGrp LOS	A	A	E	A	F	E
Approach Vol, veh/h	1492	3853	189	3853	189	189
Approach Delay, s/veh	0.6	2.6	79.4	2.6	79.4	79.4
Approach LOS	A	A	E	A	E	E
Timer - Assigned Phs	1	2	4	4	4	6
Phs Duration (G+Y+Rc), s	16.2	121.5	22.3	22.3	137.7	137.7
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	6.0	6.0
Max Green Setting (Gmax), s	26.0	74.0	44.0	44.0	105.0	105.0
Max Q Clear Time (g_c+H1), s	11.1	2.0	16.8	16.8	2.0	2.0
Green Ext Time (p_g), s	0.2	36.0	0.5	0.5	102.4	102.4
Intersection Summary						
HCM 6th Ctrl Delay	4.7					
HCM 6th LOS	A					

HCM 6th Signalized Intersection Surfridge Year (2025) With Project PM With Ped Only Phase
 7: Pali Momi Outbound & Pali Momi Inbound/Pali Momi St

07/17/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	4	4		4								4
Traffic Volume (veh/h)	126	520	30	391	0	110	0	0	0	0	70	94
Future Volume (veh/h)	126	520	30	391	0	110	0	0	0	0	70	94
Initial Q (Qb) veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	0.97	1.00	1.00	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	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h	1870	1870	1870	1826	0	1870	0	1870	1870	1870	1870	1900
Adj Flow Rate, veh/h	133	547	28	412	0	25	0	74	99	0	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh. %	2	2	2	5	0	2	0	2	2	2	2	2
Cap. veh/h	661	1308	67	0	0	0	0	0	502	742	0	0
Arrive On Green	0.37	0.37	0.37	0.00	0.00	0.00	0.00	0.35	0.35	0.00	0.00	0.00
Sat Flow, veh/h	1781	3522	180	0	0	0	0	1443	2226	0	0	0
Grp Volume(v), veh/h	133	290	285	0.0	0.0	0.0	0.0	92	81	0	0	0
Grp Sat Flow(s),veh/h	1781	1870	1832	1781	1870	1832	1781	1798	1777	0	0	0
Q Serve(g.s)	1.8	4.1	4.1	1.3	1.1	1.1	1.1	1.3	1.1	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.8	4.1	4.1	1.3	1.1	1.1	1.1	1.3	1.1	0.0	0.0	0.0
Prop In Lane	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Grp Cap(c), veh/h	661	695	680	661	695	680	661	625	618	0	0	0
V/C Ratio(X)	0.20	0.42	0.42	0.2	0.6	0.6	0.6	0.15	0.13	0.00	0.00	0.00
Avail Cap(c_a), veh/h	1501	1576	1543	1501	1576	1543	1501	1363	1347	0	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	7.6	8.3	8.3	0.2	0.6	0.6	0.6	0.2	0.1	0.0	0.0	0.0
Incr Delay (d2), 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
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 Back(Q(50%)),veh/h	0.5	1.3	1.3	0.5	1.3	1.3	0.5	0.4	0.3	0.0	0.0	0.0
Unsig. Movement Delay, s/veh	7.8	8.9	8.9	7.8	8.9	8.9	7.8	8.1	8.1	0.0	0.0	0.0
LnGrp Delay(d),s/veh	A	A	A	A	A	A	A	A	A	A	A	A
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h	708											173
Approach Delay, s/veh	8.7											8.1
Approach LOS	A											A
Timer - Assigned Phs	2		4									
Phs Duration (G+Y+Rc), s	17.4		18.2									
Change Period (Y+Rc), s	5.0		5.0									
Max Green Setting (Gmax), s	27.0		30.0									
Max Q Clear Time (g_c+H1), s	3.3		6.1									
Green Ext Time (p_g), s	1.3		6.1									
Intersection Summary												
HCM 6th Ctrl Delay			8.6									
HCM 6th LOS			A									
Notes												
User approved volume balancing among the lanes for turning movement.												

Appendix E: Intersection Queue Reports

The operations results are generally consistent with field observations, and in most cases the queues were reasonably estimated. One notable exception is the westbound approach to Kamehameha Highway/Kaonohi Street, which is calculated to only queue to 274 feet in the AM peak hour, but was observed to queue through and past the intersection with Lipoa Place. This discrepancy is possibly due to construction conditions limiting capacity beyond what a single lane would usually provide.

Field observations indicated that the following queues were inconsistent [off by more than 50 feet, or approximately two (2) car lengths] with the calculations presented in **Table E-1**:

- The westbound through lane at Kamehameha Highway/Kanuku Street was observed to be as much as 75 feet in the AM peak hour.
- The westbound through lane at Kamehameha Highway/Kanuku Street was observed to be as much as 250 feet in the PM peak hour.
- The eastbound left-turn lane at Kamehameha Highway/Kaonohi Street was observed to be as much as 150 feet in the AM peak hour, exceeding the capacity of the shortened pocket during construction conditions.
- The westbound through lane at Kamehameha Highway/Kaonohi Street was observed to be more than 425 feet in the AM peak hour, spilling back through the upstream signal.
- The southbound right-turn lane at Kamehameha Highway/Kaonohi Street was observed to be as much as 225 feet in the AM peak hour.

Despite these isolated movements with greater variation between observed and calculated conditions, calculated intersection operations and queue length estimates are generally reflective of observed conditions, and therefore no adjustments to the Synchro default inputs were made.

Queuing analysis in **Table E-1** and **Table E-2** both indicate that demand on the Kamehameha Highway corridor exceeds the availability capacity in the vicinity of the project, both without and with the addition of project traffic. However, there is limited right-of-way available to provide the physical improvement of widening the roadway. Alternatives would include making signal timing adjustments to provide more green time to this movement. However, even if the westbound movement at Kamehameha Highway/Kaonohi Street received approximately 70% of the green time, the westbound queue would still be more than 1,900 feet.

Table E-1: Existing (2019) Intersection Queues

Intersection	Peak Hour	Movement	Capacity	95 th Percentile Queue (ft) ¹	Observed Queue (ft)
1. Kamehameha Hwy/Kanuku St	AM	EBL	250	38	25
		EBT	> 700	439	250
		EBR	200	0	0
		WBL	250	55	100
		WBT/R	> 800	36	75
		NBL/T	125	10	50
	PM	NBR	125	0	0
		SBL/T/R	> 200	178	100
		EBL	250	83	25
		EBT	> 700	139	0*
		EBR	200	10	0
		WBL	250	91	100
2. Kamehameha Hwy/Kaonohi St	AM	WBT/R	> 800	138	250
		NBL/T	125	132	75
		NBR	125	0	0
		SBL/T/R	> 200	147	100
		EBL	125	95	150
		EBT	> 800	585	100
	PM	WBT/R	425	274	925
		SBL	> 400	312	125
		SBR	400	56	225
		EBL	125	232	> 250
		EBT	> 800	84	100
		WBT/R	425	1,063	925
SBL	> 400	173	125		
	400	55	100		

Source: Fehr & Peers, 2020.

Notes:

¹Queues that exceed available capacity highlighted in **bold**.

* Platoon arrives just after phase begins and green light is provided.

Table E-2: Future (2025) Without and With Project Intersection Queues

Intersection	Peak Hour	Movement	Capacity	95 th Percentile Queue (ft)	
				Future No Project	Future Plus Project
1. Kamehameha Hwy/Kanuku St	AM	EBL	250	65	77
		EBT	> 700	62	336
		EBR	200	0	0
		WBL	250	55	148
		WBT/R	> 800	138	143
		NBL/T	125	46	75
	PM	NBR	125	0	44
		SBL/T	> 200	237	252
		SBR	75	26	27
		EBL	250	89	92
		EBT	> 700	173	178
		EBR	200	8	8
		WBL	250	82	117
2. Kamehameha Hwy/Kaonohi St	AM	WBT/R	> 800	49	48
		NBL/T	125	168	183
		NBR	125	42	48
		SBL/T	> 200	125	133
		SBR	75	23	26
		EBL	200	93	132
	PM	EBT	> 800	63	78
		WBT/R	425	182	224
		SBL	> 400	331	330
		SBR	400	28	30
		EBL	200	175	188
		EBT	> 800	317	332
		WBT/R	425	2,168	2,255
SBL	> 400	188	188		
SBR	400	44	45		

Table E-2: Future (2025) Without and With Project Intersection Queues

Intersection	Peak Hour	Movement	Capacity	95 th Percentile Queue (ft)	
				Future No Project	Future Plus Project
Kamehameha Hwy/Pali Momi St	AM	EBL	450	169	178
		EBT	> 1,000	38	38
		WBL	125	110	107
		WBT	1,200	170	175
		SBR	225	51	76
		EBL	450	162	180
	PM	EBT	> 1,000	130	144
		WBL	125	148	146
		WBT	1,200	1,303	1,485
		SBR	225	223	240

Source: Fehr & Peers, 2020.

Notes:

¹ Queues that exceed available capacity highlighted in **bold**.



Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBL
Lane Group Flow (vph)	12	1828	16	21	287	2	11	120
v/c Ratio	0.21	0.49	0.02	0.32	0.22	0.02	0.07	0.60
Control Delay	85.5	11.0	0.0	75.5	18.8	54.5	0.7	74.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.5	11.0	0.0	75.5	18.8	54.5	0.7	74.6
Queue Length 50th (ft)	13	257	0	23	80	2	0	124
Queue Length 95th (ft)	38	439	0	55	360	10	0	178
Internal Link Dist (ft)	300	365	240	300	921	327	120	171
Turn Bay Length (ft)	185	3730	957	190	1324	258	355	384
Base Capacity (vph)	0	0	0	0	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.49	0.02	0.11	0.22	0.01	0.03	0.31

Intersection Summary

Table E-3: Future Plus Project Comparison of Pedestrian Enhancement Intersection Queues

Intersection	Peak Hour	Movement	Capacity	No Enhancement	95 th Percentile Queue (ft)	
					Leading Pedestrian Interval	Pedestrian-Only Phase
1. Kamehameha Hwy/ Kanuku St	AM	EBL	250	77	77	77
		EBT	> 700	336	502	502
		EBR	200	0	0	0
		WBL	250	148	148	148
		WBT/R	> 800	143	143	168
	PM	NBL/T	125	75	76	76
		NBR	125	44	35	35
		SBL/T	> 200	252	252	252
		SBR	75	27	10	10
		EBL	250	92	92	92
2. Kamehameha Hwy/ Kaonohi St	AM	EBT	> 700	178	190	190
		EBR	200	8	9	9
		WBL	250	117	117	97
		WBT/R	> 800	48	86	72
		NBL/T	125	183	181	181
	PM	NBR	125	48	48	48
		SBL/T	> 200	133	131	131
		SBR	75	26	9	9
		EBL	200	132	138	174
		EBT	> 800	78	76	77
2. Kamehameha Hwy/ Kaonohi St	AM	WBT/R	425	224	224	198
		SBL	> 400	330	330	524
		SBR	400	30	30	36
		EBL	200	188	188	200
		EBT	> 800	332	323	334
	PM	WBT/R	425	2,255	2,255	2,367
		SBL	> 400	188	188	242
		SBR	400	45	45	50

Source: Fehr & Peers, 2020.

Notes:

¹ Queues that exceed available capacity highlighted in **bold**.

Queues
2- Kamehameha Hwy & Kaonohi St

Queues
1- Kanuku St & Kamehameha Hwy

Existing (2019) Conditions AM
07/15/2020

Existing (2019) Conditions PM
07/15/2020

	EBL	EBT	WBT	SBL	SBR
Lane Group	57	1795	311	527	46
Lane Group Flow (vph)	0.44	0.51	0.32	0.66	0.16
w/c Ratio	69.0	16.4	19.4	61.0	30.9
Control Delay	0.0	0.0	0.0	0.0	0.0
Queue Delay	69.0	16.4	19.4	61.0	30.9
Total Delay	60	472	163	269	22
Queue Length 50th (ft)	95	585	274	312	56
Queue Length 95th (ft)	600	921	496	270	70
Internal Link Dist (ft)	194	3491	982	1009	355
Turn Bay Length (ft)	0	0	0	0	0
Base Capacity (vph)	0	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced w/c Ratio	0.29	0.51	0.32	0.52	0.13
Intersection Summary					
m. Volume for 95th percentile queue is metered by upstream signal.					

	EBL	EBT	WBT	WBL	NBT	NBR	SBT
Lane Group	28	706	48	44	1768	59	69
Lane Group Flow (vph)	0.44	0.18	0.04	0.56	0.64	0.37	0.47
w/c Ratio	123.5	7.6	1.1	139.0	3.6	92.9	1.1
Control Delay	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Queue Delay	123.5	7.6	1.1	139.0	3.7	92.9	1.1
Total Delay	41	112	0	67	105	77	0
Queue Length 50th (ft)	83	139	10	m91	138	132	0
Queue Length 95th (ft)	300	365	240	300	921	327	171
Internal Link Dist (ft)	120	3971	1122	241	2756	221	299
Turn Bay Length (ft)	0	0	0	0	152	0	0
Base Capacity (vph)	0	0	0	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced w/c Ratio	0.23	0.18	0.04	0.18	0.68	0.27	0.10
Intersection Summary							
m. Volume for 95th percentile queue is metered by upstream signal.							

Queues
2- Kamehameha Hwy & Kaonohi St
Existing (2019) Conditions PM
07/15/2020

	EBL	EBT	WBT	SBL	SBR
Lane Group	109	672	1745	187	216
Lane Group Flow (vph)	0.66	0.16	0.75	0.42	0.68
w/c Ratio	118.1	4.2	24.8	91.0	33.9
Control Delay	0.0	0.0	0.0	0.0	0.0
Queue Delay	118.1	4.2	24.8	91.0	33.9
Total Delay	159	60	790	132	71
Queue Length 50th (ft)	232	84	1063	173	178
Queue Length 95th (ft)	600	921	496	270	70
Internal Link Dist (ft)	233	4151	2332	530	350
Turn Bay Length (ft)	0	0	0	0	0
Base Capacity (vph)	0	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0.47	0.16	0.75	0.35	0.62
Reduced w/c Ratio	Intersection Summary				

Queues
1- Kanuku St & Kamehameha Hwy
Future (2025) Without Project AM
07/14/2020

	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT	SBR
Lane Group	32	1663	21	21	1021	22	21	158	42
Lane Group Flow (vph)	0.43	0.46	0.02	0.32	0.30	0.12	0.10	0.73	0.17
w/c Ratio	114.7	3.0	0.1	70.3	15.6	56.0	0.9	83.3	9.5
Control Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Delay	114.7	3.0	0.1	70.3	15.6	56.0	0.9	83.3	9.5
Total Delay	36	53	0	23	184	21	0	167	0
Queue Length 50th (ft)	m65	67	m0	55	224	46	0	237	26
Queue Length 95th (ft)	777	777	0	906	327	171	65	397	0
Internal Link Dist (ft)	250	240	250	3371	356	355	375	397	0
Turn Bay Length (ft)	185	3644	932	190	0	0	0	0	0
Base Capacity (vph)	0	0	0	0	0	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0.17	0.46	0.02	0.11	0.30	0.06	0.06	0.42	0.11
Reduced w/c Ratio	Intersection Summary								

m. Volume for 95th percentile queue is metered by upstream signal.

Queues
2. Kamehameha Hwy & Kaonohi St

Queues
3. Hekaha St & Kamehameha Hwy

Future (2025) Without Project AM
07/14/2020

Future (2025) Without Project AM
07/14/2020

	EBL	EBT	WBT	SBL	SBR
Lane Group	137	1642	1000	568	126
Lane Group Flow (vph)	0.49	0.48	0.40	0.66	0.20
v/c Ratio	99.5	6.2	16.0	58.7	7.1
Control Delay	0.0	0.0	0.1	0.0	0.0
Queue Delay	99.5	6.2	16.2	58.7	7.1
Total Delay	75	119	90	285	0
Queue Length 50th (ft)	0	90	100	331	28
Queue Length 95th (ft)	0	906	459	270	70
Internal Link Dist (ft)	450	3396	2522	1009	737
Turn Bay Length (ft)	0	0	535	0	0
Base Capacity (vph)	0	63	0	0	0
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0.36	0.49	0.50	0.56	0.17
Reduced v/c Ratio					
Intersection Summary					

	EBL	EBT	WBL	NBT	NBR	SBT	SBR
Lane Group	52	1773	93	887	72	62	134
Lane Group Flow (vph)	0.34	0.57	0.33	0.28	0.38	0.19	0.58
v/c Ratio	76.5	19.3	59.5	26.2	61.9	11.8	69.5
Control Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Delay	76.5	19.3	59.5	26.2	61.9	11.8	69.5
Total Delay	54	438	54	232	65	0	125
Queue Length 50th (ft)	100	505	86	240	116	42	199
Queue Length 95th (ft)	179	179	777	278	356		48
Internal Link Dist (ft)	250	3124	416	3154	284	463	347
Turn Bay Length (ft)	0	0	0	0	0	0	0
Base Capacity (vph)	0	0	0	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0.24	0.57	0.22	0.28	0.25	0.13	0.39
Reduced v/c Ratio							
Intersection Summary							

Queues
4- Lipoa Pl & Kamehameha Hwy

Future (2025) Without Project AM
07/14/2020

	EBT	WBL	WBT	NBL	NBR
Lane Group	2124	52	969	72	62
Lane Group Flow (vph)	0.62	0.48	0.27	0.23	0.21
w/c Ratio	18.1	90.6	6.6	57.9	13.0
Control Delay	0.0	0.0	0.0	0.0	0.0
Queue Delay	18.1	90.6	6.6	57.9	13.0
Total Delay	361	59	113	65	0
Queue Length 50th (ft)	397	110	123	115	44
Queue Length 95th (ft)	459	1231	346		
Internal Link Dist (ft)	250				50
Turn Bay Length (ft)	3432	278	3614	472	426
Base Capacity (vph)	128	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced w/c Ratio	0.64	0.19	0.27	0.15	0.15
Intersection Summary					

5- Kamehameha Hwy & Pali Momi Inbound

	EBL	EBT	WBL	WBT
Lane Group	211	2032	53	1221
Lane Group Flow (vph)	0.57	0.49	0.31	0.32
w/c Ratio	62.3	2.4	81.8	1.6
Control Delay	0.0	0.0	0.0	0.1
Queue Delay	62.3	2.4	81.8	1.7
Total Delay	117	90	60	22
Queue Length 50th (ft)	163	94	110	36
Queue Length 95th (ft)	1231			
Internal Link Dist (ft)	450		200	
Turn Bay Length (ft)	686	4187	354	3822
Base Capacity (vph)	0	0	0	1176
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced w/c Ratio	0.31	0.49	0.15	0.46
Intersection Summary				

Queues
6. Kamehameha Hwy & Pali Momi Outbound

Queues
7. Pali Momi Outbound & Pali Momi Inbound/Pali Momi St

Future (2025) Without Project AM
07/14/2020

Future (2025) Without Project AM

Lane Group	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	1905	1168	337	84
v/c Ratio	0.50	0.33	0.57	0.27
Control Delay	2.5	7.5	66.2	12.4
Queue Delay	0.0	0.0	0.4	0.0
Total Delay	2.6	7.5	66.7	12.4
Queue Length 50th (ft)	117	149	171	0
Queue Length 95th (ft)	130	170	225	51
Internal Link Dist (ft)	178	275	239	
Turn Bay Length (ft)				
Base Capacity (vph)	3808	3563	894	435
Starvation Cap Reductn	292	0	224	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.54	0.33	0.50	0.19

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	SBT
Lane Group Flow (vph)	48	373	200	200	63	42
v/c Ratio	0.10	0.38	0.41	0.41	0.13	0.04
Control Delay	23.3	21.8	24.8	24.8	5.2	21.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.3	21.8	24.8	24.8	5.2	21.0
Queue Length 50th (ft)	12	51	55	55	0	5
Queue Length 95th (ft)	53	140	165	165	22	21
Internal Link Dist (ft)		316		263		108
Turn Bay Length (ft)						
Base Capacity (vph)	1038	2164	946	946	895	2046
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.17	0.21	0.21	0.07	0.02

Intersection Summary

Queues
1: Kanuku St & Kamehameha Hwy

Queues
2: Kamehameha Hwy & Kaonohi St

Future Year (2025) Without Project PM
07/14/2020

Future Year (2025) Without Project PM
07/14/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	41	1224	82	92	3336	112	61	81	41
w/c Ratio	0.46	0.38	0.09	0.66	0.99	0.47	0.17	0.34	0.13
Control Delay	78.8	12.3	1.6	88.8	15.8	62.0	11.8	57.3	7.3
Queue Delay	0.0	0.0	0.0	0.0	39.5	0.0	0.0	0.0	0.0
Total Delay	78.8	12.3	1.6	88.8	55.3	62.0	11.8	57.3	7.3
Queue Length 50th (ft)	44	166	0	102	~1383	101	0	71	0
Queue Length 95th (ft)	m86	189	10	m83	m140	168	42	125	23
Internal Link Dist (ft)		777		906	327		171		
Turn Bay Length (ft)	250	240	250			120		65	
Base Capacity (vph)	221	3217	941	221	3353	355	488	356	441
Starvation Cap Reductn	0	0	0	0	131	0	0	0	0
Spillback Cap Reductn	0	0	0	0	398	0	0	0	4
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced w/c Ratio	0.19	0.38	0.09	0.42	1.13	0.32	0.13	0.23	0.09
Intersection Summary									
~ Volume exceeds capacity, queue is theoretically infinite.									
Queue shown is maximum after two cycles.									
m Volume for 95th percentile queue is metered by upstream signal.									

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	227	1268	3948	309	320
w/c Ratio	0.63	0.34	1.35	0.49	0.45
Control Delay	61.1	17.6	178.0	60.3	6.8
Queue Delay	0.0	0.0	0.1	0.0	0.0
Total Delay	61.1	17.6	178.1	60.3	6.8
Queue Length 50th (ft)	124	306	~1960	152	0
Queue Length 95th (ft)	172	346	#2157	188	44
Internal Link Dist (ft)		906	459	270	
Turn Bay Length (ft)	450				70
Base Capacity (vph)	514	3764	2935	1051	980
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	15	91	0	6
Storage Cap Reductn	0	0	0	0	0
Reduced w/c Ratio	0.44	0.34	1.39	0.29	0.33
Intersection Summary					
~ Volume exceeds capacity, queue is theoretically infinite.					
Queue shown is maximum after two cycles.					
# 95th percentile volume exceeds capacity, queue may be longer.					
Queue shown is maximum after two cycles.					

Queues
3- Hekaha St & Kamehameha Hwy

Future Year (2025) Without Project PM
07/14/2020

	EBL	EBT	WBL	WBT	NBT	NBR	SBT	SBR
Lane Group	51	1214	194	2878	296	235	122	102
Lane Group Flow (vph)	0.33	0.47	0.50	1.01	0.93	0.41	0.54	0.20
v/c Ratio	73.8	25.7	91.1	29.2	92.4	7.1	59.5	8.1
Control Delay	0.0	0.0	0.0	13.2	0.0	0.0	0.0	0.0
Queue Delay	73.8	25.7	91.1	42.4	92.4	7.1	59.5	8.1
Total Delay	51	293	102	~1201	300	0	108	0
Queue Length 50th (ft)	96	352	m104	m#1261	#483	70	183	48
Queue Length 95th (ft)	179	777	777	278	356			
Internal Link Dist (ft)								
Turn Bay Length (ft)	221	2567	643	2838	328	586	233	518
Base Capacity (vph)	0	0	0	98	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.47	0.30	1.05	0.90	0.40	0.52	0.20
Intersection Summary								
~ Volume exceeds capacity, queue is theoretically infinite.								
Queue shown is maximum after two cycles.								
# 95th percentile volume exceeds capacity, queue may be longer.								
Queue shown is maximum after two cycles.								
m Volume for 95th percentile queue is metered by upstream signal.								

Queues
4- Lipoa Pl & Kamehameha Hwy

Future Year (2025) Without Project PM
07/14/2020

	EBT	WBL	WBT	NBL	NBR
Lane Group	1448	104	3677	167	42
Lane Group Flow (vph)	0.44	0.64	0.92	0.63	0.17
v/c Ratio	8.7	91.7	9.8	73.3	30.6
Control Delay	0.1	0.0	45.4	0.0	0.0
Queue Delay	8.9	91.7	55.2	73.3	30.6
Total Delay	133	112	135	171	18
Queue Length 50th (ft)	142	m114	#1505	233	53
Queue Length 95th (ft)	459	1231	346		
Internal Link Dist (ft)					
Turn Bay Length (ft)	3320	287	3976	486	437
Base Capacity (vph)	738	0	38	0	0
Starvation Cap Reductn	0	0	1157	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.56	0.36	1.30	0.34	0.10
Intersection Summary					
# 95th percentile volume exceeds capacity, queue may be longer.					
Queue shown is maximum after two cycles.					
m Volume for 95th percentile queue is metered by upstream signal.					

Queues
5. Kamehameha Hwy & Pali Momi Inbound

Future Year (2025) Without Project PM
07/14/2020



Lane Group	EBL	EBT	WBL	WBT
Lane Group Flow (vph)	263	1179	126	3674
v/c Ratio	0.63	0.30	0.56	0.93
Control Delay	63.9	3.7	72.7	6.7
Queue Delay	0.0	0.0	0.8	1.3
Total Delay	63.9	3.7	73.5	8.0
Queue Length 50th (ft)	148	12	135	87
Queue Length 95th (ft)	198	130	m148	148
Internal Link Dist (ft)	1231	178		
Turn Bay Length (ft)	450	200		
Base Capacity (vph)	708	3992	365	3944
Starvation Cap Reductn	0	0	87	0
Spillback Cap Reductn	0	72	0	126
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.37	0.30	0.45	0.96

Intersection Summary
m. Volume for 95th percentile queue is metered by upstream signal.

Queues
6. Kamehameha Hwy & Pali Momi Outbound

Future Year (2025) Without Project PM
07/14/2020



Lane Group	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	1113	3464	320	155
v/c Ratio	0.30	0.95	0.46	0.58
Control Delay	5.5	27.4	58.6	67.1
Queue Delay	0.2	0.9	0.5	2.8
Total Delay	5.6	28.2	59.1	69.9
Queue Length 50th (ft)	6	1051	155	149
Queue Length 95th (ft)	187	#1303	197	223
Internal Link Dist (ft)	178	275	239	
Turn Bay Length (ft)				
Base Capacity (vph)	3651	3651	922	355
Starvation Cap Reductn	1380	0	266	57
Spillback Cap Reductn	0	58	0	115
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.49	0.96	0.49	0.65

Intersection Summary
- 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
7: Pali Momi Outbound & Pali Momi Inbound/Pali Momi St

Queues
1: Kanuku St & Kamehameha Hwy

Future Year (2025) Without Project PM
Future (2025) With Project AM
07/14/2020

	EBL	EBT	WBL	WBT	WBR	SBT
Lane Group	113	571	200	200	116	169
Lane Group Flow (vph)	0.24	0.58	0.55	0.55	0.27	0.19
v/c Ratio	24.8	26.5	34.2	34.2	7.8	23.5
Control Delay	0.0	0.0	0.0	0.0	0.0	0.0
Queue Delay	24.8	26.5	34.2	34.2	7.8	23.5
Total Delay	47	131	95	95	0	29
Queue Length 50th (ft)	105	214	182	182	42	68
Queue Length 95th (ft)	316	777	263	263	108	171
Internal Link Dist (ft)						
Turn Bay Length (ft)	728	1522	634	634	648	1392
Base Capacity (vph)	0	0	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.38	0.32	0.32	0.18	0.12
Intersection Summary						
m. Volume for 95th percentile queue is metered by upstream signal.						

	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT	SBR
Lane Group	38	1717	21	78	1042	40	63	168	43
Lane Group Flow (vph)	0.47	0.52	0.03	0.69	0.31	0.28	0.27	0.76	0.17
v/c Ratio	115.2	4.7	0.1	85.6	16.0	61.9	14.0	86.4	9.8
Control Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Delay	115.2	4.8	0.1	85.6	16.0	61.9	14.0	86.4	9.8
Total Delay	43	55	0	86	188	39	0	177	0
Queue Length 50th (ft)	m77	68	m0	147	226	75	44	252	27
Queue Length 95th (ft)									
Internal Link Dist (ft)	250	777	240	250	906	327	120	171	65
Turn Bay Length (ft)	190	3288	823	165	3332	241	346	369	399
Base Capacity (vph)	0	200	0	0	0	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.56	0.03	0.47	0.31	0.17	0.18	0.46	0.11
Intersection Summary									
m. Volume for 95th percentile queue is metered by upstream signal.									

Queues
2. Kamehameha Hwy & Kaonohi St

Queues
3. Hekaha St & Kamehameha Hwy

Future (2025) With Project AM
07/14/2020

Future (2025) With Project AM
07/14/2020

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	180	1700	1068	568	140
v/c Ratio	0.59	0.49	0.45	0.65	0.23
Control Delay	105.3	5.8	17.3	58.4	6.9
Queue Delay	0.0	0.0	0.1	0.0	0.0
Total Delay	105.3	5.8	17.4	58.4	6.9
Queue Length 50th (ft)	98	91	95	285	0
Queue Length 95th (ft)	148	105	104	330	30
Internal Link Dist (ft)		906	459	270	
Turn Bay Length (ft)	450				70
Base Capacity (vph)	353	3435	2395	1029	703
Starvation Cap Reductn	0	0	419	0	0
Spillback Cap Reductn	0	33	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.51	0.50	0.54	0.55	0.20
Intersection Summary					

Lane Group	EBL	EBT	WBL	NBT	SBT	SBR
Lane Group Flow (vph)	52	1832	93	916	72	62
v/c Ratio	0.34	0.59	0.33	0.29	0.38	0.19
Control Delay	76.5	19.8	58.9	25.6	61.9	11.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.5	19.8	58.9	25.6	61.9	11.8
Queue Length 50th (ft)	54	462	53	243	65	0
Queue Length 95th (ft)	100	531	85	244	116	42
Internal Link Dist (ft)		179		777	278	
Turn Bay Length (ft)	250		360			
Base Capacity (vph)	214	3127	416	3154	284	463
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.59	0.22	0.29	0.25	0.13
Intersection Summary						

Queues
4: Lipoa Pl & Kamehameha Hwy

Queues
5: Kamehameha Hwy & Pali Momi Inbound

Future (2025) With Project AM
07/14/2020

Future (2025) With Project AM
07/14/2020

	EBT	WBL	WBT	NBL	NBR
Lane Group	2181	52	1036	72	62
Lane Group Flow (vph)	0.64	0.48	0.29	0.23	0.21
v/c Ratio	17.9	91.6	6.6	57.9	13.0
Control Delay	0.0	0.0	0.0	0.0	0.0
Queue Delay	17.9	91.6	6.6	57.9	13.0
Total Delay	368	58	119	65	0
Queue Length 50th (ft)	343	109	130	115	44
Queue Length 95th (ft)	459	1231	346		
Internal Link Dist (ft)	250				50
Turn Bay Length (ft)	3400	278	3549	472	426
Base Capacity (vph)	63	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.65	0.19	0.29	0.15	0.15
Intersection Summary					


	EBL	EBT	WBL	WBT
Lane Group	225	2075	53	1276
Lane Group Flow (vph)	0.59	0.50	0.31	0.34
v/c Ratio	61.6	2.4	81.0	1.8
Control Delay	0.0	0.0	0.0	0.1
Queue Delay	61.6	2.4	81.0	1.9
Total Delay	125	93	60	30
Queue Length 50th (ft)	173	96	107	46
Queue Length 95th (ft)	1231			
Internal Link Dist (ft)	450	200		
Turn Bay Length (ft)	693	4147	354	3752
Base Capacity (vph)	0	0	0	1040
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.32	0.50	0.15	0.47
Intersection Summary				

Queues
6. Kamehameha Hwy & Pali Momi Outbound

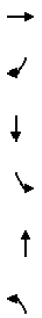
Queues
7. Pali Momi Outbound & Pali Momi Inbound/Pali Momi St

Future (2025) With Project AM
07/14/2020

Future (2025) With Project AM



Lane Group	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	1948	1184	337	115
v/c Ratio	0.52	0.34	0.57	0.38
Control Delay	2.9	7.6	66.2	17.4
Queue Delay	0.0	0.0	0.4	0.1
Total Delay	2.9	7.6	66.7	17.5
Queue Length 50th (ft)	121	154	171	14
Queue Length 95th (ft)	155	175	225	76
Internal Link Dist (ft)	178	275	239	
Turn Bay Length (ft)				
Base Capacity (vph)	3771	3530	894	407
Starvation Cap Reductn	212	0	224	39
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.55	0.34	0.50	0.31
Intersection Summary				



Lane Group	EBL	EBT	WBL	WBT	WBR	SBT
Lane Group Flow (vph)	50	386	212	213	63	47
v/c Ratio	0.11	0.40	0.45	0.45	0.13	0.05
Control Delay	23.3	22.0	25.4	25.4	5.2	21.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.3	22.0	25.4	25.4	5.2	21.0
Queue Length 50th (ft)	13	54	61	61	0	6
Queue Length 95th (ft)	56	145	176	177	22	22
Internal Link Dist (ft)		316		263		108
Turn Bay Length (ft)						
Base Capacity (vph)	1035	2137	907	907	883	2039
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.18	0.23	0.23	0.07	0.02
Intersection Summary						

Queues
1: Kanuku St & Kamehameha Hwy

Future Year (2025) With Project PM
07/14/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	44	1250	82	138	3367	121	82	86	44
v/c Ratio	0.47	0.42	0.10	0.83	1.01	0.55	0.27	0.38	0.14
Control Delay	78.6	14.0	1.7	91.6	21.9	66.5	11.7	58.9	8.7
Queue Delay	0.0	0.0	0.0	0.0	35.5	0.0	0.0	0.0	0.0
Total Delay	78.6	14.0	1.7	91.6	57.4	66.5	11.7	58.9	8.7
Queue Length 50th (ft)	47	164	0	153	~1413	111	0	76	0
Queue Length 95th (ft)	m89	194	10	m117	m139	183	48	133	26
Internal Link Dist (ft)		777		906	327			171	
Turn Bay Length (ft)	250	240	250			120			65
Base Capacity (vph)	223	3000	844	192	3330	320	411	334	440
Starvation Cap Reductn	0	0	0	0	131	0	0	0	0
Spillback Cap Reductn	0	0	0	0	426	0	0	0	4
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.42	0.10	0.72	1.16	0.38	0.20	0.26	0.10
Intersection Summary									
~ Volume exceeds capacity, queue is theoretically infinite.									
Queue shown is maximum after two cycles.									
m Volume for 95th percentile queue is metered by upstream signal.									

Queues
2: Kamehameha Hwy & Kaonohi St

Future Year (2025) With Project PM
07/14/2020

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	248	1314	4019	309	332
v/c Ratio	0.64	0.35	1.42	0.49	0.49
Control Delay	59.2	17.6	211.6	60.3	7.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	59.2	17.6	211.6	60.3	7.2
Queue Length 50th (ft)	136	317	~2059	152	0
Queue Length 95th (ft)	185	359	#2255	188	45
Internal Link Dist (ft)		906	459	270	
Turn Bay Length (ft)	450				70
Base Capacity (vph)	477	3727	2833	1051	905
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	35	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.52	0.36	1.42	0.29	0.37
Intersection Summary					
~ Volume exceeds capacity, queue is theoretically infinite.					
Queue shown is maximum after two cycles.					
# 95th percentile volume exceeds capacity, queue may be longer.					
Queue shown is maximum after two cycles.					

Queues
3- Hekaha St & Kamehameha Hwy

Future Year (2025) With Project PM
07/14/2020

	EBL	EBT	WBL	WBT	NBT	NBR	SBT	SBR
Lane Group	51	1243	194	2916	296	235	122	102
Lane Group Flow (vph)	0.33	0.49	0.50	1.03	0.93	0.41	0.54	0.20
v/c Ratio	73.8	26.2	91.0	33.5	92.4	7.1	59.5	8.1
Control Delay	0.0	0.0	0.0	14.4	0.0	0.0	0.0	0.0
Queue Delay	73.8	26.2	91.0	48.0	92.4	7.1	59.5	8.1
Total Delay	51	304	103	~1231	300	0	108	0
Queue Length 50th (ft)	96	364	m103	m#1256	#483	70	183	48
Queue Length 95th (ft)								
Internal Link Dist (ft)	179		777		278		356	
Turn Bay Length (ft)	221	2527	643	2838	328	586	233	518
Base Capacity (vph)	0	0	0	98	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.49	0.30	1.06	0.90	0.40	0.52	0.20
Intersection Summary								
~	Volume exceeds capacity, queue is theoretically infinite.							
#	Queue shown is maximum after two cycles.							
m	95th percentile volume exceeds capacity, queue may be longer.							
	Queue shown is maximum after two cycles.							
m	Volume for 95th percentile queue is metered by upstream signal.							

Queues
4- Lipoa Pl & Kamehameha Hwy

Future Year (2025) With Project PM
07/14/2020

	EBT	WBL	WBT	NBL	NBR
Lane Group	1495	104	3749	167	42
Lane Group Flow (vph)	0.45	0.64	0.94	0.63	0.17
v/c Ratio	8.7	91.4	10.8	73.3	30.6
Control Delay	0.1	0.0	45.0	0.0	0.0
Queue Delay	8.9	91.4	55.9	73.3	30.6
Total Delay	135	114	150	171	18
Queue Length 50th (ft)	143	m113	#1560	233	53
Queue Length 95th (ft)					
Internal Link Dist (ft)	459		1231	346	
Turn Bay Length (ft)	323	287	3976	486	437
Base Capacity (vph)	689	0	34	0	0
Starvation Cap Reductn	0	0	1295	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.57	0.36	1.40	0.34	0.10
Intersection Summary					
#	95th percentile volume exceeds capacity, queue may be longer.				
	Queue shown is maximum after two cycles.				
m	Volume for 95th percentile queue is metered by upstream signal.				

Queues
5. Kamehameha Hwy & Pali Momi Inbound

Future Year (2025) With Project PM
07/14/2020



Lane Group	EBL	EBT	WBL	WBT
Lane Group Flow (vph)	291	1199	126	3722
v/c Ratio	0.65	0.30	0.56	0.95
Control Delay	62.7	3.8	71.3	8.6
Queue Delay	0.0	0.0	0.8	3.4
Total Delay	62.7	3.8	72.1	12.0
Queue Length 50th (ft)	164	13	135	95
Queue Length 95th (ft)	216	120	m146	#227
Internal Link Dist (ft)		1231		178
Turn Bay Length (ft)	450		200	
Base Capacity (vph)	715	3992	365	3909
Starvation Cap Reductn	0	0	88	21
Spillback Cap Reductn	0	115	0	144
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.41	0.31	0.45	0.99
Intersection Summary				
# - 95th percentile volume exceeds capacity, queue may be longer.				
m - Volume for 95th percentile queue is metered by upstream signal.				

Queues
6. Kamehameha Hwy & Pali Momi Outbound

Future Year (2025) With Project PM
07/14/2020



Lane Group	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	1133	3465	320	170
v/c Ratio	0.31	0.97	0.44	0.66
Control Delay	7.0	31.4	56.7	70.4
Queue Delay	0.2	1.8	0.6	5.7
Total Delay	7.1	33.1	57.3	76.0
Queue Length 50th (ft)	6	1081	155	168
Queue Length 95th (ft)	342	#1465	190	240
Internal Link Dist (ft)	178	275	239	
Turn Bay Length (ft)				
Base Capacity (vph)	3605	3605	922	329
Starvation Cap Reductn	1330	0	293	49
Spillback Cap Reductn	0	57	0	107
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.50	0.99	0.51	0.77
Intersection Summary				
# - 95th percentile volume exceeds capacity, queue may be longer.				
Queue shown is maximum after two cycles.				

Queues
7: Pali Momi Outbound & Pali Momi Inbound/Pali Momi St

Queues
1: Kanuku St & Kamehameha Hwy

Future Year (2025) With Project PM

Future (2025) With Project AM With Ped Lead Interval

10/13/2020

Lane Group	EBL	EBT	WBL	WBT	WBR	SBT
Lane Group Flow (vph)	120	592	206	206	116	173
v/c Ratio	0.25	0.59	0.58	0.58	0.27	0.19
Control Delay	24.9	26.6	35.4	35.4	7.8	23.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.9	26.6	35.4	35.4	7.8	23.9
Queue Length 50th (ft)	50	139	102	102	0	31
Queue Length 95th (ft)	110	223	188	188	42	70
Internal Link Dist (ft)		316		263		108
Turn Bay Length (ft)						
Base Capacity (vph)	718	1500	607	607	641	1373
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.39	0.34	0.34	0.18	0.13
Intersection Summary						
m Volume for 95th percentile queue is metered by upstream signal.						

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	38	1717	21	78	1042	40	63	168	43
v/c Ratio	0.47	0.55	0.03	0.69	0.33	0.29	0.26	0.76	0.16
Control Delay	118.1	7.4	0.1	87.5	18.0	62.8	10.4	86.4	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	118.1	7.5	0.1	87.5	18.0	62.8	10.4	86.4	3.3
Queue Length 50th (ft)	43	65	0	87	192	39	0	177	0
Queue Length 95th (ft)	m77	242	m0	148	230	76	35	252	10
Internal Link Dist (ft)		777		906	327		171		
Turn Bay Length (ft)									
Base Capacity (vph)	190	3107	788	165	3159	213	335	345	391
Starvation Cap Reductn	0	156	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.58	0.03	0.47	0.33	0.19	0.19	0.49	0.11
Intersection Summary									
m Volume for 95th percentile queue is metered by upstream signal.									

Queues
2. Kamehameha Hwy & Kaonohi St
Future (2025) With Project AM With Ped Lead Interval
10/13/2020

	EBL	EBT	WBT	SBL	SBR
Lane Group	180	1700	1068	568	140
Lane Group Flow (vph)	0.59	0.49	0.45	0.65	0.23
v/c Ratio	108.9	5.0	17.3	58.4	6.9
Control Delay	0.0	0.0	0.1	0.0	0.0
Queue Delay	108.9	5.0	17.4	58.4	6.9
Total Delay	99	83	95	285	0
Queue Length 50th (ft)	150	95	104	330	30
Queue Length 95th (ft)	906	459	270		
Internal Link Dist (ft)					
Turn Bay Length (ft)	450			70	
Base Capacity (vph)	353	3435	2395	1029	703
Starvation Cap Reductn	0	0	419	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.51	0.49	0.54	0.55	0.20
Intersection Summary					

~ Volume exceeds capacity, queue is theoretically infinite.

m Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues
1. Kanuku St & Kamehameha Hwy
Future Year (2025) With Project PM With Ped Lead Interval
10/13/2020

	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT	SBR
Lane Group	44	1250	82	138	3367	121	82	86	44
Lane Group Flow (vph)	0.47	0.44	0.10	0.83	1.07	0.53	0.27	0.36	0.13
v/c Ratio	80.2	16.5	2.1	94.3	48.3	64.9	11.7	57.9	2.8
Control Delay	0.0	0.0	0.0	0.0	12.6	0.0	0.0	0.0	0.0
Queue Delay	80.2	16.5	2.1	94.3	60.9	64.9	11.7	57.9	2.8
Total Delay	47	176	0	153	~1489	111	0	76	0
Queue Length 50th (ft)	m90	207	12	m117	m176	181	48	131	9
Queue Length 95th (ft)	777			906	327			171	
Internal Link Dist (ft)									
Turn Bay Length (ft)	250	240	250			120			65
Base Capacity (vph)	223	2813	796	192	3143	314	389	332	429
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	365	0	0	0	4
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.44	0.10	0.72	1.21	0.39	0.21	0.26	0.10
Intersection Summary									

~ Volume exceeds capacity, queue is theoretically infinite.

m Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues
2: Kamehameha Hwy & Kaonoahi St
Future Year (2025) With Project PM With Ped Lead Interval
10/13/2020

	EBL	EBT	WBT	SBL	SBR
Lane Group	248	1314	4019	309	332
Lane Group Flow (vph)	0.64	0.35	1.42	0.49	0.49
v/c Ratio	59.2	17.3	211.6	60.3	7.2
Control Delay	0.0	0.0	0.0	0.0	0.0
Queue Delay	59.2	17.3	211.6	60.3	7.2
Total Delay	135	308	~2059	152	0
Queue Length 50th (ft)	185	350	#2255	188	45
Queue Length 95th (ft)	906	459	270		
Internal Link Dist (ft)					
Turn Bay Length (ft)	450			70	
Base Capacity (vph)	477	3727	2833	1051	905
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	57	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.52	0.36	1.42	0.29	0.37

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues
1: Kanuku St & Kamehameha Hwy
Future (2025) With Project AM With Ped Only Phase
07/17/2020

	EBL	EBT	EBR	WBL	NBT	NBR	SBT	SBR
Lane Group	38	1717	21	78	1042	40	63	168
Lane Group Flow (vph)	0.47	0.52	0.03	0.69	0.31	0.28	0.27	0.76
v/c Ratio	115.2	4.7	0.1	85.6	16.0	61.9	14.0	86.4
Control Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Delay	115.2	4.8	0.1	85.6	16.0	61.9	14.0	86.4
Total Delay	43	55	0	86	188	39	0	177
Queue Length 50th (ft)	m77	68	m0	147	226	75	44	252
Queue Length 95th (ft)								
Internal Link Dist (ft)	777			906	327		171	
Turn Bay Length (ft)	250		240	250		120		65
Base Capacity (vph)	190	3288	823	165	3332	241	346	399
Starvation Cap Reductn	0	200	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.66	0.03	0.47	0.31	0.17	0.18	0.46

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues
2. Kamehameha Hwy & Kaonohi St
Future (2025) With Project AM With Ped Only Phase
07/17/2020

	EBL	EBT	WBT	SBL	SBR
Lane Group	180	1700	1068	568	140
Lane Group Flow (vph)	0.59	0.49	0.45	0.65	0.23
v/c Ratio	105.3	5.8	17.3	58.4	6.9
Control Delay	0.0	0.0	0.1	0.0	0.0
Queue Delay	105.3	5.8	17.4	58.4	6.9
Total Delay	98	91	95	285	0
Queue Length 50th (ft)	148	105	104	330	30
Queue Length 95th (ft)	906	459	270		
Internal Link Dist (ft)	450			70	
Turn Bay Length (ft)	353	3435	2395	1029	703
Base Capacity (vph)	0	0	419	0	0
Starvation Cap Reductn	0	33	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0.51	0.50	0.54	0.55	0.20
Reduced v/c Ratio	Intersection Summary				

Queues
1. Kanuku St & Kamehameha Hwy
Future Year (2025) With Project PM With Ped Only Phase
07/17/2020

	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT	SBR	
Lane Group	44	1250	82	138	3367	121	82	86	44	
Lane Group Flow (vph)	0.47	0.42	0.10	0.83	1.01	0.55	0.27	0.38	0.14	
v/c Ratio	78.6	14.0	1.7	77.6	39.6	66.5	11.7	58.9	8.7	
Control Delay	0.0	0.0	0.0	0.0	35.5	0.0	0.0	0.0	0.0	
Queue Delay	78.6	14.0	1.7	77.6	75.1	66.5	11.7	58.9	8.7	
Total Delay	47	164	0	153	-725	111	0	76	0	
Queue Length 50th (ft)	m89	194	10	m99	m205	183	48	133	26	
Queue Length 95th (ft)	777			906	327			171		
Internal Link Dist (ft)	250	240	250			120			65	
Turn Bay Length (ft)	223	3000	844	192	3330	320	411	334	440	
Base Capacity (vph)	0	0	0	0	129	0	0	0	0	
Starvation Cap Reductn	0	0	0	0	426	0	0	0	4	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0.20	0.42	0.10	0.72	1.16	0.38	0.20	0.26	0.10	
Reduced v/c Ratio	Intersection Summary									

~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	248	1314	4019	154	155	332
v/c Ratio	0.79	0.43	1.74	0.57	0.58	0.52
Control Delay	90.7	29.9	360.2	70.7	70.9	8.6
Queue Delay	0.0	0.0	0.1	0.0	0.0	0.0
Total Delay	90.7	29.9	360.2	70.7	70.9	8.6
Queue Length 50th (ft)	140	311	~2327	157	158	0
Queue Length 95th (ft)	#200	367	#2361	242	244	50
Internal Link Dist (ft)	906	459		270		
Turn Bay Length (ft)	450					70
Base Capacity (vph)	318	3062	2304	283	283	648
Starvation Cap Reductn	0	0	69	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.43	1.80	0.54	0.55	0.51

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Appendix F: Kamehameha Highway/ Kaonohi Street Bus Stop Data

Appendix G: Bus Turning Templates

Stop #691 - KAMEHAMEHA HWY OPP KAONOHI ST

Hour	Average On per Trip			Average Off per Trip			Max On within a 5 minute			Max Off within a 5 minute			Scheduled Trips		
	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday
4	2.4		1.0	1.4		2.3	4.8		1.0	2.8		2.3	2		1
5	1.4	1.4	1.8	1.4	1.8	2.3	5.7	3.1	2.0	3.9	5.1	4.0	14	7	4
6	2.6	0.8	0.7	2.7	1.7	1.8	7.5	2.8	1.7	8.8	3.0	6.4	14	8	8
7	1.5	1.5	0.8	2.0	3.0	3.3	5.9	5.0	1.6	6.9	7.0	5.5	13	7	8
8	1.1	1.7	1.0	2.5	3.6	2.6	4.6	7.0	3.5	8.3	8.7	6.0	13	8	7
9	1.0	1.1	1.1	2.9	4.5	3.6	3.8	4.4	2.0	8.0	13.2	7.3	12	7	6
10	0.9	1.7	1.0	3.1	4.0	4.1	3.0	6.3	2.3	10.0	9.5	9.6	12	8	8
11	0.9	1.8	1.2	2.6	5.3	5.8	3.4	4.5	2.0	8.8	16.8	8.7	11	7	5
12	1.1	1.5	1.2	2.5	5.0	3.7	4.5	5.5	2.7	8.6	14.3	10.0	11	7	8
13	0.8	1.3	0.8	2.8	4.9	3.0	2.7	4.7	3.5	10.5	8.0	5.0	12	8	7
14	1.3	1.0	1.2	3.3	4.7	3.9	4.8	2.3	3.5	11.1	10.5	9.0	10	7	8
15	0.9	1.2	1.1	4.1	4.3	2.9	2.3	5.3	2.5	10.4	6.3	7.7	11	8	7
16	0.9	1.1	1.2	2.8	2.9	1.5	2.7	2.8	2.8	7.5	8.0	3.0	12	8	7
17	1.2	1.9	1.5	2.0	3.0	1.8	4.2	4.0	5.8	6.9	5.0	5.1	10	6	7
18	0.7	1.6	1.9	1.5	1.3	0.4	2.0	3.0	4.0	3.6	2.0	1.0	10	7	7
19	0.8	0.6	0.7	1.0	0.9	0.7	3.2	1.2	1.4	4.6	1.8	2.9	9	8	8
20	0.6	0.2	0.6	0.9	0.5	0.6	1.9	0.5	1.0	1.5	1.5	1.5	9	4	6
21	0.9	0.9	1.1	0.3	0.8	0.3	2.2	3.0	3.0	0.7	1.3	1.0	8	6	5
22	0.6	0.4	0.0	0.3	0.7	0.0	1.6	0.7	0.0	0.9	1.3	0.0	4	2	1
23	0.3	1.4	0.2	0.5	3.2	1.3	0.8	2.8	0.3	1.5	4.8	1.3	4	2	2
24	0.4	1.5	0.0	0.4	0.5	0.0	0.7	2.2	0.0	1.0	1.0	0.0	3	2	3
25	0.8	1.0	0.0	0.2	0.0	0.0	0.8	1.0	0.0	0.2	0.0	0.0	1	1	1
Total	1.1	1.2	1.0	2.2	3.0	2.4	7.5	7.0	5.8	11.1	16.8	10.0	205	128	124

Data based on August 2018-December 2018 date range, provided by the City & County of Honolulu



Figure G-2
Articulated Bus Turning Template

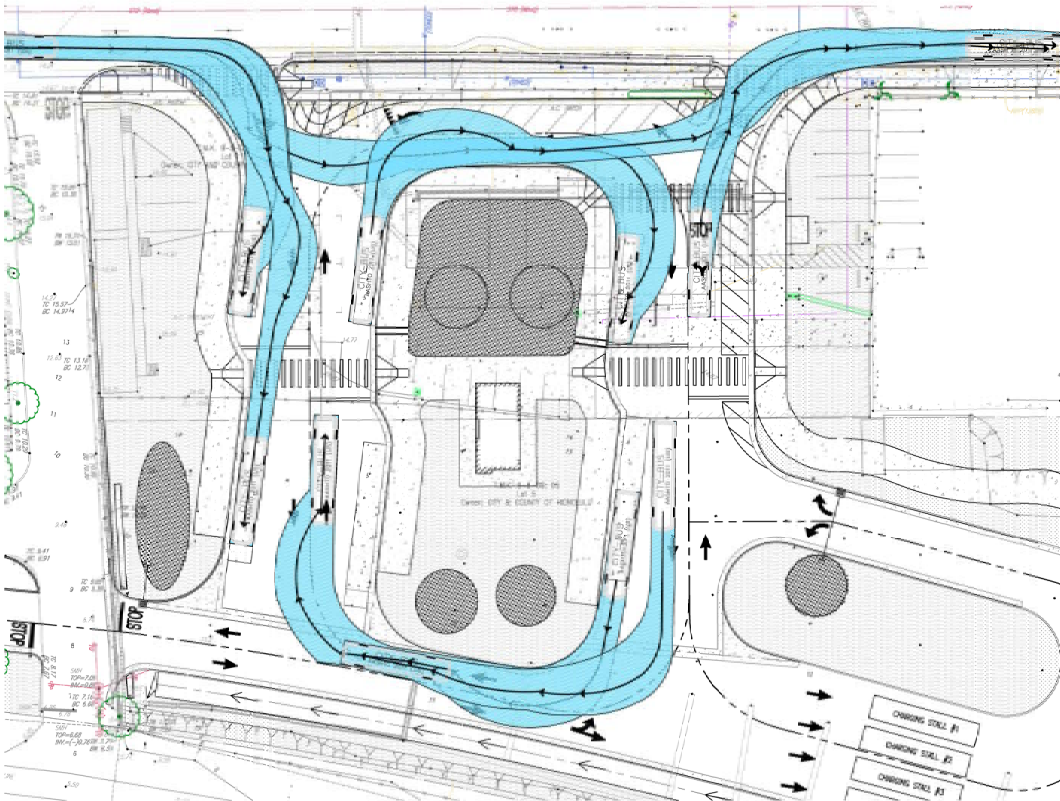


Figure G-1
City Bus Turning Template

Appendix E

**Air Quality Technical Report:
DTS Pearlrige Bus Transit Center**

FINAL AIR QUALITY TECHNICAL REPORT

DTS PearlrIDGE Bus Transfer Center

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Our Ref.:

Date:
February 2021

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Group 70 International, Inc.

FINAL AIR QUALITY TECHNICAL REPORT

DTS PearlrIDGE Bus Transit Center

February 2021

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ACRONYMS AND ABBREVIATIONS

CalEEMod	California Emissions Estimator Model
CARB	California Air Resources Board
CH ₄	Methane
CO	Carbon monoxide
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent

DTS	Department of Transportation Services
GHG	Greenhouse gas
GWP	Global warming potential
HART	Honolulu Authority for Rapid Transportation
MT	Metric tons
N ₂ O	Nitrous oxide
NAAQS	National Ambient Air Quality Standards
NO ₂	Nitrogen dioxide
NO _x	Nitrogen oxides
O ₃	Ozone
Pb	Lead
PPM	Parts per million
PM ₁₀	Particulate matter less than 10 microns
PM _{2.5}	Particulate matter less than 2.5 microns
ROG	Reactive organic gases
SAAQS	State Ambient Air Quality Standards
SO ₂	Sulfur dioxide
USEPA	United States Environmental Protection Agency
yr	Year
µg/m ³	Micrograms per cubic meters

1 INTRODUCTION

The purpose of this Air Quality Technical Report is to quantify the emission associated with the proposed City and County of Honolulu (City) Department of Transportation Services (DTS) Pearlridge Bus Transit Center (the "Project") resulting from the construction and operation of the proposed project. During construction, emission sources are assumed to be primarily fugitive dust from vehicle and earth movement, construction equipment exhaust, and off-gassing of pollutants from applying asphalt paving and architectural coatings. Operational emissions sources are assumed to be from bus movement from increased routes planned for the Project.

2 PROJECT DESCRIPTION

Construction of the proposed Project is in support of the Honolulu Authority for Rapid Transportation (HART) elevated rail transit project (Rail). The proposed bus transit center is located adjacent to the HART Kalauao Station No. 8, which is currently under construction, and approximately 0.25-mile southwest of the Pearlridge Shopping Center. The adjoining locations of the planned Pearlridge Bus Transit Center and the Kalauao Station No. 8 will effectively facilitate multimodal transportation connectivity.

Proposed construction activities include reconfiguration of adjacent parking lot to include bus circulation easement, installation of electric bus charging stalls, construction of bus lanes and bus bays, a bus lay-over area, a separate Handi-Van waiting area, and bus shelters. The new bus transit center will also include a comfort station facility, an operator's lounge, bicycle parking, pedestrian walkways, and landscaping.

3 ENVIRONMENTAL SETTING

The Project location, climate and State of Hawaii ambient air quality standards are summarized in the following sections.

3.1 Project Location

The Project site is located in Honolulu, Oahu on an approximately three-acre parcel on Kamehameha Highway near Kaonoht Street. The site is surrounded by retail businesses including furniture, electronics and restaurants to the north, west and east and the Pacific Ocean to the south. Residential areas nearest the Site include Pearlridge Terraces to the north across Kamehameha Highway.

3.2 Climate

Hawaii is comprised of several islands with diverse topography, but is generally classified as mountainous. These factors contribute to a mixture of climate regimes that exist within the island chain. Diverse climates can exist within relatively short distances on the same island due to topographical effects on wind direction and speed and rainfall patterns.

Oahu is the third-largest of the Hawaiian Islands. The Ko'olau Range, at an average elevation of 2,000 feet, parallels the northeastern coast. The Waianae Mountains, somewhat higher in elevation, parallel the west coast. Honolulu International Airport, the business and Waikiki districts, and a number of Honolulu's residential areas lie along the southern coastal plain.

The predominant winds that affect the island are the trade winds that generally flow from the northeast, although its average frequency varies from 80 to 90 percent during the summer to only 50 percent in January. Lighter southeasterly winds prevail in the cooler winter months, with occasional strong wind events from winter storms.

The moderate temperature range is associated with the small seasonal variation in energy received from the sun and the tempering effect of the surrounding ocean. Honolulu International Airport has recorded temperatures as high as the lower 90s and as low as the lower 50s.

Heavy mountain rainfall sustains agricultural irrigation and Honolulu's water supply. The high elevations of the Ko'olau Mountains are extremely wet year-round, averaging over 200 inches per year. Oahu is driest along the coast west of the Waianae Mountains, where rainfall drops to about 20 inches a year. Daytime showers, usually light, often occur while the sun continues to shine.

Intense rains in the October to April winter season sometimes causes serious flash flooding.

Thunderstorms are infrequent and usually mild, and hail seldom occurs. Infrequently, a small tornado or waterspout may cause some damage. Only a few tropical cyclones have struck Hawaii, although others have come near enough for their outlying winds, waves, clouds, and rain to affect the islands.

3.3 Ambient Air Quality

The ambient air quality in an area can be characterized in terms of whether it complies with National Ambient Air Quality Standards (NAAQS) and State Ambient Air Quality Standards (SAAQS), where applicable. The Clean Air Act (42 U.S.C. 7401 et seq.) requires the U.S. Environmental Protection Agency (USEPA) to set national standards for emissions that are considered harmful to public health and the environment (criteria pollutants). The seven criteria pollutants are: carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), lead (Pb), ozone (O₃), and particulate matter (PM₁₀ and PM_{2.5}). Based on air monitoring data, Hawaii is currently classified as attainment for all Federal and State standards.

Table 1 presents the NAAQS and SAAQS for each criteria pollutant and the 2016 attainment designations for the State of Hawaii.

Table 1. Air Quality Standards Attainment Status for Hawai'i

Parameter	State Standard	Federal Standard	Ambient Air Quality
Ozone	8-Hour 0.08 ppm 1-Hour 9 ppm	Attainment Attainment	0.03 ppm 0.4 ppm
Carbon Monoxide	8-Hour 4.4 ppm 1-Hour --	Attainment Attainment	0.004 ppm
Nitrogen Dioxide	Annual 0.04 ppm 1-Hour --	Attainment Attainment	0.000 ppm
Sulfur Dioxide	3-Hour 0.5 ppm 24-Hour 0.14 ppm	Attainment Attainment	--
Particulate Matter (PM ₁₀)	Annual 0.03 ppm 24-Hour 150 µg/m ³	Attainment Attainment	20 µg/m ³
Particulate Matter - Fine (PM _{2.5})	Annual 50 µg/m ³ 24-Hour --	Attainment Attainment	2.6 µg/m ³

Notes:
 -- = no standard available
 µg/m³ = micrograms per cubic meter
 ppm = parts per million
 Ambient air quality measurements recorded at Pearl City HDQH site
 PM₁₀ and PM_{2.5} air quality measurements recorded at Sand Island HDQH site
 Ozone air quality measurements recorded at Kapolei HDQH site
 CO, SO₂, and NO₂ air quality measurements recorded at Kapolei HDQH site
 Sources: HAR 11-59; Ambient Air Quality Standards; 40 CFR Part 50; National Primary and Secondary Ambient Air Quality Standard; State of Hawai'i Department of Health; State of Hawai'i Annual Summary 2016 Air Quality Data.

3.4 Greenhouse Gas

Greenhouse gases (GHGs) are compounds in the Earth's atmosphere which play a critical role in determining temperature near the Earth's surface. GHGs include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and several chlorofluorocarbons. GHGs are commonly quantified in the equivalent mass of CO₂e, denoted CO₂e, which takes into account the global warming potential (GWP) of each individual GHG compound.

4 AIR QUALITY ANALYSIS

Air quality emissions for the Project are discussed in greater specificity below for construction and operations. Detailed emissions calculations are provided in Appendix A.

4.1 Construction

For the Project, construction air quality impacts would be intermittent and short term. Construction would generate emissions of the criteria pollutants as well as GHGs. Emissions were calculated using the California Emissions Estimator Model (CalEEMod) version 2016.3.2. The CalEEMod model provides a platform to calculate construction emissions using equipment emission factors (mass of emissions per unit time) from sources such as United States Environmental Protection Agency (USEPA), California Air Resources Board (CARB) and site-specific information. CalEEMod also provides default values when site-specific information is not available.

Construction activities on approximately three acres were estimated to last 13 months and occur in five phases: demolition, site preparation, grading, structure construction, paving, and architectural coatings. Construction activities, projected start date, projected duration, construction equipment, and assumptions are included in **Table 2**.

The CalEEMod software allows the user to select pre-programmed "Mitigations" to control certain emissions. The measures selected and assumed to be implemented are:

- Replacing ground cover of area disturbed
- Applying water to disturbed surfaces and haul roads three times a day; and
- Reducing speed on unpaved roads to <15 miles per hour

These measures are common practices that are required by local and state regulations to control dust.

Annual emission calculated from CalEEMod are summarized in **Table 3**. Emissions from the proposed action are minimal due to the relatively small scale and low intensity of construction activities. Modeling assumptions and results are presented in Appendix A.

Table 2. Construction Assumptions by Activity

Activity	Start	Duration	Equipment
Demolition	January 2022	20 days	1 Industrial saw 3 Excavators
Site Preparation	January 2022	3 days	2 Rubber-tired dozers 3 Rubber-tired dozers 4 tractors
Grading	February 2022	6 days	1 Excavator 1 Grader 1 Rubber-tired dozers
Structure Construction	February 2022	220 days	3 Tractors 3 Forklifts 1 Generator sets 3 Tractors 1 Welder
Paving	December 2022	10 days	2 Cement mixers 1 Paver 2 Paving equipment
Architectural Coating	December 2022	10 days	2 Rollers 1 Tractor 1 Air compressor

Table 3. Estimated Proposed Construction Emissions (Tons per Year)

Construction Year	ROG	NOx	CO	SO ₂	PM ₁₀	PM _{2.5}	CO ₂ e (MT/yr)
2021	0.23	2.0	2.2	4.1x10 ⁻³	0.17	0.13	365
2022	0.042	6.0x10 ⁻³	9.3x10 ⁻³	2.0x10 ⁻⁵	7.1x10 ⁻⁴	4.3x10 ⁻⁴	1

CO - carbon dioxide; CO₂e - carbon dioxide equivalent; MT/yr - metric tons per year; NOx - nitrogen oxides; PM_{2.5} - particulate matter less than 2.5 microns; PM₁₀ - particulate matter less than 10 microns; ROG - reactive organic gases; SO₂ - sulfur dioxide

4.2 Operations

For the Project, the primary air quality considerations associated with operational activities at the Site are urban bus and commuter vehicle traffic. For mobile sources, estimated vehicle trips were provided by the Mobility Analysis Report (MAR) for the Proposed PearlrIDGE Bus Transit Center prepared by Fehr & Peeters.

Table 4. Estimated Projected Traffic Associated with Project

Parameter	Value	Units
Vehicle Type	Urban Buses	
Impacted Bus Routes ¹	8	Routes
Daily Trips	544	Trips/day
Days of Operation	365	Days/year
Average Trip Distance ²	25.34	Miles/trip
Vehicle Type	Commuter Vehicles	
Daily Trips	290	Trips/day
Days of Operation	365	Days/year
Average Trip Distance ²	9.47	Miles/trip

Notes:
¹ Impacted bus routes include Route 40, 51, 54, 541, 542/546, 543/545, 544, and 548.
² See Appendix A for additional trip details.

Using the parameters in Table 4, CalEEMod was used to calculate exhaust and dust emissions from project vehicles. Emission estimates only account for bus travel and does not include commuter or employee vehicles; however, it also does not account for the reduced single passenger vehicle trips that the public buses will eliminate. Therefore, emission estimates are assumed to be conservative. Project annual emissions are presented in Table 5.

Table 5. Summary of Operational Emissions (Tons per Year)

Source	ROG	NOx	CO	SO ₂	PM ₁₀	PM _{2.5}	CO _{2e} (MT/yr)
Area	0.015	0.00	1.2x10 ⁻⁴	0.00	0.00	0.00	2.5x10 ⁻⁴
Stationary	0.00	0.00	0.00	0.00	0.00	0.00	104
Mobile	3.0	39	42	0.071	5.6	2.3	10,028
Waste/Water							0.00
TOTAL	3.0	39	42	0.071	5.6	2.3	10,131

CO - carbon dioxide; CO_{2e} - carbon dioxide equivalent; MT/yr - metric tons per year; NOx - nitrogen oxides; PM₁₀ - particulate matter less than 10 microns; PM_{2.5} - particulate matter less than 2.5 microns; ROG - reactive organic gases; SO₂ - sulfur dioxide; Tons/yr - tons per year

Results indicate that criteria pollutants and GHG emissions will increase with operational activities. However, emissions are likely to decrease over time with the bus fleet turnover to newer conventional buses and alternative fuel buses including electric buses to be charged at the proposed electric charging bays.

5 CONCLUSIONS

Construction emissions will be intermittent and short term and will be spread over several acres. Maximum annual emissions of criteria pollutants from construction activities are projected at less than 3 tons per year. Operational emissions are projected to increase from additional bus trips; however this calculation does not include the decrease in single occupant vehicle travel nor the conversion to newer or alternative fueled buses which could significantly reduce the operational emissions for the Project.

6 REFERENCES

California Air Pollution Control Officers Association (CAPCOA). 2016. California Emissions Estimator Model. CalEEMod Version 2016.3.2

Fehr & Peers. 2021. Mobility Analysis Report (MAR) for the Proposed PearlrIDGE Bus Transfer Center. State of Hawai'i Department of Health (HDOH), 2001. HAR 11-59: Ambient Air Quality Standards.

State of Hawai'i Department of Health. 2016. State of Hawai'i Annual Summary 2016 Air Quality Data. December

United States Environmental Protection Agency (USEPA). 40 CFR Part 50: National Primary and Secondary Ambient Air Quality Standard. <https://www.epa.gov/criteria-air-pollutants/naaqs-table>. Accessed April 2020.

Pearlridge Transit Center - Statewide , Annual

**Pearlridge Transit Center
Statewide , Annual**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	10.00	Space	0.00	0.00	0
Unenclosed Parking Structure	3.00	Acre	3.00	130,680.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	54
Climate Zone	1			Operational Year	2025
Utility Company	Statewide Average				
CO2 Intensity (lb/MW hr)	1001.57	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

- Project Characteristics -
- Land Use - Accounting for bus transit (unenclosed parking structure) and commute trip (parking lot)
- Construction Phase -
- Off-road Equipment - One story building does not require cranes - per client
- Off-road Equipment -
- Off-road Equipment -
- Trips and VMT -
- Architectural Coating -

APPENDIX A
Air Quality Calculations



tblFleetMix	OBUS	2.1220e-003	0.00
tblFleetMix	SBUS	8.1200e-004	0.00
tblFleetMix	SBUS	8.1200e-004	0.00
tblFleetMix	UBUS	1.7030e-003	0.00
tblFleetMix	UBUS	1.7030e-003	1.00
tblLandUse	LandUseSquareFeet	4,000.00	0.00
tblLandUse	LotAcreage	0.09	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblVehicleTrips	CC_TL	7.30	25.34
tblVehicleTrips	CC_TTP	0.00	100.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	HO_TL	0.00	7.50
tblVehicleTrips	HO_TTP	0.00	100.00
tblVehicleTrips	HS_TL	0.00	7.30
tblVehicleTrips	HW_TL	0.00	10.80
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	ST_TR	0.00	29.00
tblVehicleTrips	ST_TR	0.00	181.33
tblVehicleTrips	SU_TR	0.00	29.00
tblVehicleTrips	SU_TR	0.00	181.33
tblVehicleTrips	WD_TR	0.00	29.00
tblVehicleTrips	WD_TR	0.00	181.33

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

Vehicle Trips - bus trips from expected # routes per day and route distances. commute trips (kiss & ride and park & ride) from Fehr & Peers MAR 2020. Distance based on default residential to other locations.

Area Coating - proj info

Construction Off-road Equipment Mitigation - implemented measures

Fleet Mix - Vehicle mix for commuter trips equivalent to CalEEMod worker personal vehicle mix. All bus trips assumed to be urban buses

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	7841	10454
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblFleetMix	HHD	0.05	0.00
tblFleetMix	HHD	0.05	0.00
tblFleetMix	LDA	0.56	0.55
tblFleetMix	LDA	0.56	0.00
tblFleetMix	LDT1	0.04	0.25
tblFleetMix	LDT1	0.04	0.00
tblFleetMix	LDT2	0.19	0.25
tblFleetMix	LDT2	0.19	0.00
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD2	5.3550e-003	0.00
tblFleetMix	LHD2	5.3550e-003	0.00
tblFleetMix	MCY	5.3450e-003	0.00
tblFleetMix	MCY	5.3450e-003	0.00
tblFleetMix	MDV	0.11	0.00
tblFleetMix	MDV	0.11	0.00
tblFleetMix	MH	8.0700e-004	0.00
tblFleetMix	MH	8.0700e-004	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	OBUS	2.1220e-003	0.00

9	1-1-2023	3-31-2023	0.0456	0.0456
		Highest	0.6905	0.6905

2.2 Overall Operational
Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0145	0.0000	1.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.3000e-004	2.3000e-004	0.0000	0.0000	2.5000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	103.8949	103.8949	3.0100e-003	6.2000e-004	104.1556
Mobile	2.9982	39.0447	41.9111	0.0711	5.0172	0.5502	5.5674	1.7985	0.5262	2.3246	0.0000	9.863.5935	9.863.5935	6.5283	0.0000	10,026.8008
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	3.0127	39.0447	41.9112	0.0711	5.0172	0.5502	5.5674	1.7985	0.5262	2.3246	0.0000	9.967.4887	9.967.4887	6.5313	6.2000e-004	10,130.9567

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0145	0.0000	1.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.3000e-004	2.3000e-004	0.0000	0.0000	2.5000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	103.8949	103.8949	3.0100e-003	6.2000e-004	104.1556
Mobile	2.9982	39.0447	41.9111	0.0711	5.0172	0.5502	5.5674	1.7985	0.5262	2.3246	0.0000	9.863.5935	9.863.5935	6.5283	0.0000	10,026.8008

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.2262	1.9722	2.1694	4.1300e-003	0.1127	0.0933	0.2060	0.0429	0.0878	0.1307	0.0000	363.8387	363.8387	0.0660	0.0000	365.4880
2023	0.0419	5.9600e-003	9.2700e-003	2.0000e-005	3.9000e-004	3.2000e-004	7.1000e-004	1.0000e-004	3.2000e-004	4.3000e-004	0.0000	1.4671	1.4671	8.0000e-005	0.0000	1.4691
Maximum	0.2262	1.9722	2.1694	4.1300e-003	0.1127	0.0933	0.2060	0.0429	0.0878	0.1307	0.0000	363.8387	363.8387	0.0660	0.0000	365.4880

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.2262	1.9722	2.1694	4.1300e-003	0.0814	0.0933	0.1747	0.0262	0.0878	0.1140	0.0000	363.8384	363.8384	0.0660	0.0000	365.4877
2023	0.0419	5.9600e-003	9.2700e-003	2.0000e-005	3.9000e-004	3.2000e-004	7.1000e-004	1.0000e-004	3.2000e-004	4.3000e-004	0.0000	1.4671	1.4671	8.0000e-005	0.0000	1.4690
Maximum	0.2262	1.9722	2.1694	4.1300e-003	0.0814	0.0933	0.1747	0.0262	0.0878	0.1140	0.0000	363.8384	363.8384	0.0660	0.0000	365.4877

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	27.64	0.00	15.13	38.88	0.00	12.75	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
5	1-1-2022	3-31-2022	0.6905	0.6905
6	4-1-2022	6-30-2022	0.5109	0.5109
7	7-1-2022	9-30-2022	0.5165	0.5165
8	10-1-2022	12-31-2022	0.4884	0.4884

Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	156	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	0	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	76	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	55.00	21.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	11.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	3.0127	39.0447	41.9112	0.0711	5.0172	0.5502	5.5674	1.7985	0.5262	2.3246	0.0000	9,967,488	9,967,488	6,5313	6,200e-004	10,130,956	7

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio-CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2022	1/28/2022	5	20	
2	Site Preparation	Site Preparation	1/29/2022	2/2/2022	5	3	
3	Grading	Grading	2/3/2022	2/10/2022	5	6	
4	Building Construction	Building Construction	2/11/2022	12/15/2022	5	220	
5	Paving	Paving	12/16/2022	12/29/2022	5	10	
6	Architectural Coating	Architectural Coating	12/30/2022	1/12/2023	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 3

Acres of Paving: 3

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 7,841

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	156	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0264	0.2572	0.2059	3.9000e-004		0.0124	0.0124		0.0116	0.0116	0.0000	33.9902	33.9902	9.5500e-003	0.0000	34.2289
Total	0.0264	0.2572	0.2059	3.9000e-004		0.0124	0.0124		0.0116	0.0116	0.0000	33.9902	33.9902	9.5500e-003	0.0000	34.2289

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-004	3.4000e-004	3.6900e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.2000e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.0017	1.0017	3.0000e-005	0.0000	1.0023
Total	5.0000e-004	3.4000e-004	3.6900e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.2000e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.0017	1.0017	3.0000e-005	0.0000	1.0023

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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- Replace Ground Cover
- Water Exposed Area
- Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0264	0.2572	0.2059	3.9000e-004		0.0124	0.0124		0.0116	0.0116	0.0000	33.9902	33.9902	9.5500e-003	0.0000	34.2289
Total	0.0264	0.2572	0.2059	3.9000e-004		0.0124	0.0124		0.0116	0.0116	0.0000	33.9902	33.9902	9.5500e-003	0.0000	34.2289

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-004	3.4000e-004	3.6900e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.2000e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.0017	1.0017	3.0000e-005	0.0000	1.0023
Total	5.0000e-004	3.4000e-004	3.6900e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.2000e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.0017	1.0017	3.0000e-005	0.0000	1.0023

Total	4.7600e-003	0.0496	0.0296	6.0000e-005	8.9800e-003	2.4200e-003	0.0114	4.9400e-003	2.2300e-003	7.1700e-003	0.0000	5.0159	5.0159	1.6200e-003	0.0000	5.0565
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Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.0000e-005	6.0000e-005	6.8000e-004	0.0000	2.1000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1803	0.1803	0.0000	0.0000	0.1804
Total	9.0000e-005	6.0000e-005	6.8000e-004	0.0000	2.1000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1803	0.1803	0.0000	0.0000	0.1804

3.4 Grading - 2022

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0197	0.0000	0.0197	0.0101	0.0000	0.0101	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.8500e-003	0.0626	0.0458	9.0000e-005		2.8200e-003	2.8200e-003		2.6000e-003	2.6000e-003	0.0000	7.8164	7.8164	2.5300e-003	0.0000	7.8796
Total	5.8500e-003	0.0626	0.0458	9.0000e-005	0.0197	2.8200e-003	0.0225	0.0101	2.6000e-003	0.0127	0.0000	7.8164	7.8164	2.5300e-003	0.0000	7.8796

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0271	0.0000	0.0271	0.0149	0.0000	0.0149	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.7600e-003	0.0496	0.0296	6.0000e-005		2.4200e-003	2.4200e-003		2.2300e-003	2.2300e-003	0.0000	5.0159	5.0159	1.6200e-003	0.0000	5.0565
Total	4.7600e-003	0.0496	0.0296	6.0000e-005	0.0271	2.4200e-003	0.0295	0.0149	2.2300e-003	0.0171	0.0000	5.0159	5.0159	1.6200e-003	0.0000	5.0565

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.0000e-005	6.0000e-005	6.8000e-004	0.0000	2.1000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1803	0.1803	0.0000	0.0000	0.1804
Total	9.0000e-005	6.0000e-005	6.8000e-004	0.0000	2.1000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1803	0.1803	0.0000	0.0000	0.1804

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					8.9800e-003	0.0000	8.9800e-003	4.9400e-003	0.0000	4.9400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.7600e-003	0.0496	0.0296	6.0000e-005		2.4200e-003	2.4200e-003		2.2300e-003	2.2300e-003	0.0000	5.0159	5.0159	1.6200e-003	0.0000	5.0565

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5000e-004	1.0000e-004	1.1100e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3005	0.3005	1.0000e-005	0.0000	0.3007
Total	1.5000e-004	1.0000e-004	1.1100e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3005	0.3005	1.0000e-005	0.0000	0.3007

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1518	1.3150	1.6178	2.4100e-003		0.0723	0.0723		0.0683	0.0683	0.0000	206.1026	206.1026	0.0453	0.0000	207.2348
Total	0.1518	1.3150	1.6178	2.4100e-003		0.0723	0.0723		0.0683	0.0683	0.0000	206.1026	206.1026	0.0453	0.0000	207.2348

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.7300e-003	0.2250	0.0515	6.3000e-004	0.0152	4.8000e-004	0.0157	4.4000e-003	4.6000e-004	4.8600e-003	0.0000	60.0096	60.0096	3.2900e-003	0.0000	60.0918
Worker	0.0201	0.0138	0.1488	4.5000e-004	0.0481	3.4000e-004	0.0484	0.0128	3.2000e-004	0.0131	0.0000	40.4013	40.4013	1.0600e-003	0.0000	40.4279

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5000e-004	1.0000e-004	1.1100e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3005	0.3005	1.0000e-005	0.0000	0.3007
Total	1.5000e-004	1.0000e-004	1.1100e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3005	0.3005	1.0000e-005	0.0000	0.3007

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					6.5200e-003	0.0000	6.5200e-003	3.3500e-003	0.0000	3.3500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.8500e-003	0.0626	0.0458	9.0000e-005		2.8200e-003	2.8200e-003		2.6000e-003	2.6000e-003	0.0000	7.8164	7.8164	2.5300e-003	0.0000	7.8796
Total	5.8500e-003	0.0626	0.0458	9.0000e-005	6.5200e-003	2.8200e-003	9.3400e-003	3.3500e-003	2.6000e-003	5.9500e-003	0.0000	7.8164	7.8164	2.5300e-003	0.0000	7.8796

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.8800e-003	0.0476	0.0610	9.0000e-005		2.4400e-003	2.4400e-003		2.2500e-003	2.2500e-003	0.0000	8.1879	8.1879	2.5700e-003	0.0000	8.2523
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	4.8800e-003	0.0476	0.0610	9.0000e-005		2.4400e-003	2.4400e-003		2.2500e-003	2.2500e-003	0.0000	8.1879	8.1879	2.5700e-003	0.0000	8.2523

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	2.3000e-004	2.4600e-003	1.0000e-005	8.0000e-004	1.0000e-005	8.0000e-004	2.1000e-004	1.0000e-005	2.2000e-004	0.0000	0.6678	0.6678	2.0000e-005	0.0000	0.6682
Total	3.3000e-004	2.3000e-004	2.4600e-003	1.0000e-005	8.0000e-004	1.0000e-005	8.0000e-004	2.1000e-004	1.0000e-005	2.2000e-004	0.0000	0.6678	0.6678	2.0000e-005	0.0000	0.6682

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Total	0.0268	0.2388	0.2003	1.0800e-003	0.0633	8.2000e-004	0.0642	0.0172	7.8000e-004	0.0180	0.0000	100.4109	100.4109	4.3500e-003	0.0000	100.5197

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1518	1.3150	1.6178	2.4100e-003		0.0723	0.0723		0.0683	0.0683	0.0000	206.1024	206.1024	0.0453	0.0000	207.2345
Total	0.1518	1.3150	1.6178	2.4100e-003		0.0723	0.0723		0.0683	0.0683	0.0000	206.1024	206.1024	0.0453	0.0000	207.2345

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.7300e-003	0.2250	0.0515	6.3000e-004	0.0152	4.8000e-004	0.0157	4.4000e-003	4.6000e-004	4.8600e-003	0.0000	60.0096	60.0096	3.2900e-003	0.0000	60.0918
Worker	0.0201	0.0138	0.1488	4.5000e-004	0.0481	3.4000e-004	0.0484	0.0128	3.2000e-004	0.0131	0.0000	40.4013	40.4013	1.0600e-003	0.0000	40.4279
Total	0.0268	0.2388	0.2003	1.0800e-003	0.0633	8.2000e-004	0.0642	0.0172	7.8000e-004	0.0180	0.0000	100.4109	100.4109	4.3500e-003	0.0000	100.5197

3.6 Paving - 2022

Unmitigated Construction On-Site

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-005	1.0000e-005	1.4000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0367	0.0367	0.0000	0.0000	0.0368
Total	2.0000e-005	1.0000e-005	1.4000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0367	0.0367	0.0000	0.0000	0.0368

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.5400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0000e-004	7.0000e-004	9.1000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.1277	0.1277	1.0000e-005	0.0000	0.1279
Total	4.6400e-003	7.0000e-004	9.1000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.1277	0.1277	1.0000e-005	0.0000	0.1279

Mitigated Construction Off-Site

Off-Road	4.8800e-003	0.0476	0.0610	9.0000e-005		2.4400e-003	2.4400e-003		2.2500e-003	2.2500e-003	0.0000	8.1879	8.1879	2.5700e-003	0.0000	8.2522
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	4.8800e-003	0.0476	0.0610	9.0000e-005		2.4400e-003	2.4400e-003		2.2500e-003	2.2500e-003	0.0000	8.1879	8.1879	2.5700e-003	0.0000	8.2522

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	2.3000e-004	2.4600e-003	1.0000e-005	8.0000e-004	1.0000e-005	8.0000e-004	2.1000e-004	1.0000e-005	2.2000e-004	0.0000	0.6678	0.6678	2.0000e-005	0.0000	0.6682
Total	3.3000e-004	2.3000e-004	2.4600e-003	1.0000e-005	8.0000e-004	1.0000e-005	8.0000e-004	2.1000e-004	1.0000e-005	2.2000e-004	0.0000	0.6678	0.6678	2.0000e-005	0.0000	0.6682

3.7 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.5400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0000e-004	7.0000e-004	9.1000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.1277	0.1277	1.0000e-005	0.0000	0.1279
Total	4.6400e-003	7.0000e-004	9.1000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.1277	0.1277	1.0000e-005	0.0000	0.1279

Parking Lot	0.550000	0.250000	0.250000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Unenclosed Parking Structure	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	103.8949	103.8949	3.0100e-003	6.2000e-004	104.1556
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	103.8949	103.8949	3.0100e-003	6.2000e-004	104.1556
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

Land Use	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unenclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.9982	39.0447	41.9111	0.0711	5.0172	0.5502	5.5674	1.7985	0.5262	2.3246	0.0000	9,863.5935	9,863.5935	6.5283	0.0000	10,026.8008
Unmitigated	2.9982	39.0447	41.9111	0.0711	5.0172	0.5502	5.5674	1.7985	0.5262	2.3246	0.0000	9,863.5935	9,863.5935	6.5283	0.0000	10,026.8008

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated Annual VMT	Mitigated Annual VMT
	Weekday	Saturday	Sunday		
Parking Lot	290.00	290.00	290.00	791,700	791,700
Unenclosed Parking Structure	543.99	543.99	543.99	5,017,633	5,017,633
Total	833.99	833.99	833.99	5,809,333	5,809,333

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	100	0	0
Unenclosed Parking Structure	0.00	25.34	0.00	0.00	100.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
----------	-----	------	------	-----	------	------	-----	-----	------	------	-----	------	----

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unenclosed Parking Structure	228690	103.8949	3.0100e-003	6.2000e-004	104.1556
Total		103.8949	3.0100e-003	6.2000e-004	104.1556

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0145	0.0000	1.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.3000e-004	2.3000e-004	0.0000	0.0000	2.5000e-004
Unmitigated	0.0145	0.0000	1.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.3000e-004	2.3000e-004	0.0000	0.0000	2.5000e-004

6.2 Area by SubCategory

Unmitigated

Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
--------------	--	--------	--------	--------	--------	--	--------	--------	--	--------	--------	--------	--------	--------	--------	--------

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unenclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unenclosed Parking Structure	228690	103.8949	3.0100e-003	6.2000e-004	104.1556
Total		103.8949	3.0100e-003	6.2000e-004	104.1556

Mitigated

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unenclosed Parking Structure	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unenclosed Parking Structure	0 / 0	0.0000	0.0000	0.0000	0.0000

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	6.0600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	8.4500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	1.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.3000e-004	2.3000e-004	0.0000	0.0000	2.5000e-004
Total	0.0145	0.0000	1.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.3000e-004	2.3000e-004	0.0000	0.0000	2.5000e-004

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	6.0600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	8.4500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	1.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.3000e-004	2.3000e-004	0.0000	0.0000	2.5000e-004
Total	0.0145	0.0000	1.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.3000e-004	2.3000e-004	0.0000	0.0000	2.5000e-004

7.0 Water Detail

7.1 Mitigation Measures Water

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unenclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	------------	-------------	-------------	-----------

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

Total		0.0000	0.0000	0.0000	0.0000
--------------	--	---------------	---------------	---------------	---------------

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

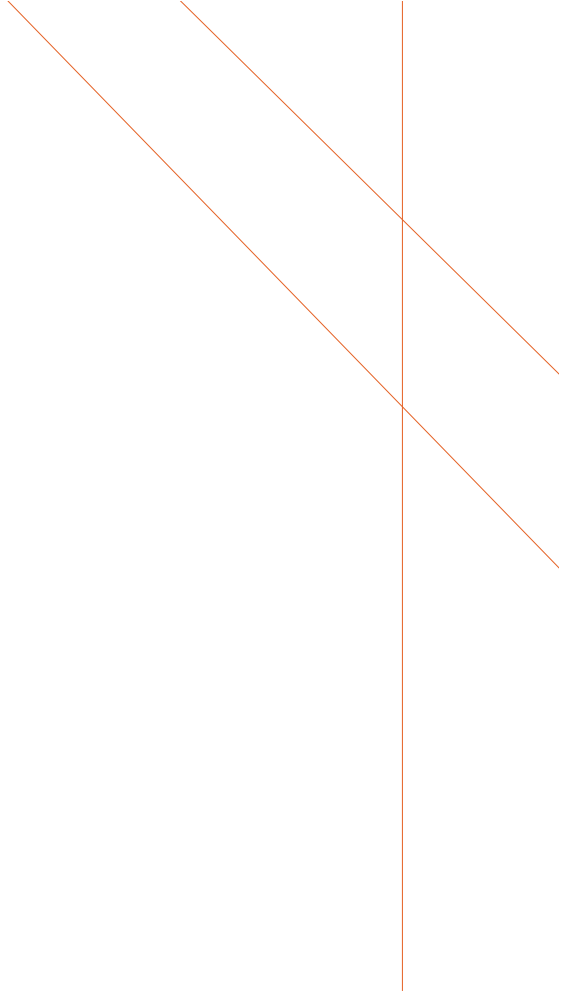
Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unenclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000



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Appendix F

**Acoustic Study for the
Pearlridge Bus Transit Center,
Pearlridge, Hawai'i**

**ACOUSTIC STUDY FOR THE
PEARLRIDGE BUS TRANSIT CENTER
PEARLRIDGE, HAWAII**

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FEBRUARY 2021

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CHAPTER I. SUMMARY

The Base Year and future traffic noise levels in the vicinity of the proposed Pearlridge Bus Transit Center Project in Pearlridge, Oahu (see Figure 1) were evaluated for their potential noise impacts and their relationship to current Hawaii State Department of Transportation, Highways Division (HDOT) noise abatement and impact thresholds. The traffic noise level increases along the major access roadways to and from the project's driveways were calculated. No significant increases in traffic noise at noise sensitive receptors are predicted to occur along streets servicing the project site as a result of project traffic following project build-out by CY 2025. Traffic noise from Kamehameha Highway is expected to continue to control background ambient noise levels in the project environs, with traffic noise levels exceeding 66 Leq (Hourly Average Sound Level) at the Rights-of-Way along this major east-west thoroughfare.

Project traffic is anticipated to add 0.1 to 0.6 Leq(h) (Equivalent or Average Hourly Noise Level) of noise along the roadways such as Kamehameha Highway, Kaonohi Street and Kanuku Street north of Kamehameha Highway. Increases in future traffic noise levels along Kanuku Street south of Kamehameha Highway are predicted to range from 0.5 Leq(h) without the project to 4.5 Leq(h) with the project. Kanuku Street south of Kamehameha Highway is located in a commercial / light industrial area, and will service the west driveway of the Pearlridge Bus Transit Center. While increases in future traffic noise with the project are relatively high along Kanuku Street south of Kamehameha Highway, baseline noise levels without the project along that roadway will continue to be relatively low, so final traffic noise levels should remain below HDOT noise thresholds. The increases in future traffic noise levels resulting from project generated traffic along the other roadways are considered to be low at noise sensitive receptors, and risks of adverse noise impacts from project traffic are considered to be low.

Bus movement noise associated with 72 total bus trips during the peak hour at the Pearlridge Bus Transit Center should not exceed background noise levels from baseline traffic at existing residences closest to the transit center. There are sufficient buffer distances between the transit center bus driveways and the closest noise sensitive residences such that adverse noise impacts from bus movement noise within the transit center should not occur.

Unavoidable, but temporary, noise impacts may occur during the construction activities for the project, and particularly during the earthwork and driveway construction activities on the project site. Because construction activities are predicted to be audible within the project site and at adjoining properties, the quality of the acoustic environment may be degraded to unacceptable levels during periods of construction. Mitigation measures to reduce construction noise to inaudible levels will not be practical in all cases, but the use of quiet equipment is recommended as a standard mitigation measure. The implementation of Hawaii State Department of Health (DOH) permit procedures and curfew periods for construction activities is also expected for this project.

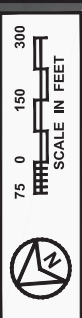
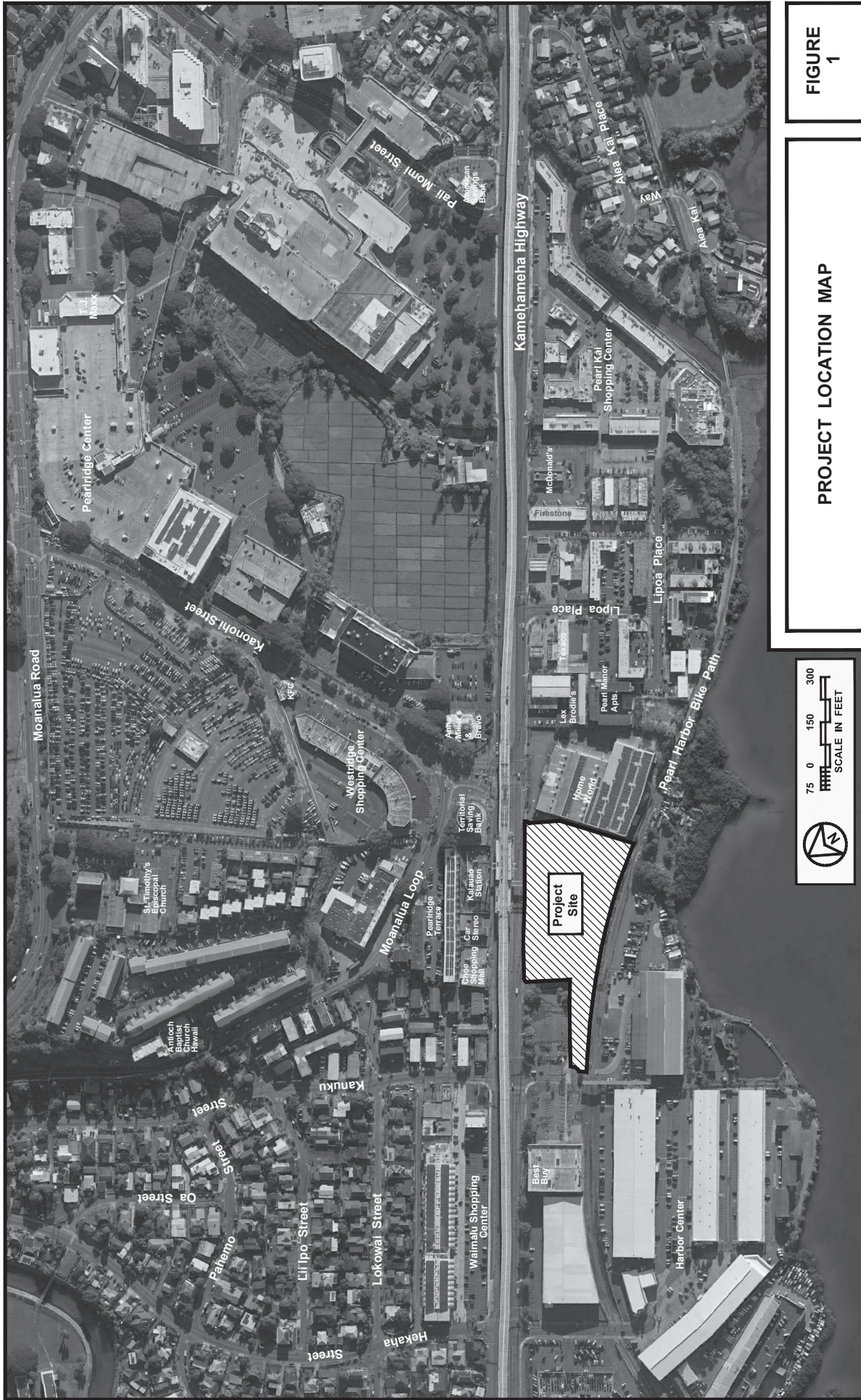


FIGURE 1

PROJECT LOCATION MAP

CHAPTER II. PURPOSE

The primary objective of this study was to describe the Base Year and future noise environment in the environs of the proposed Pearlridge Bus Transit Center Project in Pearlridge on the island of Oahu. Traffic noise level increases and impacts associated with the proposed project were to be determined along the public roadways which are expected to service the project related traffic. A specific objective was to determine future traffic noise level increases associated with both project and non-project traffic, and the potential noise impacts associated with these increases. Estimates of potential future noise impacts resulting from bus movements along the bus transit center's driveways were also made.

Assessments of possible future impacts from short term construction noise at the project sites were also included as noise study objectives. Recommendations for minimizing identified noise impacts were also to be provided as required.

CHAPTER III. NOISE DESCRIPTORS AND THEIR RELATIONSHIP TO LAND USE COMPATIBILITY

Federal agencies (such as FHWA/HUD, see Reference 1) utilize the Ldn (or DNL, Day-Night Sound Level) metric. This descriptor incorporates a 24-hour average of instantaneous A-Weighted Sound Levels as read on a standard Sound Level Meter. By definition, the minimum averaging period for the DNL descriptor is 24 hours. Additionally, sound levels which occur during the nighttime hours of 10:00 PM to 7:00 AM are increased by 10 decibels (dB) prior to computing the 24-hour average by the Ldn descriptor. A more complete list of noise descriptors is provided in Appendix B to this report.

Table 1 presents current federal noise standards and acceptability criteria for residential land uses. Land use compatibility guidelines for various levels of environmental noise as measured by the DNL descriptor system are shown in Figure 2. As a general rule, noise levels of 55 DNL or less occur in rural areas, or in areas which are removed from high volume roadways. In urbanized areas which are shielded from high volume streets, DNL levels generally range from 55 to 65 DNL, and are usually controlled by motor vehicle traffic noise. Residences which front major roadways are generally exposed to levels of 65 DNL, and as high as 75 DNL when the roadway is a high speed freeway. In the project area, traffic noise levels associated with Kaonohi Street and Kamehameha Highway are typically greater than 65 DNL along their Rights-of-Way due to the large volumes of traffic on those major thoroughfares.

The Hawaii State Department of Transportation, Highways Division (HDOT) and FHWA (see Reference 2) utilizes a noise metric which describes the average hourly traffic noise level [or Leq(h)] rather than the DNL metric. For highway noise assessments, the Leq(h) metric is typically applied during the AM or PM peak hour of commuter traffic, irrespective of sporadic occurrences of unusually high noise events from emergency sirens, vehicles with defective or loud mufflers, etc. For highway or road traffic noise, the FHWA and HDOT utilize the Leq(h) values in Table 2 as thresholds for consideration of noise mitigation measures in accordance with Reference 2. The Leq(h) values shown in Table 2 should be reduced by 1 Leq(h) unit to reflect threshold values used locally by HDOT as indicated in the note at the bottom of Table 2. In addition to the Table 2 Leq(h) threshold values used by HDOT, if at least a 15 Leq(h) increase in Base Year noise levels is predicted to occur in the future study year of the project, consideration of noise mitigation measures are required in accordance with Reference 2.

For noise sensitive residential land uses, a DNL of 65 DNL and a Leq(h) of 66 Leq(h) correspond to the threshold between "Acceptable" and "Normally Unacceptable" levels of outdoor noise exposure. Because of our open-living conditions, the predominant use of naturally ventilated dwellings, and the relatively low exterior-to-interior sound attenuation afforded by these naturally ventilated structures, an exterior noise level of 65 DNL or 66 Leq(h) does not eliminate all risks of noise

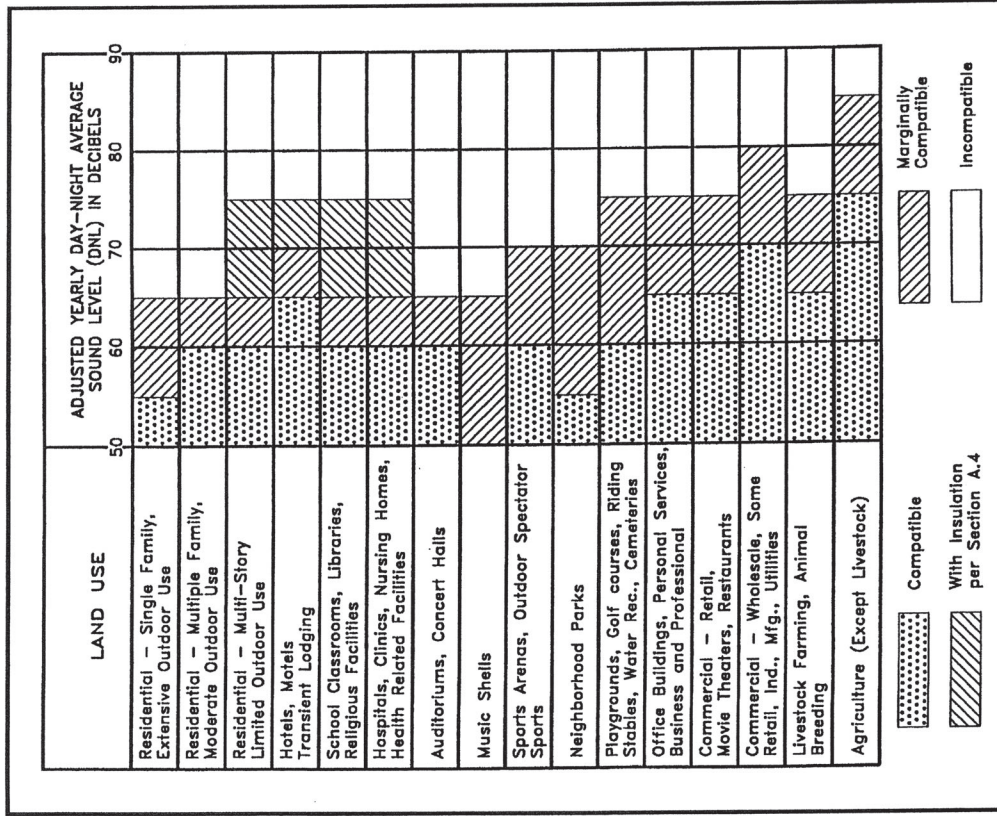
TABLE 1

EXTERIOR NOISE EXPOSURE CLASSIFICATION
(RESIDENTIAL LAND USE)

NOISE EXPOSURE CLASS	DAY-NIGHT SOUND LEVEL	EQUIVALENT SOUND LEVEL	FEDERAL (1) STANDARD
Minimal Exposure	Not Exceeding 55 DNL	Not Exceeding 55 Leq	Unconditionally Acceptable
Moderate Exposure	Above 55 DNL But Not Above 65 DNL	Above 55 Leq But Not Above 65 Leq	Acceptable(2)
Significant Exposure	Above 65 DNL But Not Above 75 DNL	Above 65 Leq But Not Above 75 Leq	Normally Unacceptable
Severe Exposure	Above 75 DNL	Above 75 Leq	Unacceptable

Notes: (1) Federal Housing Administration, Veterans Administration, Department of Defense, and Department of Transportation.

(2) FHWA uses the Leq instead of the Ldn descriptor. For planning purposes, both are equivalent if: (a) heavy trucks do not exceed 10 percent of total traffic flow in vehicles per 24 hours, and (b) traffic between 10:00 PM and 7:00 AM does not exceed 15 percent of average daily traffic flow in vehicles per 24 hours. The noise mitigation threshold used by FHWA for residences is 67 Leq.



LAND USE COMPATIBILITY WITH YEARLY AVERAGE DAY-NIGHT AVERAGE SOUND LEVEL (DNL) AT A SITE FOR BUILDINGS AS COMMONLY CONSTRUCTED.
(Source: American National Standards Institute S12.9-1998/Part 5)

FIGURE 2

TABLE 2
FHWA NOISE ABATEMENT CRITERIA
[Hourly A-Weighted Sound Level--Decibels (dBA)]

<u>ACTIVITY CATEGORY</u>	<u>LEQ (h)*</u>	<u>DESCRIPTION OF ACTIVITY CATEGORY</u>
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the areas are to continue to serve their intended purpose.
B	67 (Exterior)	Residential.
C	67 (Exterior)	Active sports areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52 (Interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, and television studios.
E	72 (Exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F. Includes undeveloped lands permitted for this activity category.
F	None	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	None	Undeveloped lands that are not permitted.

* The Hawaii State Department of Transportation, Highways Division, utilizes Noise Abatement Criteria levels which are 1 Leq unit less than the FHWA values shown.

impacts. Because of these factors, and as recommended in Reference 3, a lower level of 55 DNL is considered as the "Unconditionally Acceptable" (or "Near-Zero Risk") level of exterior noise. However, after considering the cost and feasibility of applying the lower level of 55 DNL, government agencies such as FHA/HUD, VA, and HDOT have selected 65 DNL or 66 Leq(h) as a more appropriate noise impact threshold.

For commercial, industrial, and other non-noise sensitive land uses, exterior noise levels as high as 75 DNL or 71 Leq(h) are generally considered acceptable. Exceptions to this occur when naturally ventilated office and other commercial establishments are exposed to exterior levels which exceed 65 DNL or 66 Leq(h).

On the island of Oahu, the State Department of Health (DOH) regulates noise from construction activities, through the issuance of permits for allowing excessive noise during limited time periods. State DOH noise regulations are expressed in maximum allowable property line noise limits rather than DNL or Leq(h) (see Reference 4). Although they are not directly comparable to noise criteria expressed in DNL, State DOH noise limits for residential, commercial, and industrial lands equate to approximately 55, 60, and 76 DNL, respectively. Construction activities, which are typically noisier than the State DOH noise limits, are regulated by the State DOH through the issuance of permits for allowing excessive construction noise during limited time periods (see Reference 4).

CHAPTER IV. GENERAL STUDY METHODOLOGY

Traffic and background ambient noise measurements previously obtained in the project environs during August 2011 were used to provide a "pre-COVID-19" basis for describing the Base Year noise environment in the project environs and to validate the results of the highway noise model using actual traffic counts during the traffic noise measurement periods during the AM and PM peak hours. The use of historical traffic noise and mix data was necessary due to the COVID-19 crisis and reduced traffic volumes in 2020, and the traffic disturbances during the construction of the rail guideway during 2019. Traffic noise measurements along Kamehameha Highway and Kaonohi Street were previously obtained in 2011 at Locations A and C where shown Figure 3, with their results shown in Table 3. All traffic noise measurements were obtained at ground level, and were used to validate the traffic noise model used for this study.

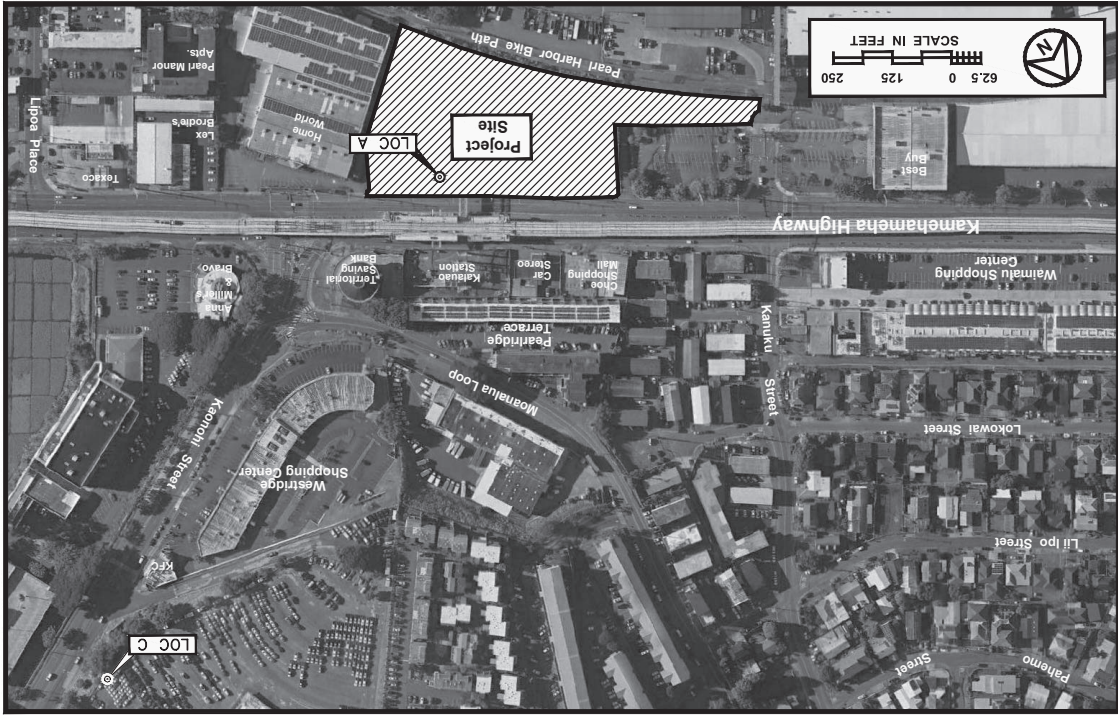
Because this project primarily involves expanded operations of The Bus as well as new operations at the project site, additional sound level measurements were obtained of bus pull-out plus passby movements at the Alapai Transit Center. Measurements of A-Weighted Maximum Sound Level (LAmax) and Sound Exposure Level (Lase) were obtained to estimate the average sound levels which can be expected from bus movements at the proposed Peairidge Bus Transit Center. Location B used for measurements at the Alapai Transit Center is shown in Figure 4.

Traffic noise calculations for the Base Year conditions in CY 2019 as well as noise predictions for CY 2025 were performed using the Federal Highway Administration (FHWA) Traffic Noise Model Version 2.5, or FHWA TNM Ver. 2.5 (Reference 5). Traffic data entered into the noise prediction model were: roadway and receiver locations; hourly traffic volumes, average vehicle speeds; estimates of traffic mix; and "Pavement" propagation loss factor. The traffic data and forecasts for the project (Reference 6) were the primary sources of data inputs to the model. Appendix C summarizes the AM and PM peak hour traffic volumes for CY 2019 and 2025 which were used to model Base Year and future traffic noise along the roadways within the project study area. For Base Year and future traffic along the roadways within the project area, it was assumed that the average noise levels, or Leq(h), during the peak traffic hour were 1 dB less than the 24-hour Ldn along those roadways. This assumption was based on the historical traffic counts from References 7 and 8, as well as the traffic noise predictions along Kamehameha Highway shown in Figures 5 and 6.

Traffic noise calculations for both the Base Year and future conditions in the project environs were developed for ground level receptors. Traffic noise levels were also calculated for future conditions with (Build Alternative) and without (No Build Alternative) the proposed project. Both Base Year and future traffic noise levels were compared to the HDOT noise abatement thresholds shown in Table 2. The forecasted changes in traffic noise levels over Base Year levels were calculated with and without the project, and noise impact risks evaluated. Any increases of 15 dBA or more above Base Year noise levels were flagged as exceeding the HDOT threshold for significant

FIGURE 3

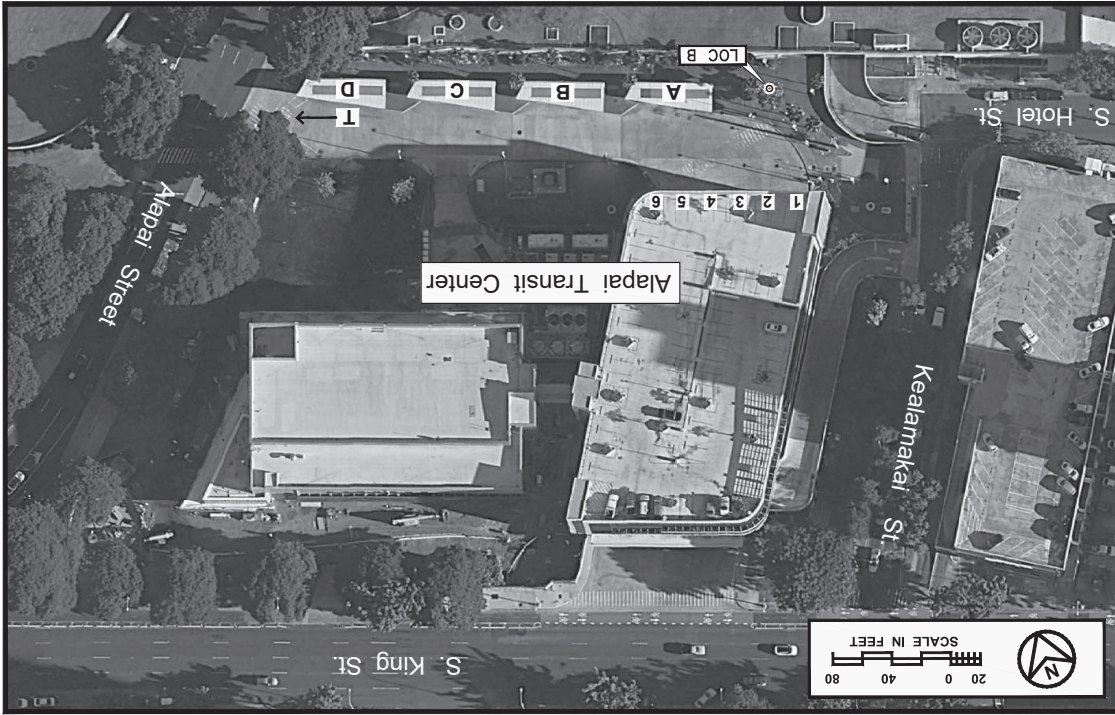
PROJECT LOCATION MAP AND 2011 NOISE MEASUREMENT LOCATIONS



TRAFFIC NOISE MEASUREMENT RESULTS

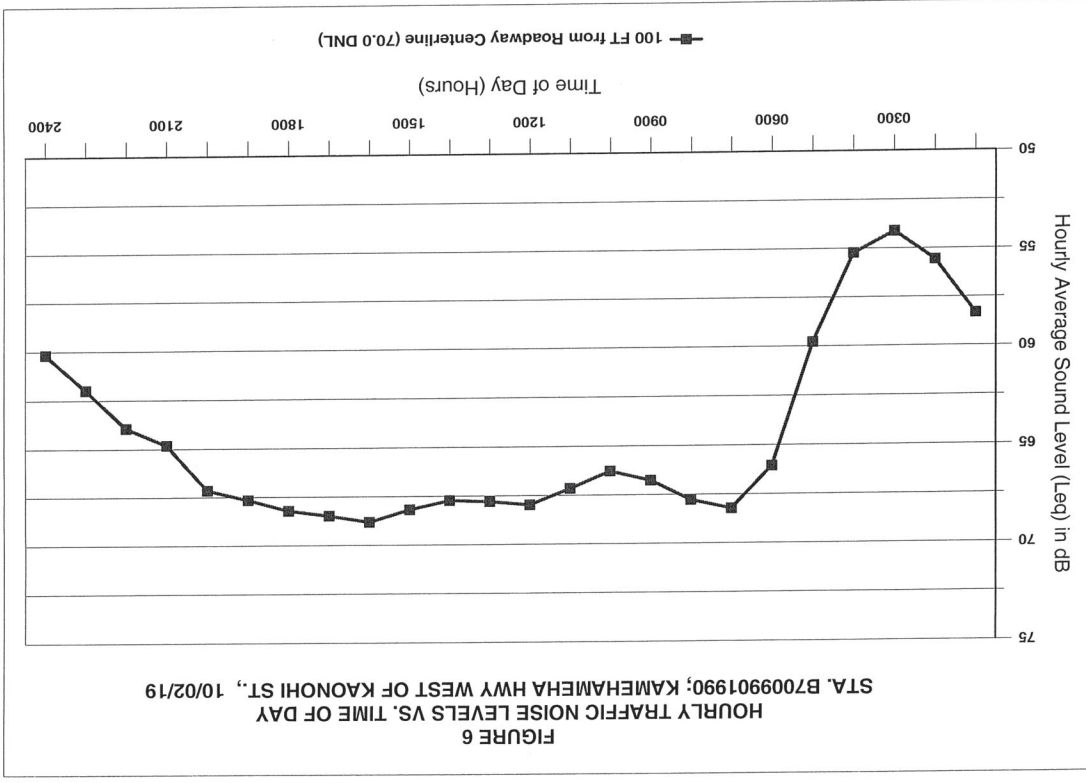
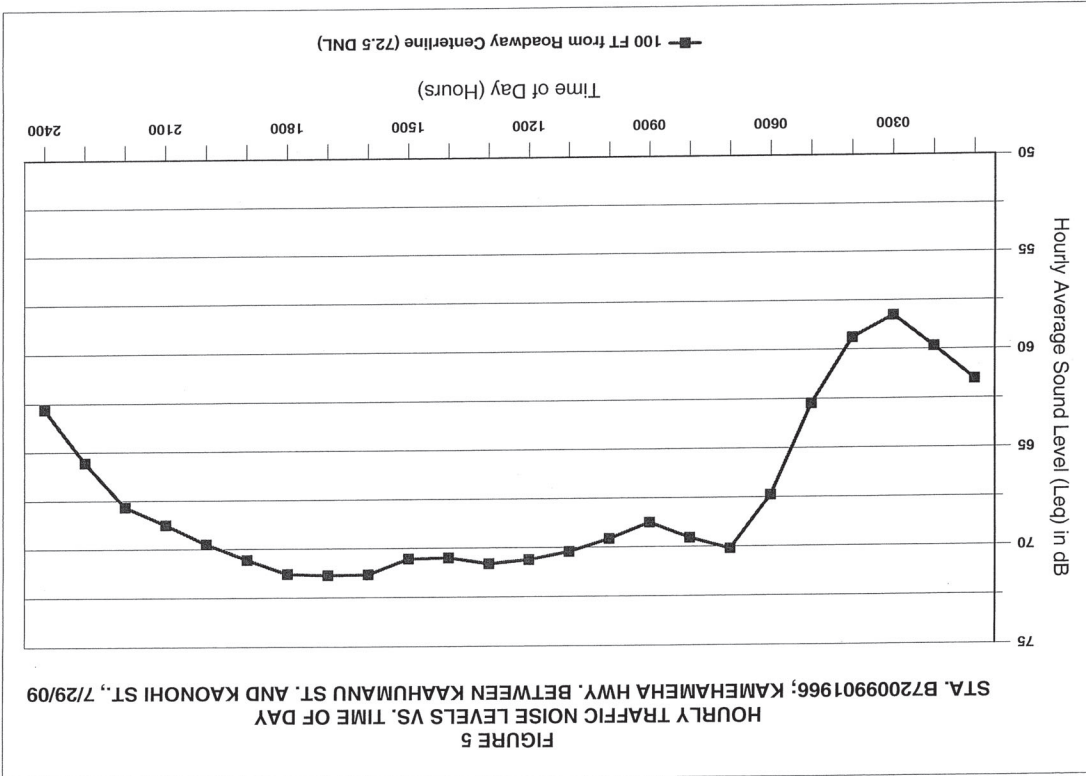
TABLE 3

LOCATION	Time of Day (HRS)	Ave. Speed (MPH)	Hourly Traffic Volume	Measured Leg (dB)	Predicted Leg (dB)
A. 100 FT makai of the center of the median of Kamehameha Hwy. (8/2/11)	0626 TO 1641	45	3,450	25	34
C. 89 FT from the center-line of Kaonoʻhi St. (8/2/11)	1322 TO 1422	45	845	5	7
C. 89 FT from the center-line of Kaonoʻhi St. (8/2/11)	0848 TO 0948	44	614	9	8
A. 100 FT makai of the center of the median of Kamehameha Hwy. (8/2/11)	0626 TO 1641	47	2,694	47	49



NOISE MEASUREMENT LOCATION B AT ALAPAI TRANSIT CENTER

FIGURE 4



increase in future traffic noise level at any Base Year or "building permitted" receptor location. The relative contributions of non-project and project traffic to the total noise levels were also calculated, and an evaluation of possible traffic noise impacts was made.

Base Year (CY 2019) traffic noise levels for conditions without rail guideway construction activities were estimated in the project environs using historical 2011 traffic volume turning movement data for the AM and PM peak hours contained in Reference 6 using an annual increase of 0.5 percent between 2011 and 2019. In addition, Base Year (2019) traffic noise levels were also estimated using actual counts in 2019 as reported in Reference 6, and as replicated in Appendix C. Base Year and 2025 (No Action) traffic mix by vehicle types and average vehicle speeds for the various roadway sections were derived from observations during the August 2011 noise monitoring periods shown in Table 3. Determinations of the period of highest hourly traffic noise level were made using the volumes in Appendix C and after reviewing the AM and PM peak hour traffic noise level measurement results in Table 3. For the purposes of this study, the PM peak hour was used to model the period with the highest traffic noise levels.

For the 2025 Action or With Project Scenario, the traffic vehicle mixes derived from the 2011 observations were first used, and the additional project-related bus movements along Kamehameha Highway and Kaonohi Street were added to the 2011 derived mix of heavy truck volumes, and an identical number of automobiles were subtracted from the total PM hourly volumes shown in Appendix C for the 2025 Build Alternative. The additional project-related bus movements in 2025 were estimated by first scaling up the 2020 scheduled number of The Bus trips along Kamehameha Highway and Kaonohi Street by 0.5 percent per year for five years, and subtracting them from the total With Project bus volumes shown in Reference 6.

The Equivalent (or Average) Hourly Sound Level [Leq(h)] noise descriptor was used to calculate the Base Year and CY 2025 traffic noise levels as required by Reference 2. Future year (2025) traffic noise levels were developed for the No Build and Build (Pearlridge Bus Transit Center) Alternatives (see Figure 1) using the future traffic assignments of Reference 6. Under the Build Alternative, it was assumed that the proposed Pearlridge Bus Transit Center would be constructed at the location shown in Figures 1 and 3. Under the No Build Alternative, it was assumed that the Pearlridge Bus Transit Center would not be provided by 2025.

Forecast baseline mixes of vehicle types (without the increased bus traffic associated with the project) were assumed to be identical for both Base Year and future traffic, and vehicle speeds for Year 2025 along the existing roadway sections were assumed to be identical to their 2011 values. Base Year and future traffic mixes during the PM peak hour were assumed to be as shown in Tables 4 and 6.

Impact Assessments and Mitigation. Because the FHWA and HDOT are the lead agencies for evaluations of traffic noise over highways and other roadways, the

current HDOT noise policy (see Reference 2) was followed in identifying potential traffic noise impacts during this noise study for the Pearlridge Bus Transit Center Project. Table 2 was used instead of Table 1 or Figure 2 to identify potential traffic noise impact thresholds for this project. Traffic noise impacts and mitigation measures addressed by Reference 2 typically apply along roadway construction and improvement projects and only within the Limits of Construction of those projects. The Pearlridge Bus Transit Center project will not include the construction of roadways used for access to and from the transit center except for access driveways located at the transit center. Therefore, the use of Limits of Construction to identify noise impacted receptors for evaluation of the possible traffic noise mitigation measures using Reference 2 was not possible.

So, despite the exclusion of these existing and permitted developments from being considered for noise mitigation measures along the roadways servicing the Pearlridge Bus Transit Center, future traffic noise predictions were developed along these roadways which are anticipated to service the transit center. One purpose of these future traffic noise predictions was to provide the amount of expected increases in future traffic noise levels associated with the proposed project. Another purpose was to provide the predicted setback distances of the critical traffic noise level contours along the existing roadways which are anticipated to service the project traffic. This is consistent with the future noise compatibility planning efforts of HDOT with land owners, developers, and government officials alongside state highways as described in Reference 2. To this end, predicted setback distances to the 66 and 71 Leq(h) traffic noise contours for the Build Alternative were provided in this noise study.

Potential noise impacts associated with bus movements within the proposed Pearlridge Bus Transit Center were examined. Potential noise impacts associated with a range of 50 to 72 bus movements within the transit center were evaluated at the closest residences on the mauka (north) side of Kamehameha Highway and on the Diamond Head (east) side of the transit center lot. The projected noise levels from on-site bus movements at these noise sensitive receptors were compared to the 66 Leq(h) HDOT noise criteria as well as to other background noise levels from Kamehameha Highway.

V. BASE YEAR ACOUSTICAL ENVIRONMENT

The major contributor to the Base Year background noise levels within the project area is traffic along Kamehameha Highway. Moderately lower traffic noise levels currently exist along Kaonohi Street, and much lower traffic noise levels currently exist along Kanuku Street. "Base Year" traffic noise levels during 2020 are probably lower than they might be if the COVID-19 crisis had not occurred. For the purposes of this study, 2019 has been designated as the Base Year, during which construction of the elevated rail guideway in the median of Kamehameha Highway was occurring. So, both peak hour traffic volumes, speed, and mix were probably colored by the construction activities during the Base Year. For these reasons, traffic noise measurements were not obtained in 2019 or 2020 for this noise study, and traffic noise measurements obtained in August 2011 at Locations A and C (shown in Figure 3) were used to validate the traffic noise model used for this current study, and to estimate Base Year and 2025 average baseline traffic speeds and vehicle mix. Reference 6 was used to describe the Base Year and 2025 AM and PM peak hour traffic volumes along the roadways in the project environs, which are tabulated in Appendix C.

Table 3 presents the comparisons of the August 2011 measured hourly traffic noise levels with their respective predicted traffic noise levels using the FHWA TNM Ver. 2.5., at the noise measurement locations shown in Figure 3. The average vehicle speeds which resulted in the best agreement between the measured hourly average noise levels and the TNM predicted noise levels using "Pavement" ground propagation factor are shown for each measurement period.

The typical hourly variations in noise levels within the project environs are controlled by motor vehicle traffic along Kamehameha Highway. Traffic noise levels tend to be lowest during the early morning hours between 2:00 and 4:00 AM, and tend to be highest during the AM and PM commuting hours as shown in Figures 5 and 6.

The Base Year traffic volumes during the PM peak hour and their noise contributions at 50, 100, and 200 feet setback distances from the centerlines of the roadways servicing the project are shown in Table 4. The corresponding setback distances from the roadways' centerlines to their 66 and 71 Leq(h) traffic noise contours for ground level receptors are shown in Table 5. Based on the results shown in Tables 4 and 5, as well as the measured sound levels at the various locations (see Table 3), it was concluded that Base Year background noise levels in the project environs exceeded 66 Leq(h) along the Rights-of-Way of Kamehameha Highway and Kaonohi Street north of Kamehameha Highway. The Base Year 71 Leq(h) contours did not extend beyond the Rights-of-Way of Kaonohi Street and Kanuku Street.

Because the DNL metric value for traffic noise in the area is approximately 1 unit greater than the PM peak hour Leq(h) metric value, 65 DNL was also exceeded during the Base Year along the Rights-of-Way of Kamehameha Highway and Kaonohi Street.

**BASE YEAR (CY 2019) TRAFFIC VOLUMES AND NOISE LEVELS
ALONG ROADWAYS IN PROJECT AREA
(PM PEAK HOUR)**

LOCATION	SPEED (MPH)	TOTAL YPH	AUTOS	M TRUCKS	H TRUCKS	50' Leq	100' Leq	200' Leq
Kamehameha Hwy, Between Pali Momi & Kaonohi St	46	2,526	2,361	30	30	75.9	70.8	67.1
Kamehameha Hwy, Between Kaonohi & Kanuku St	46	2,526	2,389	30	30	75.6	70.5	66.8
Kamehameha Hwy, West of Kanuku St	46	2,486	2,353	30	30	75.4	70.4	66.7
Kaonohi St, North of Kamehameha Hwy	45	659	609	7	7	68.5	64.7	61.2
Kanuku St, North of Kamehameha Hwy	35	181	170	1	10	59.5	56.1	52.7
Kanuku St, South of Kamehameha Hwy	25	179	168	2	9	57.1	53.9	50.5

The 65 DNL threshold should not have been exceeded from Kanuku Street traffic noise during the Base Year.

At receptor locations which are shielded from roadway noise, background ambient noise levels are lower due to the noise shielding effects of highway noise barriers and/or surrounding buildings. Noise reductions of 5 to 20 dBA can be expected from these noise shielding effects. Background ambient noise levels at these locations can range from 55 to 65 Ldn, and are controlled by nearby mechanical equipment or nearby human activities rather than by traffic noise. At receptor locations which are more elevated above ground level, the noise shielding effects from noise barriers and surrounding buildings can diminish as the visual field of views to nearby roadways (and resulting noise levels) increase with increasing elevations. Under these conditions with unobstructed field of views, the traffic noise level contributions and setback distances will tend to approach those for the ground level receptors shown in Tables 4 and 5.

TABLE 5
BASE YEAR AND CY 2025 DISTANCES TO 66
AND 71 LEQ CONTOURS

STREET SECTION	66 LEQ SETBACK (FT)		71 LEQ SETBACK (FT)	
	BASE YR.	CY 2025	BASE YR.	CY 2025
Kamehameha Hwy. Between Pali Momi & Kaonohi St.	246	344	97	135
Kamehameha Hwy. Between Kaonohi & Kanuku St.	232	351	93	138
Kamehameha Hwy. West of Kanuku St.	228	319	92	125
Kaonohi St. North of Kamehameha Hwy.	79	106	32	42
Kanuku St. North of Kamehameha Hwy.	13	19	5	7
Kanuku St. South of Kamehameha Hwy.	7	21	2	7

Notes:

- (1) All setback distances are from the roadways' centerlines.
- (2) See TABLES 4 and 6 for traffic volume, speed, and mix assumptions.
- (3) Setback distances are for ground level receptors.
- (4) "Pavement" conditions assumed along all roadways.

CHAPTER VI. FUTURE NOISE ENVIRONMENT

Predictions of future traffic noise levels were made using the traffic volume assignments of Reference 6 for CY 2025 with and without the proposed project. The future projections of non-project and project traffic volumes for the No Build and Build Alternatives are shown in Appendix C.

Table 6 contains the CY 2025 traffic volumes and noise levels at 50, 100, and 200 feet from the roadways' centerlines for the Build Alternative during the PM peak hour. Table 5 contains the setback distances to the 66 and 71 Leq contours for the Build Alternative in CY 2025. Future average vehicle speeds along all roadways were assumed to be identical to those used for CY 2019. Baseline CY 2025 vehicle mixes were identical to CY 2019. For forecast conditions with the project, the additional bus volumes generated by the project were added to the baseline CY 2025 traffic, and to maintain the total traffic volumes for the Build Alternative as contained in Reference 6 and Appendix C, equal numbers of automobiles were deducted from the PM peak hour traffic volumes. The additional numbers of bus trips along Kamehameha Highway and Kaonohi Street generated by the project were determined by first using the CY 2020 schedules for The Bus along those two roadways and scaling them up at 0.5 percent per year to CY 2025, and subtracting the CY 2025 baseline bus trips from the total bus trips with the project as contained in Reference 6.

In CY 2025, the dominant traffic noise sources in the project area will continue to be traffic along Kamehameha Highway. Base Year traffic noise levels are expected to increase by approximately 0.5 to 2.0 dB along the existing roadways in the project area by CY 2025 due to non-project traffic (see Table 7). Project traffic noise will add 0.1 to 4.5 dB to the noise level increases resulting from non-project traffic. The largest increase in traffic noise levels associated with project traffic are expected to occur along Kanuku Street south of Kamehameha Highway, which will service bus traffic at the west entrance of the Pearlridge Bus Transit Center. The increases resulting from project traffic along Kanuku Street at the transit center's west driveway should not generate adverse noise impacts because the baseline traffic noise levels are relatively low and because commercial and light industrial establishments and parking spaces occupy the lots fronting that street.

In Table 7, comparisons of the non-project traffic increases from Base Year 2019 to 2025 were made for Base Year conditions during construction of the rail guideway as well as for hypothetical 2019 traffic volumes derived by scaling up 2011 traffic volumes by 0.5 percent per year from 2011 to 2019. Under the hypothetical conditions shown in Table 7, the hypothetical 2019 traffic volumes and resulting noise levels would be higher than those volumes shown in Appendix C and those noise levels shown in Table 4, resulting in lower overall increases in non-project traffic noise levels between 2019 and 2025. Noise level contributions in 2025 from project traffic would remain the same for both of the Base Year situations shown in Table 7. Except for the much larger project related increases in traffic noise levels along Kanuku Street south of

**FUTURE (CY 2025) TRAFFIC VOLUMES AND NOISE LEVELS
ALONG ROADWAYS IN PROJECT AREA
(PM PEAK HOUR, BUILD)**

LOCATION	SPEED (MPH)	TOTAL VPH	AUTOS	M TRUCKS	H TRUCKS	50' Leq	100' Leq	200' Leq
Kamehameha Hwy. Between Pali Momi & Kaonohi St	46	5,047	4,912	61	74	72.6	72.7	68.9
Kamehameha Hwy. Between Kaonohi & Kanuku St.	46	5,072	4,906	61	105	77.7	77.7	69.0
Kamehameha Hwy. West of Kanuku St.	46	4,565	4,437	55	73	77.2	77.2	68.5
Kaonohi St. North of Kamehameha Hwy.	45	1,260	1,215	13	32	70.1	70.1	66.3
Kanuku St. North of Kamehameha Hwy.	35	415	406	3	6	61.4	58.1	54.7
Kanuku St. South of Kamehameha Hwy.	25	434	373	5	56	62.1	58.9	55.5

Kamehameha Highway, the other project related increases in traffic noise levels would have been more similar to the non-project traffic noise level increases under the hypothetical Base Year traffic volumes used under Note 2 in Table 7.

Future traffic noise levels along Kamehameha Highway will continue to exceed the 66 Leq(h) HDOT criteria for residences along the Right-of-Ways and for those more distant residences whose lines-of-sight are not blocked from the highway by intervening buildings. Future traffic noise levels will also exceed the 71 Leq(h) HDOT criteria for restaurants and commercial establishments fronting the highway. These conditions are expected to remain with or without the project by 2025.

TABLE 7

**CALCULATIONS OF PROJECT AND NON-PROJECT
TRAFFIC NOISE CONTRIBUTIONS (CY 2025)
(PM PEAK HOUR LEQ OR DNL)**

STREET SECTION	NOISE LEVEL INCREASE DUE TO:	
	NON-PROJECT TRAFFIC (1)	PROJECT TRAFFIC
Kamehameha Hwy. Between Pali Momi & Kaonohi :	1.70	0.10
Kamehameha Hwy. Between Kaonohi & Kanuku St.	2.00	0.20
Kamehameha Hwy. West of Kanuku St.	1.70	0.10
Kaonohi St. North of Kamehameha Hwy.	1.00	0.60
Kanuku St. North of Kamehameha Hwy.	1.40	0.60
Kanuku St. South of Kamehameha Hwy.	0.50	4.50

STREET SECTION	NOISE LEVEL INCREASE DUE TO:	
	NON-PROJECT TRAFFIC (2)	PROJECT TRAFFIC
Kamehameha Hwy. Between Pali Momi & Kaonohi :	0.13	0.10
Kamehameha Hwy. Between Kaonohi & Kanuku St.	0.00	0.20
Kamehameha Hwy. West of Kanuku St.	-0.01	0.10
Kaonohi St. North of Kamehameha Hwy.	0.20	0.60
Kanuku St. North of Kamehameha Hwy.	0.54	0.60
Kanuku St. South of Kamehameha Hwy.	0.59	4.50

NOTES:

- (1) If Base Year traffic volumes of CY 2019 during rail guideway construction used.
- (2) If Base Year traffic volumes of CY 2011 escalated by 0.5% per year to CY 2019 used.

CHAPTER VII. DISCUSSION OF PROJECT-RELATED NOISE IMPACTS AND POSSIBLE MITIGATION MEASURES

Traffic Noise. Noise impacts from project related traffic along the major roadways which are expected to service the project traffic are not expected due to the very low noise level increases resulting from project traffic along Kamehameha Highway and Kaonohi Street. The increases in future traffic noise levels are 0.6 Leq(h) or less, which will be difficult to perceive. Along Kanuku Street north and south of Kamehameha Highway, the Rights-of-Way widths are sufficient to contain the 66 Leq(h) noise contours in 2025 with or without the project.

Bus Movement Noise Within the Pearlridge Bus Transit Center. While movements in and out of the Pearlridge Bus Transit Center are expected to total 72 trips during the AM or PM peak hour, the majority (69 percent) of the trips are expected to occur along Kanuku Street south of Kamehameha Highway. A concentration of the noise associated with bus movements is anticipated to occur along the 300 foot long, east/west driveways at the southwest corner of the Pearlridge Bus Transit Center.

In order to estimate the bus movement noise within the Pearlridge Bus Transit Center, noise measurements were obtained at Alapai Transit Center at Location B where shown in Figure 4 during bus movements from Stalls #1 through #6 to The Bus stops at Locations A through D or exiting to Alapai Street. Closest point of approach (or CPA) distances between the buses and Location B ranged from 33 to 84 feet as shown in Table 8. Based on the noise measurements results shown in Table 8, the average Maximum A-Weighted Sound Level (L_{Max}) of the bus passby events was 76 dBA at 50 feet, and the A-Weighted Sound Exposure Level (L_{Ase}) of the bus passby events was 82 dBA at 50 feet. These measurement results were used to estimate bus movement noise level emissions from the Pearlridge Bus Transit Center to the closest noise sensitive receptors across Kamehameha Highway and beyond the Home World building to the east.

The closest noise sensitive receptors to the 300 foot long east/west driveway at Kanuku Street are multifamily residences at the northeast corner of the Kanuku Street and Kamehameha Highway intersection. At a distance of approximately 300 feet from the east/west driveway located on the Pearlridge Bus Transit Center, predicted bus movement noise during the 2025 peak hour was 55.6 Leq(h) at these multifamily residences, where PM peak hour traffic noise levels from Kamehameha Highway will exceed 70 Leq(h). The assumptions used to derive the 55.6 Leq(h) estimate are shown in Table 9.

The Pearlridge Terrace apartments are approximately 360 feet from the center of the oval driveway near the center of the Pearlridge Bus Transit Center. Assuming a worst case maximum of 72 bus trips around the oval driveway, the closest units of the Pearlridge Terrace could be exposed to 56 to 57 Leq(h) from bus trips around the oval

**TABLE 8
RESULTS OF BUS MOVEMENT NOISE MEASUREMENTS
ALAPAI TRANSIT CENTER (JULY 29, 2020)**

Time	Bus Pull-Out Stall						CPA Dist. (ft)	Bus Stop or T (Depart)							Event Description	
	#1	#2	#3	#4	#5	#6		A	B	C	D	T	L _{Max}	L _{Ase}		
1453:41		X					45.0							71.2	78.7	
1500:26		X					45.0			X				73.0	81.1	
1501:42	X						45.0							84.6	82.2	Air Brake Noise
1520:40	X						36.0	X						73.6	80.2	
1521:05								X						79.0	83.9	Idle At Stop A with Brake Release
1521:21								X						77.4	82.1	Pull-Out from Stop A
1521:55			X				42.0			X				75.1	83.1	
1529:33	X						48.0				X			75.8	81.3	Drive Thru from King St.
1529:41	X						42.0				X			77.8	84.0	Drive Thru from King St.
1530:31	X						45.0		X					73.5	79.6	
1530:42								X						72.7	76.8	Pull-Out from Stop B
1538:55	X						45.0				X			75.5	82.7	Drive Thru from King St.
1539:11					X		51.0			X				75.9	81.5	Drive Thru from King St.
1539:24										X				71.1	75.0	Pull-Out from Stop D
1543:46	X						36.0	X						77.1	81.2	Drive Thru from King St. to A
1543:52								X						76.2	82.0	Pull-Out from Stop A
1547:18			X				48.0				X			82.3	81.3	Braking from Buses at #4 & #6
1549:42		X					36.0			X				73.4	79.7	
1550:20	X						48.0				X			73.4	79.0	Drive Thru from King St. to B
1553:00	X						36.0	X						74.4	83.7	
1553:12							42.0		X					79.5	83.1	Pull-Out from Stop A
1554:04	X						42.0		X					76.3	83.1	
1559:35	X						42.0			X				78.8	86.2	
1600:39			X								X			74.3	86.2	Bus At #3 with High RPM
1601:18	X						42.0				X			83.5	88.1	
1604:54			X				45.0			X				76.1	82.1	
1605:06							45.0			X				76.0	82.3	Pull-Out from Stop B
1608:31	X						48.0				X			81.3	82.1	Drive Thru from King St.
1612:26	X						48.0				X			75.3	84.6	
1613:10		X					36.0	X						78.1	87.3	
1614:12			X				72.0		X					73.6	84.4	Two Events
1615:52				X			84.0			X				74.6	81.1	Drive Thru from King St. to D
1618:56					X		84.0				X			72.6	80.5	
1619:46					X		75.0			X				75.5	84.4	
1620:00	X						78.0			X				73.2	82.1	
1620:31					X		33.0			X				73.4	81.1	
1621:45	X						69.0							80.1	84.9	Bus Pull Out from A
1622:10														71.3	82.4	Yelling by Lady later
1624:25			X							X				78.0	80.7	

Notes:
a. SEL = A-Weighted Sound Exposure Level or L_{Ase} (in dBA)
b. L_{Max} = Maximum A-Weighted Sound Level (in dBA)

**TABLE 9
ESTIMATED PEAK HOUR LEQ(H) NOISE LEVELS ASSOCIATED WITH
PEARLRIDGE BUS TRANSIT CENTER**

Vehicle	Source of Bus Noise	Passby Peak Hour Lase @ 50'	In/Out Trips Peak Hour Leg(h) @ 50'	Peak Hour Peak Hour Leg(h) @ 300'	Peak Hour Peak Hour Leg(h) @ 400'	Peak Hour Peak Hour Leg(h) @ 640'
Bus	300 Ft Long East/West Driveway	82.0	50	63.4	55.6	52.4
Bus	Central Location At Bus Transit Center	82.0	72	65.0	57.2	53.9

driveway (see Table 9). Similar worst case noise levels could also occur at the Kanuku Street multifamily residences. Because of the generally greater distances of 420+ feet of the PearlrIDGE Terrace units from the 300 foot long east/west driveway, onsite bus noise from the 300 foot east/west driveway should be lower than the 55.6 Leq(h) predicted at the Kanuku Street residences. Overall, peak hour noise from onsite bus movements should be higher at the Kanuku Street residences than at the PearlrIDGE Terrace apartments.

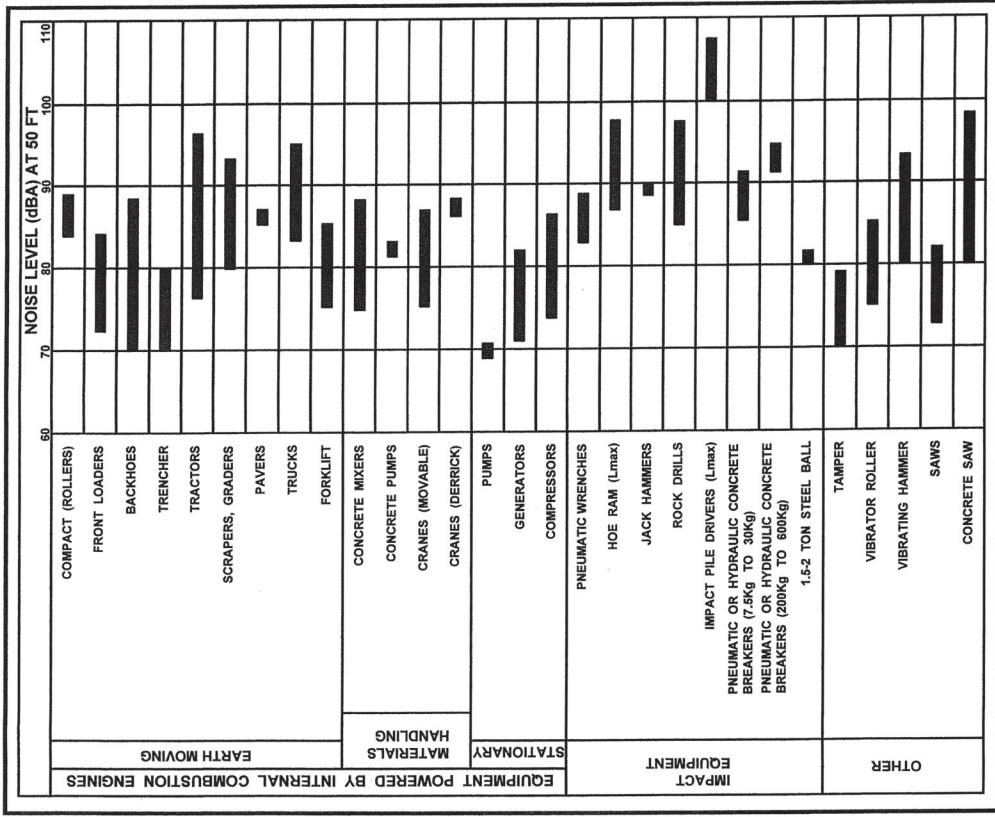
The closest noise sensitive receptors to the east are located in the Pearl Manor Apartments high rise building approximately 640 feet from the central bus loop driveway on the PearlrIDGE Bus Transit Center site. Predicted noise level from the worst case total of 72 bus movements during the peak hour at 640 feet was 53.9 Leq(h) as shown in Table 9. Predicted background noise level from Kamehameha Highway at the upper floors of this apartment building was 61 Leq(h).

Based on these measurement results and predictions of bus movement noise levels originating at the PearlrIDGE Bus Transit Center, it was concluded that adverse noise impacts should not occur at the closest noise sensitive receptors surrounding the transit center.

General Construction Noise. Audible construction noise will probably be unavoidable during the entire project construction period. The total time period for earthwork and construction is not known. It is anticipated that actual construction work will be moving from one location on the project site to another during that period. Actual length of exposure to construction noise at any receptor location will probably be less than the total construction period for the entire project. Figure 7 depicts the range of noise levels of various types of construction equipment when measured at 50 FT distance from the equipment. Typical levels of exterior noise from construction activity (excluding pile driving activity) at various distances from the job site are shown in Figure 8.

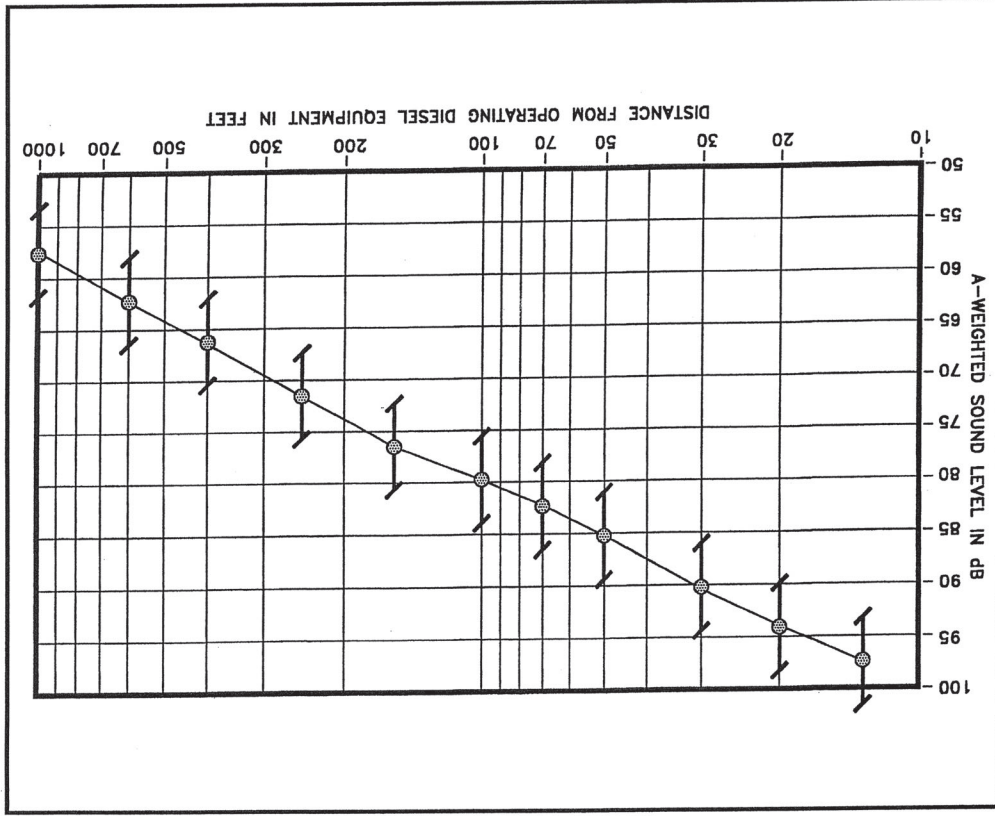
Figure 8 is useful for predicting exterior noise levels at short distances (within 500 FT) from the work when visual line of sight exists between the construction equipment and the receptor. Direct line-of-sight distances from the construction equipment to existing multifamily buildings across Kamehameha Highway will range from 160 FT to 600 FT, with corresponding average noise levels of 62 to 77 dBA (plus or minus 5 dBA). For receptors along a cross-street, the construction noise level vs. distance curve of Figure 8 should be reduced by approximately 8 dBA when the work is occurring at the intersection with the cross street, and should be reduced by 15 dBA when work is occurring at least 100 FT from the intersection (and the visual line-of-sight is blocked by intervening buildings). Typical levels of construction noise inside naturally ventilated and air conditioned structures are approximately 10 and 20 dB less, respectively, than the levels shown in Figure 8.

Construction noise impacts are not expected to be in the "health and welfare"



RANGES OF CONSTRUCTION EQUIPMENT NOISE LEVELS

FIGURE 7



ANTICIPATED RANGE OF CONSTRUCTION NOISE LEVELS VS. DISTANCE

FIGURE 8

category due to the temporary nature of the work, and due to the administrative controls available for regulation of construction noise. The availability of closure and air conditioning at the closest commercial building east of the project site should be beneficial in mitigating the very high levels of construction noise expected at very short buffer distances. Instead, these impacts will probably be limited to the temporary degradation of the quality of the acoustic environment in the immediate vicinity of the project site.

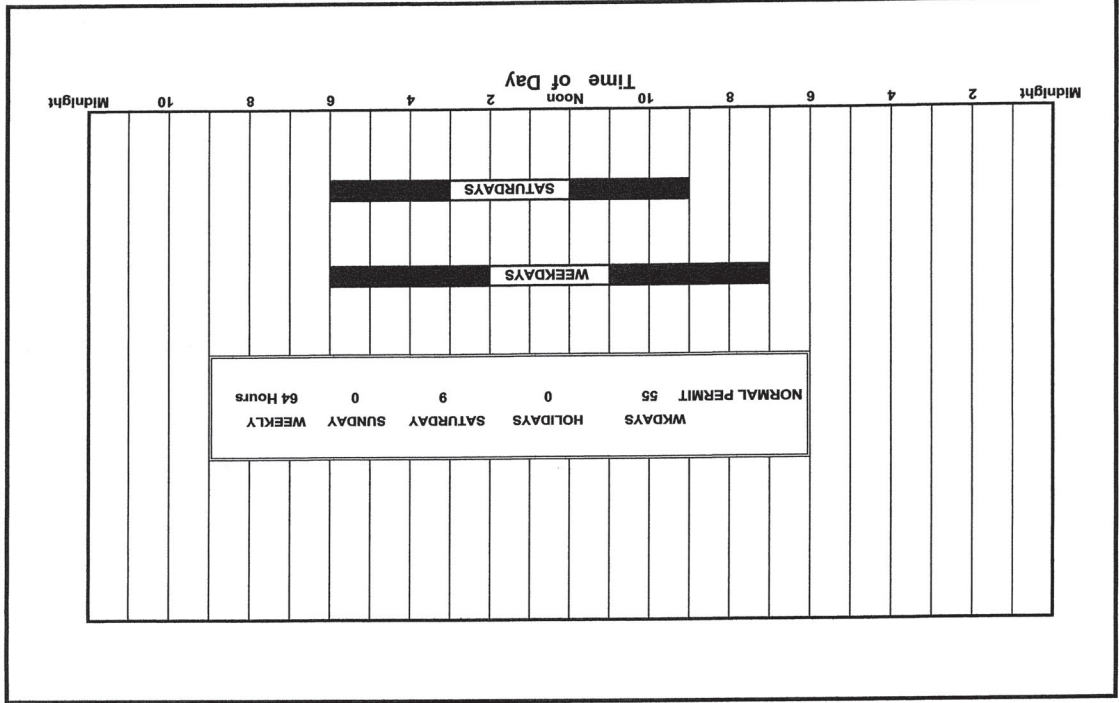
Mitigation of construction noise to inaudible levels will not be practical in all cases due to the intensity of construction noise sources (80 to 90+ dB at 50 FT distance), and due to the exterior nature of the work (excavation, grading, trenching, concrete pouring, hammering, etc.). The use of properly muffled construction equipment should be required on the job site.

Severe noise impacts are not expected to occur inside air conditioned residences which are beyond 400 FT from the project construction sites. Inside naturally ventilated structures, interior noise levels (with windows or doors opened) are estimated to range between 57 dBA and 54 dBA at 400 FT to 500 FT distances from the construction sites. Closure of all doors and windows facing the construction site would generally reduce interior noise levels by an additional 5 to 10 dBA.

The incorporation of State Department of Health construction noise limits and curfew times, which are applicable throughout the State of Hawaii (Reference 4), is another noise mitigation measure which is normally applied to construction activities. Figure 9 depicts the normally permitted hours of construction. Noisy construction activities are not normally allowed on Sundays and holidays, during the early morning, and during the late evening and nighttime periods under the DOH permit procedures.

FIGURE 9

AVAILABLE WORK HOURS UNDER DOH PERMIT PROCEDURES FOR CONSTRUCTION NOISE



APPENDIX A. REFERENCES

- (1) "Environmental Criteria and Standards, Noise Abatement and Control, 24 CFR, Part 51, Subpart B;" U.S. Department of Housing and Urban Development; July 12, 1979.
- (2) "Highway Noise Policy and Abatement Guidelines;" State of Hawaii, Department of Transportation, Highways Division and U.S. Department of Transportation, Federal Highway Administration; April 18, 2016.
- (3) "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety;" Environmental Protection Agency (EPA 550/9-74-004); March 1974.
- (4) "Title 11, Administrative Rules, Chapter 46, Community Noise Control;" Hawaii State Department of Health; September 23, 1996.
- (5) "FHWA Traffic Noise Model User's Guide;" FHWA-PD-96-009, Federal Highway Administration; Washington, D.C.; January 1998 and Version 2.5 Upgrade (April 14, 2004).
- (6) "Mobility Analysis Report (MAR) for the Proposed Pearlridge Bus Transit Center, Fehr & Peers, July 17, 2020.
- (7) 24-Hour Traffic Counts At Station B72009901966, Kamehameha Highway Between Kaahumanu Street and Kaonohi Street; Hawaii State Department of Transportation, Highways Division; July 29, 2009.
- (8) Hourly Traffic Counts At Station B7009901990, Kamehameha Highway West of Kaonohi Street; Hawaii State Department of Transportation, Highways Division; October 2, 2019.

APPENDIX B

EXCERPTS FROM EPA'S ACOUSTIC TERMINOLOGY GUIDE

Descriptor_Symbol_Usage

The recommended symbols for the commonly used acoustic descriptors based on A-weighting are contained in Table I. As most acoustic criteria and standards used by EPA are derived from the A-weighted sound level, almost all descriptor symbol usage guidance is contained in Table I.

Since acoustic nomenclature includes weighting networks other than "A" and measurements other than pressure, an expansion of Table I was developed (Table II). The groups in the ANSI descriptor-symbol scheme which is structured into three stages. The first stage indicates the type of descriptor (i.e., based upon the logarithm of a ratio), the second stage indicates the type of quantity (power, pressure, or sound exposure), and the third stage indicates the weighting network (A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, AA, AB, AC, AD, AE, AF, AG, AH, AI, AJ, AK, AL, AM, AN, AO, AP, AQ, AR, AS, AT, AU, AV, AW, AX, AY, AZ, BA, BB, BC, BD, BE, BF, BG, BH, BI, BJ, BK, BL, BM, BN, BO, BP, BQ, BR, BS, BT, BU, BV, BW, BX, BY, BZ, CA, CB, CC, CD, CE, CF, CG, CH, CI, CJ, CK, CL, CM, CN, CO, CP, CQ, CR, CS, CT, CU, CV, CW, CX, CY, CZ, DA, DB, DC, DD, DE, DF, DG, DH, DI, DJ, DK, DL, DM, DN, DO, DP, DQ, DR, DS, DT, DU, DV, DW, DX, DY, DZ, EA, EB, EC, ED, EE, EF, EG, EH, EI, EJ, EK, EL, EM, EN, EO, EP, EQ, ER, ES, ET, EU, EV, EW, EX, EY, EZ, FA, FB, FC, FD, FE, FF, FG, FH, FI, FJ, FK, FL, FM, FN, FO, FP, FQ, FR, FS, FT, FU, FV, FW, FX, FY, FZ, GA, GB, GC, GD, GE, GF, GG, GH, GI, GJ, GK, GL, GM, GN, GO, GP, GQ, GR, GS, GT, GU, GV, GW, GX, GY, GZ, HA, HB, HC, HD, HE, HF, HG, HH, HI, HJ, HK, HL, HM, HN, HO, HP, HQ, HR, HS, HT, HU, HV, HW, HX, HY, HZ, IA, IB, IC, ID, IE, IF, IG, IH, II, IJ, IK, IL, IM, IN, IO, IP, IQ, IR, IS, IT, IU, IV, IW, IX, IY, IZ, JA, JB, JC, JD, JE, JF, JG, JH, JI, JJ, JK, JL, JM, JN, JO, JP, JQ, JR, JS, JT, JU, JV, JW, JX, JY, JZ, KA, KB, KC, KD, KE, KF, KG, KH, KI, KJ, KK, KL, KM, KN, KO, KP, KQ, KR, KS, KT, KU, KV, KW, KX, KY, KZ, LA, LB, LC, LD, LE, LF, LG, LH, LI, LJ, LK, LL, LM, LN, LO, LP, LQ, LR, LS, LT, LU, LV, LW, LX, LY, LZ, MA, MB, MC, MD, ME, MF, MG, MH, MI, MJ, MK, ML, MN, MO, MP, MQ, MR, MS, MT, MU, MV, MW, MX, MY, MZ, NA, NB, NC, ND, NE, NF, NG, NH, NI, NJ, NK, NL, NM, NO, NP, NQ, NR, NS, NT, NU, NV, NW, NX, NY, NZ, OA, OB, OC, OD, OE, OF, OG, OH, OI, OJ, OK, OL, OM, ON, OO, OP, OQ, OR, OS, OT, OU, OV, OW, OX, OY, OZ, PA, PB, PC, PD, PE, PF, PG, PH, PI, PJ, PK, PL, PM, PN, PO, PP, PQ, PR, PS, PT, PU, PV, PW, PX, PY, PZ, QA, QB, QC, QD, QE, QF, QG, QH, QI, QJ, QK, QL, QM, QN, QO, QP, QQ, QR, QS, QT, QU, QV, QW, QX, QY, QZ, RA, RB, RC, RD, RE, RF, RG, RH, RI, RJ, RK, RL, RM, RN, RO, RP, RQ, RR, RS, RT, RU, RV, RW, RX, RY, RZ, SA, SB, SC, SD, SE, SF, SG, SH, SI, SJ, SK, SL, SM, SN, SO, SP, SQ, SR, SS, ST, SU, SV, SW, SX, SY, SZ, TA, TB, TC, TD, TE, TF, TG, TH, TI, TJ, TK, TL, TM, TN, TO, TP, TQ, TR, TS, TT, TU, TV, TW, TX, TY, TZ, UA, UB, UC, UD, UE, UF, UG, UH, UI, UJ, UK, UL, UM, UN, UO, UP, UQ, UR, US, UT, UV, UW, UX, UY, UZ, VA, VB, VC, VD, VE, VF, VG, VH, VI, VJ, VK, VL, VM, VN, VO, VP, VQ, VR, VS, VT, VU, VV, VW, VX, VY, VZ, WA, WB, WC, WD, WE, WF, WG, WH, WI, WJ, WK, WL, WM, WN, WO, WP, WQ, WR, WS, WT, WU, WV, WW, WX, WY, WZ, XA, XB, XC, XD, XE, XF, XG, XH, XI, XJ, XK, XL, XM, XN, XO, XP, XQ, XR, XS, XT, XU, XV, XW, XX, XY, XZ, YA, YB, YC, YD, YE, YF, YG, YH, YI, YJ, YK, YL, YM, YN, YO, YP, YQ, YR, YS, YT, YU, YV, YW, YX, YY, YZ, ZA, ZB, ZC, ZD, ZE, ZF, ZG, ZH, ZI, ZJ, ZK, ZL, ZM, ZN, ZO, ZP, ZQ, ZR, ZS, ZT, ZU, ZV, ZW, ZX, ZY, ZZ.

Although not included in the tables, it is also recommended that "Lpnt" and "Lepn" be used as symbols for perceived noise levels and effective perceived noise levels, respectively.

It is recommended that in their initial use within a report, such terms be written in full, rather than abbreviated. An example of preferred usage is as follows:

The A-weighted sound level (LA) was measured before and after the installation of acoustical treatment. The measured LA values were 85 and 75 dB respectively.

Descriptor_Nomenclature

With regard to energy averaging over time, the term "average" should be discouraged in favor of the term "equivalent". Hence, Leq is designated the "equivalent level". For Ldn, Ldn, and Ldn, "equivalent" need not be stated since the concept of day-night or day-night averaging is by definition understood. Therefore, the designations are "day sound level", "night sound level", and "day-night sound level", respectively.

The peak level is the logarithmic ratio of peak sound pressure to a reference pressure and not the maximum root mean square pressure. While the latter is the maximum sound pressure level, it is often incorrectly labelled peak. In that sound level meters have "peak" settings, this distinction is most important.

"Background ambient" should be used in lieu of "background", "ambient", "residual", or "indigenous" to describe the level characteristics of the general background noise due to the contribution of many unidentifiable noise sources near and far.

With regard to units, it is recommended that the unit decibel (abbreviated dB) be used without modification. Hence, dBA, PndB, and EPNdB are not to be used. Examples of this preferred usage are: the Perceived Noise Level (Lpn was found to be 75 db. Lpn = 75 db). This decision was based upon the recommendation of the National Bureau of Standards, and the policies of ANSI and the Acoustical Society of America, all of which disallow any modification of bel except for prefixes indicating its multiples or submultiples (e.g., deci).

Noise_Impact

In discussing noise impact, it is recommended that "Level Weighted Population" (LWP) replace "Equivalent Noise Impact" (ENI). The term "Relative Change of Impact" (RCI) shall be used for comparing the relative differences in LWP between two alternatives.

Further, when appropriate, "Noise Impact Index" (NII) and "Population Weighted Loss of Hearing" (PHL) shall be used consistent with CHABA Working Group 69 Report Guidelines for Preparing Environmental Impact Statements (1977).

TABLE II
RECOMMENDED DESCRIPTOR LIST

TERM	A-WEIGHTING	ALTERNATIVE ⁽¹⁾ A-WEIGHTING	OTHER ⁽²⁾ WEIGHTING	UNWEIGHTED
1. Sound (Pressure) Level	L _A	L _{pA}	L _B , L _{pB}	L _p
2. Sound Power Level	L _{WA}		L _{WB}	L _W
3. Max. Sound Level	L _{max}	L _{Amax}	L _{Bmax}	L _{pmax}
4. Peak Sound (Pressure) Level	L _{Apk}		L _{Bpk}	L _p
5. Level Exceeded x% of the Time	L _x	L _{Ax}	L _{Bx}	L _{px}
6. Equivalent Sound Level	L _{eq}	L _{Aeq}	L _{Beq}	L _{peq}
7. Equivalent Sound Level (4) Over Time(T)	L _{eq(T)}	L _{Aeq(T)}	L _{Beq(T)}	L _{peq(T)}
8. Day Sound Level	L _d	L _{Ad}	L _{Bd}	L _{pd}
9. Night Sound Level	L _n	L _{An}	L _{Bn}	L _{pn}
10. Day-Night Sound Level	L _{dn}	L _{Adn}	L _{Bdn}	L _{pdn}
11. Yearly Day-Night Sound Level	L _{dn(Y)}	L _{Adn(Y)}	L _{Bdn(Y)}	L _{pdn(Y)}
12. Sound Exposure Level	L _S	L _{SA}	L _{SB}	L _{Sp}
13. Energy Average Value Over (Non-Time Domain) Set of Observations	L _{eq(e)}	L _{Aeq(e)}	L _{Beq(e)}	L _{peq(e)}
14. Level Exceeded x% of the Total Set of (Non-Time Domain) Observations	L _{x(e)}	L _{Ax(e)}	L _{Bx(e)}	L _{px(e)}
15. Average L _x Value	L _x	L _{Ax}	L _{Bx}	L _{px}

(1) "Alternative" symbols may be used to assure clarity or consistency.
 (2) Only B-weighting shown. Applies also to C,D,E.....weighting.
 (3) The term "pressure" is used only for the unweighted level.
 (4) Unless otherwise specified, time is in hours (e.g., the hourly equivalent level is Leq(1). Time may be specified in non-quantitative terms (e.g., could be specified as Leq(WASH) to mean the washing cycle noise for a washing machine).

TABLE I
A-WEIGHTED RECOMMENDED DESCRIPTOR LIST

TERM	SYMBOL
1. A-Weighted Sound Level	L _A
2. A-Weighted Sound Power Level	L _{WA}
3. Maximum A-Weighted Sound Level	L _{max}
4. Peak A-Weighted Sound Level	L _{Apk}
5. Level Exceeded x% of the Time	L _x
6. Equivalent Sound Level	L _{eq}
7. Equivalent Sound Level over Time (T) ⁽¹⁾	L _{eq(T)}
8. Day Sound Level	L _d
9. Night Sound Level	L _n
10. Day-Night Sound Level	L _{dn}
11. Yearly Day-Night Sound Level	L _{dn(Y)}
12. Sound Exposure Level	L _{SE}

(1) Unless otherwise specified, time is in hours (e.g., the hourly equivalent level is Leq(1)). Time may be specified in non-quantitative terms (e.g., could be specified as Leq(WASH) to mean the washing cycle noise for a washing machine).

SOURCE: EPA ACOUSTIC TERMINOLOGY GUIDE, BNA 8-14-78,

APPENDIX C

SUMMARY OF BASE YEAR AND YEAR 2025
TRAFFIC VOLUMES

ROADWAY LANES	**** CY 2019 ****		CY 2025 (NO BUILD)		CY 2025 (BUILD)	
	AM VPH	PM VPH	AM VPH	PM VPH	AM VPH	PM VPH
Kamehameha Hwy. Btwn. Kaonohi and Pali Momi (EB)	2,206	833	2,115	1,460	2,143	1,473
Kamehameha Hwy. Btwn. Kaonohi and Pali Momi (WB)	295	1,693	1,005	3,540	1,038	3,575
Two-Way	2,501	2,526	3,120	4,990	3,180	5,047
Kamehameha Hwy. Btwn. Kaonohi and Kanuku (EB)	1,793	767	1,715	1,385	1,813	1,443
Kamehameha Hwy. Btwn. Kaonohi and Kanuku (WB)	287	1,759	945	3,555	1,019	3,629
Two-Way	2,080	2,526	2,660	4,940	2,832	5,072
Kamehameha Hwy. West of Kanuku (EB)	1,744	770	1,630	1,320	1,687	1,348
Kamehameha Hwy. West of Kanuku (WB)	256	1,716	950	3,180	987	3,217
Two-Way	2,000	2,486	2,580	4,500	2,674	4,565
Pali Momi St. At Kamehameha Hwy. (NB)	N/A	N/A	380	640	380	640
Pali Momi St. At Kamehameha Hwy (SB)	N/A	N/A	400	460	400	460
Two-Way	N/A	N/A	780	1,100	780	1,100
Kaonohi St. At Kamehameha Hwy. (NB)	109	268	300	610	345	638
Kaonohi St. At Kamehameha Hwy. (SB)	545	391	660	610	673	622
Two-Way	654	659	960	1,220	1,018	1,260
Kanuku St. North Of Kamehameha. Hwy. (NB)	35	113	110	280	118	287
Kanuku St. North Of Kamehameha. Hwy. (SB)	112	68	190	120	200	128
Two-Way	147	181	300	400	318	415
Kanuku St. South Of Kamehameha. Hwy. (NB)	12	87	40	170	98	199
Kanuku St. South Of Kamehameha. Hwy. (SB)	39	92	50	190	104	235
Two-Way	51	179	90	360	202	434

Appendix G

**Phase 1 Environmental Site Assessment,
TMKs (1) 9-8009: 005, 011,
014, 015, and 016**

**Phase I
Environmental Site
Assessment**

Project No. 1908-00364-PHI

TMKs (1) 9-8-009: 005, 011,
014, 015 and 016
Kamehameha Highway
Aiea, Hawaii



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Phase I Environmental Site Assessment



TMKs (1) 9-8-009: 005, 011, 014, 015 and 016

Kamehameha Highway
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ENPRO Project Number: 1908-00364-PHI
Date of Report: September 16, 2019
On-Site Investigation: August 22, 2019



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Environmental 2019



PROJECT AT A GLANCE™

Assessment Component	Not Requested	Acceptable ^(f)	Routine Solution	Phase II ESA	Report Reference Section	
					Project Site	Adjoining Property
Historical Review				(1)	5.4.1, 6.2.1	
Regulatory Review				(3)	6.2.1	
Operations				(2)	5.4.1, 7.9	
Hazardous Materials		X				
Underground Storage Tanks				(5),(6),(7), (8)	6.2.1, 7.5.1	
Aboveground Storage Tanks		X				
Solid Waste		X				
Surface Areas		X				
Wells		(N/A)	(4)		6.2.1, 7.7	
PCBs						
Asbestos	X					
Lead Based Paint	X					
Lead in Drinking Water	X					
Radon	X					
Mold	X					
Significant Data Gaps						

***BOLD** = Identified issues. **Numbers (1) (2) reference Action Items listed on the following page.**

^(f) = Based on this preliminary study, it appears that further investigation in this area is not a priority concern for this site at the present time.

Conditions noted in the Project at a Glance™ table represent the overall conditions of the Property. More specific details on assessment components may be included in the text of this report; therefore the Project at a Glance™ should not be used as a stand-alone document.

Phase I Environmental Site Assessment
Project Number: 1908-00364-PHI

TMKs (1) 9-8-009: 005, 011, 014, 015 & 016
Aiea, Hawaii



ACTION ITEMS

Based on our investigation, ENPRO has concluded that there is sufficient risk to warrant additional action. ENPRO has identified the following action items and makes the following recommendations:

- (1) **GENERAL** - Based on the historical use of the Property for automobile maintenance and repair services, and the planned re-development of the property, ENPRO recommends preparing an Environmental Hazard Evaluation and a Construction Environmental Hazard Management Plan (EHE/CEHMP) prior to initiating construction activities. We recommend that these plans be developed in cooperation with the State of Hawaii Department of Health Hazard Evaluation and Emergency Response (HEER) Office.

As the Property is included within the 150-meter guideway buffer of the Honolulu Rail Transit Project, ENPRO recommends that any sampling and analysis or inclusion of an EHE/CEHMP to be in full compliance with the HART Programmatic Environmental Hazard Evaluation and Environmental Hazard Management Plan.

- (2) **REC 1 - Stockpiled soil on site:** Perform multi-increment (MI) soil sampling of stockpiled material to evaluate re-use and/or disposal options.
- (3) **REC 2 - Historical releases on site:** Establish decision units across the property based in part on historical use and planned development activities. Perform sampling of soil, groundwater, and/or soil vapor, as negotiated with the Department of Health as part of the recommended EHE/CEHMP for the Property.
- (4) **REC 3 - Hydraulic fluid in on site elevator:** The ENPRO investigators observed an electro-hydraulic power unit for the freight elevator on TMK (1) 9-8-009: 011. ENPRO recommends sampling and analysis to determine whether or not the hydraulic fluid for this elevator contains PCBs.
- (5) **H-REC 1 - Former underground storage tank (UST) on site (TMK (1) 9-8-009: 014, Facility ID: 9-200907):** Incorporate this into the EHE/CEHMP for the Property. DOH may require additional investigation to confirm this meets with current No Further Action (NFA) criteria.
- (6) **H-REC 2 - Former underground storage tank (UST) on site (TMK (1) 9-8-009: 011, Facility ID: 9-201475):** Incorporate this into the EHE/CEHMP for the Property. DOH may require additional investigation to confirm this meets with current No Further Action (NFA) criteria.



- (7) **H-REC 3 - Former underground storage tanks (UST) on site (TMK (1) 9-8-009: 005, Facility ID 9-202700):** Incorporate this into the EHE/CEHMP for the Property. DOH may require additional investigation to confirm this meets with current No Further Action (NFA) criteria.
- (8) **H-REC 4 - Former underground storage tank (UST) on site (TMK (1) 9-8-009: 016, Facility ID: 9-200359):** Incorporate this into the EHE/CEHMP for the Property. DOH may require additional investigation to confirm this meets with current No Further Action (NFA) criteria.
- (9) **Hazardous material stored on site:** ENPRO recommends secondary containment for all hazardous materials stored on site.

Further details regarding ENPRO's conclusions and recommendations may be found in Section 1.1, Section 9.1 and Section 10 of this report.



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1.0 EXECUTIVE SUMMARY

Group 70 International, Inc. (the Client) retained ENPRO Environmental (ENPRO) to conduct a Phase I Environmental Site Assessment (ESA) of the of tax map keys (TMK) (1) 9-8-009: 005, 011, 014, 015 and 016 (the Property). All of the subject parcels were located along Kamehameha Highway, Aiea, Hawaii. The objective of this assessment was to provide an independent, professional opinion regarding recognized environmental conditions (RECs), as defined by the American Society for Testing and Materials (ASTM), associated with the Property. The Client stated that the purpose of this assessment was in part to support the Honolulu Department of Transportation Services plans to construct a bus transfer station on the Property. This development is planned to include an easement across TMK (1) 9-8-009: 011, to serve as a bus driveway linking to the bus transit site.

This assessment was performed under the conditions of, and in accordance with ENPRO's Proposal Number 18F-0337-HNL dated June 27, 2018, the *ASTM E 1527-13, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* (ASTM E1527-13), and *All Appropriate Inquiries* (AAI) which includes 40 CFR Part 312, §312.21 and §312.31. Any exceptions, additions to, or deletions from the ASTM E1527-13 or AAI practice, details of the work performed, sources of information, and findings are presented in this report. Limitations of the assessment are described in Section 2.6.

The parcel defined as TMK (1) 9-8-009: 011 is currently owned by Healani Land Company Incorporated, and is approximately three acres.

The properties defined as TMKs (1) 9-8-009: 005, 014, 015 and 016 are currently owned by the City and County of Honolulu, and are approximately three acres in total.

The historical research presented in this report has established the use of the Property since 1928, when the Property was depicted on a historical topographic map as partially vegetated land. At the time of our investigation, the Property included a large commercial building (Best Buy), two parking lots, and a construction yard with multiple structures on site.

The Property has a history of industrial use including automobile storage, maintenance and repair activities, as well as the installation and removal of several underground storage tanks and at least one oil/water separator. These historical uses have the potential for environmental impacts to the Property via the release of hazardous materials or petroleum products.

Several environmental investigations have been performed on the Property and adjacent properties. Previous investigations may not comply with current technical guidelines published by the State of Hawaii Department of Health (DOH), and therefore may not provide suitable evidence to support a No Further Action (NFA) designation. This is particularly relevant when comparing discrete-sampling methodologies with multi-increment sampling methods. To the extent that ENPRO's opinions presented herein are based at least in part on past NFA designations from the DOH, we cannot rule out the possibility that more current (and more stringent) DOH technical guidelines may warrant further delineation of potential contamination.

Based on the information obtained during this assessment, and in consideration of the proposed re-development, ENPRO Environmental recommends preparing an Environmental Hazard Evaluation and a Construction Environmental Hazard Management Plan (EHE/CEHMP) prior to initiating construction activities. We recommend that these plans be developed in cooperation with the State of Hawaii Department of Health Hazard Evaluation and Emergency Response (HEER) Office.

1.1 FINDINGS AND CONCLUSIONS

ASTM E1527-13 defines three categories of RECs which may impact the Property.

- A REC is defined as the presence or likely presence of any hazardous substance or petroleum product in, on, or at the Property:
 - Due to any release to the environment
 - Under conditions indicative of a release to the environment
 - Under conditions that pose a material threat of a future release to the environment
- Historical RECs (H-RECs) are defined as a past release of any hazardous substance or petroleum product that has occurred in connection with the Property and has been addressed to the satisfaction of the applicable regulatory authorities or meeting unrestricted use criteria established by a regulatory authority, without subjecting the Property to any required controls

- Controlled RECs (C-RECs) are defined as a REC resulting from a past release that has been addressed to the satisfaction of the applicable regulatory authority, with hazardous substances or petroleum products allowed to remain in place, subject to the implementation of required controls, such as Property use restrictions, activity and use limitations (AULs), institutional controls, or engineering controls

Additionally, ASTM E1527-13 allows for the identification of *de minimis* conditions. A *de minimis* condition is defined as a condition that generally does not represent a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate government agencies. A condition determined to be *de minimis* is not a REC.

We have performed a Phase I ESA of the Property in conformance with the scope and limitations of ASTM E1527-13 and the AAI practice. Any exceptions to, or deletions from the ASTM E1527-13 or AAI practice are described in Section 2.6 of this report.

This assessment has revealed the following RECs in connection with the Property:

- **REC 1 - Stockpiled soil on site:** This finding is considered a REC because soil and concrete debris were observed stockpiled on site during the site reconnaissance. It was indicated during the site reconnaissance that the stockpiles came from on-site sources, and were predominantly from the excavation of a trench for sewage lines. Based on the historical use of the property, it is ENPRO's opinion there is a reasonable potential the stockpiled soil may contain contaminants of concern and require special handling and/or disposal.

Recommendation - Perform multi-increment (MI) soil sampling of stockpiled material to evaluate re-use and/or disposal options.

- **REC 2 - Historical releases on site:** This finding is considered a REC because the Property has a history of use for automobile storage, maintenance and repair activities, as well as the installation and removal of several underground storage tanks. It is our opinion that these historical uses have the potential to have resulted in environmental impacts to the Property through the release of hazardous materials or petroleum products.

Recommendation - Establish decision units across the property based in part on historical use and planned development activities. Perform sampling of soil, groundwater, and/or soil vapor, as negotiated with the Department of Health as part of the recommended EHE/CEHMP for the Property.

- **REC 3 – Hydraulic fluid in on site elevator:** The ENPRO investigators observed an electro-hydraulic power unit for the freight elevator on TMK (1) 9-8-009: 011.

Recommendation – Perform sampling and analysis to determine whether or not the hydraulic fluid for this elevator contains PCBs.

- **H-REC 1 – Former underground storage tank (UST) on site (TMK (1) 9-8-009: 014, Facility ID: 9-200907):** A review of the State of Hawaii Department of Health (DOH) regulatory files indicated a 1,000-gallon diesel fuel UST had been removed in 1992, however, the files review did not reveal a closure report for this removal. Site characterization to assess potential impacts associated with this UST was performed in 2015 by ENPRO. The analytical results indicated that no contaminants were detected at concentrations equal to or greater than the DOH Environmental Action Levels (EAL). It is ENPRO's opinion this finding meets the definition of an H-REC, based ENPRO's 2015 findings. It should be noted that neither a No Further Action (NFA) letter nor a formal UST closure report were discovered in the regulatory records.

Recommendation - Incorporate this into the EHE/CEHMP for the Property. DOH may require additional investigation to confirm this meets with current No Further Action (NFA) criteria.

- **H-REC 2 - Former underground storage tank (UST) on site (TMK (1) 9-8-009: 011, Facility ID: 9-201475):** A review of the regulatory records indicated that a 500-gallon new oil UST and a 1,000-gallon used oil UST had been removed in 1998. During removal, a groundwater sample indicated vinyl chloride at a concentration greater than the current DOH Tier 1 Action Level. In 2004 the DOH granted an NFA designation. It is ENPRO's opinion this finding meets the definition of an H-REC based on the NFA designation from the DOH, and on the review of previous environmental reports.

Recommendation - Incorporate this into the EHE/CEHMP for the Property. DOH may require additional investigation to confirm this meets with current No Further Action (NFA) criteria.

- **H-REC 3 - Former underground storage tanks (UST) on site (TMK (1) 9-8-009: 005, Facility ID: 9-202700):** A review of the regulatory records indicated the following USTs had been removed in 1992:

- one, 2,000-gallon diesel UST
- one, 1,000-gallon gasoline UST
- one, 1,000-gallon diesel UST

Following removal, a release of unleaded gas and diesel fuel was confirmed to have impacted soil and groundwater. Subsequent investigations in 1993 documented soil excavation and reported the concentrations of all tested analytes in soil and groundwater to be less than the applicable DOH guidelines, with the exception of lead in groundwater.

The lead detected in the groundwater samples, was reported as not correlated with the UST release. An NFA letter was issued by the DOH in 1995. It is ENPRO's opinion that this finding meets the definition of an H-REC based on the NFA designation from the DOH, and on the review of previous environmental reports.

Recommendation - Incorporate this into the EHE/CEHMP for the Property. DOH may require additional investigation to confirm this meets with current No Further Action (NFA) criteria.

- **H-REC 4 - Former underground storage tank (UST) on site (TMK (1) 9-8-009: 016, Facility ID: 9-200359):** A review of the regulatory records indicated a used oil UST had been removed in 1998. A release was detected during UST removal. Visibly contaminated soil was excavated and later transported to a landfill. Subsequent soil samples collected from the excavation pit did not indicate contaminants at concentrations greater than DOH Tier 1 Action Levels. An NFA Letter was issued by the DOH in 1999. It is ENPRO's opinion this finding meets the definition of an H-REC based on the NFA designation from the DOH, and on the review of previous environmental reports.

Recommendation - Incorporate this into the EHE/CEHMP for the Property. DOH may require additional investigation to confirm this meets with current No Further Action (NFA) criteria.

Further discussion regarding our recommendations of the above findings is included in Section 5.4.1, 6.2.1. 9.1, and 10.1 of this report.

The following *de minimis* conditions were identified at the Property:

Possible petroleum release on site: Stained soil was observed during the site reconnaissance, and ENPRO was informed that a minor, isolated petroleum release from past onsite storage of construction related materials had occurred, and that Environmental Risk Analysis LLC (ERA) was responsible for monitoring the incident. Subsequent communications with NAN, Inc. indicated the soil was not stained from a petroleum release, but from wash water related to a concrete washout pit in that location. This finding is considered a *de minimis* condition because the affected area was very small, regardless of the source of staining.

Although we do not have a specific recommendation for this *de minimis* condition, the CEHMP should include provisions for handling small areas of petroleum impacted soil that may be encountered during the proposed re-development of the site.

The following environmental concerns, which are not considered RECs, as defined by ASTM E1527-13, were observed during the assessment:

- Suspect asbestos containing building materials
- Suspect lead containing paint
- Ecologically sensitive areas

I.2 CONTINUED VIABILITY STATEMENT

An ESA meeting or exceeding the requirements of ASTM E1527-13 and completed less than 180 days prior to the date of acquisition of the Property, or (for transactions not involving an acquisition) the date of the intended transaction, is presumed to be valid. The period of validity may be extended to one year from the date of the investigation, provided that the following components of the inquiries are conducted or updated within 180 days of the date of purchase or the date of the intended transaction:

- Interviews with owners, operators, and occupants
- Searches for recorded environmental cleanup liens
- Reviews of federal, tribal, state, and local government records
- Visual inspections of the Property and of adjoining properties
- The declaration by the environmental professional responsible for the assessment or update

2.0 INTRODUCTION

2.1 LOCATION AND LEGAL DESCRIPTION

The Property is in an industrial setting (Figures 1 and 2). The longitude and latitude for the Property are presented in Table 1 below.

The Property is further described by the City and County of Honolulu Real Property Tax Office as TMKs (1) 9-8-009: 005, 011, 014, 015 and 016. The Property is located in an area zoned "I2: Intensive Industrial", and "IMX-1: Industrial Mixed Use".

Table 1

Location and Legal Description of the Property

Location Description	Property
Address	98-51, 69, 73, 75, and 85 Kamehameha Highway, Aiea, Hawaii
TMK	(1) 9-8-009: 005, 011, 014, 015 and 016
Latitude (North)	21.383500 - 21° 23' 0.60"
Longitude (West)	157.9476000 - 157° 56' 51.36"
Elevation	Between 10 and 15 feet above mean sea level
Distance and Direction to Surface Waters	Pearl Harbor East Loch, approximately 200 feet south Waimalu Stream, approximately 1,000 feet west Kaluaao Stream, approximately 1,600 feet southeast

2.2 SITE AND VICINITY GENERAL CHARACTERISTICS

The Property is located near the south shore of the island of Oahu. The Property included four rectangular parcels, and one irregular-shaped parcel totaling approximately six acres. On-site structures were constructed over approximately ten percent of the Property. Primary access to the site was from Kamehameha Highway, north of the Property.

2.3 PURPOSE

The objective of this ESA is to provide an independent, professional opinion regarding RECs, as defined by ASTM E1527-13, associated with the Property.

ASTM E1527-13 defines three categories of RECs, as presented in Section 1.1 of this report.

2.4 DETAILED SCOPE OF SERVICES

The scope of services in conducting this assessment included:

Records Review

- A review of environmental records, including regulatory agency reports, permits, registrations, and consultant's reports for evidence of RECs available from the Property owner or site contact.
- An investigation of historical use of the Property by examining available aerial photographs, property tax files, recorded land title records, USGS topographical maps, building department records, zoning/land use records and/or other readily available historical information for evidence of prior land use that could have led to RECs.
- A review of an environmental database search report of federal and state regulatory agency records pertinent to the Property and offsite facilities located within ASTM-specified search distances from the Property.
- A review of regulatory agency files and records if the Property, or any of the adjoining properties, is identified on one or more of the standard environmental record sources in the database search, to determine if a REC or *de minimis* condition exists at the Property in connection with the listing.
- A review of readily available information describing the general geology and topography of the Property, local groundwater characteristics, sources of water, power and sewer, and proximity to ecologically sensitive receptors that may be impacted by RECs.
- A review of title and judicial records for environmental liens and AULs on behalf of the user, to meet the requirements of 40 CFR 312.20 and 312.25.

Site Reconnaissance

- A site walkthrough inspection of the Property for visible evidence of RECs including existing or potential soil and groundwater contamination, as evidenced by:
 - Staining or discoloration
 - Stressed vegetation
 - Indications of waste dumping or burial
 - Pits, ponds or lagoons
 - Containers of hazardous substances or petroleum products
 - Electrical and hydraulic equipment that may contain polychlorinated biphenyls (PCBs), such as transformers or lifts
 - Underground and aboveground storage tanks
- A site property line visual assessment of adjacent properties for evidence of potential offsite RECs that may affect the Property.

Interviews

- Interviews with available key site personnel regarding current and previous site activities on the Property, especially those involving the use of hazardous substances and petroleum products. Required interviews shall include the following persons:
 - The User, defined as the party seeking to use ASTM E1527-13 to complete an environmental assessment of the Property. A User has specific obligations for completing a successful application of this practice
 - The Property owner
 - A key site manager, who shall be identified by the owner, prior to the site visit, as a person with good knowledge of the uses and physical characteristics of the Property (for example, a property manager, chief physical plant supervisor, or head maintenance person)
 - Occupants
 - Past users, when available
 - Neighbors, where the Property is abandoned and the environmental professional determines there is evidence of potential unauthorized uses of the Property



Interviews are summarized in Section 8.0 of this report. Completed property questionnaires are presented in the Appendix.

2.5 SIGNIFICANT ASSUMPTIONS

ENPRO, in part, has relied on information supplied by the Client or the Client's agent(s), listed in Section 8.0, and assumes such information to be factual.

The commercial regulatory database search report, summarizing federal and state regulatory agency records, is provided by a contracted data research firm. The information provided is assumed to be correct unless otherwise noted.

Unless otherwise discovered during review, all other sources of information, whether verbal or written, are assumed to be factual.

2.6 LIMITATIONS AND EXCEPTIONS

Access was not provided to the following areas of the Property:

- Mobile storage container located near the southwest corner of TMK (1) 9-8-009: 005.

During the site reconnaissance, it was indicated the storage container was empty, locked, and owned by NAN, Incorporated.

No opinion regarding environmental conditions in areas that were not inspected can be formed.

As a matter of necessity, ENPRO relies largely on readily available sources of information such as the Client, public records, interviews, and contracted research firms for recognizing potential environmental liabilities at a property/facility. Requests for information resources are made to collect relevant data on current and past practices conducted at the property/facility. ENPRO may not receive all information requested or be able to confirm received information during the course of the environmental site assessment. Therefore, ENPRO shall not be held responsible for errors, omissions, or misrepresentations resulting from missing documentation or from inaccurate information provided by such sources.

2.7 SPECIAL TERMS AND CONDITIONS

This Phase I ESA did not include any special terms or conditions.



3.0 USER PROVIDED INFORMATION

A property questionnaire was completed by Mr. Jeffrey Overton of Group 70, Land Planner for the City Department of Transportation Services, on behalf of the User (City Department of Transportation Services). A copy of the completed property questionnaire is included in the appendix section of this report.

3.1 ENVIRONMENTAL CLEANUP LIENS AND ACTIVITY AND USE LIMITATIONS (AUL) REVIEW

On behalf of the User, ENPRO reviewed official land records reported by the Bureau of Conveyances. The records did not identify any environmental liens or AULs associated with the Property.

3.2 SPECIALIZED KNOWLEDGE

Mr. Overton reported the following specialized knowledge of RECs in connection with the Property:

- o Neighboring lands have had hazardous materials studies and clean ups
- o Past use of the Property has included automotive repair services

3.3 COMMONLY KNOWN OR REASONABLY ASCERTAINABLE INFORMATION

A portion of the decommissioned Hickam Petroleum Oil Lubricant (POL) pipeline is located just north of the Property along Kamehameha Highway. (HART, 2014)

An active pipeline named "Hawaii: 10" Hawaii Refinery to Sand Island Term*", operated by PAR Hawaii Refining, LLC, is located just north of the Property along Kamehameha Highway. The commodity category was labeled as "Non highly volatile liquids". (NPMMS, 2019)

An active set of pipelines named "Kapolei Refinery: White Oil Line #1 and #2", operated by Island Energy Services, is located just south of the Property along the Pearl Harbor bike path. The commodity category was labeled as "Non highly volatile liquids". (NPMMS, 2019)



An active pipeline labelled “Natural Gas Transmission System”, operated by Hawaii Gas, is located just north of the Property along Kamehameha Highway. The commodity gas is labeled as “Synthetic Gas”. (NPMS, 2019)

The Property is located in an industrial setting area which has known historical fuel spills, pipeline leaks, USTs, and automotive repair activities that have affected soil and groundwater.

3.4 VALUATION REDUCTION FOR ENVIRONMENTAL IMPAIRMENT

Mr. Overton did not provide information on any reduction of valuation due to environmental impairment.

3.5 OBVIOUS INDICATORS OF PRESENCE OR LIKELY PRESENCE OF CONTAMINATION AT THE PROPERTY

Mr. Overton identified the following indicators that point to the potential presence of contamination at the Property:

- o The Property is currently being used as a construction yard
- o The Property had been used for automotive repair in the past
- o Adjacent properties have included automobile fuel stations in the past

3.6 REASONS FOR PERFORMING PHASE I ENVIRONMENTAL SITE ASSESSMENT

Mr. Overton stated that the purpose for conducting the Phase I ESA was to support the City Department of Transportation Services plans to construct a bus transfer station on the Property.



4.0 RECORDS REVIEW

This section presents a review of physical setting sources, standard and additional environmental records sources, on the Property and surrounding area.

4.1 PHYSICAL SETTING SOURCES

4.1.1 TOPOGRAPHY

Review of the topographic map published by the United States Geological Survey (2013) indicated the following:

The Property was located in the Kalaueo District of Aiea, in the southern region of the island of Oahu. The Property elevation was approximately fifteen feet above mean sea level.

The Property region was unshaded (white) indicating the area was not vegetated and densely built-up.

The Property region was topographically flat. The nearest body of water was Pearl Harbor East Loch approximately 200 feet south of the Property. The Property is within 150 meters of a surface water body.

4.1.2 SOILS

A review of the soil type of the area was performed. The soil survey of the island of Oahu is published by the United States Department of Agriculture (USDA) Natural Resources Conservation Service in cooperation with the USDA Soil Conservation Service and University of Hawaii Agricultural Experiment Station. USDA soil survey data is available at <http://websoilsurvey.nrcs.usda.gov/app/> and was accessed on August 23, 2019. The following information is pertinent to the Property:

The Property was situated on soil classified as Pearl Harbor Clay (PH), Honouliuli Clay (HxA), and Keauu Clay (KmbA).

Pearl Harbor clay consists of very poorly drained soils on nearly level coastal plains on the islands of Oahu. The soils formed in alluvium overlying organic material.

Permeability for Pearl Harbor clay loam is described as very low (< 0.06 inches per hour). The soil is described as having a high corrosivity for uncoated steel and concrete.



Pearl Harbor soils are used for sugarcane, taro and pasture. Natural vegetation consists of cattails, mangrove trees, California grass and sedges.

Honouliuli clay consists of well drained soils on coastal plains on the island Oahu in the Ewa area. These soils developed in alluvium derived from basic igneous material.

Permeability for Honouliuli clay is described as low (between 0.20 and 0.63 inches per hour). The soil is described as having a low corrosivity for uncoated steel and concrete.

Honouliuli soils are used for sugarcane, truck crops, orchards and pasture. The natural vegetation consists of kiawe, koa haole, fingergrass and bristly foxtail.

Keaau clay consists of poorly drained soils on coastal plains on the island of Oahu. These soils developed in alluvium deposited over reef limestone or consolidated coral sand.

Permeability for Keaau clay is described as low (between 0.06 and 0.20 inches per hour). The soil is described as having a high corrosivity for uncoated steel and low corrosivity for concrete.

Keaau soils are used for sugarcane and pasture. The natural vegetation consists of kiawe, bermudagrass, bristly foxtail and fingergrass.

4.1.3 GEOLOGY/HYDROGEOLOGY

Groundwater beneath the project site occurs in two distinct aquifers within the Waialua Aquifer System of the Pearl Harbor Aquifer Sector. The shallow aquifer is classified as a basal, unconfined, sedimentary aquifer, occurring in non-volcanic lithology. The groundwater status is reported as currently in use and is considered to be ecologically important. The salinity of the groundwater within this aquifer is described as low (250-1000 milligrams per liter Cl⁻). The groundwater is further described as irreplaceable, with a high vulnerability to contamination. (Mink and Lau, 1990)

The deeper aquifer is classified as a basal, confined, flank aquifer, occurring in horizontally extensive lavas. The groundwater status is reported as being currently in use and ecologically important. The salinity of the groundwater within this aquifer is described as low (250-1000 milligrams per liter Cl⁻). The groundwater is further described as irreplaceable, with a moderate vulnerability to contamination. (Mink and Lau, 1990)



The Environmental Data Resources (EDR) radius map indicated three water wells on the Property. One was labeled as a State of Hawaii well, the other two were labeled as USGS-Hawaii wells. None of the wells were labeled for public water supply. The State of Hawaii well was identified as "abandoned-sealed". A well information request form was sent to the State of Hawaii, Commission on Water Resource Management (CWRM). ENPRO has not received a response from the CWRM as of the date of this report. Should our review of these files at a later date impact our findings, conclusions or recommendations, ENPRO shall forward an addendum letter to such effect.

The Property is located above the underground injection control line; however, based on the data provided on the EDR radius map, no active drinking water wells are present within a half a mile of the Property.

The hydrogeologic gradient in the vicinity of the Property is anticipated to be slight, with a general trend to the southwest. Groundwater levels may be influenced by leaking infrastructure, tidal fluctuations, and human activity. The direction and rate of groundwater flow across the Property is expected to be to the south-southwest and relatively slow.

5.0 HISTORICAL RECORDS REVIEW

According to ASTM E1527-13, the historical search of the Property must cover a period of time back to the Property's first developed use, or back to 1940, whichever is earlier.

As part of this assessment, ENPRO reviewed several historical sources of information, including aerial photographs, USGS topographic maps, building department records, chain of title documents, property tax records and zoning/land use records.

5.1 TITLE RECORDS

Readily available records at the City and County of Honolulu Hawaii Tax Assessor's Office were reviewed to assess past ownership of the Property. Significant ownership transactions are summarized below:

Table 2

Summary of Title Information TMK (1) 9-8-009: 005

Tax Map Key	Date	Property Transaction
(1) 9-8-009: 005	1937	Owned by Lincoln Loy McCandless
(1) 9-8-009: 005	01/16/1961	Decided to Elizabeth Loy Marks, Elizabeth Marks Stack, Alfred Lester Marks Jr, and Cynthia Marks Salley (Marks et. al.)
(1) 9-8-009: 005	1/24/1964	Decided to Continental Investment Co.
(1) 9-8-009: 005	1964 to 1987	Leased to Associated Steel Workers, Inc.
(1) 9-8-009: 005	7/7/1992	Leased to Jim Slemmons Hawaii, Inc.
(1) 9-8-009: 005	6/7/1994	Leased to Tony Hawaii Corp.
(1) 9-8-009: 005	09/14/2015	Cancellation of Sublease for Tony Hawaii Corp. and License Slemmons.
(1) 9-8-009: 005	1/6/2016	Decided to City and County of Honolulu, State of Hawaii

Table 3
Summary of Title Information TMK (1) 9-8-009: 011

Tax Map Key	Date	Property Transaction
(1) 9-8-009: 011	1952	New parcel from (1) 9-8-009: 007
(1) 9-8-009: 011	06/16/1989	Assignment of Lease from Tony Masamitsu to Tony Hawaii Corp.
(1) 9-8-009: 011	08/03/1989	Warranty Deed from City Mill Company Limited to Howard K O Chong Jr. Trustees
(1) 9-8-009: 011	03/20/1990	Decided from Howard K O Chong Jr. Trustees to Healani Land Company, Inc.
(1) 9-8-009: 011	11/19/1990	Assignment of lease from James H Pflueger to Pflueger Properties, Inc.
(1) 9-8-009: 011	04/12/1991	Assignment of lease from Pflueger Properties Inc, to Tony Hawaii Corp.

Table 4

Summary of Title Information TMK (1) 9-8-009: 014

Tax Map Key	Date	Property Transaction
(1) 9-8-009: 014	1952	New parcel from (1) 9-8-009: 007
(1) 9-8-009: 014	1958	5,500 ft ² added to (1) 9-8-010: 001
(1) 9-8-009: 014	1964	10,000 ft ² added from (1) 9-8-009: 005
(1) 9-8-009: 014	1964	Owned by Elizabeth Loy Marks, Elizabeth Marks Stack, Alfred Lester Marks Jr, and Cynthia Marks Salley (Marks et. al.)
(1) 9-8-009: 014	1964	Decided to Marks et. al. and Yamamoto et. al.
(1) 9-8-009: 014	1964	Owned by Continental Investment Co., Ltd.
(1) 9-8-009: 014	4/1/1964	Leased to Hawaiian Western Transport, Inc.
(1) 9-8-009: 014	7/7/1992	Leased to Jim Slemmons Hawaii, Inc.
(1) 9-8-009: 014	6/7/1994	Subleased to Tony Hawaii Corp.
(1) 9-8-009: 014	09/14/2015	Cancellation of Sublease for Tony Hawaii Corp. and License Slemmons.
(1) 9-8-009: 014	1/6/2016	Decided to City and County of Honolulu, State of Hawaii from Continental Investment Company LTD

Table 5
Summary of Title Information TMK (1) 9-8-009: 015

Tax Map Key	Date	Property Transaction
(1) 9-8-009: 015	1952	New parcel from (1) 9-8-009: 007
(1) 9-8-009: 015	1958	5,500 ft ² added to (1) 9-8-010: 001
(1) 9-8-009: 015	1964	12,000 ft ² added from (1) 9-8-009: 005
(1) 9-8-009: 015	1964	Owned by Elizabeth Loy Marks, Elizabeth Marks Stack, Alfred Lester Marks Jr, and Cynthia Marks Salley (Marks et. al.)
(1) 9-8-009: 015	1/16/1964	Decided to Marks et. al. and Yamamoto et. al.
(1) 9-8-009: 015	9/6/1974	Decided to Continental Investment Co., Ltd.
(1) 9-8-009: 015	5/11/1976	Leased to Ekahi Investment, Inc.
(1) 9-8-009: 015	7/13/1977	Subleased to Jim Slemmons Imports, Inc.
(1) 9-8-009: 015	10/28/1991	Leased to Slemmons Enterprises, Inc.
(1) 9-8-009: 015	6/7/1994	Sublease memorandum from Jim Slemmons Hawaii, Inc. to Tony Autos Corp.
(1) 9-8-009: 015	12/12/2001	One-year lease from Jim Slemmons Hawaii, Inc. to Paradise Autos Inc.
(1) 9-8-009: 015	06/01/2013	Termination of unrecorded leases; Continental Investment Co., Ltd. Vs. Jim Slemmons Hawaii, Inc.
(1) 9-8-009: 015	09/14/2015	Cancellation of Sublease for Tony Hawaii Corp. and License Slemmons.
(1) 9-8-009: 015	1/6/2016	Decided to City and County of Honolulu, State of Hawaii from Continental Investment Company LTD

Table 6
Summary of Title Information TMK (1) 9-8-009: 016

Tax Map Key	Date	Property Transaction
(1) 9-8-009: 016	1952	New parcel from (1) 9-8-009: 007
(1) 9-8-009: 016	1958	5,500 ft ² added to (1) 9-8-010: 001
(1) 9-8-009: 016	1964	12,000 ft ² added from (1) 9-8-009: 005
(1) 9-8-009: 016	1964	Owned by Elizabeth Loy Marks, Elizabeth Marks Stack, Alfred Lester Marks Jr, and Cynthia Marks Salley (Marks et. al.)
(1) 9-8-009: 016	1964	Decided to Marks et. al. and Yamamoto et. al.

Table 6 (Continued)
Summary of Title Information TMK (1) 9-8-009: 016

Tax Map Key	Date	Property Transaction
(1) 9-8-009: 016	1964	Owned by Continental Investment Co., Ltd.
(1) 9-8-009: 016	7/12/1977	Subleased to Jim Slemmons Imports, Inc.
(1) 9-8-009: 016	10/31/1991	Lease memorandum from Continental Investment Co., Ltd. to Slemmons Enterprises, Inc.
(1) 9-8-009: 016	6/7/1994	Sublease memorandum from Jim Slemmons Hawaii, Inc. to Tony Hawaii Corp.
(1) 9-8-009: 016	12/12/2001	One-year lease from Jim Slemmons Hawaii, Inc. to Paradise Autos Inc.
(1) 9-8-009: 016	06/01/2013	Termination of unrecorded leases; Continental Investment Co., Ltd. Vs. Jim Slemmons Hawaii, Inc.
(1) 9-8-009: 016	09/14/2015	Cancellation of Sublease for Tony Hawaii Corp. and License for Slemmons.
(1) 9-8-009: 016	1/6/2016	Decided to City and County of Honolulu, State of Hawaii from Continental Investment Company LTD

Readily apparent evidence of potential RECs that may have a potential to impact the project site was noted in the following ownership records as follows:

- Owned by Continental Investment Co., Ltd. (previous UST)
- Leased to Associated Steel Workers, Inc. (previous UST)
- Leased to Jim Slemmons Hawaii Inc. (previous UST)
- Leased to Paradise Autos, Inc. (previous automobile service)
- Leased to Tony Hawaii Corp. (previous automobile service)

Continental Investment Co. Ltd, Associated Steel Workers, Inc., and Jim Slemmons Hawaii, Inc. each had registered USTs that were installed and later removed from the project site. Tony Hawaii Corp. and Paradise Autos Inc. leased the property to be used for automobile sales and service, including repair and maintenance. Section 6.2 provides a more detailed description of the properties.

Copies of the title records reviewed for this project are provided in the appendix.



5.2 HISTORICAL USE INFORMATION ON THE PROPERTY

5.2.1 HISTORICAL SANBORN MAPS

A copy of the correspondence from EDR / Sanborn indicating no coverage was available for the Property, is included in the appendix section of this report.

5.2.2 HISTORICAL TOPOGRAPHIC MAPS

The following topographic maps were reviewed as part of this assessment:

- A 1928 topographic map. The scale of this map was one-inch equals approximately 1,700 feet. The east side of the Property was depicted as non-vegetated, and the west side was partially vegetated land. No structures were depicted on the Property.
- A 1954 topographic map. The scale of this map was one-inch equals 2,000 feet. The Property was depicted as marsh land with several small structures.
- A 1959 topographic map. The scale of this map was one-inch equals 2,000 feet. This map was similar to the 1954 topographic map.
- A 1968 topographic map. The scale of this map was one-inch equals 2,000 feet. The marsh land designation had been removed, leaving the Property unshaded (white), indicating lack of vegetation. Multiple larger structures were shown in place of the previously depicted smaller structures.
- A 1970 topographic map. The scale of this map was one-inch equals 5,200 feet. This map was similar to the 1968 topographic map.
- A 1983 topographic map. The scale of this map was one-inch equals 2,000 feet. The east portion of the Property was tinted in pink omission tint, indicating densely built-up area. The west portion indicated two large structures covering most of the area.
- A 1998 / 1999 topographic map. The scale of this map was one-inch equals 2,000 feet. The Property was tinted in grey omission tint, indicating densely built-up area. The large structures were no longer depicted on the Property.
- A 2013 topographic map. The scale of this map was one-inch equals 2,000 feet. The Property was unshaded (white), indicating the area was not vegetated and densely built-up.



Based on a review of historical topographic maps, it appears that the project site was undeveloped land until sometime between 1928 and 1954.

Copies of the historic topographic maps reviewed for this project are provided in the appendix section of this report.

5.2.3 HISTORICAL AERIAL PHOTOGRAPHS

The following aerial photographs were reviewed as part of this assessment. Details of the Property were obscured by poor photographic resolution. The following are the relevant observations obtained from the photographs we reviewed:

- EDR, dated 1952. The scale of this photograph was approximately one-inch equals 750 feet. The Property appeared to have several small structures.
- EDR, dated 1959. The scale of this photograph was approximately one-inch equals 500 feet. The structures depicted in the 1952 aerial photograph appeared to have been demolished.
- EDR, dated 1962. The scale of this photograph was approximately one-inch equals 500 feet. Three large structures were depicted, one on the southeast and two on the west side of the Property.
- EDR, dated 1968. The scale of this photograph was approximately one-inch equals 500 feet. Three small structures were depicted north of the large structure on the southeast side of the Property. The two large structures on the west side of the property appear larger, and were occupying the majority of the land on the western side of the Property.
- EDR, dated 1976. The scale of this photograph was approximately one-inch equals 500 feet. The Property appeared to be developed similar to 1968 photo.
- EDR, dated 1978. The scale of this photograph was approximately one-inch equals 1000 feet. The Property appeared to be developed similar to 1976 photo.
- EDR, dated 1985. The scale of this photograph was approximately one inch equal 500 feet. The Property appeared to be developed similar to 1978 photo.
- EDR, dated 1992. The scale of this photograph was approximately one inch equal 500 feet. The Property appeared to be developed similar to 1985 photo.

- EDR, dated, 2001. The scale of this photograph was approximately one inch equal 500 feet. The large building on the southeast side of the Property was no longer present.
- EDR, dated, 2004. The scale of this photograph was approximately one inch equal 500 feet. The two larger structures on the western half of the Property were no longer present, and only pavement appeared to be left in place.
- EDR, dated, 2006. The scale of this photograph was approximately one inch equal 500 feet. A new building was depicted on the west portion of the Property, and parking lots appeared to have replaced the remaining previously occupied by the two larger structures on the western half of the Property. Over 100 vehicles were parked on the eastern portion of the Property.

5.3 HISTORICAL USE INFORMATION ON ADJOINING PROPERTIES

5.3.1 HISTORICAL TOPOGRAPHIC MAPS

The following topographic maps were reviewed as part of this assessment:

- A 1928 topographic map. The scale of this map was one-inch equals approximately 1,700 feet. The area around the Property included some vegetated land. An unlabeled fishpond was depicted along the south edge of the Property, along with a railroad track, and a few small structures. A light duty road was shown along the north edge of the Property.
- A 1954 topographic map. The scale of this map was one-inch equals 2,000 feet. The areas to the south and west of the Property were depicted as marsh land, and the fishpond was now labeled, "Fishpond". The areas south, east and north of the Property were developed with several small structures. The light duty road was now a highway labeled as, "KAMEHAMEHA HIGHWAY".
- A 1959 topographic map. The scale of this map was one-inch equals 2,000 feet. The area to the north now indicated named roads and dense development. The railroad track was now labeled, "ABANDONED". The area to the east was depicted as marsh land.
- A 1968 topographic map. The scale of this map was one-inch equals 2,000 feet. The area around the project site showed greater development with several large structures surrounding the Property. The fish pond was no longer present and a sewage disposal feature was depicted to the south.

- A 1970 topographic map. The scale of this map was one-inch equals 5,200 feet. This map was similar to the 1968 topographic map.
- A 1983 topographic map. The scale of this map was one-inch equals 2,000 feet. The area to the east of the Property was now also shaded to indicate a densely built-up area. Several large structures were depicted to the south and southeast of the Property.
- A 1998 / 1999 topographic map. The scale of this map was one-inch equals 2,000 feet. The entire area around the Property was tinted in grey omission tint, indicating densely built-up area.
- A 2013 topographic map. The scale of this map was one-inch equals 2,000 feet. This map was similar to the 1998 / 1999 topographic map.

5.3.2 HISTORICAL AERIAL PHOTOGRAPHS

The following aerial photographs were reviewed as part of this assessment. Details of the areas around the Property were obscured by poor photographic resolution.

- EDR, dated 1952. The scale of this photograph was approximately one-inch equals 750 feet. The area around the Property appeared to be mostly undeveloped, with the exception of a few small structures depicted to the south. A fish pond was depicted to the southwest.
- EDR, dated 1959. The scale of this photograph was approximately one-inch equals 500 feet. The area around the Property appeared to be developed similar to 1952 photo.
- EDR, dated 1962. The scale of this photograph was approximately one-inch equals 500 feet. The area around the Property showed greater development had occurred since the 1959 photograph. A housing tract was depicted to the northwest.
- EDR, dated 1968. The scale of this photograph was approximately one-inch equals 500 feet. The area around the Property showed further development. The fish pond to the southwest had been mostly filled in and what appeared to be waste water treatment aeration tanks were depicted to the east.
- EDR, dated 1976. The scale of this photograph was approximately one-inch equals 500 feet. The fish pond to the southwest was further filled in, and the area to the east was now depicted as having a large structure in place of the waste water treatment aeration tanks. A new building was depicted on the area to the south of the Property.

- EDR, dated 1978. The scale of this photograph was approximately one-inch equals 1000 feet. The area around the Property appeared to be developed similar to the 1976 photo.
- EDR, dated 1985. The scale of this photograph was approximately one-inch equal 500 feet. The area to the southwest of the Property was now depicted as paved, and contained multiple large buildings.
- EDR, dated 1992, 2001, and 2004. The scale of these photographs was approximately one inch equal 500 feet. The area around the Property appeared to be developed similar to the 1985 photo.

5.4 PREVIOUS ENVIRONMENTAL REPORTS

5.4.1 PREVIOUS ENVIRONMENTAL REPORTS ON THE PROPERTY

During this assessment ENPRO reviewed the following environmental reports:

- *Phase I Environmental Site Assessment 98-69, 73, 75, and 85 Kamehameha Highway, Aiea, Hawaii*, ENPRO Environmental, May, 2015

This Phase I ESA included TMKs (1) 9-8-009:005, 014, 015 and 016. The following RECs were reported:

- REC 1 - Former underground storage tank (UST) on site: A 1,000-gallon diesel UST had been installed at TMK (1) 9-8-009: 014 by Continental Investment Company in 1986, and removed in 1992. A site assessment was completed and no evidence of a leak was reported, however, a closure report for the removal was not discovered in the regulatory files.
- REC 2 - Stockpiled soil on site: The soil being stored on site was from several on and off-site sources. It was a mixture of asphalt and soil, and was concluded by ENPRO as having a reasonable potential to contain contaminants of concern.
- H-REC 1 – Historical releases on site: The past releases of hazardous chemicals or petroleum products on site was classified as an H-REC because of NFA designations from the DOH and clean-up documentation that was reviewed. It was noted that more current (and more stringent) DOH regulations may have warranted further delineation of potential contamination.

- H-RECs 2 and 3 – Historical releases on adjoining properties 98-064 Kamehameha Highway and 98-077 Kamehameha Highway: The past releases of hazardous chemicals or petroleum products on adjoining properties was classified as an H-REC because site characterization had been performed and petroleum concentrations were shown to be less than DOH Tier 1 action levels. It was noted that more current (and more stringent) DOH regulations may have warranted further delineation of potential contamination.

The report also indicated suspect asbestos containing building materials and lead containing paint as environmental conditions, not considered RECs, as defined by ASTM.

Based on the removal of USTs on site, as well as historical releases from USTs on adjoining properties, the report included recommendations for soil, soil vapor, and groundwater sampling. The report also recommended sampling of the stockpiled soil on site.

- *Phase II Environmental Site Assessment 98-69, 73, 75, and 85 Kamehameha Highway, Aiea, Hawaii*, ENPRO Environmental, September, 2015

This Phase II ESA included TMKs (1) 9-8-009: 005, 014, 015 and 016. The report documented the evaluation of soil and ground water for potential contamination from a former UST at TMK (1) 9-8-009: 014. Additionally, the evaluation included soil vapor analysis to assess possible effects from adjacent properties (98-64 and 98-77, Kamehameha Highway) associated with past petroleum releases and/or the former UST site.

A total of eight active soil vapor samples were collected to assess the potential presence of volatile organic compounds (VOCs). A total of two groundwater samples and six soil samples were collected to assess the potential presence of total petroleum hydrocarbons (TPH), VOCs, and polynuclear aromatic hydrocarbons. All sampling and investigation methodologies performed were in general conformance with the DOH Hazard Evaluation Emergency Response (HEER) Office's, Technical Guidance Manual (TGM).

The report concluded that no contaminants were detected at concentrations equal to or greater than the DOH EALS. It was ENPRO's opinion that no further investigation was warranted regarding the potential contamination from the former UST located on the project site and the possible effects from petroleum releases and the former UST associated with adjacent properties.

It is ENPRO's opinion that REC 1, identified in the Phase I report can be downgraded to an HREC based on the results of the Phase II environmental assessment subsequently performed on this site.

- *Phase II Environmental Site Assessment 98-85 Kamehameha Highway Area, Hawaii, ENPRO Environmental, September, 2017*

This Phase II ESA included TMK (1) 9-8-009: 005. The report documented multi-increment soil sampling activities, pre-existing soil and recycled asphalt product (RAP) removal, and over excavation of soil to approximately four inches below asphalt levels.

The area sampled was approximately 450-feet by 150-feet. ENPRO divided the area into three decision units (DUs). Forty sample increments were collected and combined into a single multi-increment sample for each DU. Increments were collected from six to twelve inches below ground surface (bgs) at each location. All sampling and investigation methodologies performed were in general conformance with the DOH Hazard Evaluation Emergency Response (HEER) Office's, Technical Guidance Manual (TGM).

The laboratory results for one of the MI samples indicated the presence of residual range organics (RRO) at concentrations greater than the published DOH EAL for commercial/industrial land use. The report stated that asphalt was observed at the project site, both on the surface and at 6 to 12 inches bgs, and that there was no reported stained soil or petroleum odor. It was ENPRO's opinion that the asphalt constituent was likely the source of the RRO identified by the laboratory results, and therefore considered the RRO as an inert material that is not a risk to human health or the environment. The report stated that in response to the results of the MI sampling, the client performed over excavation activities at the one DU that exhibited elevated RRO concentrations. During this excavation activity, a pre-existing asphalt surface was encountered after removing approximately 2 inches of soil. This area of asphalt surface was removed, and excavation was completed to approximately four inches beneath the asphalt surface. Based on the laboratory results, and the subsequent excavation performed, it was ENPRO's opinion that RROs which may have been associated with the clients use of the property had been removed.

It is ENPRO's opinion that this report does not indicate the presence of a REC that is expected to impact the Property.

- *HART Kamehameha Highway Station Group: Pearlridge Station Drilled Shaft Spoils Stockpile Soil Sampling, Environmental Risk Analysis LLC (ERA), May, 2018*

This report documented a soil sampling event which took place in February, 2018, on soil stockpiled on the southeast side of TMK (1) 9-8-009: 005. The soil was sourced from drilled shaft spoils at the Honolulu Authority for Rapid Transportation (HART) Pearlridge Station makai lot (TMK (1) 9-8-009: 017). Two stockpiles were sampled. One stockpile (300 cubic yards (cy)) did not exhibit visual, olfactory, or photoionization detector (PID) evidence of contamination.

The second stockpile (100 cy) was reported to exhibit evidence of contamination (odor and black staining). This stockpile was segregated in a bermed cell. It was reported that PID readings collected during the drilled shaft monitoring exceeded 500 ppm.

Multi-increment soil sampling methodologies were employed for both stockpiles. Concentrations of barium, chromium, and lead were detected in the 300-cy stockpile, and concentrations of TPH-g, barium, chromium, lead, n-propylbenzene, n-butylbenzene, and naphthalene were detected in the 100-cy stockpile. ERA reported that none of the detections exceeded the DOH Unrestricted EALs. The report concluded by recommending the 300-cy stockpile be classified as "clean soil" and reused without restriction, and that the 100-cy stockpile be classified as "contaminated soil" (as defined in the HART Programmatic Environmental Hazard Evaluation and Environmental Hazard Management Plan, 2014), and be disposed of if taken offsite. The decision for the 100-cy stockpile was predominantly based on the "significant odor" and PID measurements observed during field monitoring. There was no documentation provided regarding disposal of this soil.

These soils were stockpiled on the Property after ENPROs 2017 Phase II Environmental Site Assessment. The potential that this activity could have impacted the subject site is expected to be addressed by multi-increment soil sampling recommended to address other historical activities on the Property to include automobile service and repair, as well as the apparent use of the Property as a junkyard, as discussed in Section 6.2.1 and depicted in the 2006 aerial photograph found in the appendix section of this report.

As the Property is included within the 150-meter guideway buffer of the Honolulu Rail Transit Project, ENPRO recommends any sampling and analysis or inclusion of an EHE/CEHMP to be in full compliance with the HART Programmatic Environmental Hazard Evaluation and Environmental Hazard Management Plan, as it related to the Property.

5.4.2 PREVIOUS ENVIRONMENTAL REPORTS ON ADJOINING PROPERTIES

During this assessment ENPRO reviewed the following environmental reports:

- *Phase I Environmental Site Assessment, Former Lava Motors Car Dealership 98-77 Kamehameha Highway, Aiea, Hawaii 96701*, Environmental Science International (ESI), December 21, 2010

This site encompasses TMK (1) 9-8-009: 017, and is the bordering property to the east of TMK (1) 9-8-009: 016.

This site was identified as a former Texaco service station and car wash according to tax records. ESI recommended conducting a geophysical survey to determine if USTs were still present and to conduct a Phase II ESA to assess for potential subsurface soil and groundwater contamination.

- *Phase II Environmental Site Assessment, Former Texaco Service Station 98-77 Kamehameha Highway, Aiea, Hawaii 96701*, Environmental Science International (ESI), August 11, 2011

The geophysical survey identified a cesspool, an area suspected to be the former UST pit, possible fuel piping which connected the USTs to the dispensers, and fill material beneath the former dispensers. Eight soil and groundwater samples were collected from the site. Petroleum hydrocarbon odors and staining were detected during drilling. Chemical constituents were detected in soil and groundwater samples at concentrations less than DOH Tier I action levels.

ESI recommended closing and properly abandoning the cesspool. The report concluded there had been historical releases associated with the former service station operations. ESI also concluded that because chemical constituents were detected at very low concentrations, it was unlikely that contaminants at the site pose a threat to human health or the environment.

Based on the information and conclusions of this report, it is ENPRO's opinion that this site does not represent a REC that is expected to impact the Property.

6.0 REGULATORY DATABASE REVIEW

6.1 STANDARD ENVIRONMENTAL RECORD RESOURCES: FEDERAL, STATE AND LOCAL DATABASE SEARCH

The regulatory database search report prepared by EDR was reviewed to evaluate the Property and listed properties within ASTM-recommended search distances. Federal, state and local databases reviewed are included in the Appendix section of this report.

The Property

The EDR regulatory database search report identified a total of five sites from the Property.

- VOLVO HAWAII, 98-075 Kamehameha Highway, Aiea, Hawaii, TMK (1) 9-8-009: 016
- JIM SLEMONS VOLVO HI, 98-075 Kamehameha Highway, Aiea, Hawaii, TMK (1) 9-8-009: 016
- TONY HONDA PEARLRIDGE, 98-051 Kamehameha Highway, Aiea, Hawaii, TMK (1) 9-8-009: 011
- CONTINENTAL INVESTMENT, 98-069 Kamehameha Highway, Aiea, Hawaii, TMK (1) 9-8-009: 014
- ASSOCIATED STEEL WORKS, 98-085 Kamehameha Highway, Aiea, Hawaii, TMK (1) 9-8-009: 005

Adjacent and Nearby Properties

The EDR regulatory database search report identified a total of 45 sites within the ASTM minimum search distances from the Property.

Many of the listed sites are not expected to present an environmental concern to the Property because, based upon ENPRO's review:

1. They only hold an operating permit (which does not imply a problem) or,
2. They were identified for past regulatory requirements that require no future action or,
3. They are too distant and/or hydrogeologically down gradient or cross gradient relative to the Property.

The EDR regulatory database search report identified eleven “orphan” sites within the ASTM minimum search distances from the Property.

Based on our review of the orphan sites listed, it is ENPRO’s opinion that the following sites may represent a REC that could negatively impact the Property:

- Hickam POL Spill Site 15
- Hickam POL Spill Site 11

These orphan sites are discussed in Section 6.2.1

6.2 ADDITIONAL ENVIRONMENTAL RECORD RESOURCES: STATE AND LOCAL AGENCY ENVIRONMENTAL RECORD SOURCES

Based on ENPRO’s review of the EDR regulatory database search report, regulatory files from the State of Hawaii Department of Health (DOH) were requested and reviewed. Our review considers both proximity to the Property and local hydrogeologic conditions to identify which sites and which environmental violations may be interpreted to have a potential impact to the Property’s environmental conditions.

Based on our review of the EDR regulatory database search report, we requested the following regulatory files from the State of Hawaii Department of Health (DOH), Solid and Hazardous Waste Branch (SHWB) and the Hazard Evaluation and Emergency Response (HEER) Office:

- 98-51 Kamehameha Highway, Aiea, Hawaii (project site)
- 98-69 Kamehameha Highway, Aiea, Hawaii (project site)
- 98-73 Kamehameha Highway, Aiea, Hawaii (project site)
- 98-75 Kamehameha Highway, Aiea, Hawaii (project site)
- 98-85 Kamehameha Highway, Aiea, Hawaii (project site)
- VOLVO HAWAII, 98-075 Kamehameha Highway, Aiea, Hawaii (LUST)(UST) Facility ID: 9-200359
- PACIFIC OLDSMOBILE, 98-055 Kamehameha Highway, Aiea, Hawaii (LUST) Facility ID: 9-201475 (UST) Facility ID: 9-202918
- CONTINENTAL INVESTMENT, 98-069 Kamehameha Highway, Aiea, Hawaii (UST) Facility ID: 9-200907

- ALOHA PETROLEUM, 98-135 Kamehameha Highway, Aiea, Hawaii
- SHELL SERVICE STATION, 98-080 Kamehameha Highway, Aiea, Hawaii (LUST)(UST) Facility ID: 9-201889
- TONY HONDA PEARLRIDGE, 98-051 Kamehameha Highway, Aiea, Hawaii
- FARM PROPERTY, 98-87 Kamehameha Highway, Aiea, Hawaii
- WAIMALU CHEVRON SERVICE, 98-104 KANUKU ST, Aiea, Hawaii (UST) Facility ID: 9-201270
- HEALANI LAND COMPANY, 98-55 Kamehameha Highway, Aiea, Hawaii
- ASSOCIATED STEEL WORKS, 98-085 Kamehameha Highway, Aiea, Hawaii (LUST)(UST) Facility ID: 9-202700
- AIEA CUE, 98-064 Kamehameha Highway, Aiea, Hawaii (LUST)(UST) Facility ID: 9-200293

ENPRO additionally requested information on the Property from the City and County of Honolulu Fire Department and reviewed documents from the Honolulu Department of Planning and Permitting.

6.2.1 DEPARTMENT OF HEALTH

The SHWB Office reported that the agency does not maintain records for the following:

- 98-73 Kamehameha Highway
- Energy Corridor Pipeline, TMK: (1) 9-8-009: 003
- Hickam POL ST15 Spill Site ST15, East of Kamehameha Highway and Hekaha Street, Aiea, Hawaii



The SHWB Underground Storage Tank (UST) Section provided the following:

The Property

- 1) **Associated Steel Workers, Ltd. 98-085 Kamehameha Highway, TMK (1) 9-8-009: 005, Facility ID: 9-202700**

The 1992 regulatory records indicated the former presence of one, 2,000-gallon diesel UST; one, 1,000-gallon gasoline UST; and one, 1,000-gallon diesel UST. All tanks were reported removed in 1992. A 1992 report by Brewer Environmental Industries (BEI) indicated releases of unleaded gas and diesel fuel to soil and groundwater were discovered following tank removal. Concentrations of benzene detected in soil and groundwater samples were greater than the DOH UST section recommended cleanup criteria.

Three subsequent reports by BEI, all dated 1993, documented further contaminant delineation and the successful over excavation of contaminated soil from the former UST excavation pit. Confirmation soil sampling and analysis indicated all tested analytes were at concentrations less than the DOH guidelines. Groundwater sampling and analysis only detected lead at concentrations (0.15 – 0.50 ppm) greater than DOH guidelines (0.05 ppm). Based on the analysis of the contaminant delineation, the lead concentrations were not considered to be correlated with the hydrocarbon plume, and an NFA designation was recommended.

An NFA determination was issued by the DOH in 1995.

It is ENPRO's opinion that this site meets the definition of an H-REC for the Property, based on the NFA designation, and previous environmental reports reviewed. (BEI, 1993, 1993a, and 1993b)

- 2) **Volvo Hawaii, 98-075 Kamehameha Highway, TMK: 9-8-009: 016, Facility ID: 9-200359**

The regulatory records indicated the former presence of one, 1,000-gallon used oil UST.

A 1998 release report by Masa Fujioka & Associates (MFA) documented the removal of a 550-gallon used oil UST. Visibly contaminated soil was excavated and stockpiled and later transported to PVT landfill for treatment and disposal. Subsequent soil samples collected from the excavation pit did not indicate contaminants at concentrations greater than DOH Tier 1 Action Levels, and an NFA designation was recommended.



A 1998 UST Confirmed/Suspected Release Interview Form acknowledged the discrepancy in the reported UST volume of 550-gallon vs. 1,000-gallon.

An NFA Letter was issued by the DOH in 1999.

As discussed in Section 5.4.1, this site was investigated as part of a 2015 Phase II environmental assessment performed by ENPRO. Soil vapor sampling was performed around the areas of the former UST and the analytical results indicated all contaminants detected were below the most stringent DOH EALs.

It is ENPRO's opinion that this site meets the definition of an H-REC for the Property, based on the NFA designation and previous environmental reports reviewed. (MFA, 1998) (ENPRO, 2015a)

- 3) **Continental Investment Company, 98-069 Kamehameha Highway, TMK 9-8-009: 014, Facility ID: 9-200907**

The 1986 regulatory records indicated the presence of one, 1,000-gallon diesel UST, owned by Hawaiian Western Transport.

A closure notification for the UST was included in the records, however, a closure report was not included in the DOH file.

As discussed in Section 5.4.1 this site was included as part of a 2015 Phase II investigation by ENPRO. Site characterization to assess the likely removal of, and potential impacts associated with this UST was performed. The analytical results indicated that no contaminants were detected at concentrations equal to or greater than the DOH EALs.

It is ENPRO's opinion this finding meets the definition of an H-REC, based ENPRO's 2015 findings. It should be noted that neither a No Further Action (NFA) letter nor a formal UST closure report were discovered in the regulatory records.

4) Tony Honda Pearlridge, TMK (1) 9-8-009: 011, Facility ID 9-201475

Tony Honda Pearlridge is noted in some regulatory records as having an address of 98-055 Kamehameha Highway (this is the current address of the parcel designated as TMK (1) 9-8-009: 007, adjacent to and south of the Property). ENPRO's research has concluded that Tony Honda Pearlridge operated on the Property, specifically TMK (1) 9-8-009: 011. This parcel occupies the west portion of the Property and currently has an address of 98-051 Kamehameha Highway. Tony Honda Pearlridge occupied the west portion of TMK (1) 9-8-009: 011. Further, Tony Nissan is included in the following regulatory records below. Tony Nissan was also found to have been located on the Property, on the east portion of current TMK (1) 9-8-009: 011, with a current street address of 98-051 Kamehameha Highway.

The regulatory records indicated the former presence of one, 550-gallon new oil UST and one, 1,000-gallon used oil UST on the Tony Honda Pearlridge site. Both tanks were removed in 1998.

Masa Fujioka & Associates (MFA) reported (1999) that three soil samples and two groundwater samples were collected from the UST excavation following removal of the tanks. One soil sample was collected from each end of the UST at 4 feet below grade. A groundwater sample was collected from the UST excavation and a groundwater monitoring well was installed to facilitate collection of a more representative groundwater sample. All samples were analyzed for total recoverable petroleum hydrocarbons (TRPH) and two of the samples were additionally analyzed for polynuclear aromatic hydrocarbons (PAHs), halogenated volatile organic compounds (HVOCs), PCBs, lead, and cadmium. All analytes were reported at concentrations less than the laboratory reporting limits with the exception of TRPH and vinyl chloride. TRPH was detected in soil at concentrations ranging from 109 to 287 mg/kg and in groundwater at 11,000 µg/L. Vinyl chloride was detected in groundwater at a concentration of 33.8 µg/L. The vinyl chloride result was greater than the DOH Tier I Action Level of 2.0 µg/L. The report concluded with an NFA recommendation, however, in response to the report's findings, the DOH requested additional investigation.

A January, 2001 Phase I ESA was performed by MFA at TMK (1) 9-8-009: 011. MFA separated the TMK into two sides. The west side (west of Kanuku Street) was the location of the Tony Honda Pearlridge. The east side (east of Kanuku Street) was the location of the Tony Nissan. The MFA Phase I indicated two ASTs at Tony Honda Pearlridge. MFA reported that the ASTs were installed in 1998, and used to store 1,000 gallons of new oil, and 500 gallons of used oil. The ASTs were in good condition with no visible staining reported.

The report also noted two service bays at Tony Honda Pearlridge that included ten above ground and ten in-ground hydraulic lifts. The above ground lifts were reported to be in good condition with no visible staining, and no leaks reported. Aside from the possibility for the hydraulic fluid in the lifts to contain PCBs, no recommendations were made by MFA in the report pertaining to the hydraulic lifts.

An oil/water separator was noted at Tony Honda Pearlridge and a second oil/water separator was suspected at Tony Nissan. MFA reported the suspected oil/water separator based on a 1991 report by Unitek, yet the location was never verified in the Phase I report. MFA also reported the Technical Manager at Tony Nissan stated there was no oil/water separator at the property, and this was left as a discrepancy in the Phase I report. MFA reported that the known oil/water separator had not been recently maintained, and City and County permits were issued to discharge wastewater to the sanitary sewer system.

On the east side of the site, at Tony Nissan (east of Kanuku Street), fifteen above ground hydraulic lifts were observed to be in good condition. Additionally, eighteen above ground hydraulic lifts were located on the southeast side of the property, several of which were observed to have fluid stains on the equipment and the paved ground.

The Phase I report also documented the possibility of an unregistered used oil UST on the southeast corner of the Tony Nissan. This was based on a previous 1991 environmental report by Unitek, which stated that a 1986 blueprint indicated the UST near that location. The report stated the potential presence of a UST may affect the subject site, and caution was advised during future excavation in the vicinity of the suspected UST. The 1991 environmental report by Unitek was not included in the regulatory records received by ENPRO.

Subsequent investigations by MFA in 2004 included re-sampling from the original monitoring well location indicated in their 1999 report, and installing/sampling six additional monitoring wells at locations lateral, downgradient, and upgradient of the original monitoring well. The sample from the original monitoring well was analyzed for all DOH-recommended analytes for waste oil releases, while the additional wells were analyzed only for halogenated volatile organic compounds. Vinyl chloride was the only tested analyte detected at a concentration greater than DOH Tier I Action Levels. Vinyl chloride was detected at 6.7 µg/L in the original well, 3.5 µg/L in a well approximately 15-feet to the north, and 18.0 µg/L in a well approximately 20-feet to the northeast. MFA re-iterated their recommendation for an NFA designation.

In response to the 2004 reports from MFA, the DOH acknowledged evidence that the contamination appeared to be delineated and restricted to the former UST area, and issued an NFA designation.



It is ENPRO's opinion that the UST at this site meets the definition of an H-REC for the Property, based on the NFA designation and previous environmental reports reviewed, (MFA, 1999, 2001 and 2004). However, the historical auto repair activities, leaking above ground hydraulic lifts, in-ground hydraulic lifts, and oil/water separator(s) have not been adequately investigated. Therefore, these issues are considered to represent RECs for the Property.

Adjacent and Nearby Properties

1) Shell Service Station 98-080 Kamehameha Highway, Facility ID: 9-201899

This site is approximately 100 feet north of the Property. The regulatory records indicated the former presence of three, 10,000-gallon gasoline USTs and one, 550-gallon used oil UST, installed in 1985 and removed in 2003. A 2003 closure report by Walker Consultants, Ltd, indicated field-evident gasoline and used oil releases, and concluded with an NFA recommendation. The DOH issued an NFA letter in 2003, based on the results of groundwater and soil samples that indicated gasoline concentrations in these samples were less than the DOH Tier 1 Action Levels.

It is ENPRO's opinion that this property does not constitute a REC that is expected to affect the Property based on the NFA determination by the DOH, and our review of previous environmental reports. (Walker, 2003) (ENPRO, 2015a)

2) Aiea Cue (Pearl Auto Service and Supply Incorporated), 98-064 Kamehameha Highway, Facility ID 9-200293

This site is approximately 100 feet north of the Property. The regulatory records indicated the former presence of two, 2,000-gallon gasoline USTs; one, 6,000-gallon gasoline UST; and one, 500-gallon used oil UST. All four USTs were removed in 1993. Soil closure samples collected beneath the two 2,000-gallon gasoline tanks indicated Total Petroleum Hydrocarbons measured as gasoline (TPH-g), and ethylbenzene were detected at concentrations above the DOH action levels.

Subsequent environmental investigation reports from 1995 by EnviroServices concluded that it was likely that unleaded gasoline had affected the project site, and had migrated past the main office structure and under Kamehameha Highway.

A 1999 Phase II ESA by Muranaka Environmental Consultants (MEC) included groundwater sampling and analysis. Based on the reported contaminant levels of TPH-gasoline (0.62 mg/l to 6.8 mg/l) and ethylbenzene (0.141 mg/l), MEC recommended annual groundwater monitoring until contaminant levels attenuated to below the DOH action levels for two consecutive years.



In 2002 and 2004, based on soil and groundwater sampling results, BEI Environmental recommended an NFA status. However, the DOH denied that request in 2005, based on the conclusion that contamination remained on site at concentrations greater than the DOH Action Levels and had most likely migrated off site.

In 2007, a report by Environet, Inc. concluded that petroleum contamination beneath Kamehameha Highway was most likely derived from the fuel pipeline that runs beneath the highway. In 2009, Muranaka Environmental Consultants reported that laboratory results of one groundwater and one soil sample, collected from a DOH-approved location, did not indicate contaminants of concern at concentrations greater than the DOH Tier 1 Action Levels.

In 2009, the DOH issued an NFA Letter for this site.

It is ENPRO's opinion that this site does not constitute a REC that is expected to affect the Property based on the NFA determination by the DOH, and our review of previous environmental reports. (MEC, 1999 and 2009) (ENPRO, 2015a)

3) Yunnies Shell Service Station, 98-135 Kamehameha Highway, Facility ID 9-200311

This site is approximately 750 feet southeast from the Property. The regulatory records indicated the former presence of one, 8,500-gallon gasoline UST; two, 6,000-gallon gasoline USTs; one, 4,000-gallon gasoline UST (all removed in 1989), and one, 550-gallon used oil tank (removed in 1993). Also reported was the installation of three, 12,000-gallon gasoline USTs, installed in 1990.

Environmental reports relating to petroleum leak notifications and soil and groundwater contamination dating back to 1989 were included in the regulatory records. A 1996 report from Levine-Fricke summarized the extent of contamination on the site from past use, and the subsequent corrective and monitoring actions that had taken place. This included the excavation and offsite disposal of over 3,000 tons of soil. Based on the results of the soil and groundwater analyses that indicated contaminants of concern at concentrations less than the DOH Cleanup Criteria, an NFA designation was requested. In 1996, based on the Levine-Fricke report, the DOH issue an NFA Letter.

In 2008, a Phase II investigation was performed by Element Environmental, LLC for due diligence to establish a baseline of environmental conditions with an emphasis on potential hydrocarbon impacts.

The results of the investigation indicated detectable petroleum-related contaminants at concentrations less than the DOH EALs. Based on these detections, a release was reported to DOH as a formality. Element Environmental, LLC recommended an NFA status for the site based on the laboratory results of soil and groundwater samples that indicated concentrations of contaminants of concern that were less than the DOH EALs. In 2011, the DOH issued an NFA designation.

A 2018 notification to the DOH indicated a suspected release from one of the most recently installed USTs, as evidenced by brine found in the tank. A response from the DOH instructed for system tests and site assessment to be performed. No further information was provided in the regulatory records reviewed.

A 2019 communications log sheet from the DOH indicated plans to permanently close the tanks at the Pearl City Shell location.

It is ENPRO's opinion that this property does not constitute a REC that is expected to affect the Property based on the NFA determinations by the DOH, a review of previous environmental reports, and the distance and direction from this site to the Property. (Levine, 1996) (EE, 2008)

4) Waimalu Chevron, 98-104 Kanuku Street, Facility ID: 9-201270

This site is approximately 100 feet north of the Property. The regulatory records indicated the former presence of three, 10,000-gallon gasoline USTs; one 10,000-gallon diesel UST; one 1,000-gallon used oil UST; and two, 30-gallon GST 46 turbine oil USTs, all removed in 1989.

A 1989 laboratory report from Industrial Analytic Laboratory, Honolulu, Hawaii, indicated samples of tank bedding material had concentrations of Total Recoverable Petroleum Hydrocarbons ranging from 5.1 mg/kg to 108.4 mg/kg. These concentrations are less than the 2017 DOH EAL for TPH-(gasolines) in soil for commercial/industrial land use (500 mg/kg).

A Real Property Transfer file from February, 1989, indicated no free product discovered during tank excavation, no contaminated groundwater discovered, no product present from two observation wells drilled to 5'6" deep, and no evidence or suggestion of off-site contamination.

Based on the records reviewed, it is ENPRO's opinion that this property does not constitute a REC that is expected to affect the Property.

5) Island Landscaping, 98-055 Kamehameha Street, Facility ID: 9-202918

This site is approximately 50 feet south of the Property. A single regulatory file, Notification for Underground Storage Tanks, from 1994 indicated the former presence of a 4,000-gallon gasoline UST. The UST was reported as removed in 1994, with no evidence of leaks detected.

A January, 2001 Phase I ESA by MFA indicated that the Island Landscaping UST was located on the south side of the Pearl Harbor Bike Path.

No further information was available for our review.

Based on the records reviewed, and downgradient location of the site relative to the Property, it is ENPRO's opinion that this property does not constitute a REC that is expected to affect the Property.

The SHWB Hazardous Waste Section provided the following:

The Property

1) Volvo Hawaii, 98-075 Kamehameha Highway, TMK (1) 9-8-009: 015

The regulatory file included Hazardous Waste Site Visit Reports for 1996–1997. The compliance evaluation inspections discovered no violations and requested a change of generator status to “Conditionally Exempt Small Quantity Generator”. The hazardous waste generated at the facility was noted as spent solvents, used oil, batteries, and antifreeze. The business was indicated to be regulated by The Resource Conservation and Recovery Act (RCRA).

The file also reported that this site was no longer generating hazardous waste, was out of business, and had been requested to be removed from the RCRA database.

Based on the records reviewed, it is ENPRO's opinion that no evidence of a release was reported that would be expected to impact the Property. However, it is ENPRO's opinion that the historical storage and use of hazardous chemicals and petroleum products represents a REC that could affect the Property.



2) Tony Honda Pearlridge, 98-051 Kamehameha Highway, TMK (1) 9-8-009: 011

The regulatory file included a Hazardous Waste Site Visit Report for 1996. The hazardous waste generated at the facility was noted as spent solvents, used oil, batteries, and antifreeze. The comments indicated a switch to a non-hazardous solvent, noted the facility was a small quantity generator, and included a note to change the site to a conditionally exempt generator.

The file also included a 1995 Uniform Hazardous Waste Manifest Form. This form indicated the generation of flammable liquid waste, N.O.S. (Petroleum, Naphtha, Xylene).

Based on the records reviewed, it is ENPRO's opinion that no evidence of a release was reported that would be expected to impact the Property. However, it is ENPRO's opinion that the historical storage and use of hazardous chemicals and petroleum products represents a REC that could affect the Property.

Adjacent and Nearby Properties

1) Pacific Oldsmobile, 98-055 Kamehameha Highway, TMK (1) 9-8-009: 007

This site is approximately 50 feet south of the Property

The regulatory file included a Hazardous Waste Site Visit Report for 1996. The compliance evaluation inspection discovered no violations and requested a change of generator status to "Conditionally Exempt Small Quantity Generator". The hazardous waste generated at the facility was noted as spent solvents, used oil, batteries, and antifreeze. The business was indicated to be RCRA regulated.

It was also reported in the records that on June 14, 1996, a switch to a non-hazardous solvent was finalized.

Based on the records reviewed, it is ENPRO's opinion that no evidence of a release was reported that would be expected to impact the Property. However, it is ENPRO's opinion that the historical storage and use of hazardous chemicals and petroleum products represents a REC that could affect the Property.



The SHWB Solid Waste Section provided the following:

The Property

1) 98-77 Kamehameha Highway, TMK (1) 9-8-009: 017

The regulatory file provided by the DOH indicated this site was used for damaged vehicle storage (junk yard). The file referred to the site as 98-077 Kamehameha Highway, TMK (1) 9-8-009: 017. However, based on the October 23, 2009 letter described below, as well as the 2006 aerial photograph found in the appendix section of this report, ENPRO has identified this to be located on the Property, at 98-085 Kamehameha Highway, TMK (1) 9-8-009: 005.

A July, 2003 DOH inspection report indicated there had been approximately 30 cars onsite, no visible staining of the ground, and potential violations of Hawaii Revised Statutes and Hawaii Administrative Rules Title 11 Chapter 58.1. The investigation was related to an anonymous complaint suggesting cars being stored on the lot were leaking oil, transmission fluid, and coolant onto the ground. The report also stated Stoneridge was planning to cease operations at the site in the coming months.

In April, 2004, an approval letter from the DOH was issued in response to a Solid Waste Permit Application from Stoneridge Recoveries, LLC for towed vehicle storage.

An October 21, 2009 Warning Letter was sent to Stoneridge from the DOH, indicating the solid waste permit had expired in April 2009, and that an October, 2009 DOH inspection noted what seemed to be continued activity without a permit. The inspection revealed over 50 vehicles, some of which were damaged and stacked on top of one another.

An October 23, 2009 letter was sent to the DOH from attorney Arthur Goto, indicating Continental Investment Company Limited, the fee owner of the property, did not permit Stoneridge Recoveries, LCC to operate or occupy the property, and was seeking legal recourse. It was also noted that the property in question was actually 98-085 Kamehameha Highway (TMK (1) 9-8-009: 005), not 98-077 Kamehameha Highway.

A December, 2009 Solid Waste Permit Application from Stoneridge Recoveries, LLC was submitted to the DOH. A January, 2010 letter from the DOH determined the submission to be incomplete, citing a lack of a Zoning Clearance form, and Property Owner Approval form.

No further information was available for our review.

It is ENPRO's opinion that this information indicates the site at 98-085 (TMK (1) 9-8-009: 005) operated as a used vehicle storage location (junk yard) from at least July 2003 to December 2009. It is our opinion that this activity constitutes a REC that could affect the Property.

Adjacent and Nearby Properties

1) 98-87 Kamehameha Highway, TMK (1) 9-8-009: 017

This site is approximately 50 feet southeast of the Property

The regulatory files included Solid Waste Management Permits from 2012 and 2015 for CA Pacific Ocean Trading Co. to operate a recycling drop off and sorting facility. The permit was for source separated, non-ferrous scrap metal and old motors (required to be free of fluids). Also included in the regulatory files were inspection reports, as well as a final Closure Letter dated September, 2018 from the DOH. The DOH letter concluded with a satisfactory final inspection report, and the termination of the Solid Waste Management Permit.

It is ENPRO's opinion that this site does not constitute a REC that is expected to affect the Property, based on the nature of the business, the satisfactory final inspection report from the DOH, the absence of documentation indicating a significant release, and the downgradient location of the site relative to the Property.

The HEER Office:

The HEER Office reported that the agency does not maintain records for the following:

- 98-51 Kamehameha Highway
- 98-69 Kamehameha Highway
- 98-73 Kamehameha Highway
- 98-75 Kamehameha Highway
- 98-77 Kamehameha Highway
- 98-95 Kamehameha Highway
- Associated Steel Works, 98-085 Kamehameha Highway
- Continental Investment, 98-069 Kamehameha Highway
- Waimalu Chevron Service, 98-104 Kanuku Street

- Volvo Hawaii, 98-075 Kamehameha Highway
- Energy Corridor Pipeline, TMK: (1) 9-8-009: 003

The HEER Office provided the following:

The Property

1) 98-055 Kamehameha Highway (TMK (1) 9-8-009: 011)

Tony Honda Pearlridge is noted in some regulatory records as having a street address of 98-055 Kamehameha Highway (this is the current address of the parcel designated as TMK (1) 9-8-009: 007, adjacent to and south of the Property). ENPRO's research has concluded that Tony Honda Pearlridge operated on the portion of the Property designated as TMK (1) 9-8-009: 011. This parcel occupies the west portion of the Property and currently has a street address of 98-051 Kamehameha Highway.

- **March, 24, 1993:** Release Notification Form for a chemical discharge onto water and land. The report comments related to Auto Detailing at Tony Honda /Pflueger Acura at Pearlridge Area, and indicated that the United States Coast Guard had investigated the source further. It was stated that the companies involved had been previously been warned by the EPA. It was further reported that no further actions were taken or noted. No further information was available in the regulatory records.

Based on the known location of Tony Honda at TMK (1) 9-8-009: 011, and its related automobile detailing, maintenance, and repair services, it is ENPRO's opinion that this site constitutes a REC that has a reasonable potential to impact the Property.

Adjacent and Nearby Properties

1) 98-055 Kamehameha Highway (TMK (1) 9-8-009: 007)

This site is approximately 50 feet south of the Property.

- **September 26, 1991:** Release Notification Form, addressed as 98-055 Kamehameha Highway, for a Western Pacific Transport truck spilling 25-gallons of diesel fuel onto Kamehameha Highway. The Honolulu Police Department was reported on scene, and the report listed that oil was contained and removed. No further information was available in the regulatory records.

- **August, 2016; DRAFT - Phase I Environmental Site Assessment 98-55 Kamehameha Highway Tax Map Key 9-8-009:007 Aiea, Hawaii** by AMEC Foster Wheeler Environment and Infrastructure, Inc. The report identified the project site to have had multiple historical uses, including tenancy by Tony Automotive Dealership, and an associated car detailing business. A common practice of the detailing business included treating new cars with a protective coating and removal of this coating prior to sale. According to the owner of the property at the time, due to odor complaints by neighboring properties, the car detailing business was subsequently evicted. The owner of the property at the time also indicated soil testing had been performed for potential litigation against the car detailing tenant. The results of the tests were said to have only indicated Bunker C fuel oil in soil under a warehouse, and no written report or environmental cleanup was performed. Documentation of these findings was not available.

The Phase I ESA listed two RECs on site:

1. The site was anecdotally reported by the owner of the property at the time to be a former waste disposal area in the 1940s and 1950s. Documentation of these findings was not available.
2. The site was anecdotally reported by the owner of the property at the time to have had soil testing performed in the late 1990s indicating Bunker C fuel oil beneath a warehouse building. Documentation of these findings was not available.

Recommendations for surface soil, subsurface soil, and groundwater sampling were provided to address the indicated RECs on site.

- **March, 2017; DRAFT - Sampling and Analysis Plan Phase II Environmental Site Assessment 98-55 Kamehameha Highway, Aiea Hawaii** by AMEC Foster Wheeler Environment and Infrastructure, Inc. This report described the proposed methodology and procedures for sampling of soil, groundwater, and soil gas. These included single borehole decision units, and multi-increment sampling methods in accordance with the DOH HEER Office TGM. Contaminant concentrations were proposed to be evaluated against both residential and commercial / industrial screening values, for sites that are above a potential drinking water resource and located within 150-meters from a surface water body.

Volatile constituents were proposed to be compared with vapor intrusion screening for current or future enclosed structures. Chemicals of concern included the following:

- Total Petroleum Hydrocarbons
- Polycyclic Aromatic Hydrocarbons
- Volatile Organic Compounds
- Polychlorinated biphenyls
- Organochloride Pesticides
- RCRA 8 Metals

- **April 7, 2017; Review of Sampling and Analysis Plan Phase II Environmental Site Assessment 98-55 Kamehameha Highway, Aiea, Hawaii** by DOH HEER Office. DOH acknowledged receipt and review of the March, 2017 sampling and analysis plan by AMEC Foster Wheeler Environment and Infrastructure, Inc. This letter approved the proposed sampling and analyses plan.

No further information was available in the regulatory records.

Although the reports listed above were specific to TMK (1) 9-8-009: 007, they included ancillary information with regards to the Tony Honda Pearlridge at TMK (1) 9-8-009: 011. The information relating to the historical use of Tony Honda Pearlridge constitutes a REC that is expected to have a reasonable potential to affect the Property.

2) Shell Service Station, 98-080 Kamehameha Highway

This site is approximately 100 feet north of the Property. The regulatory file for this site included the following:

- Material Safety Data Sheets for gasoline
- **1989 through 1997**: Chemical Inventory Form for gasoline
- **June 3, 2003**: Release Notification Form for 25-gallons of hydraulic oil discovered during hydraulic lift removal



- **August, 2003:** *Hydraulic Hoist Removal Report* by Walker Consultants, Ltd. Laboratory analysis of soil and caprock groundwater samples indicated a release from the southwestern hoist. Contaminants were not detected at concentrations greater than the applicable action levels, and no further action was recommended.
- **January, 2004:** *Review of Hydraulic Hoist Removal Report* by DOH HEER Office. Acknowledged receipt and review of the *Hydraulic Hoist Removal Report* dated August, 2003, by Walker Consultants, Ltd. This letter concluded no further action was necessary.

Based on the review of the readily available regulatory files received, it is ENPRO's opinion that this site does not represent a REC that is expected to affect the Property.

3) 98-064 Kamehameha Highway

This site is approximately 100 feet north of the Property.

- **November 26, 2012:** Release Notification Form for HECO Transformer #69237 transformer oil leak onto soil. The form indicated the release did not qualify as a release to the environment. December 28, 2012 comments indicated control measures were deployed, and that the transformer was replaced on December 16, 2012. The comments also indicated a plan to excavate soil, sample, and send a follow-up report. No further information was available in the regulatory records.

Based on the review of the readily available regulatory files received, it is ENPRO's opinion that none of the files included evidence of RECs that are expected to affect the Property.

4) 98-87 Kamehameha Highway

This site is approximately 50 feet southeast of the Property.

November, 2017: *DRAFT - Sampling and Analysis Plan Phase II Environmental Site Assessment 98-87 Kamehameha Highway, Aiea Hawaii* by AMEC Foster Wheeler Environment and Infrastructure, Inc. This report described the proposed methodology and procedures for sampling of soil and groundwater, to evaluate the potential presence of contamination in subsurface soil and groundwater.



The report indicated that onsite RECs had been presented in a 2017 Phase I ESA by AMEC Foster Wheeler. This 2017 Phase I was not included in the regulatory records received by ENPRO. The identified RECs included:

1. current and historical use of the site as a used tire business
2. potential hazardous material storage in the form of several 55-gallon drums labeled "Zelbert" – containing a tar-like substance used to prevent corrosion on new vehicles
3. a nearby historical wastewater treatment plant
4. surface soil petroleum contamination
5. observed illicit waste accumulation in the form of used tires and vehicles, as well as discarded shipping containers

The report proposed two DUs to be placed across the accessible portion of the site for surface and subsurface soil evaluation, and two temporary monitoring wells for groundwater evaluation. Contaminant concentrations were proposed to be evaluated against both residential and commercial / industrial screening values, for sites that are above a potential drinking water resource and located within 150-meters from a surface water body.

- **May, 2018:** *DRAFT - Phase II Environmental Site Assessment Report 98-87 Kamehameha Highway, Aiea Hawaii TMKs: 9-8-009: 001, 9-8-009: 008, 9-8-009: 010* by Wood Environment and Infrastructure Solutions, Inc. This report presented the findings of field activities conducted between April 4 and 9, 2018. The evaluation included the collection of soil, groundwater, and drum product samples for laboratory analysis.

Two DUs were assigned onsite. Thirty shallow borings were advanced to approximately five feet below ground surface for multi-increment sample collection from DU01. One multi-increment surface soil sample was collected from DU02. A total of six multi-increment soil samples were collected from the two DUs (four primary plus two replicates), with depths ranging from 0 to 2-feet bgs. Three groundwater samples (two primary plus one duplicate) were collected from two temporary monitoring wells, and three drum product samples were collected from drums stored at the site.

The following analytes were detected at concentrations exceeding Tier I EALs:

1. TPH-DRO was detected at a concentration exceeding the Tier I EAL for both unrestricted/residential land use and commercial/industrial land use in the near-surface (0.5 to 2-foot bgs) soil sample from DU01.
2. TPH-RRO was detected at a concentration exceeding the Tier I EAL for unrestricted/residential land use in the surface (0 to 0.5-foot bgs) soil sample from DU02.
3. Chromium, lead, and mercury were detected at concentrations exceeding the Tier I EALs for both unrestricted/residential land use and commercial/industrial land use in the groundwater sample collected from GW02.
4. Drum product sample results indicated that the contents of the drums stored at the site are classified as non-hazardous waste.

The report recommended that the drums be properly disposed at a licensed off-site disposal/recycling facility on Oahu. The report further assessed that areas of surface and subsurface soil, and groundwater at the site, appeared to have been impacted by historical uses at the site or surrounding area. Based on the existing conditions and uses of the site, the impacts of petroleum hydrocarbons and metals in the site soils and groundwater were reported as not presenting an exposure hazard to current site users.

The final recommendations included:

- further site characterization in the event of property use changes in the future
- a remedial alternatives analysis to evaluate potential remediation options
- health and safety precautions to be implemented for construction workers and site users during any future earth-disturbing activities

- **August, 2018:** *Analysis of Brownfields Cleanup Alternatives Report 98-87 Kamehameha Highway, Aiea, HI* TMKs: 9-8-009:001, 9-8-009:008, and 9-8-009:010 by Wood Environment and Infrastructure Solutions, Inc. This report evaluated the potential for remediation options in relation to the soil and groundwater impacts discussed in the May, 2018 *Phase II Environmental Site Assessment Report 98-87 Kamehameha Highway, Aiea Hawaii* TMKs: 9-8-009:001, 9-8-009:008, 9-8-009:010 by Wood Environment and Infrastructure Solutions, Inc. Potential remedies were researched using the Federal Remediation Technologies Roundtable (FRTR) Remediation Technologies Screening Matrix and Reference Guide. These remedy options included:

1. no action
2. excavation and onsite consolidation and capping of impacted soils, with Land Use Controls (LUCs)
3. surface capping the entire site, with LUCs
4. surface capping the entire site, with LUCs, plus the installation of subsurface sheet piling.
5. full excavation and offsite disposal of impacted soils, with LUCs
6. full excavation and offsite disposal of impacted soils, with LUCs, plus the installation of subsurface sheet piling.

The six potential remediation alternatives were evaluated against the short-term and long-term aspects of three broad criteria: effectiveness, implementability, and cost. Alternative 3 - Surface capping the entire site, with LUCs, was determined to be the preferred alternative, and final recommendation.

Based on the review of the readily available regulatory files received, it is ENPRO's opinion that none of the files included evidence of RECs that are expected to affect the Property, given the limited impacts to groundwater and the downgradient location of the site relative to the Property.

5) Shell Service Station, 98-135 Kamehameha Highway

This site is approximately 750 feet southeast of the Property.

- Material Safety Data Sheets for gasoline
- 1989 through 1998: Chemical Inventory Form for gasoline

Based on the review of the readily available regulatory files received, it is ENPRO's opinion that none of the files included evidence of RECs that are expected to affect the Property.

6) Hickam Petroleum, Oils and Lubricants (POL) Pipeline Spill Site ST11

This site is approximately 450 feet southeast of the Property.

- **April, 2007:** *Final Work Plan for RI/FS at Hickam POL Pipeline and Facilities, Hickam AFB, Hawaii* by Parsons. This report provided an overview of past data and additional data collection planned along the Hickam POL Pipeline. The intent of the additional work was for sufficient data to be collected from each of the pipeline sites to make a determination that either no further response actions or investigations were needed (because no significant contamination or environmental risks exist) or that cleanup action was needed.

Site ST11 occurs within the median strip of Kamehameha Highway, east of the intersection of Kaonohi Street and Kamehameha Highway. The site is adjacent to Pearlridge Shopping Center. An AVGAS leak was discovered in November 1954. The amount of fuel released is unknown.

A 1997 previous investigation by EA Engineering included soil, soil gas, and groundwater samples. Soil and soil gas sample concentrations of all detected analytes were less than their respective DOH Tier 1 EALs. Lead was detected in one groundwater sample at a concentration less than the DOH Tier 1 EAL.

The ST11 report section concluded with proposed locations for Phase I and Phase II soil and soil vapor sampling.

- **September, 2008:** *DRAFT Remedial Investigation Report for Upper and Lower Sites/Vaive Pits Hickam Petroleum, Oils, and Lubricants Pipeline and Facilities* by Parsons. This report presented the sampling results of the investigations performed at the proposed locations for Phase I and Phase II soil and soil vapor sampling recommended in the 2007, *Final Work Plan for RI/FS at Hickam POL Pipeline and Facilities, Hickam AFB, Hawaii* report by Parsons. The report stated that a Category 2 No Further Response Action Planned (NFRAP) document would be prepared for Installation Restoration Program (IRP) sites where the Remedial Investigation (RI) data indicated that the nature and extent of contaminants had been fully-defined, posed no unacceptable risk, and for which no response alternative evaluation was needed.

Site ST11 had soil, soil vapor, and groundwater sampling performed in 2007 and 2008. Maximum detected concentrations of contaminants for these three media were compared against DOH Tier 1 EALs. Based on the analytical data, petroleum-related compounds were not detected at Site ST11 at concentrations greater than the applicable DOH Tier 1 EALs. Therefore, a Category 2 NFRAP determination was recommended by Parsons for Site ST11.

Based on the review of the readily available regulatory files received, it is ENPRO's opinion that none of the files included evidence of RECs that are expected to affect the Property.

7) Hickam Petroleum, Oils and Lubricants (POL) Pipeline Spill Sites ST15

This site is approximately 300 feet northwest of the Property.

- **April, 2007:** *Final Work Plan for RI/FS at Hickam POL Pipeline and Facilities, Hickam AFB, Hawaii* by Parsons.

Site ST15 was located within the median strip of Kamehameha Highway between Hekaha Street and Kanuku Street. The POL Pipeline at that location was estimated to be 3 to 5 feet bgs, and abandoned in 1954. An unknown amount of fuel was reported to have leaked in 1949. Prior reports from the Military Air Transport Service and the 15th Air Transport Wing mention several leak areas along Kamehameha Highway between 1948 and 1950. The types of fuels released and exact locations of the leaks were not specified; however, it was reported that the total volume of leaks along Kamehameha Highway ranged up to 50,000 gallons.

Previous investigations for this site in 1992 and 1997 included soil, soil gas, and groundwater samples. Concentrations of all contaminants of concern and results for all analytes were less than the respective DOH Tier 1 EALs. (HLA, 1992) (EA ENGINEERING, 1997)

The ST15 report section of the Final Work Plan included proposed locations for Phase I and Phase II soil and soil vapor sampling.

- **September, 2008:** *DRAFT Remedial Investigation Report for Upper and Lower Sites/14ve Pits Hickam Petroleum, Oils, and Lubricants Pipeline and Facilities* by Parsons.

Site ST15 had soil, soil vapor, and groundwater sampling performed in 2007 and 2008. Maximum detected concentrations of contaminants for these three media were compared against DOH Tier 1 EALs. Contaminants of potential concern were not detected in soil, soil vapor, or groundwater at concentrations greater than the applicable DOH Tier 1 EALs, with the exception of TPH-g in soil samples collected from one of the seven borehole locations.

The soil sample TPH-g concentration (550 mg/kg) that exceeded the Tier 1 EAL ceiling limit (100 mg/kg) was less than the Tier 1 EAL for leaching concerns (2,000 mg/kg). Based on the sample depth (below the groundwater table), the report stated it was more appropriate to evaluate the site based on the groundwater analytical results collected from the same location.

The groundwater sample was analyzed using the Massachusetts Department of Environmental Protection (MADEP) method, and used to quantify the concentration of total volatile petroleum hydrocarbon (TVPH) for comparison against the DOH Tier 1 EAL for TPH-g. It was noted that there are no DOH accepted Tier 1 EALs for TVPH as quantified by the MADEP method, and, at the time of the report, the DOH was reviewing the draft MADEP TPH fraction screening levels. The reported TVPH concentration (730 ug/L) was noted to exceed the DOH Tier 1 EAL for TPH-g (550 ug/L). The exceedance (reported as a potential TPH-g exceedance) was noted as being isolated to only one location.

The detected soil vapor TPH-g concentration (11,000 ppbv) was equal to the applicable DOH Tier 1 EALs for residential use, and significantly less than the EAL for commercial/industrial areas (the current and most likely future land use at the site). Based on the nonresidential land use, the presence of clayey/silty soils, and the absence of other volatile compounds in soil or soil vapor above EALs, the Tier 1 EAL for TPH-g was considered to be overly conservative for Site ST15.

For a more complete site characterization, the report included a summary of additional evaluations regarding the leak location, the surveyed coordinates for the soil/groundwater borings, and the quality of the aquatic habitat in the nearby stream.

Based on the laboratory results and these further evaluations, a Category 2 NFRAP determination was recommended by Parsons for Site ST15.

- **July, 2009:** DOH letter acknowledging a concurrence with the *Remedial Investigation Report for Upper and Lower Sites/14ve Pits Hickam Petroleum, Oils, and Lubricants Pipeline and Facilities* reports request for an NFA.

Although a formal NFA letter was not discovered in the regulatory file, it is ENPRO's opinion, based on the results of the sampling and analysis performed, that the Hickam Petroleum, Oils and Lubricants (POL) Pipeline Spill Sites ST15 and ST11 do not represent RECs that are expected to impact the Property. Note that we cannot rule out the possibility of other undetected or unreported leaks from these pipelines that could possibly impact the Property.

6.2.2 BUILDING, PLANNING, AND/OR ZONING DEPARTMENTS

The City and County of Honolulu Department of Planning and Permitting database was reviewed on August 26, 2019 to obtain historical use information for the Property.

Based on our review of the planning and permitting database, the following information indicated possible evidence of RECs associated with the Property:

- A 1983 building permit to construct a factory store or warehouse at TMK (1) 9-8-009: 005, issued to Associated Steel Workers
- A 1973 building permit to construct a new building at TMK (1) 9-8-009: 011, issued to Hawaii Brewing Co.
- A 1986 building permit to alter an existing structure into an auto repair shop at TMK (1) 9-8-009: 011, issued to Jim Slemmons Imports



- A 1978 building permit to construct a service station at TMK (1) 9-8-009: 015, issued to Jim Slemmons Imports

These records reinforce that historical use of the property included automobile service and repair. A copy of the records for the Property can be found in the appendix section of this report.

6.2.3 FIRE DEPARTMENT

The City and County of Honolulu Fire Communication Center was contacted on August 22, 2019 to obtain information regarding any fires, complaints, permits, violations involving hazardous materials use, USTs or ASTIs on record for the Property and/or adjoining properties. ENPRO has not received a response from the Fire Communication Center as of the date of this report. Should our review of these files at a later date impact our findings, conclusions or recommendations, ENPRO shall forward an addendum letter to such effect.

6.3 VAPOR ENCROACHMENT SCREENING IN PROPERTY INVOLVED IN REAL ESTATE TRANSACTIONS

The EDR Radius Map provided an initial search of all standard government record databases and EDR proprietary historical records within the ASTM E1527-13 recommended radii. ENPRO reviewed those sites related to former dry cleaners, gas stations and manufactured gas plants which met the criteria for vapor encroachment screening (VES) as provided by the ASTM E2600-10 *Standard Guide for Vapor Encroachment Screening of Property Involved in Real Estate Transactions* (ASTM E2600-10).

ENPRO reviewed the regulatory database search of those sites for recorded releases of contaminants of potential concern (COPCs) within the 1/3 mile and 1/10 mile approximate minimum distances defined in ASTM E2600-10 for vapor encroachment from COPC-contaminated sites. This measurement is based upon the distance from the known or suspect contaminated property to the Property boundary.



ENPRO's review of EDR's database search for potential vapor encroachment conditions (VECs) takes into account the following factors:

- The land use of the Property
- Type of COPC(s)
- Location of known or suspect contaminated property is within the area of concern
- Characteristics of the soil
- Depth to groundwater
- Vapor conduits that may result in significant preferential pathways
- Cleanup status of contaminated property

Potential VECs evaluated included all RECs, including H-RECs and C-RECs, with identified releases of petroleum products or other potentially volatile contaminants of concern. As is provided by ASTM E2600-10, ENPRO also considered the predicted hydrogeological gradient around the Property when determining the potential for VECs to impact the site.

As reviewed in Section 5.4.1, ENPRO previously identified VECs with the potential to impact the Property, and subsequently performed an evaluation of soil, soil vapor, and ground water at TMKs (1) 9-8-009: 005, 014, 015 and 016, to assess possible effects from past petroleum releases on the Property and adjacent properties. The report concluded that all contaminant concentrations detected were below the DOH EALs.

ENPRO did not identify any new potential VECs within the recommended radii provided in ASTM E2600-10 with the potential to impact the Property.



7.0 SITE RECONNAISSANCE

Site reconnaissance was performed by Roberta Bitzer and Shawn Champion, on August 22, 2019. The site reconnaissance was conducted on foot. All areas of the Property were available for inspection, with the exception of a mobile storage container reported during the site reconnaissance to be owned by NAN, Incorporated. The container was located near the southwest corner of TMK (1) 9-8-009: 005.

No opinion is provided regarding environmental conditions in areas that were not inspected.

7.1 CURRENT USE OF THE PROPERTY

The property with TMK (1) 9-8-009: 011 is made up of two parking lots and one commercial building.

The properties with TMKs (1) 9-8-009: 005, 014, 015 and 016 are currently used as a construction storage yard with an office building and a former Honda automobile service bay serving as a storage and painting area.

7.2 DESCRIPTIONS OF STRUCTURES, ROADS & OTHER IMPROVEMENTS

The following structures were observed at the Property:

- A single story office building on TMK (1) 9-8-009: 015, approximate construction date: 1968
- A two story former vehicle maintenance bay on TMK (1) 9-8-009: 016, approximate construction date: 1978
- A two story commercial building occupied by Best Buy Co., Inc. on TMK (1) 9-8-009: 011, approximate construction date: 2006

There is a reasonable potential that pesticides may have been applied for termite control beneath the office building or former vehicle maintenance bay slab foundation. This is not considered to be a REC, but it may be a concern at the time the building slabs are removed, and this condition should be incorporated into the recommended CEHMP.



Mr. Stephen Langham of PGH Wong Engineering, Inc., Lead Inspector for the Honolulu Rail Transit Project, reported that the following companies/agencies provide utilities and service for TMKs (1) 9-8-009: 005, 014, 015 and 016:

Electricity: Hawaii Electric Company
 Water: Board of Water Supply
 Sewer: City and County of Honolulu
 Refuse: City and County of Honolulu

Storm water runoff from the Property flows to the southwest via sheet flow and storm drains, and eventually discharges to Pearl Harbor East Loch.

Wastewater from the Property originates from sinks and toilets, and discharges to the sanitary sewer system.

Evidence of additional wastewater discharge sources was not observed at the Property.

7.3 CURRENT USES OF ADJACENT AND NEARBY PROPERTIES

The area surrounding the Property consisted of commercial properties and residential apartments. Adjoining properties were observed from the Property and from public access lands for signs of RECs and their potential to pose an environmental concern to the Property. These properties are listed in the following table:

Table 7

Summary of Adjacent and Nearby Property Use

Direction	Name	Use
North	Multiple retail complexes including Waialua Shopping Center, residential apartment buildings, an unnamed construction base yard	Various stores including car audio, restaurants, and tattooing, residential housing, Base yard for HART rail
South	"Harbor Center" – Industrial warehouses	Various businesses including automotive services and repair A heavy machinery / vehicle storage lot
East	Home World Construction lot	Furniture store Base yard for HART rail
West	"Harbor Center" – Commercial complex	Various stores including automotive services and repair.

Table 8 summarizes the site inspection and findings. All features that were observed during the site reconnaissance, or that were discovered to have been historically present at the Property, are noted in the table. Also indicated in the table are items that may present concerns to the Property. Additional information about items noted in the table can be found in the referenced section of this report.

Table 8
Site Inspection Findings

Property Environmental Features	Currently / Historically Present	Possible Environmental Concern	Report Section
Hazardous Substances or Petroleum Products	Y	Y	7.4
Underground Storage Tank, UST	Y	Y	6.2.1, 7.5.1
Aboveground Storage Tank, AST	Y	N	6.2.1, 7.5.2
Odors	N	N	-
Air Emissions (<i>stacks, hoods, other point sources</i>)	N	N	-
Pools of Liquid	N	N	-
Drums	Y	N	7.9
Unidentified Substance Containers	Y	N	7.9
Electrical Equipment/Possible PCBs	Y	Y	7.7.3
Hydraulic Equipment/Possible PCBs	Y	Y	7.7.2
Stains or Corrosion	N	N	-
Drains	Y	N	7.9
Sumps	N	N	-
Pits, Ponds, or Lagoons	N	N	-
Stained Soil or Pavement	Y	N	7.9
Stressed Vegetation	N	N	-
Evidence of Spills or Releases	Y	Y	7.9
Artificially Filled Areas (<i>Solid Waste Disposal</i>)	N	N	-
Waste Water	N	N	-
Wells	N	N	-
Septic Systems (<i>cisterns, cess pools, dry wells</i>)	N	N	-

Table 8 (Continued)
Site Inspection Findings

Property Environmental Features	Currently / Historically Present	Possible Environmental Concern	Report Section
Dry Cleaning Operations	N	N	-
Agricultural Use (<i>pesticides/herbicides/fungicides</i>)	N	N	-
Sub-slab Termiticides	Y	Y	10.2
Oil/Gas Production or Exploration	N	N	-
Remedial Activities	Y	N	5.4.1
Other (soil stockpiles)	Y	Y	7.9

7.4 HAZARDOUS SUBSTANCES AND PETROLEUM PRODUCTS

The Property

Visual observation for the use and/or storage of hazardous substances and petroleum products was performed.

Stored hazardous substances and petroleum products were observed on TMKs: (1) 9-8-009: 005 and 016, as follows:

- Gasoline and other flammable materials: More than 20-gallons stored in metal containers within a flammable-storage shed. No secondary containment was observed.
- Paints, solvents, and adhesives: More than 20-gallons stored in plastic containers within the former vehicle maintenance bay. No secondary containment was observed.
- Asphalt and concrete products: More than 20-gallons stored in plastic containers within the former vehicle maintenance bay. No secondary containment was observed.



8-009: 011 as follows:

- Kluberol Gem 1-68 N Oil: More than 2-gallons stored in plastic containers within a storage closet. No secondary containment was observed.
- Turbine Oil ISO 68: Less than 5-gallons, plastic containers in storage closet. No secondary containment was observed.
- Tractor Hydraulic Fluid Oil: 10-gallons, plastic containers in storage closet. No secondary containment was observed.
- Various paint supplies: More than 10-gallons, plastic containers in storage closets. No secondary containment was observed.
- Various cleaning supplies: More than 20-gallons, plastic containers in storage closets and offices. No secondary containment was observed.

None of the hazardous substances and/or petroleum products observed on the Property during the site reconnaissance appeared to be causing or contributing to any site contamination. ENPRO recommends secondary containment for all hazardous materials stored on site.

Adjoining or Nearby Sites

The following activities related to hazardous substances and/or petroleum products on adjoining or nearby sites were observed at the time of the Property reconnaissance.

- Auto Repair of Hawaii, 98-055 Kamehameha Highway Maintenance and automotive repair services.

ENPRO did not discover any documented spills or releases associated with this facility that would be considered to be a REC with the potential to impact the Property.



7.5 STORAGE TANKS

7.5.1 UNDERGROUND STORAGE TANKS

The Property

Visual observations for manways, vent pipes, fill connections, concrete pressure dispersion pads, and dispenser pumps were conducted throughout the Property. Evidence indicating historical or current existence of USTs was not observed. (note: as described in Section 6.2.1, historical USTs and an oil/water separator have been identified for the Property. A suspected UST and second oil/water separator were also reported.)

Adjoining or Nearby Sites

Visual observations for manways, vent pipes, fill connections, concrete pressure dispersion pads, and dispenser pumps were conducted throughout the accessible areas of adjacent properties. No evidence of the presence of USTs was noted. (note: as described in Section 6.2.1, historical USTs have been identified for nearby sites).

7.5.2 ABOVEGROUND STORAGE TANKS

The Property

Visual observations for vent pipes, secondary containment walls, or other evidence of ASTs were conducted throughout the Property. Evidence indicating historical or current existence of ASTs was not observed.

Interviews with people knowledgeable of the site and site history indicated the past use of the Property for automobile maintenance and repair. As described in Section 6.2.1, historical ASTs have been identified for the Property.

Adjoining or Nearby Sites

Visual observations for vent pipes, secondary containment walls, or other evidence of ASTs were conducted throughout the accessible areas of adjacent properties. No evidence of the presence of ASTs was noted.

7.6 SOLID WASTE

The Property

At the time of our investigation, non-hazardous solid waste was generated onsite at TMK (1) 9-8-009: 011. Waste was in the form of general municipal refuse, which was placed into dumpsters located on the Property. The waste was accumulated and transported to an offsite facility for recycling and/or disposal by Aloha Waste.

At the time of our investigation, non-hazardous solid waste was generated onsite at TMKs (1) 9-8-009: 005, 014, 015 and 016. The waste was accumulated and transported to an offsite facility for recycling and/or disposal by the City and County of Honolulu.

Adjoining or Nearby Sites

At the time of our investigation, non-hazardous solid waste was observed to be generated on adjoining or nearby sites. Waste in the form of general municipal refuse was placed into dumpsters located on adjoining sites. The waste was accumulated and transported to an offsite facility for recycling and/or disposal by Island Recycling and HNL Disposal.

Solid waste in the form of used tires, junk cars, and various heavy equipment was being stored on the south side of the Pearl Harbor Bike path, located southeast of the Property.

7.7 POLYCHLORINATED BIPHENYLS (PCBS)

Visual observation for electrical equipment or electrical components that use dielectric fluid, hydraulic lift equipment and fluorescent light ballasts that potentially include PCB-containing fluids was conducted. PCBs (polychlorinated biphenyl) are heavily regulated under the Toxic Substances Control Act (TSCA), which obligates a property owner to clean up any spills occurring on their property.

7.7.1 ELECTRICAL TRANSFORMERS/CAPACITORS

Nine pole-mounted transformers, belonging to Hawaiian Electric Company (HECO), were observed on the Property. Minimal evidence of corrosion on the outside of the pole-mounted transformers was noted during the Property reconnaissance. No evidence of leakage was observed on or below the pole-mounted transformers. Two pad-mounted transformers belonging to Hawaiian Electric Company (HECO) were observed on the Property. No evidence of leakage or corrosion on the outside of the pad-mounted transformers was noted during the Property reconnaissance.

An inquiry was sent to HECO regarding the PCB content of the pole-mounted transformers and the pad-mounted transformers. HECO responded to the inquiry and indicated the transformers were all, "non-PCB".

Since the transformers are owned and operated by HECO, HECO is responsible for remediating any environmental impacts they might cause. Details regarding correspondence with HECO can be found in the appendix section of this report.

Three privately-owned transformers were observed inside the commercial building on TMK (1) 9-8-009: 011. No evidence of leakage or corrosion was noted. Based on the date code listed on the transformers, as observed during the site reconnaissance, it is ENPRO's opinion that these transformers are likely to have been manufactured after 1980, and thus do not contain PCBs.

7.7.2 HYDRAULIC LIFT EQUIPMENT

Visual observation for hydraulic lift equipment or components containing hydraulic fluid that potentially contains PCBs was conducted.

The ENPRO investigators observed evidence of previous in-ground hydraulic lift equipment in the former vehicle maintenance bay on TMK (1) 9-8-009: 016. As noted in Section 8.1, Mr. Stephen Langham stated during the site reconnaissance that in-ground hydraulic lifts were previously located at that location. ENPRO did not review any documentation related to removal of the in-ground hydraulic lifts.

The ENPRO investigators observed an electro-hydraulic power unit for the freight elevator on TMK (1) 9-8-009: 011. ENPRO recommends sampling and analysis to determine whether or not the hydraulic fluid for this elevator contains PCBs.

7.7.3 FLUORESCENT LIGHT BALLASTS

Fluorescent light fixtures are present at the Property. Many fluorescent light fixtures manufactured prior to 1980 may have contained ballasts with PCBs.

Since some of the structures on TMKs (1) 9-8-009: 005, 014, 015 and 16 were constructed before 1980, the potential that the ballasts of these fluorescent lights contain PCBs may be a concern.

The commercial building on TMK (1) 9-8-009: 011 was constructed after 1980, thus PCB-containing light ballast should not be a concern.



7.8 WELLS

Evidence of wells (supply, monitoring or dry wells) was not observed during the assessment.

7.9 OTHER OBSERVATIONS

The following describes additional observations on the Property:

A 55-gallon steel drum with unidentified contents was observed on site during the site reconnaissance. It was indicated that the drum was owned by NAN, Inc. The drum was located in a group of four similar looking drums atop a pallet in the southwest corner of TMK (1) 9-8-009: 005. The drums were outside and uncovered. The other three drums were empty, and two of those were labeled as motor oil. Correspondence with a representative of NAN, Inc., indicated that the unidentified contents inside the drum was rainwater. ENPRO recommends removal and disposal of these drums.

Multiple storm drains were located in the parking lots on TMK: (1) 9-8-009: 011.

A grated, linear drain with vegetation growing out of it was located in front of the former vehicle maintenance bay on the southeast side of TMK: (1) 9-8-009: 016.

Stained soil was observed in the southwest corner of TMK (1) 9-8-009: 005 near the NAN, Inc. storage shed. It was indicated during the site reconnaissance that the release was an isolated incident from past onsite storage of construction related materials, and that Environmental Risk Analysis, LLC (ERA) was currently monitoring the incident. ENPRO contacted ERA, who confirmed they were working at the site, yet reported they had not worked there in over a year, and directed further inquiry to NAN, Inc. Correspondence with a representative of NAN, Inc. indicated that the staining observed was the result of wash water related to the concrete washout pit in that location. NAN, Inc. confirmed ERAs monitoring presence, however, they indicated it was for a spill that occurred on the adjacent property at TMK: 9-8-009: 017. It is ENPRO's opinion that the stained soil represents a de minimis condition and no further investigation of this is warranted.

Soil and concrete spoils were observed stockpiled on the southeast side of TMK (1) 9-8-009: 005 during the site reconnaissance. Mr. Stephen Langham indicated that the stockpiles came from on-site sources, and were predominantly generated during excavation of a trench for on-site sewage lines along the east side of TMK (1) 9-8-009: 005. Mr. Langham also indicated Environmental Risk Analysis, LLC (ERA) is responsible for the monitoring of the soil stockpiles on site. ENPRO recommends characterization of this stockpiled soil via multi-increment sampling and analysis.



Signs posted along the south border of the Property indicated petroleum pipelines that run along the Pearl Harbor Bike Path. Although no releases were reported for this pipeline, we cannot rule out that undetected or unreported leaks may have impacted the Property.

8.0 INTERVIEWS

Interviews with individuals having past or present knowledge of the Property, such as owners, key site managers, occupants, and neighbors are routinely conducted to obtain information indicating RECs in connection with the Property. The following individuals were available to interview:

Table 9
Key Site Interviews

Interviewee Name	Relationship to Property	Length of Time Familiar with Property	Date of Interview
Mr. Jeffrey Overton	Land Planner of Group 70 International, Inc. (the Client), for the City Department of Transportation Services	Four Years	9/03/2019
Mr. Stephen Langham	Lead Inspector of PGH Wong Engineering, Inc., for the Honolulu Rail Transit Project	Three Years	8/22/2019
Ms. Linda Nguyen	Best Buy Geek Squad Manager	Eight Months	8/22/2019

8.1 KEY SITE MANAGER

Mr. Stephen Langham of PGH Wong Engineering, Inc., as Lead Inspector for the Honolulu Rail Transit Project, was interviewed in person at the time of the site visit at TMKs: (1) 9-8-009: 005, 014, 015 and 016, on August 22, 2019.

The Property

Mr. Langham had been familiar with the Property for three years and reported the following relevant information regarding the Property:

- o Drilled shaft construction was performed at the HART Pearlridge Station makai lot (south of Kamehameha Highway) in 2017 and 2018. Environmental Risk Analysis LLC (ERA) was responsible for environmental monitoring during the drilled shaft work.
- o TMKs (1) 9-8-009: 005, 014, 015 and 016 currently store diesel fuel, solvents, and paint.

- o The structures on TMKs (1) 9-8-009: 015 and 016 were previously used by Tony Honda as a showroom and an automobile maintenance /services bay.
- o The service bay previously contained in ground hydraulic lifts.

Adjoining and Adjacent Properties

Mr. Langham reported the following relevant information regarding the adjacent properties:

- o The adjacent properties to the south included the Pearl Harbor Bike Path, and a Federal Wetlands Shoreline.
- o In the past, adjacent properties included automobile maintenance and repair services, as well as gas stations.

8.2 OWNER

ENPRO attempted to contact Healani Land Company Inc. to obtain information regarding TMK (1) 9-8-009: 011, and Ms. Virginia Sosh (Transportation Planner for City and County of Honolulu) to obtain information regarding TMKs (1) 9-8-009: 005, 014, 015 and 016. No response has been received from either party as of the date of this report.

Should a response be received at a later date and impact our findings, conclusions or recommendations, ENPRO shall forward an addendum letter to such effect.

8.3 USER

Mr. Jeffrey Overton of Group 70 International, Inc. (the Client), on behalf of the User (City Department of Transportation Services), completed a property questionnaire supplied by ENPRO Environmental regarding the Property. A copy of the completed property questionnaire is included in the appendix section of this report.

The Property

Mr. Overton has been familiar with the Property for four years and reported the following relevant information regarding the Property:

- o The property is currently being used as a construction yard.
- o A portion of the property has historically been used for automobile services.

- o The property is located in a County Special Management Area (SMA).

Adjoining and Adjacent Properties

- Mr. Overton reported the following relevant information regarding the adjacent properties:
- o Neighboring lands have had hazardous materials studies and clean ups.
 - o There has been a history of automobile service and fuel station facilities in the surrounding area.

8.4 OCCUPANT

Ms. Linda Nguyen, Geek Squad Manager at Best Buy, was interviewed in person at the time of the site visit of TMK: (1) 9-8-009: 011, on August 22, 2019.

The Property

Ms. Nguyen had been familiar with the Property for eight months and reported no information regarding past or present contamination and/or activities on the Property that may have resulted in contamination of the Property.

Adjoining and Adjacent Properties

Ms. Nguyen reported no information regarding past or present contamination and/or activities on adjacent properties that may have resulted in contamination of the Property.

9.0 EVALUATION

This section documents the findings, opinions, and conclusions of the Phase I ESA, ASTM E1527-13 does not require the environmental professional to provide recommendations regarding identified environmental conditions at the Property. As a service to its clients, ENPRO provides recommendations to further evaluate and/or address environmental concerns in Section 10.1 of this report.

9.1 FINDINGS AND CONCLUSIONS

We have performed a Phase I ESA of the Property defined by TMKs: (1) 9-8-009: 005, 011, 014, 015 & 016 in conformance with the scope and limitations of ASTM E1527-13 and *All Appropriate Inquiries* (AAI) which includes 40 CFR Part 312, §312.21 and §312.31.

This assessment has revealed the following *RECs* in connection with the Property:

- **REC 1 - Stockpiled debris on site:** This finding is considered a **REC** because soil and concrete debris were observed stockpiled on site during the site reconnaissance. It was indicated during the site reconnaissance that the stockpiles came from on-site sources, and were predominantly from the excavation of a trench for sewage lines. Based on the historical use of the property, it is ENPRO's opinion there is a reasonable potential the stockpiled soil may contain contaminants of concern and require special handling and/or disposal. ENPRO recommends performing multi-increment (MI) soil sampling of stockpiled material to evaluate re-use and/or disposal options.
- **REC 2 - Historical releases on site:** This finding is considered a **REC** because the Property has a history of use for automobile storage, maintenance and repair activities, as well as the installation and removal of several underground storage tanks. It is our opinion that these historical uses have the potential to have resulted in environmental impacts to the Property through the release of hazardous materials or petroleum products. ENPRO recommends establishing decision units across the Property based in part on historical use and planned development activities; and performing sampling of soil, groundwater, and/or soil vapor, as negotiated with the Department of Health as part of the recommended EHE/CEHMP for the Property.

- **REC 3 – Hydraulic fluid in on site elevator:** The ENPRO investigators observed an electro-hydraulic power unit for the freight elevator on TMK (1) 9-8-009: 011. ENPRO recommends sampling and analysis to determine whether or not the hydraulic fluid for this elevator contains PCBs.
- **H-REC 1 – Former underground storage tank (UST) on site (TMK (1) 9-8-009: 014, Facility ID: 9-200907):** A review of the State of Hawaii Department of Health (DOH) regulatory files indicated a 1,000-gallon diesel fuel UST had been removed in 1992, however, the files review did not reveal a closure report for this removal. Site characterization to assess potential impacts associated with this UST was performed in 2015 by ENPRO. The analytical results indicated that no contaminants were detected at concentrations equal to or greater than the DOH Environmental Action Levels (EAL). It is ENPRO's opinion this finding meets the definition of an H-REC, based ENPRO's 2015 findings. It should be noted that neither a No Further Action (NFA) letter nor a formal UST closure report were discovered in the regulatory records. ENPRO recommends incorporating this into the EHE/CEHMP for the Property. DOH may require additional investigation to confirm this meets with current No Further Action (NFA) criteria.
- **H-REC 2 - Former underground storage tank (UST) on site (TMK (1) 9-8-009: 011, Facility ID: 9-201475):** A review of the regulatory records indicated that a 500-gallon new oil UST and a 1,000-gallon used oil UST had been removed in 1998. During removal, a groundwater sample indicated vinyl chloride at a concentration greater than the current DOH Tier I Action Level. In 2004 the DOH granted an NFA designation. It is ENPRO's opinion this finding meets the definition of an H-REC based on the NFA designation from the DOH, and on the review of previous environmental reports. ENPRO recommends incorporating this into the EHE/CEHMP for the Property. DOH may require additional investigation to confirm this meets with current No Further Action (NFA) criteria.
- **H-REC 3 - Former underground storage tank (UST) on site (TMK (1) 9-8-009: 005, Facility ID 9-202700):** A review of the regulatory records indicated the following USTs had been removed in 1992:
 - one, 2,000-gallon diesel UST
 - one, 1,000-gallon gasoline UST
 - one, 1,00-gallon diesel UST
- **H-REC 4 - Former underground storage tank (UST) on site (TMK (1) 9-8-009: 016, Facility ID: 9-200359):** A review of the regulatory records indicated a used oil UST had been removed in 1998. A release was detected during UST removal. Visibly contaminated soil was excavated and later transported to a landfill. Subsequent soil samples collected from the excavation pit did not indicate contaminants at concentrations greater than DOH Tier I Action Levels. An NFA Letter was issued by the DOH in 1999. It is ENPRO's opinion this finding meets the definition of an H-REC based on the NFA designation from the DOH, and on the review of previous environmental reports. ENPRO recommends incorporating this into the EHE/CEHMP for the Property. DOH may require additional investigation to confirm this meets with current No Further Action (NFA) criteria.

Following removal, a release of unleaded gas and diesel fuel was confirmed to have impacted soil and groundwater. Subsequent investigations in 1993 documented soil excavation and reported the concentration of all tested analytes in soil and groundwater, to be less than the applicable DOH guidelines, with the exception of lead in groundwater. The report concluded that the concentration of lead detected in the groundwater samples, was not considered to be correlated with the UST release. An NFA letter was issued by the DOH in 1995. It is ENPRO's opinion that this finding meets the definition of an H-REC based on the NFA designation from the DOH, and on the review of previous environmental reports. ENPRO recommends incorporating this into the EHE/CEHMP for the Property. DOH may require additional investigation to confirm this meets with current No Further Action (NFA) criteria.

- **H-REC 4 - Former underground storage tank (UST) on site (TMK (1) 9-8-009: 016, Facility ID: 9-200359):** A review of the regulatory records indicated a used oil UST had been removed in 1998. A release was detected during UST removal. Visibly contaminated soil was excavated and later transported to a landfill. Subsequent soil samples collected from the excavation pit did not indicate contaminants at concentrations greater than DOH Tier I Action Levels. An NFA Letter was issued by the DOH in 1999. It is ENPRO's opinion this finding meets the definition of an H-REC based on the NFA designation from the DOH, and on the review of previous environmental reports. ENPRO recommends incorporating this into the EHE/CEHMP for the Property. DOH may require additional investigation to confirm this meets with current No Further Action (NFA) criteria.

The following *de minimis* conditions was identified at the Property:

- **Possible petroleum release on site:** Stained soil was observed during the site reconnaissance, and ENPRO was informed that a minor, isolated petroleum release from past onsite storage of construction related materials had occurred, and that Environmental Risk Analysis, LLC (ERA) was responsible for monitoring the incident. Subsequent communications with NAN, Inc. indicated the soil was not stained from a petroleum release, but from wash water related to a concrete washout pit in that location. This finding is considered a *de minimis* condition because the affected area was very small. Although we do not have a specific recommendation for this *de minimis* condition, the CEHMP should include provisions for handling small areas of petroleum impacted soil that may be encountered during the proposed re-development of the site.



9.2 DATA GAPS

Data gaps are not uncommon in ESAs. A data gap by itself is not inherently significant. The significance is determined by other information and professional experience as to whether the data gap raises reasonable concerns about activities that may present a REC. According to ASTM E1527-13 and AAJ, the Phase I ESA report shall identify and comment on significant data gaps that affect the ability of the environmental professional to identify RECs and name the sources of information that were consulted to address the data gap.

ENPRO did not encounter any significant data gaps during the performance of this Phase I ESA.

ENPRO was not granted access during the site reconnaissance to the NAN, Inc. mobile storage container located near the southwest corner of TMK (1) 9-8-009: 005. ENPRO was informed by NAN, Inc. that the storage container was empty at the time of the investigation. This represents a data gap for the Property, however, is unlikely to impact our conclusions and recommendations for the Property.

ENPRO attempted to contact the individuals listed in the table below to obtain information regarding the Property, however, no response has been received as of the date of this report. This represents a data gap for the Property that may or may not impact our conclusions and recommendations for the Property.

Table 10
Unavailable Project Contacts

Interviewee Name	Relationship to Property	Date Contact Attempted	Purpose of Contact
Ms. Virginia Sosh	Transportation Planner at City and County of Honolulu	8/21/2019 and 9/9/2019	Interview as Key Site Manager and/or Representative of Owner for TMKs (1) 9-8-009: 005, 014, 015 and 016
Healani Land Company Incorporated	Owner of TMK (1) 9-8-009: 011	9/3/2019 and 9/9/2019	Owner Interview

Should a response from any of the above individuals be received at a later date and impact our findings, conclusions or recommendations, ENPRO shall forward an addendum letter to such effect.



9.3 CERTIFICATIONS

ENPRO has completed a Phase I ESA in conformance with the scope and limitations of ASTM Practice E1527-13 of the Property. This assessment was performed at the request of the Client, using the methods and procedures consistent with good commercial and customary practices designed to conform to acceptable industry standards.

The information and opinions rendered in this report are intended for the Client for the purposes stated herein (see Section 2.3). This report is not for the use or benefit of, nor may it be relied upon by any other person or entity, for any purpose except as described below without the advance written consent of ENPRO. ENPRO shall not distribute nor publish this report without the consent of the Client except as required by law or court order. The information and opinions expressed in this report are given in response to a limited assignment and should be considered and implemented in light of that assignment.

The Client may rely upon this report in evaluating a request for one or more extensions of credit to be secured directly or indirectly by the Property (including mortgage and mezzanine loans) and the acquisition of the direct or indirect interest in the Property as applicable.

In expressing the opinions stated in this report, ENPRO has exercised a degree of skill and care ordinarily exercised by a reasonable prudent environmental professional in the same community and in the same time frame given the same or similar facts and circumstances. Documentation and data provided by the Client, designated representatives of the Client or other interested third parties, or from the public domain, and referred to in the preparation of this assessment, have been used and referenced with the understanding that ENPRO assumes no responsibility or liability for their accuracy.

The independent conclusions represent our professional judgment based on information and data available to us during the course of this assignment. Factual information regarding operations, conditions, and test data provided by the Client or their representatives has been assumed to be correct and complete. The conclusions presented are based on the data provided, observations, and conditions that existed on the date of the site visit.



If you have any questions regarding this report, please contact the ENPRO contact listed on the cover of this report at (808) 748-2116.

Researched by: Shawn Champion, Environmental Consultant
Surveyed by: Roberta Bitzer, Senior Environmental Professional
 Shawn Champion, Environmental Consultant
Written by: Shawn Champion, Environmental Consultant
Supervised by: Roberta Bitzer, Senior Environmental Professional

I declare that to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in §312.10 of 40 CFR Part 312.

I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Reviewed by:

Kenton Beal
 Executive Vice President, ENPRO Environmental



10.0 NON-SCOPE SERVICES

ASTM E1527-13 does not require recommendations. A User should consider whether recommendations for additional inquiries or other services are desired. Recommendations are an additional service that may be useful in the User's analysis of the Property. Unless otherwise directed by the Client, it is ENPRO's standard practice to include recommendations for addressing all identified RECs at the Property.

ENPRO may also make recommendations regarding conditions identified at the Property which are not considered RECs, such as the proper storage of hazardous materials, the potential presence of asbestos containing materials, and the presence of ecological or cultural resources. Except where otherwise specified, there are no legal or regulatory requirements for the Client or the Property owner to follow the recommendations presented in this report.

10.1 RECOMMENDATIONS

Based on the RECs identified in this investigation, ENPRO recommends the following additional actions and/or investigations:

- **GENERAL** - Based on the historical use of the Property for automobile maintenance and repair services, and the planned re-development of the property, ENPRO recommends preparing an Environmental Hazard Evaluation and a Construction Environmental Hazard Management Plan (EHE/CEHMP) prior to initiating construction activities. We recommend that these plans be developed in cooperation with the State of Hawaii Department of Health Hazard Evaluation and Emergency Response (HEER) Office.

Several environmental investigations have been performed on the Property and adjacent properties. Previous investigations may not comply with current technical guidelines published by the State of Hawaii Department of Health (DOH), and therefore may not provide suitable evidence to support a No Further Action (NFA) designation. This is particularly relevant when comparing discrete-sampling methodologies with multi-increment sampling methods. To the extent that ENPRO's opinions presented herein are based at least in part on past NFA designations from the DOH, we cannot rule out the possibility that more current (and more stringent) DOH technical guidelines may warrant further delineation of potential contamination.

As the Property is included within the 150-meter guideway buffer of the Honolulu Rail Transit Project, ENPRO recommends that any sampling and analysis or inclusion of an EHE/CEHMP to be in full compliance with the HART Programmatic Environmental Hazard Evaluation and Environmental Hazard Management Plan.

- **REC 1 - Stockpiled debris on site:**

Conduct multi-increment soil sampling of the stockpiled soil on TMK (1) 9-8-009: 005 to evaluate re-use and/or disposal options for this material.

- **REC 2 - Historical releases on site:**

Conduct multi-increment soil sampling in the areas with historic use of automobile storage, maintenance and repair, to assess for the presence of associated contaminants of potential concern. If contamination is identified, additional sampling may be required to delineate its extent.

- **REC 3 – Hydraulic fluid in on site elevator:**

ENPRO recommends sampling and analysis of the hydraulic fluid to assess for the potential presence of PCBs.

- **H-REC 1 - Former underground storage tank (UST) on site (TMK (1) 9-8-009: 014, Facility ID: 9-200907):**

Incorporate this into the recommended EHE/CEHMP

- **H-REC 2 - Former underground storage tank (UST) on site (TMK (1) 9-8-009: 011, Facility ID: 9-201475):**

Incorporate this into the recommended EHE/CEHMP

- **H-REC 3 - Former underground storage tank (UST) on site (TMK (1) 9-8-009: 005, Facility ID 9-202700):**

Incorporate this into the recommended EHE/CEHMP

- **H-REC 4 - Former underground storage tank (UST) on site (TMK (1) 9-8-009: 016, Facility ID: 9-200359):**

Incorporate this into the recommended EHE/CEHMP

- **Hazardous material stored on site:** ENPRO recommends secondary containment for all hazardous materials stored on site.

10.2 ADDITIONAL ENVIRONMENTAL CONCERNS, NON-ASTM

The following environmental conditions were evaluated for the potential to impact the Property though they are not considered RECs as defined by ASTM.

Asbestos-Containing Materials

In July 1989, under the Toxic Substances Control Act (TSCA), the United States Environmental Protection Agency (EPA) promulgated an Asbestos Ban Phaseout Rule. Beginning in 1990 and taking effect in three stages, the rule prohibits the importation, manufacture, and processing of ninety-four percent of all remaining asbestos products in the United States over a period of seven years. Presently, asbestos has not been prohibited from all construction building materials. However, in 1991, this rule was vacated and remanded by the Fifth Circuit Court of Appeals. As a result, most of the original ban on the manufacture, importation, processing, or distribution in commerce for the majority of the asbestos-containing products originally covered in the 1989 final rule was overturned.

No sampling for asbestos containing materials was conducted as part of this investigation.

Suspect asbestos containing materials should be sampled and analyzed for possible asbestos content prior to activities (e.g., renovation, demolition,) that may damage or disturb the material. If the materials are asbestos-containing, the building owner must comply with applicable EPA National Emissions Standards for Hazardous Air Pollutants (NESHAPS), Occupational Safety and Health Administration (OSHA), state and local regulations.

Radon

Radon is a naturally occurring radioactive gas formed by the decay of uranium in bedrock and soil. The potential adverse health effects associated with radon gas depend on several factors including concentration of the gas and duration of exposure. The concentration of radon gas in a building depends on subsurface soil conditions, the integrity of the building's foundation, and the building's ventilation system.

Due to the geologic composition of basalt bedrock and the soils that derive from them, as well as the composition of marine-related sediments found in Hawaii, the State of Hawaii has been determined to have a low radon potential (G.M. Reimer, U.S. Geological Survey). Therefore, investigation of radon is not recommended for the Property.

Lead-Based Paint

There is no commercial property definition of what is a lead-based paint. Regulations specifically addressing lead-based paint include Housing and Urban Development (HUD) (1995) guidelines and the Consumer Product Safety Act (1977). These regulations are for housing and consumer products.

OSHA regulations apply to worker protection during renovation and demolition activities.

Sensitive Ecological Areas

According to the EDR report and User interview, the following areas were depicted as sensitive ecological areas or federal wetlands:

- The coastline along Pearl Harbor East Loch, as well as recognized Wetland approximately 200 feet south of the Property.
- The property is included in the County Special Management Area

Potential Termiticide Use

Based on the age of the on-site structures, there is a reasonable potential that pesticides may have been applied for termite control beneath the slab foundation. This is not considered to be a REC, but it may be a concern at the time the building slab is removed. Assume/presume the presence of pesticides in soil beneath structures due to pesticide application to the soil prior to construction to control termites and other insects. Pesticide- and herbicide-contaminated soil should be managed in accordance with applicable federal, state, and local environmental laws and regulations in the event that any onsite building structure (and its foundation) is demolished.

11.0 REFERENCES

Publications:

Names of Publication:	Aquifer Identification and Classification for Oahu: Groundwater Protection Strategy for Hawaii
Author of Publication:	Mink, J.F. and L.S. Lau
Published by:	Water Resources Research Center, University of Hawaii at Manoa, Honolulu, Hawaii
Date of Publication:	1990
Information Obtained:	Groundwater data
Names of Publication:	Groundwater Well Index
Author of Publication:	State of Hawaii, Department of Natural Resources, Commission on Water Management
Date of Publication:	January 2001
Information Obtained:	Groundwater wells
Names of Publication:	Ownership records and Tax Map Key maps
Author of Publication:	City and County of Honolulu
Information Obtained:	Ownership records
Names of Publication:	Aerial Photographs
Author of Publication:	Environmental Data Resources, Inc.
Date of Publication:	1952, 1959, 1962, 1968, 1976, 1978, 1985, 1992, 2001, 2004 and 2006
Information Obtained:	Historical use
Names of Publication:	The National Pipeline Mapping System
Published by:	Pipeline and Hazardous Materials Safety Administration https://pvpnpms.phmsa.dot.gov/PublicViewer/ accessed on August 28, 2019
Information Obtained:	Pipeline location and information
Names of Publication:	Code of Federal Regulations, Title 40, Part 761, Rules for Controlling PCBs under the Toxic Substance Control Act,
Author of Publication:	U.S. Environmental Protection Agency
Date of Publication:	December 14, 1990
Information Obtained:	PCB regulations

Names of Publication: Soil Survey for the Islands of Oahu
Author of Publication: Foote, Donald E. et al.
Published by: U.S. Department of Agriculture, Soil Conservation Service, in cooperation with the University of Hawaii Agricultural Experiment Station. Also available at <http://websoilsurvey.nrcs.usda.gov/app/> accessed on August 26, 2019

Date of Publication: 1972
Information Obtained: Soil classification

Names of Publication: The EDR Radius Map Report
Author of Publication: Environmental Data Resources, Inc.
Date of Publication: August 16, 2019
Information Obtained: Regulatory database records

Names of Publication: Topographic Maps, Waipahu Quadrangle, Hawaii
Author of Publication: United States Geological Survey (USGS)
Date of Publication: 1928, 1954, 1959, 1968, 1970, 1983, 1998, 1999 and 2013
Information Obtained: Historical use

Names of Publication: Programmatic Environmental Hazard Evaluation and Environmental Hazard Management Plan, Honolulu Rail Transit Project, Oahu, Hawaii
Author of Publication: Honolulu Authority for Rapid Transportation (HART)
Date of Publication: July, 2014
Information Obtained: Pipeline spill locations and information

Names of Publication: Installation Restoration Program Phase I: Records Search 15th ABW Satellite Installations, Hawaii
Author of Publication: Engineering-Science
Date of Publication: September, 1984
Information Obtained: Pipeline spill locations and information

Names of Publication: Phase I Environmental Site Assessment 98-69, 73, 75, and 85 Kamehameha Highway Aiea, Hawaii
Author of Publication: ENPRO Environmental
Date of Publication: May, 2015
Information Obtained: Previous Phase I ESA on part of the Property

Names of Publication: Phase II Environmental Site Assessment 98-69, 73, 75, and 85 Kamehameha Highway Aiea, Hawaii
Author of Publication: ENPRO Environmental
Date of Publication: September, 2015a
Information Obtained: Previous Phase II ESA on part of the Property

Names of Publication: Phase II Environmental Site Assessment 98-85 Kamehameha Highway Aiea, Hawaii
Author of Publication: ENPRO Environmental
Date of Publication: September, 2017
Information Obtained: Previous Phase II ESA on part of the Property

Names of Publication: Letter Report Overexcavation
Author of Publication: Brewer Environmental Industries, Inc. (BEI)
Date of Publication: April, 1993
Information Obtained: Previous environmental report

Names of Publication: Soil Remediation Report
Author of Publication: Brewer Environmental Industries, Inc. (BEI)
Date of Publication: October, 1993a
Information Obtained: Previous environmental report

Names of Publication: Letter Report Groundwater Sampling
Author of Publication: Brewer Environmental Industries, Inc. (BEI)
Date of Publication: October, 1993b
Information Obtained: Previous environmental report

Names of Publication: Short Term Release Response Report. Closure of One 550-gallon Used Oil Underground Storage Tank. Tony Group / Former Jim Slemmons Volvo 98-075 Kamehameha Highway Aiea, Oahu, Hawaii 96701
Author of Publication: Masa Fujioka & Associates (MFA)
Date of Publication: November, 1998
Information Obtained: Previous environmental report

Names of Publication: Short Term Release Response Report. Closure of One 550-gallon New Oil and One 1,000-gallon Used Oil Underground Storage Tanks. Tony Group 98-055 Kamehameha Highway Aiea, Oahu, Hawaii 96701
Author of Publication: Masa Fujioka & Associates (MFA)
Date of Publication: February, 1999
Information Obtained: Previous environmental report



Names of Publication: Phase I Environmental Site Assessment, Tony Hawaii Automotive Group, Ltd. 98-051 And 98-055 Kamehameha Highway TMK 9-8-9; Parcel 11, Aiea, Oahu, Hawaii 96701

Author of Publication: Masa Fujioka & Associates (MFA)

Date of Publication: November, 1998

Information Obtained: Previous environmental report

Names of Publication: Additional Release Response Report, Former Tony Honda 98-055 Kamehameha Highway Aiea, Oahu, Hawaii

Author of Publication: Masa Fujioka & Associates (MFA)

Date of Publication: August, 2004

Information Obtained: Previous environmental report

Names of Publication: Underground Storage Tank Closure Report Former Shell Service Station 98-080 Kamehameha Highway Aiea, Oahu, Hawaii

Author of Publication: Walker Consultants, LTD.

Date of Publication: August, 2003

Information Obtained: Previous environmental report

Names of Publication: Phase II Site Assessment Groundwater Monitoring Long-Term Release Response Report II Former Pearl Auto Service & Supply 98-064 Kamehameha Highway Aiea, Oahu, Hawaii

Author of Publication: Muranaka Environmental Consultants (MEC)

Date of Publication: October, 1999

Information Obtained: Previous environmental report

Names of Publication: Groundwater Sampling Report 98-064 Kamehameha Highway Aiea, Oahu, Hawaii

Author of Publication: Muranaka Environmental Consultants (MEC)

Date of Publication: April, 2009

Information Obtained: Previous environmental report

Names of Publication: Request for No Further Action, Waimalu Shell Service Station, 98-135 Kamehameha Highway Aiea, Oahu, Hawaii

Author of Publication: Levine-Fricke

Date of Publication: August, 1996

Information Obtained: Previous environmental report



Names of Publication: Phase II Environmental Assessment Report Yummi Shell Station 98-135 Kamehameha Highway Aiea, Oahu, Hawaii

Author of Publication: Element Environmental, LLC (EE)

Date of Publication: April, 2008

Information Obtained: Previous environmental report

Names of Publication: Preliminary Assessment / Site Inspection Report, Hickam AFB POL Pipeline

Author of Publication: EA Engineering, Science and Technology (EA Engineering)

Date of Publication: March, 1997

Information Obtained: Previous environmental report

Names of Publication: Installation Restoration Program Phase II - Confirmation / Qualification Final Remedial Investigation / FS Stage 2, Volumes 1, 2 and 3

Author of Publication: Harding Lawson Associates (HLA)

Date of Publication: November, 1992

Information Obtained: Previous environmental report

Names of Publication: HART Kamehameha Highway Station Group: Pearlridge Station Drilled Shaft Spoils Stockpile Soil Sampling

Author of Publication: Environmental Risk Analysis LLC (ERA)

Date of Publication: May, 2018

Information Obtained: Previous environmental report

Contacts:

Agency or Business: PGH Wong Engineering, Inc.

Name/Title of Representative: Mr. Stephen Langham / Lead Inspector for Honolulu Rail Transit Project

Location of Agency or Business: 182 – 2nd Street, Suite 500, San Francisco, California 94105

Telephone Number: 415-566-0800

Date Information was Received: August 22, 2019

Information Obtained: Historical and current property use



Agency or Business: Best Buy Co., Inc.
 Name/Title of Representative: Ms. Linda Nguyen / Geek Squad Manager
 Location of Agency or Business: 98-051 Kamehameha Highway, Aiea, Hawaii 96701
 Telephone Number: 808-485-6940
 Date Information was Received: August 22, 2019
 Information Obtained: Current property use

Agency or Business: Group 70 International
 Name/Title of Representative: Mr. Jeffrey Overton / Land Planner for City Department of Transportation Services
 Location of Agency or Business: Group 70 International, 111 South King Street, Suite 170, Honolulu, Hawaii 96817
 Telephone Number: 808-351-4200
 Date Information was Received: September 04, 2019
 Information Obtained: Historical and current property use

Agency or Business: NAN, Inc.
 Name/Title of Representative: Mr. Eugene Malvar / Project Engineer
 Location of Agency or Business: 636 Laumaka Street, Honolulu, Hawaii 96819
 Telephone Number: 808-842-4929
 Date Information was Received: September 04, 2019
 Information Obtained: Historical and current property use

Agency or Business: Solid and Hazardous Waste Branch
 Location of Agency or Business: 2827 Waimano Road, Pearl City, Hawaii 96782
 Telephone Number: 808-586-4226
 Date Information was Received: August, 2019
 Information Obtained: Regulatory records

Agency or Business: Hazard Evaluation and Emergency Response
 Location of Agency or Business: 2385 Waimano Road, Pearl City, Hawaii 96782
 Telephone Number: 808-586-4249
 Date Information was Received: August, 2019
 Information Obtained: Regulatory records

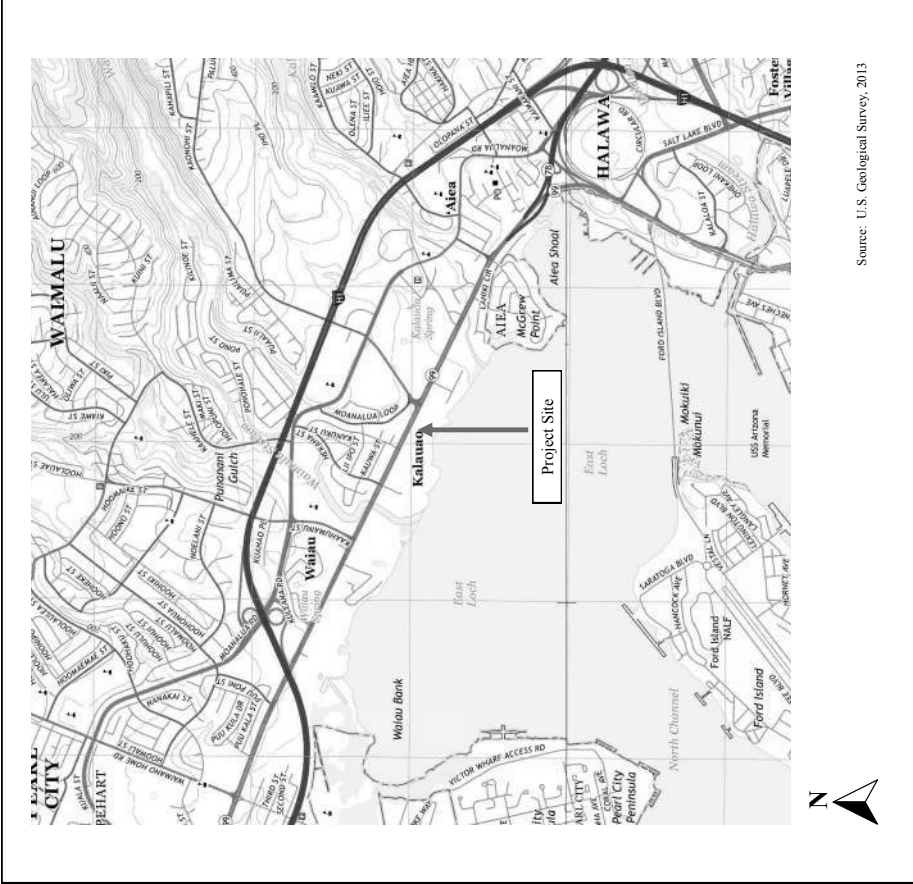


12.0 APPENDICES

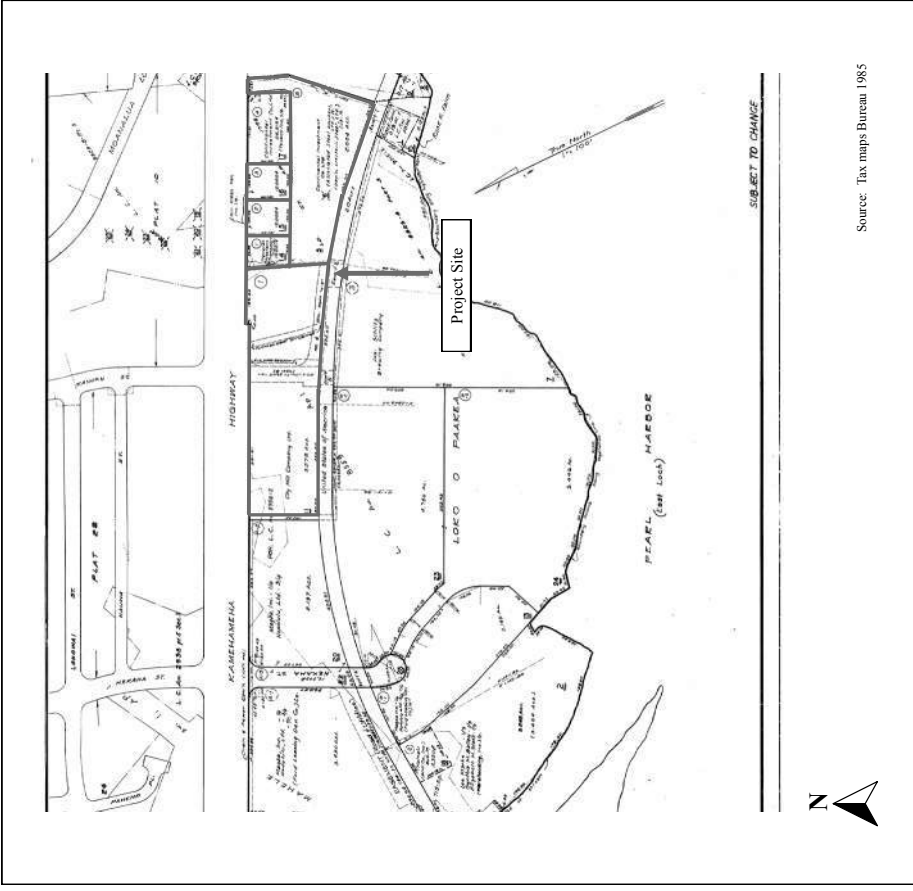
Site Figures
 Site Photographs
 Historical Research
 Regulatory Records Documentation
 Records of Communication/Interview
 Qualifications of Environmental Professionals



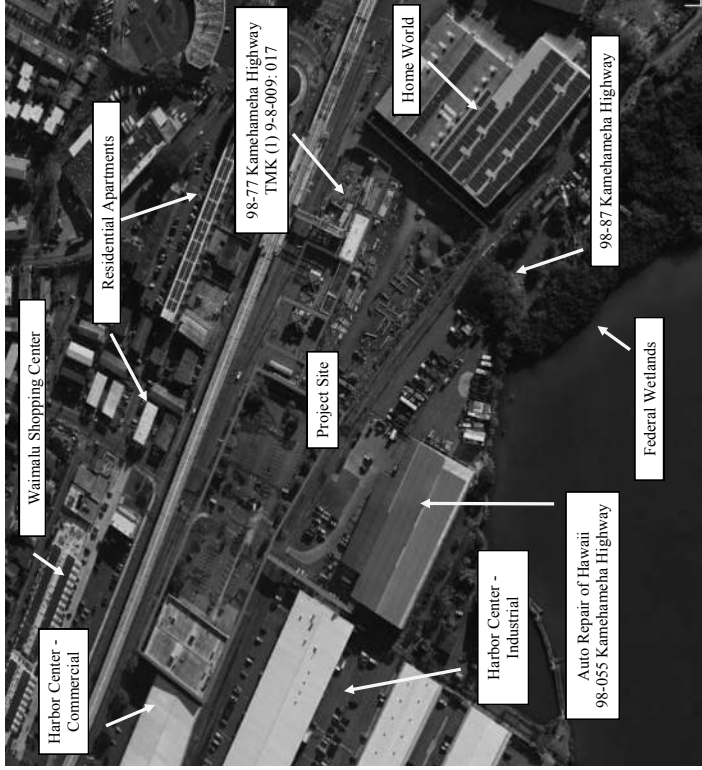
SITE FIGURES



Project Number 1908-00364-PH1
TMKs: (1) 9-8-009: 005, 011, 014, 015 and 016



Project Number 1908-00364-PH1
TMKs: (1) 9-8-009: 005, 011, 014, 015 and 016



Source: Google Earth 2018

Figure 3
GOOGLE EARTH PHOTOGRAPH, 2018
SITE MAP

Scale: 1 inch = Approximately 400 feet



Project Number 1908-00364-PH1
TMKs: (1) 9-8-009: 005, 011, 014, 015 and 016



Source: Google Earth 2018

Figure 4
GOOGLE EARTH PHOTOGRAPH, 2018
ADDRESS LOCATIONS OF FORMER UST'S

Scale: 1 inch = Approximately 400 feet



Project Number 1908-00364-PH1
TMKs: (1) 9-8-009: 005, 011, 014, 015 and 016

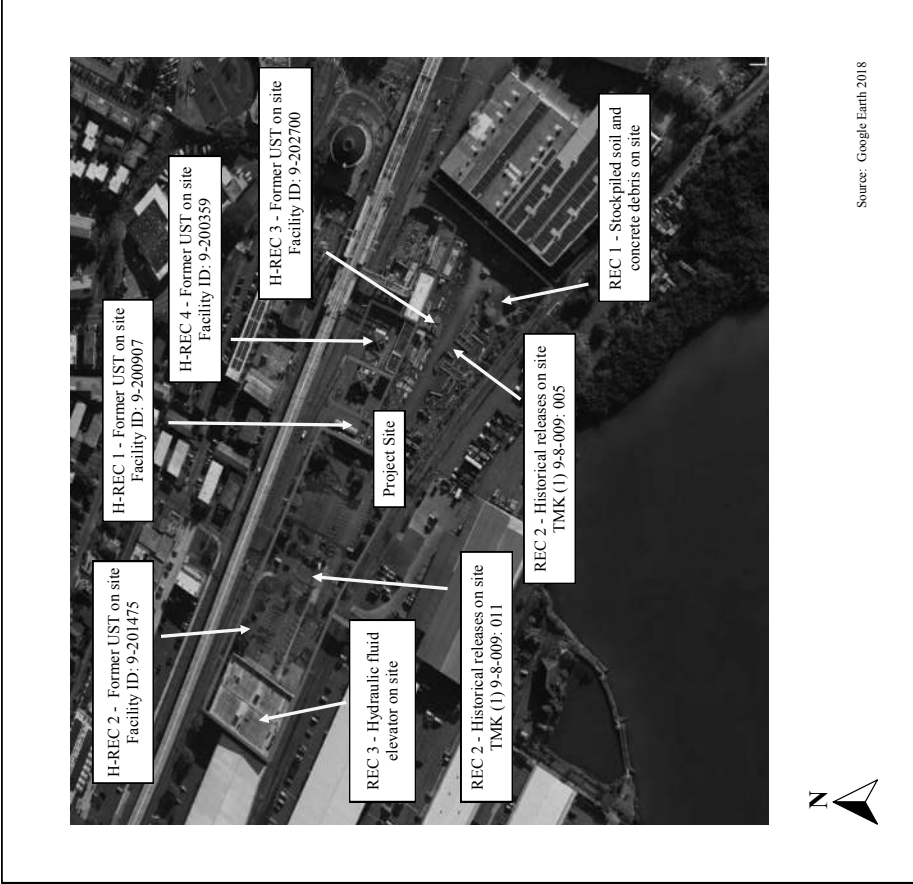


Figure 5
 GOOGLE EARTH PHOTOGRAPH, 2018
 LOCATIONS OF RECOGNIZED ENVIRONMENTAL CONCERNS
 Scale: 1 inch = Approximately 400 feet



Project Number 1908-00364-PH1
 TMKs: (1) 9-8-009: 005, 011, 014, 015 and 016



Figure 6
 GOOGLE EARTH PHOTOGRAPH, 2018 / LOCATIONS OF HICKAM PETROLEUM,
 OIL, AND LUBRICANT (POL) PIPELINE SPILLS
 Scale: 1 inch = Approximately 800 feet



Project Number 1908-00364-PH1
 TMKs: (1) 9-8-009: 005, 011, 014, 015 and 016



SITE PHOTOGRAPHS



Photo 1

Overview of the Property - TMKs: (1) 9-8-009: 005, 011, 014, 015 and 016

Project Number: 1908-00364-PH1

TMKs: (1) 9-8-009: 005, 011, 014, 015 and 016

Date of Photos: August 22, 2019



Photo 2

View of Northwest Corner of the Property - Facing East

Project Number: 1908-00364-PH1

TMKs: (1) 9-8-009: 005, 011, 014, 015 and 016

Date of Photos: August 22, 2019





Photo 3

View of Northwest Corner of the Property - Facing South

Project Number: 1908-00364-PH1

TMKs: (1) 9-8-009: 005, 011, 014, 015 and 016

Date of Photos: August 22, 2019



Photo 4

View of Adjoining Properties North of TMK (1) 9-8-009: 011 - Facing North

Project Number: 1908-00364-PH1

TMKs: (1) 9-8-009: 005, 011, 014, 015 and 016

Date of Photos: August 22, 2019





Photo 5

Petroleum Pipeline Signs Southwest of the Property - Facing East

Project Number: 1908-00364-PH1

TMKs: (1) 9-8-009; 005, 011, 014, 015 and 016

Date of Photos: August 22, 2019



Photo 6

Stormwater Feature Southwest of the Property - Facing East

Project Number: 1908-00364-PH1

TMKs: (1) 9-8-009; 005, 011, 014, 015 and 016

Date of Photos: August 22, 2019





Photo 7

View of Southwest Corner of the Property - Facing East

Project Number: 1908-00364-PH1

TMKs: (1) 9-8-009: 005, 011, 014, 015 and 016

Date of Photos: August 22, 2019



Photo 8

View of Adjoining Properties South of TMK (1) 9-8-009: 011 - Facing South

Project Number: 1908-00364-PH1

TMKs: (1) 9-8-009: 005, 011, 014, 015 and 016

Date of Photos: August 22, 2019





Photo 9

View of Parking Lot of TMK (1) 9-8-009: 011 - Facing East

Project Number: 1908-00364-PH1

TMKs: (1) 9-8-009: 005, 011, 014, 015 and 016

Date of Photos: August 22, 2019



Photo 10

View of Adjoining Properties South of TMK (1) 9-8-009: 011 - Facing South

Project Number: 1908-00364-PH1

TMKs: (1) 9-8-009: 005, 011, 014, 015 and 016

Date of Photos: August 22, 2019





Photo 11

View of Adjoining Properties South of TMKs: (1) 9-8-009: 005, 11 and 014 - Facing Southeast

Project Number: 1908-00364-PH1

TMKs: (1) 9-8-009: 005, 011, 014, 015 and 016

Date of Photos: August 22, 2019



Photo 12

View of Northeast Corner of TMK (1) 9-8-009: 011 - Facing South

Project Number: 1908-00364-PH1

TMKs: (1) 9-8-009: 005, 011, 014, 015 and 016

Date of Photos: August 22, 2019





Photo 13

View of Northwest Corner of TMK (1) 9-8-009: 014 - Facing East

Project Number: 1908-00364-PH1

TMKs: (1) 9-8-009: 005, 011, 014, 015 and 016

Date of Photos: August 22, 2019



Photo 14

View of Northwest Corner of TMK (1) 9-8-009: 014 - Facing South

Project Number: 1908-00364-PH1

TMKs: (1) 9-8-009: 005, 011, 014, 015 and 016

Date of Photos: August 22, 2019





Photo 15

View of West Side of TMK (1) 9-8-009: 005 - Facing Southeast

Project Number: 1908-00364-PH1

TMKs: (1) 9-8-009: 005, 011, 014, 015 and 016

Date of Photos: August 22, 2019

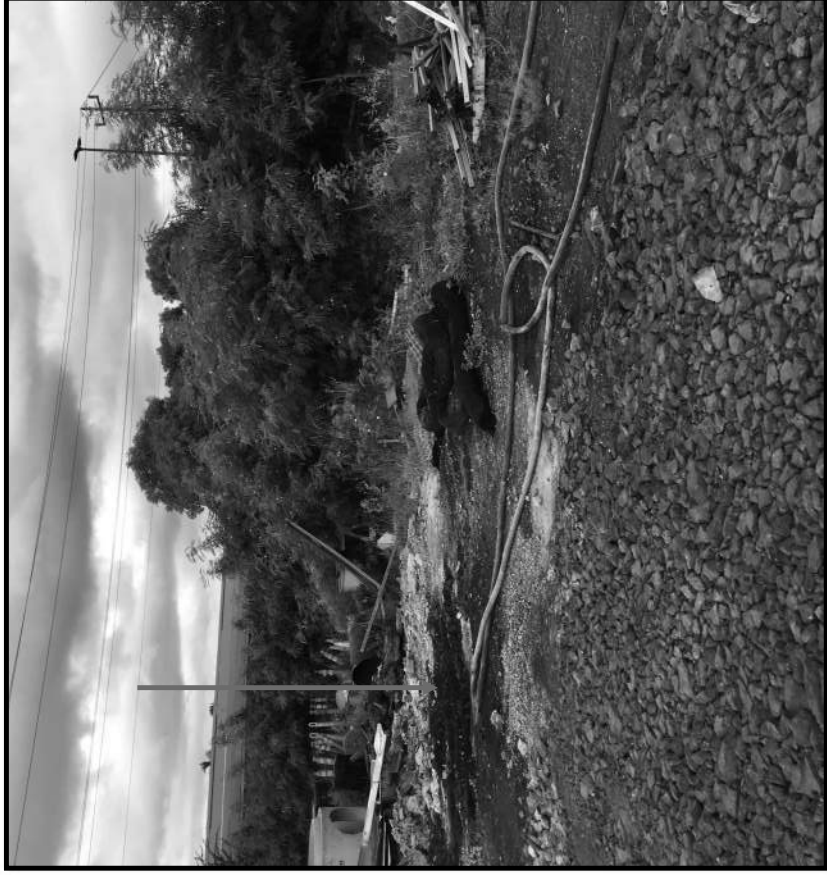


Photo 16

Stained Soil at Southwest Corner of TMK (1) 9-8-009: 005 - Facing Southwest

Project Number: 1908-00364-PH1

TMKs: (1) 9-8-009: 005, 011, 014, 015 and 016

Date of Photos: August 22, 2019





Photo 17

NAN, Inc. Storage Container Southwest Corner of TMK (1) 9-8-009: 005 - Facing Southwest

Project Number: 1908-00364-PH1

TMKs: (1) 9-8-009: 005, 011, 014, 015 and 016

Date of Photos: August 22, 2019



Photo 18

55-gallon Drums on Southwest Corner of TMK (1) 9-8-009: 005 – Facing South

Project Number: 1908-00364-PH1

TMKs: (1) 9-8-009: 005, 011, 014, 015 and 016

Date of Photos: August 22, 2019





Photo 19

View of Southwest Corner of TMK (1) 9-8-009: 005 - Facing East

Project Number: 1908-00364-PH1

TMKs: (1) 9-8-009: 005, 011, 014, 015 and 016

Date of Photos: August 22, 2019



Photo 20

Flammable Materials Storage Shed on TMK (1) 9-8-009: 005 - Facing North

Project Number: 1908-00364-PH1

TMKs: (1) 9-8-009: 005, 011, 014, 015 and 016

Date of Photos: August 22, 2019





Photo 21

View of East Side of the Property on TMK (1) 9-8-009: 005 - Facing West

Project Number: 1908-00364-PH1

TMKs: (1) 9-8-009: 005, 011, 014, 015 and 016

Date of Photos: August 22, 2019

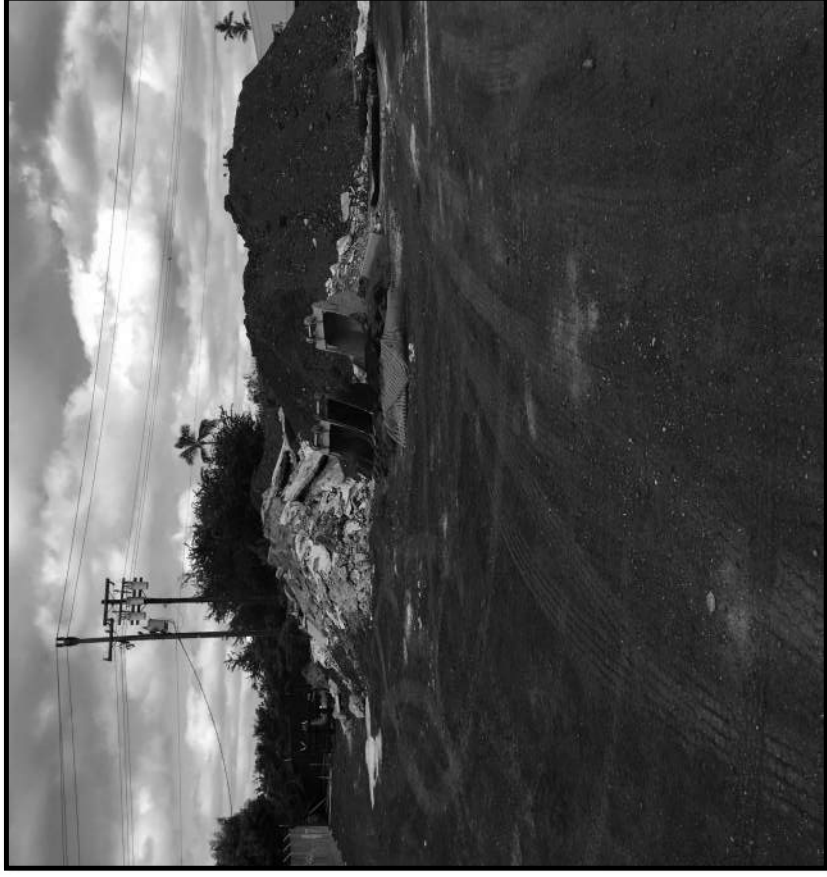


Photo 22

Soil and Concrete Debris Piles on Southeast Side of TMK (1) 9-8-009: 005 - Facing South

Project Number: 1908-00364-PH1

TMKs: (1) 9-8-009: 005, 011, 014, 015 and 016

Date of Photos: August 22, 2019





Photo 23

View of Adjoining Property to the East of the Property - Facing East

Project Number: 1908-00364-PH1

TMKs: (1) 9-8-009: 005, 011, 014, 015 and 016

Date of Photos: August 22, 2019



Photo 24

View of Adjoining Property South of TMK (1) 9-8-009: 005 - Facing South

Project Number: 1908-00364-PH1

TMKs: (1) 9-8-009: 005, 011, 014, 015 and 016

Date of Photos: August 22, 2019





Photo 25

Tire and Machinery Scrap Piles on Adjoining Property Southeast of TMK (1) 9-8-009: 005 - Facing Southeast

Project Number: 1908-00364-PH1

TMKs: (1) 9-8-009: 005, 011, 014, 015 and 016

Date of Photos: August 22, 2019

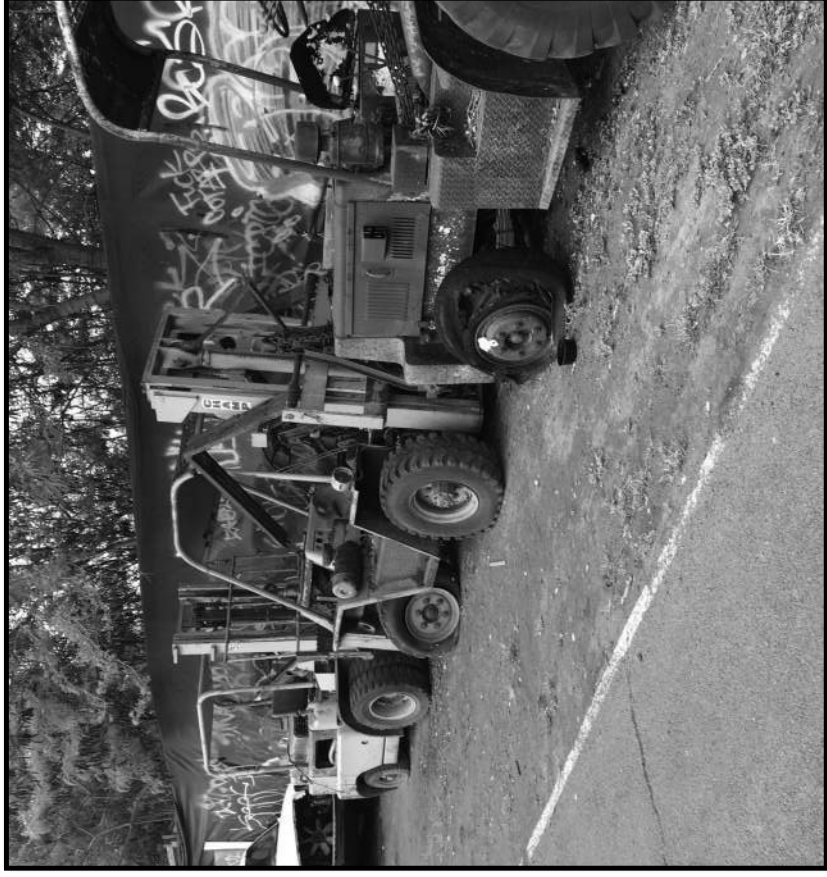


Photo 26

Heavy Machinery Scrap Piles on Adjoining Property Southeast of TMK (1) 9-8-009: 005 - Facing Southeast

Project Number: 1908-00364-PH1

TMKs: (1) 9-8-009: 005, 011, 014, 015 and 016

Date of Photos: August 22, 2019





Photo 27

View of Adjoining Properties North of TMK (1) 9-8-009: 016 - Facing North

Project Number: 1908-00364-PH1

TMKs: (1) 9-8-009: 005, 011, 014, 015 and 016

Date of Photos: August 22, 2019



Photo 28

Transit Station under Construction at TMK (1) 9-8-009: 017

View from Northeast Corner of TMK (1) 9-8-009: 005 - Facing West

Project Number: 1908-00364-PH1

TMKs: (1) 9-8-009: 005, 011, 014, 015 and 016

Date of Photos: August 22, 2019





Photo 29

View of Adjoining Properties North of TMK (1) 9-8-009: 015 - Facing North

Project Number: 1908-00364-PH1

TMKs: (1) 9-8-009: 005, 011, 014, 015 and 016

Date of Photos: August 22, 2019



Photo 30

View of Adjoining Property East of TMK (1) 9-8-009: 016 - Facing Southeast

Project Number: 1908-00364-PH1

TMKs: (1) 9-8-009: 005, 011, 014, 015 and 016

Date of Photos: August 22, 2019





Photo 31

Backside of Office Building from Southeast corner of TMK (1) 9-8-009: 016 - Facing West

Project Number: 1908-00364-PH1

TMKs: (1) 9-8-009: 005, 011, 014, 015 and 016

Date of Photos: August 22, 2019



Photo 32

Former Vehicle Maintenance Bay on TMK (1) 9-8-009: 016 - Facing South

Project Number: 1908-00364-PH1

TMKs: (1) 9-8-009: 005, 011, 014, 015 and 016

Date of Photos: August 22, 2019





Photo 33

Inside Former Vehicle Maintenance Bay, Evidence of Past In-Ground Hydraulic Lifts

- Facing West

Project Number: 1908-00364-PH1

TMKs: (1) 9-8-009; 005, 011, 014, 015 and 016

Date of Photos: August 22, 2019



Photo 34

Asphalt Emulsion Stored in Former Vehicle Maintenance Bay – Facing East

Project Number: 1908-00364-PH1

TMKs: (1) 9-8-009; 005, 011, 014, 015 and 016

Date of Photos: August 22, 2019





HISTORICAL RESEARCH

98-69 Kamehameha Highway
98-69 Kamehameha Highway
Aiea, HI 96701

Inquiry Number: 4258123.9
April 08, 2015

The EDR Aerial Photo Decade Package



6 Armstrong Road, 4th Floor
Shelton, Connecticut 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

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Date EDR Searched Historical Sources:

Aerial Photography April 08, 2015

Target Property:

98-69 Kamehameha Highway
Aiea, HI 96701

Year	Scale	Details	Source
1952	Aerial Photograph. Scale: 1"=750'	Flight Date: April 03, 1952	EDR
1959	Aerial Photograph. Scale: 1"=500'	Flight Date: January 30, 1959	EDR
1962	Aerial Photograph. Scale: 1"=500'	Flight Date: December 04, 1962	EDR
1968	Aerial Photograph. Scale: 1"=500'	Flight Date: February 06, 1968	EDR
1976	Aerial Photograph. Scale: 1"=500'	Flight Date: November 10, 1976	USGS
1978	Aerial Photograph. Scale: 1"=1000'	Flight Date: January 05, 1978	EDR
1985	Aerial Photograph. Scale: 1"=500'	Flight Date: April 29, 1985	EDR
1992	Aerial Photograph. Scale: 1"=500'	Flight Date: September 25, 1992	USGS
2001	Aerial Photograph. Scale: 1"=500'	DOQQ - acquisition dates: February 02, 2001	USGS/DOQQ
2004	Aerial Photograph. Scale: 1"=500'	Flight Date: May 19, 2004	EDR
2006	Aerial Photograph. Scale: 1"=500'	Flight Date: July 22, 2006	EDR

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4258123.9

2





INQUIRY #: 4258123.9
YEAR: 1968
↑ N
EDR
= 500'



INQUIRY #: 4258123.9
YEAR: 1962
↑ N
EDR
= 500'



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YEAR: 1978
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= 1000'



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YEAR: 1976
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EDR®
= 500'







3547.57

INQUIRY #: 4258123.9
YEAR: 2006
↑ N
EDR
= 500'

98-51 KAMEHAMEHA HWY
98-51 KAMEHAMEHA HWY
AIEA, HI 96701

Inquiry Number: 5756722.3
August 16, 2019

Certified Sanborn® Map Report



6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report		08/16/19
Site Name:	Client Name:	
98-51 KAMEHAMEHA HWY	ENPRO, Env. Professionals	
98-51 KAMEHAMEHA HWY	151 Hekili Street Suite 210	
AIEA, HI 96701	Kailua, HI 96734	
EDR Inquiry # 5756722.3	Contact: Shawn Champion	



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Certified Sanborn Results:

Certification # 60E7-4E5E-B996

PO # NA

Project TMKs 1 9-8-009 5, 11, 14, 15

UNMAPPED PROPERTY

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Sanborn® Library search results

Certification #: 60E7-4E5E-B996

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98-51 KAMEHAMEHA HWY
98-51 KAMEHAMEHA HWY
AIEA, HI 96701

Inquiry Number: 5756722.4
August 16, 2019

EDR Historical Topo Map Report with QuadMatch™



6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

08/16/19	
EDR Historical Topo Map Report	
Site Name:	Client Name:
98-51 KAMEHAMEHA HWY	ENPRO, Env. Professionals
98-51 KAMEHAMEHA HWY	151 Hekili Street Suite 210
AIEA, HI 96701	Kaliua, HI 96734
EDR Inquiry # 5756722.4	Contact: Shawn Champion



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Search Results:		Coordinates:	
P.O.#	NA	Latitude:	21.384281 21° 23' 3" North
Project:	TMKs 1 9-8-009 5, 11, 14, 15	Longitude:	-157.949136 -157° 56' 57" West
		UTM Zone:	Zone 4 North
		UTM X Meters:	608937.58
		UTM Y Meters:	2365042.32
		Elevation:	13.72' above sea level


- Maps Provided:**
- 2013
 - 1998, 1999
 - 1983
 - 1970
 - 1968
 - 1959
 - 1954
 - 1928

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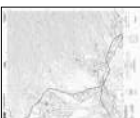
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Topo Sheet Key
This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2013 Source Sheets




Pearl Harbor
7.5-minute, 24000




Waipahu
7.5-minute, 24000

1998, 1999 Source Sheets




Waipahu
7.5-minute, 24000
Aerial Photo Revised 1998

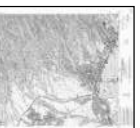


Pearl Harbor
7.5-minute, 24000
Aerial Photo Revised 1999

1983 Source Sheets



Pearl Harbor
7.5-minute, 24000
Aerial Photo Revised 1978



Waipahu
7.5-minute, 24000
Aerial Photo Revised 1978

1970 Source Sheets



OAHU
15-minute, 62500



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

SITE NAME: 98-51 KAMEHAMEHA HWY
ADDRESS: 98-51 KAMEHAMEHA HWY
AIEA, HI 96701
CLIENT: ENPRO, Env. Professionals

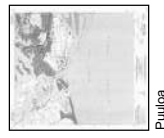
TP, Waipahu, 2013, 7.5-minute
S, Pearl Harbor, 2013, 7.5-minute

5766722 - 4 page 5

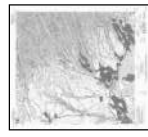
Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1968 Source Sheets

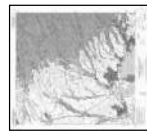


Waipahu
7.5-minute, 24000
Aerial Photo Revised 1968

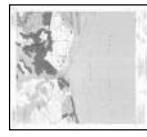


Puuloa
7.5-minute, 24000
Aerial Photo Revised 1968

1959 Source Sheets



Waipahu
7.5-minute, 24000
Aerial Photo Revised 1959

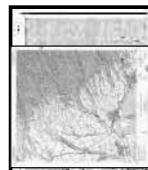


Puuloa
7.5-minute, 24000
Aerial Photo Revised 1959

1954 Source Sheets



PEARL CITY
7.5-minute, 24000
Aerial Photo Revised 1954



Waipahu
7.5-minute, 24000
Aerial Photo Revised 1954

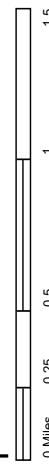
1928 Source Sheets



WAIPAHAU
7.5-minute, 20000

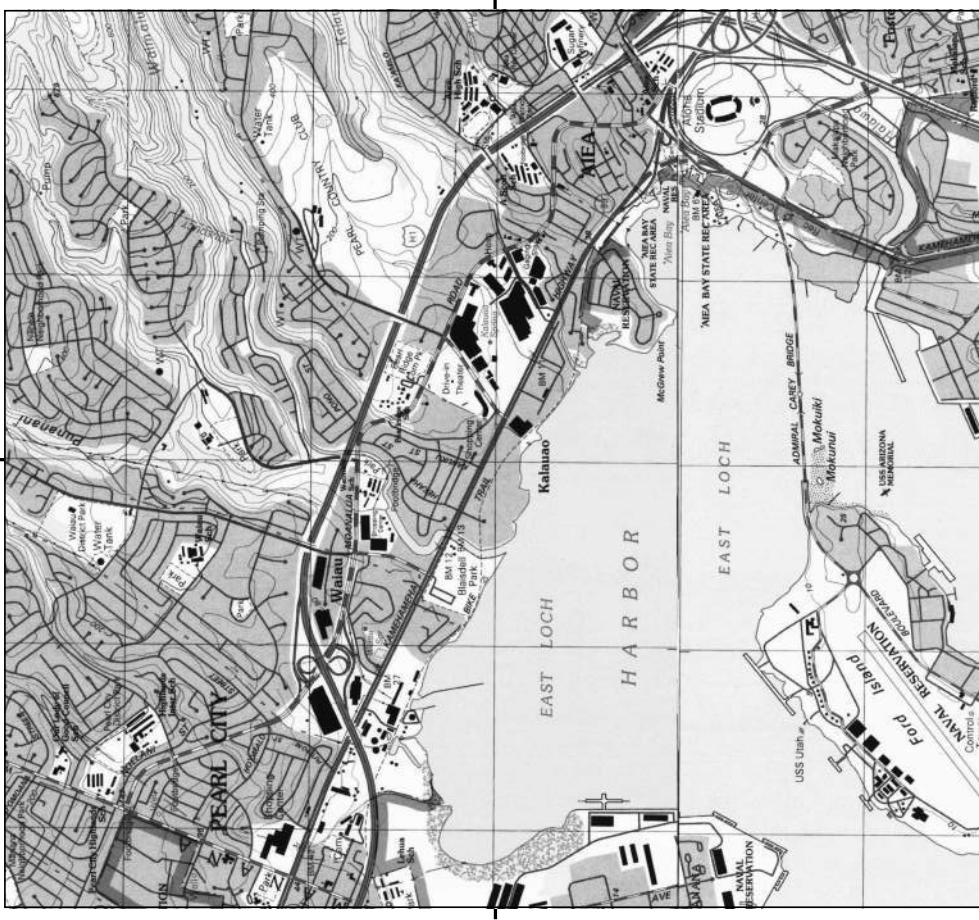
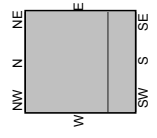


This report includes information from the following map sheet(s).

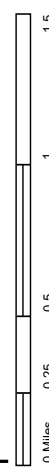


SITE NAME: 98-51 KAMEHAMEHA HWY
 ADDRESS: 98-51 KAMEHAMEHA HWY
 AIEA, HI 96701
 CLIENT: ENPRO, Env. Professionals

TP, Waipahu, 1983, 7.5-minute
 S, Pearl Harbor, 1983, 7.5-minute

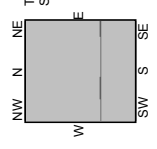


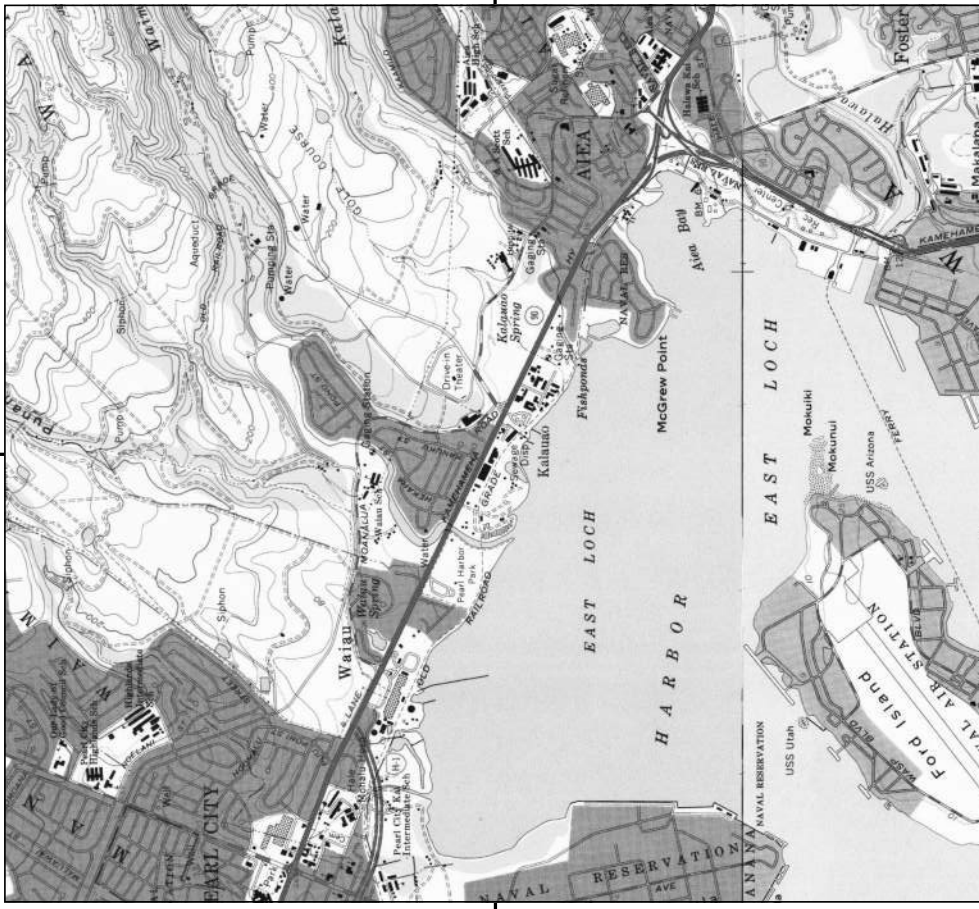
This report includes information from the following map sheet(s).



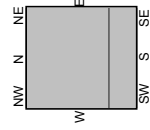
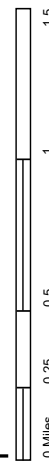
SITE NAME: 98-51 KAMEHAMEHA HWY
 ADDRESS: 98-51 KAMEHAMEHA HWY
 AIEA, HI 96701
 CLIENT: ENPRO, Env. Professionals

TP, Waipahu, 1998, 7.5-minute
 S, Pearl Harbor, 1999, 7.5-minute





This report includes information from the following map sheet(s).

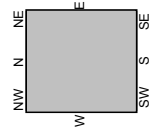
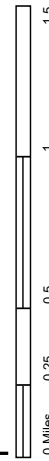


TP, Waipahu, 1968, 7.5-minute
S, Puuloa, 1968, 7.5-minute

SITE NAME: 98-51 KAMEHAMEHA HWY
ADDRESS: 98-51 KAMEHAMEHA HWY
AIEA, HI 96701
CLIENT: ENPRO, Env. Professionals

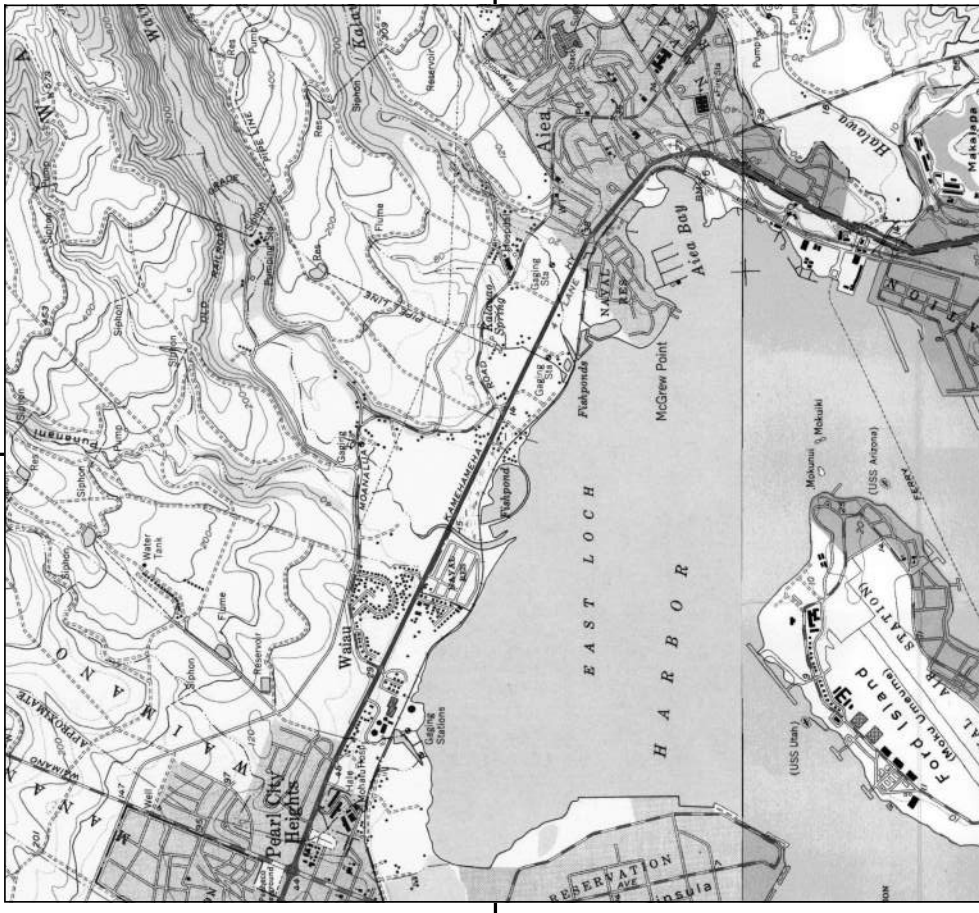


This report includes information from the following map sheet(s).



TP, OAHU, 1970, 15-minute

SITE NAME: 98-51 KAMEHAMEHA HWY
ADDRESS: 98-51 KAMEHAMEHA HWY
AIEA, HI 96701
CLIENT: ENPRO, Env. Professionals



This report includes information from the following map sheet(s):

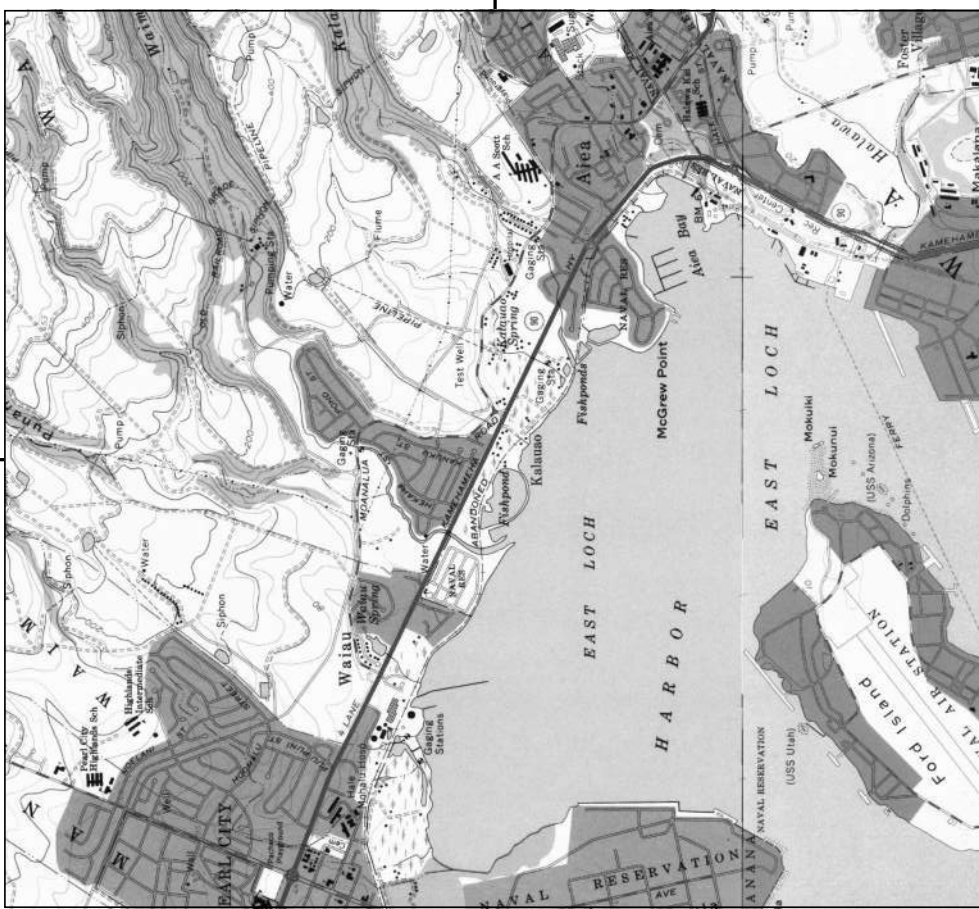
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

SITE NAME: 98-51 KAMEHAMEHA HWY
ADDRESS: 98-51 KAMEHAMEHA HWY
AIEA, HI 96701
CLIENT: ENPRO, Env. Professionals

TP, HONOLULU VICINITY NORTH, 1954, 7.5-minute
TP, Waipahu, 1954, 7.5-minute

5766722 - 4 page 11



This report includes information from the following map sheet(s):

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

SITE NAME: 98-51 KAMEHAMEHA HWY
ADDRESS: 98-51 KAMEHAMEHA HWY
AIEA, HI 96701
CLIENT: ENPRO, Env. Professionals

TP, Waipahu, 1959, 7.5-minute
S, Puuloa, 1959, 7.5-minute

5766722 - 4 page 10

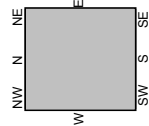


Historical Topo Map

1928



This report includes information from the following map sheet(s).



NW NE TP, WAIPAHU, 1928: 7.5-minute

SITE NAME: 98-51 KAMEHAMEHA HWY
ADDRESS: 98-51 KAMEHAMEHA HWY
CLIENT: ENPRO, Env. Professionals

TMK: 9-8-009-016-0000 CITY AND COUNTY OF HONOLULU PARCEL HISTORY (TT101) FOR: PAGE: 1

01/13/2016 INSTR-DESC: DEED

LC-DOC-NO: T-9508235

CERT NO: 1109976

TRANS NO: 5496809
INSTR-DATE: 01/06/2016
REC-DATE: 01/13/2016

AREA: 12,000 SQ. FT. STATE-CONV-TAX: \$ 0

OTHER-TWKS: 9-8-009-014-0000 ETC.

GRANTOR: CONTINENTAL INVESTMENT COMPANY LTD
GRANTEE: CITY & COUNTY OF HONOLULU

LOT 3 LCAPP 1796 MAP 2 12,000 SF

GROUP# NAME F TC %-OWNER TITLE-DESC

2 0011 CITY AND COUNTY OF HONOLULU

FOR ASSESSMENT YEAR 2019 EXEMPT LAND VALUE: \$958,800 EXEMPT BUILDING VALUE: \$653,000
PITT 4 BUILDING VALUE: \$653,000

FOR ASSESSMENT YEAR 2018 EXEMPT LAND VALUE: \$902,400 EXEMPT BUILDING VALUE: \$638,500
PITT 4 BUILDING VALUE: \$638,500

FOR ASSESSMENT YEAR 2017 EXEMPT LAND VALUE: \$902,400 EXEMPT BUILDING VALUE: \$722,900
PITT 4 BUILDING VALUE: \$722,900

SITE ADDRESS: 98-75 KAMEHAMEHA HWY
AIEA 96701

MAILING ADDRESS: CITY AND COUNTY OF HONOLULU (4X 2020)
550 S KING ST
DEPARTMENT OF DESIGN & CONSTRUCTION

MAILING ADDRESS: CONTINENTAL INVESTMENT CO
PO BOX 488
AIEA HI 96701-0488

09/14/2015 INSTR-DESC: CANCEL LEASE

LC-DOC-NO: T9387308

CERT NO: 1061962

ADDD CERT: 95376

TRANS NO: 5487914
INSTR-DATE: 01/01/2015
REC-DATE: 09/14/2015

AREA: 12,000 SQ. FT.

OTHER-TWKS: 9-8-009-005-0000 ETC.

DOC: CANCELLATION OF SUBLEASE & LICENSE AGREEMENT
CONTINENTAL INVESTMENT COMPANY, LTD "MASTER LESSOR"
TONY HAWAII CORP "SUBLESSEE"
MASTER LESSOR & SUBLESSEE AGREE AS FOLLOWS: CANCELLATION OF LEASE & SLEMONS SUBLEASE & SLEMONS LICENSE SHALL BE CANCELLED...ETC.

NOTE: LCO 9384309 - NOTE TERMINATION OF MASTER LEASE
F/D: KEYED ONLY - CLEAR TITLE

LOT 3 LCAPP 1796 MAP 2 12,000 SF

GROUP# NAME F TC %-OWNER TITLE-DESC

2 0011 CONTINENTAL INVESTMENT CO

GROUP# : 2 0011

FOR ASSESSMENT YEAR 2016 EXEMPT LAND VALUE: \$846,000 EXEMPT BUILDING VALUE: \$726,200

PITT 4 BUILDING VALUE: \$726,200 EXEMPT BUILDING VALUE: \$726,200

THE ABOVE IS THE AMENDED ASSESSMENT FOR THIS YEAR

CVFAR.USER3 95376

06/01/2013 TRANS NO: 5412103
 INSTR-DESC: ROUTE SLIP INSTR-DATE: 12/19/2005

AREA: 12,000 SQ.FT.
 OTHER-TMKS: 9-8-009-015-0000 ETC.

CONTINENTAL INVESTMENT COMPANY, LIMITED, PLAINTIFF VS.
 JIM SLEMONS HAWAII, INC ET AL, DEFENDANT; CIVIL NO. 05-1-1937-10
 RECORDED DOC NO. 3369062; TERMINATION OF UNRECORDED LEASES,
 MEMORANDUM WHICH IS RECORDED AS DOC 1862149 FOR BREACH
 OF TERMS...ETC.
 F/D: OWNERSHIP CORRECTED; LE & SUBLE - OUT

LOT 3 LCAPP 1796 MAP 2 12,000 SF

GROUP#	NAME	F	TC	%-OWNER	TITLE-DESC
2	0011 CONTINENTAL INVESTMENT CO				

GROUP# 2 0011
 Date & Time 06/01/2013 12:12:12

12/12/2001 INSTR-DESC: LEASE TRANS NO: 5094553
 INSTR-DATE: 12/11/2001
 REC-DATE: 12/12/2001
 ACK/EFF DATE: 12/11/2001
 LC-DOC-NO: 2760402 CERT NO:90440

AREA: 12,000 SQ.FT.
 OTHER-TMKS: 9-8-009-015-0000 ETC.

FROM: JIM SLEMONS HAWAII, INC.
 TO: PARADISE AUTOS INC.

TERM OF 1 YR. 12/5/2001 TO 12/4/2002 @ \$6,000 PER MONTH
 F/D: KEYED ONLY - SHORT TERM LEASE

GROUP#	NAME	F	TC	%-OWNER	TITLE-DESC
2	0011 CONTINENTAL INVESTMENT CO				LE
7	0011 JIM SLEMONS HAWAII INC				SUBLE
7	10011 TONY HAWAII CORP				

06/07/1994 INSTR-DESC: MEMORANDUM OF SUBLEASE TRANS NO: 233109
 INSTR-DATE: 06/03/1994
 REC-DATE: 06/07/1994
 LC-DOC-NO: 2153069 CERT NO:90440
 AMOUNT:\$10,149,967 STATE-CONV-TAX: \$ 10150.00

*95376 FROM: JIM SLEMONS HAWAII, INC.
 TO: TONY HAWAII CORP.

LOT 3 LCAPP 1796 MAP 2 12,000 SF

GROUP#	NAME	F	TC	%-OWNER	TITLE-DESC
2	0011 CONTINENTAL INVESTMENT CO				LE
7	0011 JIM SLEMONS HAWAII INC				SUBLE
7	10011 TONY HAWAII CORP				

07/09/1992 INSTR-DESC: ASSIGNMENT OF LEASE AGREEMENT TRANS NO: 233108
 INSTR-DATE: 04/15/1992

LC-DOC-NO: 1929608 CERT NO:90440 REC-DATE: 07/09/1992
 AMOUNT:\$2,575,700
 AREA:12,000 SQ.FT. STATE-CONV-TAX: \$ 1287.85

95376 FROM: SLEMONS ENTERPRISES, INC
 TO: JIM SLEMONS HAWAII, INC
 FIRST: LOT 3 12000 SF MAP 2 LCAPP 1796

GROUP#	NAME	F	TC	%-OWNER	TITLE-DESC
2	0011 CONTINENTAL INVESTMENT CO				LE
7	0011 JIM SLEMONS HAWAII INC				

07/09/1992 INSTR-DESC: AMNDMT/EXTNSN OF LEASE AGREEMENT TRANS NO: 233106
 INSTR-DATE: 04/15/1992
 REC-DATE: 07/09/1992
 LC-DOC-NO: 1929607 CERT NO:90440
 AMOUNT:\$1,761,772 STATE-CONV-TAX: \$ 880.89
 AREA:12,000 SQ.FT.

95376 FROM: CONTINENTAL INVESTMENT CO., LTD
 TO: SLEMONS ENTERPRISES INC
 FIRST: LOT 3 12000 SF MAP 2 LCAPP 1796
 LEASE DATED 10/28/91, DOC 1862149
 1 - SHALL BE & THE SAME IS HEREBY EXTENDED FOR 2 ADDITIONAL PERIODS OF
 5 YEARS COMMENCING 5/1/2008 THROUGH 4/30/2013 & THE SECOND 5 YEAR
 PERIOD COMMENCING 5/1/2013 THROUGH 4/30/2018
 2 - RENT FIRST 5 YEAR PERIOD \$231,931.20 PER YEAR
 RENT SECOND 5 YEAR PERIOD \$249,326.04 PER YEAR
 F/D: KEYED ONLY - AMEND & EXTEND LEASE

GROUP#	NAME	F	TC	%-OWNER	TITLE-DESC
2	0011 CONTINENTAL INVESTMENT CO				LE
7	0011 SLEMONS ENTERPRISES INC				

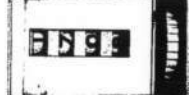
10/31/1991 INSTR-DESC: MEMORANDUM OF LEASE AGREEMENT TRANS NO: 233107
 INSTR-DATE: 10/28/1991
 REC-DATE: 10/31/1991
 LC-DOC-NO: 1862149 CERT NO:95376
 AMOUNT:\$1,187,753 STATE-CONV-TAX: \$ 593.85
 AREA:12,000 SQ.FT.

90440 FROM: CONTINENTAL INVESTMENT COMPANY LTD
 TO: SLEMONS ENTERPRISES INC
 LOT 3 12,000.0 SF MAP 2 LCAPP 1796
 TMB NOTE: LE TO EKAAHI INVESTMENT INC EXPIRED 4/28/88.

GROUP#	NAME	F	TC	%-OWNER	TITLE-DESC
2	0011 CONTINENTAL INVESTMENT CO				LE
7	0011 SLEMONS ENTERPRISES INC				

10/07/1987

TAX MAPS BRANCH HISTORY SHEET			
DATE	LOCATION	AREA OF PARCEL	GRANTOR, ETC.
NO. 9868 3	Waimanalo, Ewa	12,000	Continental Investment Co Ltd (Ewa) Investment, Inc 1/6
11	As shown on tax maps	do	do
12	Suble: Ewa Investment Inc to: Alfred J Stromb eal Doc 80370-71 G-95376	do	do
13	Suble: Ewa Investment Inc to: Alfred J Stromb eal Doc 80370-71 G-95376	do	do
14	Suble: Ewa Investment Inc to: Alfred J Stromb eal Doc 80370-71 G-95376	do	do
15	Suble: Ewa Investment Inc to: Alfred J Stromb eal Doc 80370-71 G-95376	do	do
16	Suble: Ewa Investment Inc to: Alfred J Stromb eal Doc 80370-71 G-95376	do	do
17	Suble: Ewa Investment Inc to: Alfred J Stromb eal Doc 80370-71 G-95376	do	do
18	Suble: Ewa Investment Inc to: Alfred J Stromb eal Doc 80370-71 G-95376	do	do
19	Suble: Ewa Investment Inc to: Alfred J Stromb eal Doc 80370-71 G-95376	do	do
20	Suble: Ewa Investment Inc to: Alfred J Stromb eal Doc 80370-71 G-95376	do	do



FIELD BOOK LAND SHEET			
YEAR	AREA	LAND	TAX
120000			
120001			
120002			
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120100			

RECORD

1076

TAX MAPS BRANCH HISTORY SHEET

DATE: **3/15/63 (D Loto)** LOCATION: **WREGLAH, 2ND** DIV: **16**

TITLE: **Lot 3** AREA OF PARCEL: **12,000** PLAT: **9 8 09**

NO. **1** **1963** **1963** **1963** **1963** **1963** **1963** **1963** **1963** **1963**

NO.	DATE	LOCATION	TITLE	AREA OF PARCEL	REMARKS	OWNER
1	3/15/63	Lot 3	1963	12,000		Continental Investment Co Ltd
2	3/15/63	Lot 3	1963	12,000		(Inc-Per, Inc) Le
3	3/15/63	Lot 3	1963	12,000		do
4	3/15/63	Lot 3	1963	12,000		do
5	3/15/63	Lot 3	1963	12,000		do
6	3/15/63	Lot 3	1963	12,000		do
7	3/15/63	Lot 3	1963	12,000		do
8	3/15/63	Lot 3	1963	12,000		do
9	3/15/63	Lot 3	1963	12,000		do
10	3/15/63	Lot 3	1963	12,000		do
11	3/15/63	Lot 3	1963	12,000		do
12	3/15/63	Lot 3	1963	12,000		do
13	3/15/63	Lot 3	1963	12,000		do
14	3/15/63	Lot 3	1963	12,000		do
15	3/15/63	Lot 3	1963	12,000		do
16	3/15/63	Lot 3	1963	12,000		do
17	3/15/63	Lot 3	1963	12,000		do
18	3/15/63	Lot 3	1963	12,000		do
19	3/15/63	Lot 3	1963	12,000		do
20	3/15/63	Lot 3	1963	12,000		do
21	3/15/63	Lot 3	1963	12,000		do
22	3/15/63	Lot 3	1963	12,000		do
23	3/15/63	Lot 3	1963	12,000		do
24	3/15/63	Lot 3	1963	12,000		do
25	3/15/63	Lot 3	1963	12,000		do
26	3/15/63	Lot 3	1963	12,000		do
27	3/15/63	Lot 3	1963	12,000		do
28	3/15/63	Lot 3	1963	12,000		do
29	3/15/63	Lot 3	1963	12,000		do
30	3/15/63	Lot 3	1963	12,000		do

STATE OF MICHIGAN DEPARTMENT OF REVENUE
PROPERTY ASSESSMENT DIVISION
TAX MAPS BRANCH

NOTE: INFORMATION ON THIS SHEET IS SUBJECT TO CHANGE



TAX MAPS BRANCH HISTORY SHEET

DATE: **3/15/63 (D Loto)** LOCATION: **WREGLAH, 2ND** DIV: **16**

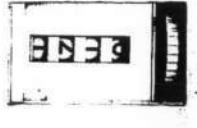
TITLE: **Lot 3** AREA OF PARCEL: **12,000** PLAT: **9 8 09**

NO. **1** **1963** **1963** **1963** **1963** **1963** **1963** **1963** **1963** **1963**

NO.	DATE	LOCATION	TITLE	AREA OF PARCEL	REMARKS	OWNER
1	3/15/63	Lot 3	1963	12,000		Continental Investment Co Ltd
2	3/15/63	Lot 3	1963	12,000		(Inc-Per, Inc) Le
3	3/15/63	Lot 3	1963	12,000		do
4	3/15/63	Lot 3	1963	12,000		do
5	3/15/63	Lot 3	1963	12,000		do
6	3/15/63	Lot 3	1963	12,000		do
7	3/15/63	Lot 3	1963	12,000		do
8	3/15/63	Lot 3	1963	12,000		do
9	3/15/63	Lot 3	1963	12,000		do
10	3/15/63	Lot 3	1963	12,000		do
11	3/15/63	Lot 3	1963	12,000		do
12	3/15/63	Lot 3	1963	12,000		do
13	3/15/63	Lot 3	1963	12,000		do
14	3/15/63	Lot 3	1963	12,000		do
15	3/15/63	Lot 3	1963	12,000		do
16	3/15/63	Lot 3	1963	12,000		do
17	3/15/63	Lot 3	1963	12,000		do
18	3/15/63	Lot 3	1963	12,000		do
19	3/15/63	Lot 3	1963	12,000		do
20	3/15/63	Lot 3	1963	12,000		do
21	3/15/63	Lot 3	1963	12,000		do
22	3/15/63	Lot 3	1963	12,000		do
23	3/15/63	Lot 3	1963	12,000		do
24	3/15/63	Lot 3	1963	12,000		do
25	3/15/63	Lot 3	1963	12,000		do
26	3/15/63	Lot 3	1963	12,000		do
27	3/15/63	Lot 3	1963	12,000		do
28	3/15/63	Lot 3	1963	12,000		do
29	3/15/63	Lot 3	1963	12,000		do
30	3/15/63	Lot 3	1963	12,000		do

STATE OF MICHIGAN DEPARTMENT OF REVENUE
PROPERTY ASSESSMENT DIVISION
TAX MAPS BRANCH

NOTE: INFORMATION ON THIS SHEET IS SUBJECT TO CHANGE



01/13/2016
 INSTR-DESC: DEED
 LC-DOC-NO: T-9508235 CERT NO: 1109976
 AREA: 10,001 SQ.FT. STATE-CONV-TAX: \$ 0
 OTHER-TWKS: 9-8-009-014-0000 ETC.

GRANTOR: CONTINENTAL INVESTMENT COMPANY LTD
 GRANTEE: CITY & COUNTY OF HONOLULU
 LOT 1 10,001 SF MAP 2 LCAPP 1796

GROUP#	NAME	F	TC	%-OWNER	TITLE-DESC
2 0011	CITY AND COUNTY OF HONOLULU				
FOR ASSESSMENT YEAR					
PITT 4	LAND VALUE: 2019				\$816,100
	BUILDING VALUE:				\$2,600
	EXEMPT LAND VALUE:				\$816,100
	EXEMPT BUILDING VALUE:				\$2,600
FOR ASSESSMENT YEAR					
PITT 4	LAND VALUE: 2018				\$768,100
	BUILDING VALUE:				\$2,000
	EXEMPT LAND VALUE:				\$768,100
	EXEMPT BUILDING VALUE:				\$2,000
FOR ASSESSMENT YEAR					
PITT 4	LAND VALUE: 2017				\$768,100
	BUILDING VALUE:				\$8,500
	EXEMPT LAND VALUE:				\$768,100
	EXEMPT BUILDING VALUE:				\$8,500

SITE ADDRESS: 98-69 KAMEHAMEHA HWY
 AIEA 96701

MAILING ADDRESS: CITY AND COUNTY OF HONOLULU (4X 2020)
 650 S KING ST
 DEPARTMENT OF DESIGN & CONSTRUCTION

MAILING ADDRESS: CONTINENTAL INVESTMENT CO
 PO BOX 488
 AIEA HI 96701-0488

09/14/2015
 INSTR-DESC: CANCEL LEASE
 LC-DOC-NO: T9387308 CERT NO: 1061962
 ADDL CERT: 95376
 AREA: 10,001 SQ.FT.
 OTHER-TWKS: 9-8-009-005-0000 ETC.

DOC: CANCELLATION OF SUBLEASE & LICENSE AGREEMENT
 CONTINENTAL INVESTMENT COMPANY, LTD "MASTER LESSOR"
 TONY HAWAII CORP "SUBLESSEE"
 MASTER LESSOR & SUBLESSEE AGREE AS FOLLOWS: CANCELLATION
 OF LEASE & SLEMONS SUBLEASE & SLEMONS LICENSE SHALL BE
 CANCELLED...ETC.
 NOTE: LCO 9384309 - NOTE TERMINATION OF MASTER LEASE
 F/D: LE & SUBLE - OUT

GROUP#	NAME	F	TC	%-OWNER	TITLE-DESC
2 0011	CONTINENTAL INVESTMENT CO				
GROUP#:	2 0011				CVPAR-USER3 95376
FOR ASSESSMENT YEAR					
PITT 4	LAND VALUE: 2016				\$720,100
	BUILDING VALUE:				\$8,300
	EXEMPT LAND VALUE:				\$720,100
	EXEMPT BUILDING VALUE:				\$8,300

THE ABOVE IS THE AMENDED ASSESSMENT FOR THIS YEAR

06/07/1994
 INSTR-DESC: MEMORANDUM OF LICENSE AGREEMENT
 LC-DOC-NO: 2153070 CERT NO: 95376
 AMOUNT: \$11,240,919
 AREA: 10,001 SQ.FT. STATE-CONV-TAX: \$ 1124.90

FROM: JIM SLEMONS HAWAII, INC.
 TO: TONY HAWAII CORP.
 FOR OF LICENSED PROPERTY WHICH IS CROSS-HATCHED IN MAP ATTACHED
 HERETO AS EXH "B"
 LOT 1 LCAPP 1796 MAP 2 10,001 SF
 F/D: KEYED ONLY-FLOOR SPACE

GROUP#	NAME	F	TC	%-OWNER	TITLE-DESC
2 0011	CONTINENTAL INVESTMENT CO				
7 0011	JIM SLEMONS HAWAII INC				LE
710011	TONY HAWAII CORP				SUBLE

06/07/1994
 INSTR-DESC: MEMORANDUM OF SUBLEASE
 LC-DOC-NO: 2153069 CERT NO: 90440
 AMOUNT: \$10,149,967
 AREA: 10,001 SQ.FT. STATE-CONV-TAX: \$ 10150.00

*95376
 FROM: JIM SLEMONS HAWAII, INC.
 TO: TONY HAWAII CORP.
 LOT 1 LCAPP 1796 MAP 2 10,001 SF

GROUP#	NAME	F	TC	%-OWNER	TITLE-DESC
2 0011	CONTINENTAL INVESTMENT CO				
7 0011	JIM SLEMONS HAWAII INC				LE
710011	TONY HAWAII CORP				SUBLE

07/07/1992
 INSTR-DESC: LEASE
 LC-DOC-NO: 1928732 CERT NO: 95376
 AMOUNT: \$8,494,886
 AREA: 10,001 SQ.FT. STATE-CONV-TAX: \$ 4247.44

FROM: CONTINENTAL INVESTMENT COMPANY, LTD
 TO: JIM SLEMONS HAWAII, INC
 LOTS 14-1 10000 SF MAP 2 LCAPP 1796
 *TMB NOTE "A": LEASE TO HAWAIIAN WESTERN TRANSPORT, INC. REC IN LD CT
 DOC 329056 EXPIRED ON 3/31/741
 TMB NOTE "B": LD CT AREA 10001 SF

GROUP#	NAME	F	TC	%-OWNER	TITLE-DESC
2 0011	CONTINENTAL INVESTMENT CO				
7 0011	JIM SLEMONS HAWAII INC				
GROUP#:	10/07/1987				

GROUP# NAME F TC \$-OWNER TITLE-DESC
 2 0011 CONTINENTAL INVESTMENT CO
 7 0011 HAWN WESTERN TRANSPORT

-----SEE HISTORY SHEET FOR MORE INFORMATION-----

01/13/2016 INSTR-DESC: DEED TRANS NO: 5496809
 LC-DOC-NO: T-9508235 CERT NO: 1109976 INSTR-DATE: 01/06/2016
 REC-DATE: 01/13/2016

AREA: 2.0240 ACRES STATE-CONV-TAX: \$ 0
 OTHER-TMKS: 9-8-009-014-0000 ETC.

GRANTOR: CONTINENTAL INVESTMENT COMPANY LTD
 GRANTEE: CITY & COUNTY OF HONOLULU
 LOT 5 2.024 ACRES MAP 2 LCAPP 1796

GROUP# NAME F TC \$-OWNER TITLE-DESC
 2 0011 CITY AND COUNTY OF HONOLULU

FOR ASSESSMENT YEAR 2019 \$5,259,600 EXEMPT LAND VALUE: \$5,259,600
 PITT 4 BUILDING VALUE: \$0 EXEMPT BUILDING VALUE: \$0

FOR ASSESSMENT YEAR 2018 \$4,950,200 EXEMPT LAND VALUE: \$4,950,200
 PITT 4 BUILDING VALUE: \$0 EXEMPT BUILDING VALUE: \$0

FOR ASSESSMENT YEAR 2017 \$4,950,200 EXEMPT LAND VALUE: \$4,950,200
 PITT 4 BUILDING VALUE: \$0 EXEMPT BUILDING VALUE: \$0

SITE ADDRESS: 98-85 KAMEHAMEHA HWY
 AIEA 96701

MAILING ADDRESS: CITY AND COUNTY OF HONOLULU (4X 2020)
 650 S KING ST
 DEPARTMENT OF DESIGN & CONSTRUCTION

MAILING ADDRESS: CONTINENTAL INVESTMENT CO
 PO BOX 488
 AIEA HI 96701-0488

09/14/2015 INSTR-DESC: CANCEL LEASE TRANS NO: 5487014
 LC-DOC-NO: T9387308 CERT NO: 1061962 INSTR-DATE: 01/01/2015
 ADDL CERT: 95376 REC-DATE: 09/14/2015

AREA: 2.0240 ACRES OTHER-TMKS: 9-8-009-005-0000 ETC.

DOC: CANCELLATION OF SUBLEASE & LICENSE AGREEMENT
 CONTINENTAL INVESTMENT COMPANY, LTD "MASTER LESSOR"
 TONY HAWAII CORP "SUBLESSEE"
 MASTER LESSOR & SUBLESSEE AGREE AS FOLLOWS: CANCELLATION
 OF LEASE & SLEMONS SUBLEASE & SLEMONS LICENSE SHALL BE
 CANCELLED...ETC.
 NOTE: LCO 9384309 - NOTE TERMINATION OF MASTER LEASE
 P/D: LE - CUT

GROUP# NAME F TC \$-OWNER TITLE-DESC
 2 0011 CONTINENTAL INVESTMENT CO

GROUP#: 2 0011 CVPAR.USER3 95376

FOR ASSESSMENT YEAR 2016 \$4,640,800 EXEMPT LAND VALUE: \$4,640,800
 PITT 4 BUILDING VALUE: \$0 EXEMPT BUILDING VALUE: \$0

THE ABOVE IS THE AMENDED ASSESSMENT FOR THIS YEAR

TMK: 9-8-009-005-0000 CITY AND COUNTY OF HONOLULU PARCEL HISTORY (TT102) FOR:

PAGE: 1

06/07/1994 INSTR-DESC: MEMORANDUM OF LICENSE AGREEMENT TRANS NO: 233081
 INST-DATE: 06/03/1994 REC-DATE: 06/07/1994

LC-DOC-NO: 2153070 CERT NO: 95376
 AMOUNT: \$11,240,919 STATE-CONV-TAX: \$ 1124.90
 AREA: 2.0240 ACRES

FROM: JIM SLEMONS HAWAII, INC.

TO: TONY HAWAII CORP.
 FOR OF LICENSED PROPERTY WHICH IS CROSS-HATCHED IN MAP ATTACHED

HERE TO AS EXH "B"
 LOT 5 LCAPP 1796 MAP 2 88,165.44 SF

F/D: KEYED ONLY-FLOOR SPACE

GROUP# NAME F TC %-OWNER TITLE-DESC

2 0011 CONTINENTAL INVESTMENT CO

7 0011 JIM SLEMONS HAWAII INC

07/07/1992 INSTR-DESC: LEASE

LC-DOC-NO: 1928732

AMOUNT: \$8,494,886

AREA: 2.0240 ACRES

STATE-CONV-TAX: \$ 4247.44

FROM: CONTINENTAL INVESTMENT COMPANY, LTD

TO: JIM SLEMONS HAWAII, INC

LOT 5-5 88165.44 SF (2.024 ACRES) MAP 2 LCAPP 1796

*TMB NOTE: LEASE TO ASSOCIATED STEEL WORKERS LTD REC IN LT CT DOC 348747, EXPIRED ON 10/31/87

GROUP# NAME F TC %-OWNER TITLE-DESC

2 0011 CONTINENTAL INVESTMENT CO

7 0011 JIM SLEMONS HAWAII INC

10/07/1987

GROUP# NAME F TC %-OWNER TITLE-DESC

2 0011 CONTINENTAL INVESTMENT CO

7 0011 ASSOCIATED STEEL WORKERS

-----SEE HISTORY SHEET FOR MORE INFORMATION-----

TERRITORY OF HAWAII
 FIELD BOOK LAND SHEET

LINE	OWNER	TITLE HISTORY	DIVISION			
			BOOK	SEC	PLAT	PARCEL
	(Lot 13) ICALW 8525-B Waimalu Lot 1		9	8	9	14
1	I. Macmillan Trust Estate	(For 1922 fr 9-8-9-7)				NET AREA
2	Elizabeth S. Marks (W) 1/2 Int	For 1928 5500# to 9810-1				5500#
3	Elizabeth S. Marks (W) 1/2 Int	(For 1964 1000# fr 9809-5)				NET 1000#
4	Alfred S. Marks, Jr. 1/2 Int					
5	Elizabeth S. Marks (W) 1/2 Int					
6	A/S Hirotsugu Yamamoto (W)	A1				
7	Sakao Takahashi (W)					
8	Continental Investment Co., Ltd	Sub A/S:				
9	Hirotsugu Yamamoto (W) (1/2)	D: 1/16/64 fr Marks etal 1000# (w/15 etal) RS \$199.65 1/27/64 Doc 324073				1000#
10	Sakao Takahashi (W)					
11	Continental Investment Co., Ltd. (Hawaiian Western Transport, Inc.)	D: 1/24/64 fr Yamamoto etal 1000# (w/15 etal) RS \$440.00 1/27/64 Doc 324074 L: 4/1/64 fr Continental Investment Co. 1000# 4/13/64 Doc 329056 Term: 10 yrs by 4/1/64 to 3/31/74 Rent: \$2700 yr				1000# 1000#
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	AREA					AREA
	LAND					LAND
	IMP					IMP
	TOT					TOT
	EX					EX
	NET					NET
	TAX					TAX



TAX MAPS BRANCH HISTORY SHEET

DATE: 3/15/63 (0) 1683 1963 DIV. 9 8 09 5

LOCATION: Waipahoehoe, Waiahi

TITLE: Waipahoehoe, Waiahi

NO.	TRAC	GRANTOR, ETC.	AREA OF PARCEL	GRANTEE, ETC.
1	TRB 348747	10/23/64 Tomi, 25 JTS by	2.024 AC	Continental Investment Co., Ltd. (Associated Steel Workers, Ltd.)
2	TRB 1498366	10/31/57 12/28/64	do	do
3	TRB 1498366	10/31/57 12/28/64	do	do
4	TRB 117247	4/17/69	2.024 AC	Continental Investment Co Ltd (Associated Steel Workers, Ltd)

NOTE: INFORMATION ON THIS SHEET IS SUBJECT TO CHANGE



TAX MAPS BRANCH HISTORY SHEET

DATE: 3/15/63 (0) 1683 1963 DIV. 9 8 09 14

LOCATION: Waipahoehoe, Waiahi

TITLE: Waipahoehoe, Waiahi

NO.	TRAC	GRANTOR, ETC.	AREA OF PARCEL	GRANTEE, ETC.
1	TRB 558164	10/23/64	10,001 sq	Hirokoshi Yamamoto
2	TRB 330163	10/23/64	10,001 sq	Doi Haruhiko
3	TRB 330163	10/23/64	10,001 sq	Doi Haruhiko
4	TRB 330163	10/23/64	10,001 sq	Doi Haruhiko

NOTE: INFORMATION ON THIS SHEET IS SUBJECT TO CHANGE



RESIDENTIAL APPRAISAL CARD

FORM 100
CONTINENTAL

DATE: 9 8 09 05

CHRG: [] OF: []

FORM SEC: [] PLOT FACIL: []

7. ADD: []

8. ADJ. L. IMPVTS: []

9. MOD. FACTOR: []

10. ZONING: []

11. CORNER: []

12. OTHER: []

1. UTILITIES: []

2. ST. IMPVTS: []

3. WATER: []

4. SEWER: []

5. GAS: []

6. ELEC: []

7. FUND: []

8. GRADE: []

9. H. L. []

10. SIDE WALK: []

11. DRIVE: []

12. UNDER: []

13. SWEEP: []

14. INST: []

15. COM. []

16. WET WALLS: []

17. PAVED AREA: []

18. WALKS: []

19. FENCES: []

20. BARBEC: []

21. SWIM POOL: []

22. SHAVE: []

23. ST. DEPTH: []

24. CORNER: []

25. OTHER: []

DESCRIPTION: Lot 1, 2, 3, 4 & 5 Lappa 1796 Mainalu

OWNER: []

NET AREA: []

1. TOPOGRAHY: []

2. ST. IMPVTS: []

3. WATER: []

4. SEWER: []

5. GAS: []

6. ELEC: []

7. FUND: []

8. GRADE: []

9. H. L. []

10. SIDE WALK: []

11. DRIVE: []

12. UNDER: []

13. SWEEP: []

14. INST: []

15. COM. []

16. WET WALLS: []

17. PAVED AREA: []

18. WALKS: []

19. FENCES: []

20. BARBEC: []

21. SWIM POOL: []

22. SHAVE: []

23. ST. DEPTH: []

24. CORNER: []

25. OTHER: []

NO.	DESCRIPTION	AREA	VALUE
1	1937 & prior years taxed to 9-8-05	10.30 ac	10.30 ac
2	F. L. McCandless Estate	10.30 ac	10.30 ac
3	F. L. McCandless Trust Estate	10.30 ac	10.30 ac
4	1996 area revised to 12.31 ac & 10.22 ac to 9809-11	2.09 ac	2.09 ac
5	1961 10.22 ac fr 9809-11 & area revised to 12.22 ac, lot subd into	2.043 ac	2.043 ac
6	1 & 8 10.183 ac to 9809-11 TRM M-19(60)	2.043 ac	2.043 ac
7	1/16/61 fr McCandless Est 3.363 ac (w par 06) RS-- 2/2/61 BK 3998/153	2.043 ac	2.043 ac
8	1/20/61 fr Marks et al 3.363 ac (w par 06) \$200529 (DP \$50132, \$37599.19 2.043 ac on 1/20/61 same amt each day in Jan in yrs 63, 64 & 65 2/3/61 BK 3998/270	3.363 ac	3.363 ac
9	1962 1.32 ac fr 9809-05	3.363 ac	3.363 ac
10	Sub/A/51 9/9/61 fr Yamaoto et al 3.363 ac \$40000 (DP \$16000) \$50000 on 1/13/62	3.363 ac	3.363 ac
11	1/13/62 \$50000 on 1/13/62 \$75000 on 1/15/64 \$75000 on 1/15/64	3.363 ac	3.363 ac
12	1964 583208 to 9809-14 to 17 (incl)	3.363 ac	3.363 ac
13	1/15/64 fr Marks et al 2.024ac (w/ 1/4 et al) RS \$199.05 1/27/64 Doc 324073	2.024ac	2.024ac
14	1/27/64 fr Yamaoto et al 2.024ac (w/ 1/4 et al) RS \$440.00 1/27/64	2.024ac	2.024ac
15	1/23/64 fr Continental Investment Co., Ltd.	2.024ac	2.024ac
16	1/23/64 fr Continental Investment Co., Ltd.	2.024ac	2.024ac
17	1/23/64 fr Continental Investment Co., Ltd.	2.024ac	2.024ac
18	1/23/64 fr Continental Investment Co., Ltd.	2.024ac	2.024ac
19	1/23/64 fr Continental Investment Co., Ltd.	2.024ac	2.024ac
20	1/23/64 fr Continental Investment Co., Ltd.	2.024ac	2.024ac
21	1/23/64 fr Continental Investment Co., Ltd.	2.024ac	2.024ac
22	1/23/64 fr Continental Investment Co., Ltd.	2.024ac	2.024ac
23	1/23/64 fr Continental Investment Co., Ltd.	2.024ac	2.024ac
24	1/23/64 fr Continental Investment Co., Ltd.	2.024ac	2.024ac
25	1/23/64 fr Continental Investment Co., Ltd.	2.024ac	2.024ac

1940

PETITION FOR PROBATE OF WILL

Estate of
Lincoln Loy McCandless

Temporary Adm: A Lester Marks
Honolulu

From List of A. L. Marks.

REV. 9-1-64
9-C-09-05

I. L. McMillan
Estate
W. A. Kall
703 McMillan Bldg.
Honolulu, T.H.

10.30 Mainalu

9/3/64

CHARGE: []

FINAL DATA AS SHOWN ON TAX MAPS AS OF []

DIVISION: []

COUNTY: []

CIRCUIT: []

DATE: []

BY: []

FILE NO: []

CASE NO: []

JURY: []

FEE: []

STAMP: []

SIGNATURE: []

DATE: []

NOTARY: []

ADDRESS: []

CITY: []

STATE: []

ZIP: []

PHONE: []

FAX: []

E-MAIL: []

WEBSITE: []

MOBILE: []

LAND: []

WATER: []

AIR: []

SPACE: []

UTILITIES: []

SEWER: []

GAS: []

ELEC: []

FUND: []

GRADE: []

H. L. []

SIDE WALK: []

DRIVE: []

UNDER: []

SWEEP: []

INST: []

COM. []

WET WALLS: []

PAVED AREA: []

WALKS: []

FENCES: []

BARBEC: []

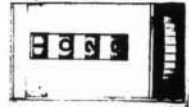
SWIM POOL: []

SHAVE: []

ST. DEPTH: []

CORNER: []

OTHER: []



SOURCE BY: AMT DATE: 9/8/47 LOCATION: 1947

REFERENCE SHEET

FOR FURTHER REFERENCE SEE:

1. 7-19-12-pto.
TWB NO. 2601-47
 DATED: 1/1/47 REC: 4/28/47
 LIBR: 2033 PART 169

CHECK SIZE: 9 8 09 6

FORMER KEY	CHANGE	FINAL DATA AS SHOWN ON TAX MAPS OF SOURCE
LINE NO.	DATE	BY
1	9 8 09 6	10-3-80
	A/L & Sub-lease	J. J. MacDonless Estate (Ohio Sugar Co., Inc.) 1e (0.82 ac.)

OCT 5 1947

SOURCE: Wm. Uetani, Sun, Ohio
For Mahala No 111 etc

DATE: 2/20/61 BY: AMT

AREA OF PARCEL: 2.043 Ac

NO.	DATE	DESCRIPTION	AREA OF PARCEL	GRANTEE	BY
1		As shown on tax map			
2	2/20/61	W/B 656/61, 9809-5 etc) DL/em 2/20/61	2.043 Ac	do	
3	1/51 BK 3998 p. 270 Amt. \$200,525.25				
4	337,559.10 on 1/20/61 like entry on same day in Jan in yrs 1953, 54, 55, 1/20/61				
5	2/3/61 1958				
6	W/B 7-5957-61, 1/2/62, 9809-5 NY/ny				
7	1/51 Fr 9809-6(5), 1.32 Ac				
8	Process of Requisition dated 11/6/61 to Elizabeth L. Jones and land described as 1.32 Ac 1796 and Owner's Subj. to A/S. Lease Out.				
9	W/DI 9809-51, Area, bary. & dec. 1d Ct App 1796.				
10	W/B 10537/61 DL/em 1/1/62				
11	Subj/61 Hecotobal Yamamoto et al. To Continental Investment Co Ltd Doc 283107-8 C-55482 Amt. \$409,400.78 \$116,000 dn etc. as of 9/9/61 12/13/61 Subj/4/5				
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NOTE: LAST AREA & GRANTEE FINAL DATA AS SHOWN ON TAX MAPS

NO.	DATE	FILE	LOCATION	TAX MAPS BRANCH HISTORY SHEET	AREA OF PARCEL	GRANTEE ETC.	REV.
	1/1	12/21/62	WILSONVILLE, OHIO				9 8 09 5
1					3.263 AC	ELIZABETH LOY MARKE (M)	1/2
2						ELIZABETH MARKE STEAK (M)	1/6
3						ALFRED LESTER MARKE, JR. (M)	1/6
4						CYNTHIA MARKE SALLAY (W)	1/6
5						HIROKOSHI YAMAMOTO (M)	1/6
6						SAKAE TAKAHASHI (M) M/S	
7						(Continental Investment Co. Ltd)	
8						ELIZABETH LOY MARKE (M) - 1/2	
9						ELIZABETH MARKE STEAK (M) - 1/6	
10						ALFRED LESTER MARKE, JR. (M) - 1/6	
11						CYNTHIA MARKE SALLAY (W) - 1/6	
12						HIROKOSHI YAMAMOTO (M)	
13						SAKAE TAKAHASHI (M) M/S	
14						(Continental Investment Co. Ltd)	
15						Sub. M/S	
16						HIROKOSHI YAMAMOTO	
17						SAKAE TAKAHASHI	
18						(Continental Investment Co. Ltd) M/S	
19						To: Continental Investment Co. Ltd	
20							

NOTE: INFORMATION ON THIS SHEET IS SUBJECT TO CHANGE

NO.	DATE	FILE	LOCATION	AREA OF PARCEL	GRANTEE ETC.	REV.
	2/6/59		WILSONVILLE, OHIO			1958 \$100 5
1				10.30 Ac.	L.L. McCumless Trust, Est.	
2				2.09 Ac.	(Ohio Sugar Co. Ltd) to over (O. 652nd)	
3				2.043 Ac.	L.L. McCumless Trust, Est.	
4					Interests were carried over in parcel 11 (attached). Area by borrowed map.	
5					(is cancelled some years /11. before)	
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NOTE: LAST AREA & GRANTEE FINAL DATA AS SHOWN ON TAX MAPS

01/13/2016 INSTR-DESC: DEED CERT NO: 1109976 STATE-CONV-TAX: \$ 0
 LC-DOC-NO: T-9508235 OTHER-TMKS: 9-8-009-014-0000 ETC.

GRANTOR: CONTINENTAL INVESTMENT COMPANY LTD
 GRANTEE: CITY & COUNTY OF HONOLULU
 LOT 2 LCAPP 1796 MAP 2 12,000 SF

GROUP#	NAME	F	TC	%-OWNER	TITLE-DESC
2 0011	CITY AND COUNTY OF HONOLULU				
FOR ASSESSMENT YEAR					
PITT 4	LAND VALUE: 2019				\$918,000
	BUILDING VALUE:				\$5,400
	EXEMPT LAND VALUE:				\$918,000
	EXEMPT BUILDING VALUE:				\$5,400
FOR ASSESSMENT YEAR					
PITT 4	LAND VALUE: 2018				\$864,000
	BUILDING VALUE:				\$4,000
	EXEMPT LAND VALUE:				\$864,000
	EXEMPT BUILDING VALUE:				\$4,000
FOR ASSESSMENT YEAR					
PITT 4	LAND VALUE: 2017				\$864,000
	BUILDING VALUE:				\$15,600
	EXEMPT LAND VALUE:				\$864,000
	EXEMPT BUILDING VALUE:				\$15,600

SITE ADDRESS: 98-73 KAMEHAMEHA HWY AIEA 96701
 MAILING ADDRESS: CITY AND COUNTY OF HONOLULU (4X 2020)
 650 S KING ST
 DEPARTMENT OF DESIGN & CONSTRUCTION
 MAILING ADDRESS: CONTINENTAL INVESTMENT CO
 PO BOX 488
 AIEA HI 96701-0488

08/14/2015 INSTR-DESC: CANCEL LEASE TRANS NO: 5487914
 LC-DOC-NO: T9387308 CERT NO: 1061962 INSTR-DATE: 01/01/2015
 ADDL CERT: 95376 REC-DATE: 09/14/2015
 AREA: 12,000 SQ.FT. OTHER-TMKS: 9-8-009-005-0000 ETC.

DOC: CANCELLATION OF SUBLEASE & LICENSE AGREEMENT
 CONTINENTAL INVESTMENT COMPANY, LTD "MASTER LESSOR"
 TONY HAWAII CORP "SUBLESSEE"
 MASTER LESSOR & SUBLESSEE AGREE AS FOLLOWS: CANCELLATION
 OF LEASE & SLEMONS SUBLEASE & SLEMONS LICENSE SHALL BE
 CANCELLED...ETC.
 NOTE: LCO 9384309 - NOTE TERMINATION OF MASTER LEASE
 F/D: KEYED ONLY - CLEAR TITLE
 LOT 2 LCAPP 1796 MAP 2 12,000 SF

GROUP#	NAME	F	TC	%-OWNER	TITLE-DESC
2 0011	CONTINENTAL INVESTMENT CO				
GROUP#:	2 0011				CVPAR.USER3 95376
FOR ASSESSMENT YEAR					
PITT 4	LAND VALUE: 2016				\$810,000
	BUILDING VALUE:				\$15,300
	EXEMPT LAND VALUE:				\$810,000
	EXEMPT BUILDING VALUE:				\$15,300

THE ABOVE IS THE AMENDED ASSESSMENT FOR THIS YEAR

06/01/2013 INSTR-DESC: ROUTE SLIP TRANS NO: 5412103
 LC-DOC-NO: T-9508235 OTHER-TMKS: 9-8-009-015-0000 ETC.

GRANTOR: CONTINENTAL INVESTMENT COMPANY, LIMITED, PLAINTIFF VS.
 JIM SLEMONS HAWAII, INC ET AL, DEFENDANT; CIVIL NO. 05-1-1937-10
 RECORDED DOC NO. 3369062; TERMINATION OF UNRECORDED LEASES,
 MEMORANDUM WHICH IS RECORDED AS DOC 1862149 FOR BREACH
 OF TERMS...ETC.
 F/D: OWNERSHIP CORRECTED; LE & SUBLE - OUT
 LOT 2 LCAPP 1796 MAP 2 12,000 SF

GROUP# NAME F TC %-OWNER TITLE-DESC
 2 0011 CONTINENTAL INVESTMENT CO
 GROUP# 2 0011 Date & Time 06/01/2013 12:12:12
 FOR ASSESSMENT YEAR
 PITT 4 LAND VALUE: 2015 \$756,000 EXEMPT LAND VALUE: \$756,000
 BUILDING VALUE: \$14,600 EXEMPT BUILDING VALUE: \$14,600
 THE ABOVE IS THE AMENDED ASSESSMENT FOR THIS YEAR
 FOR ASSESSMENT YEAR
 PITT 4 LAND VALUE: 2014 \$756,000 EXEMPT LAND VALUE: \$0
 BUILDING VALUE: \$14,100 EXEMPT BUILDING VALUE: \$0

12/12/2001 INSTR-DESC: LEASE TRANS NO: 5004553
 LC-DOC-NO: 2760402 CERT NO: 90440 INSTR-DATE: 12/11/2001
 AREA: 12,000 SQ.FT. OTHER-TMKS: 9-8-009-015-0000 ETC.
 ACK/EFF DATE: 12/11/2001

FROM: JIM SLEMONS HAWAII INC.
 TO: PARADISE AUTOS INC.
 TERM OF 1 YR. 12/5/2001 TO 12/4/2002 @ \$6,000 PER MONTH
 F/D: KEYED ONLY - SHORT TERM LEASE

GROUP#	NAME	F	TC	%-OWNER	TITLE-DESC
2 0011	CONTINENTAL INVESTMENT CO				
7 0011	JIM SLEMONS HAWAII INC				LE
710011	TONY HAWAII CORP				SUBLE
FOR ASSESSMENT YEAR					
PITT 4	LAND VALUE: 2013				\$734,400
	BUILDING VALUE:				\$13,900
	EXEMPT LAND VALUE:				\$734,400
	EXEMPT BUILDING VALUE:				\$13,900
FOR ASSESSMENT YEAR					
PITT 4	LAND VALUE: 2012				\$669,600
	BUILDING VALUE:				\$13,500
	EXEMPT LAND VALUE:				\$669,600
	EXEMPT BUILDING VALUE:				\$13,500

FOR ASSESSMENT YEAR 2011
 PITT 4 LAND VALUE: \$226,400 EXEMPT LAND VALUE: \$0
 BUILDING VALUE: \$13,100 EXEMPT BUILDING VALUE: \$0

FOR ASSESSMENT YEAR 2010
 PITT 4 LAND VALUE: \$226,400 EXEMPT LAND VALUE: \$0
 BUILDING VALUE: \$13,000 EXEMPT BUILDING VALUE: \$0

FOR ASSESSMENT YEAR 2009
 PITT 4 LAND VALUE: \$691,200 EXEMPT LAND VALUE: \$0
 BUILDING VALUE: \$12,400 EXEMPT BUILDING VALUE: \$0

FOR ASSESSMENT YEAR 2008
 PITT 4 LAND VALUE: \$669,600 EXEMPT LAND VALUE: \$0
 BUILDING VALUE: \$11,900 EXEMPT BUILDING VALUE: \$0

FOR ASSESSMENT YEAR 2007
 PITT 4 LAND VALUE: \$594,000 EXEMPT LAND VALUE: \$0
 BUILDING VALUE: \$11,300 EXEMPT BUILDING VALUE: \$0

FOR ASSESSMENT YEAR 2006
 PITT 4 LAND VALUE: \$486,000 EXEMPT LAND VALUE: \$0
 BUILDING VALUE: \$10,700 EXEMPT BUILDING VALUE: \$0

FOR ASSESSMENT YEAR 2005
 PITT 4 LAND VALUE: \$464,400 EXEMPT LAND VALUE: \$0
 BUILDING VALUE: \$10,400 EXEMPT BUILDING VALUE: \$0

FOR ASSESSMENT YEAR 2004
 PITT 4 LAND VALUE: \$442,800 EXEMPT LAND VALUE: \$0
 BUILDING VALUE: \$10,200 EXEMPT BUILDING VALUE: \$0

FOR ASSESSMENT YEAR 2003
 PITT 4 LAND VALUE: \$464,400 EXEMPT LAND VALUE: \$0
 BUILDING VALUE: \$9,900 EXEMPT BUILDING VALUE: \$0

FOR ASSESSMENT YEAR 2002
 PITT 4 LAND VALUE: \$464,400 EXEMPT LAND VALUE: \$0
 BUILDING VALUE: \$9,700 EXEMPT BUILDING VALUE: \$0

SITE ADDRESS: 98-73 KAM HWY
 AREA 96701

06/07/1994
 INSTR-DESC: MEMORANDUM OF SUBLEASE
 LC-DOC-NO: 2153069
 AMOUNT: \$10,149,967

CERT NO: 90440
 STATE-CONV-TAX: \$ 10150.00

*95376
 FROM: JIM SLEMONS HAWAII, INC.
 TO: TONY HAWAII CORP.
 LOT 2 LCAPP 1796 MAP 2 12,000 SF

TRANS NO: 233105
 INSTR-DATE: 06/03/1994
 REC-DATE: 06/07/1994

GROUP# NAME F TC %-OWNER TITLE-DESC

2 0011 CONTINENTAL INVESTMENT CO LE
 7 0011 JIM SLEMONS HAWAII INC
 710011 TONY HAWAII CORP

FOR ASSESSMENT YEAR 2001
 PITT 4 LAND VALUE: \$464,400 EXEMPT LAND VALUE: \$0
 BUILDING VALUE: \$9,500 EXEMPT BUILDING VALUE: \$0

FOR ASSESSMENT YEAR 2000
 PITT 4 LAND VALUE: \$464,400 EXEMPT LAND VALUE: \$0
 BUILDING VALUE: \$9,600 EXEMPT BUILDING VALUE: \$0

FOR ASSESSMENT YEAR 1999
 PITT 4 LAND VALUE: \$435,100 EXEMPT LAND VALUE: \$0
 BUILDING VALUE: \$9,700 EXEMPT BUILDING VALUE: \$0

FOR ASSESSMENT YEAR 1998
 PITT 4 LAND VALUE: \$446,900 EXEMPT LAND VALUE: \$0
 BUILDING VALUE: \$9,700 EXEMPT BUILDING VALUE: \$0

FOR ASSESSMENT YEAR 1997
 PITT 4 LAND VALUE: \$446,900 EXEMPT LAND VALUE: \$0
 BUILDING VALUE: \$9,700 EXEMPT BUILDING VALUE: \$0

FOR ASSESSMENT YEAR 1996
 PITT 4 LAND VALUE: \$524,200 EXEMPT LAND VALUE: \$0
 BUILDING VALUE: \$9,600 EXEMPT BUILDING VALUE: \$0

FOR ASSESSMENT YEAR 1995
 PITT 4 LAND VALUE: \$493,900 EXEMPT LAND VALUE: \$0
 BUILDING VALUE: \$9,400 EXEMPT BUILDING VALUE: \$0

APPEAL EXISTS FOR THIS YEAR
 SITE ADDRESS: 98-73 KAM HWY

07/09/1992
 INSTR-DESC: ASSIGNMENT OF LEASE AGREEMENT
 LC-DOC-NO: 1929608
 AMOUNT: \$2,575,700
 AREA: 12,000 SQ.FT.
 STATE-CONV-TAX: \$ 1287.85

95376
 FROM: SLEMONS ENTERPRISES, INC
 TO: JIM SLEMONS HAWAII, INC
 FIRST: LOT 2 12000 SF MAP 2 LCAPP 1796

TRANS NO: 233104
 INSTR-DATE: 04/15/1992
 REC-DATE: 07/09/1992

GROUP# NAME F TC %-OWNER TITLE-DESC

2 0011 CONTINENTAL INVESTMENT CO LE
 7 0011 JIM SLEMONS HAWAII INC

FOR ASSESSMENT YEAR 1994
 PITT 4 LAND VALUE: \$524,200 EXEMPT LAND VALUE: \$0
 BUILDING VALUE: \$9,400 EXEMPT BUILDING VALUE: \$0

FOR ASSESSMENT YEAR 1993
 PITT 4 LAND VALUE: \$524,200 EXEMPT LAND VALUE: \$0
 BUILDING VALUE: \$9,100 EXEMPT BUILDING VALUE: \$0

07/09/1992
 INSTR-DESC: AMNDMT/EXTNSN OF LEASE AGREEMENT
 LC-DOC-NO: 1929607
 AMOUNT: \$1,761,772
 AREA: 12,000 SQ.FT.
 STATE-CONV-TAX: \$ 880.89

95376
 FROM: CONTINENTAL INVESTMENT CO., LTD
 TO: SLEMONS ENTERPRISES INC
 FIRST: LOT 2 12000 SF MAP 2 LCAPP 1796
 LEASE DATED 10/28/91, DOC 1862149

1 - SHALL BE & THE SAME IS HEREBY EXTENDED FOR 2 ADDITIONAL PERIODS OF
 5 YEARS COMMENCING 5/1/2008 THROUGH 4/30/2013 & THE SECOND 5 YEAR
 PERIOD COMMENCING 5/1/2013 THROUGH 4/30/2018
 2 - RENT FIRST 5 YEAR PERIOD \$231,931.20 PER YEAR
 RENT SECOND 5 YEAR PERIOD \$249,326.04 PER YEAR
 F/D: KEYED ONLY - AMEND & EXTEND LEASE

TRANS NO: 233103
 INSTR-DATE: 04/15/1992
 REC-DATE: 07/09/1992

LC-DOC-NO: 1929608 CERT NO: 90440 REC-DATE: 07/09/1992
 AMOUNT: \$2,575,700 STATE-CONV-TAX: \$ 1287.85

95376
 FROM: SLEMONS ENTERPRISES, INC
 TO: JIM SLEMONS HAWAII, INC
 FIRST: LOT 2 12000 SF MAP 2 LCAPP 1796

GROUP#	NAME	F	TC	%-OWNER	TITLE-DESC
2 0011	CONTINENTAL INVESTMENT CO				LE
7 0011	JIM SLEMONS HAWAII INC				

07/09/1992
 INSTR-DESC: AMNDMT/EXTNSN OF LEASE AGREEMENT
 LC-DOC-NO: 1929607 CERT NO: 90440
 AMOUNT: \$1,761,772 STATE-CONV-TAX: \$ 880.89
 AREA: 12,000 SQ.FT.

95376
 FROM: CONTINENTAL INVESTMENT CO., LTD
 TO: SLEMONS ENTERPRISES INC
 FIRST: LOT 2 12000 SF MAP 2 LCAPP 1796
 LEASE DATED 10/28/91, DOC 1862149
 1 - SHALL BE & THE SAME IS HEREBY EXTENDED FOR 2 ADDITIONAL PERIODS OF 5 YEARS COMMENCING 5/1/2008 THROUGH 4/30/2013 & THE SECOND 5 YEAR PERIOD COMMENCING 5/1/2013 THROUGH 4/30/2018
 2 - RENT FIRST 5 YEAR PERIOD \$231,931.20 PER YEAR
 RENT SECOND 5 YEAR PERIOD \$249,326.04 PER YEAR
 F/D: KEYED ONLY - AMEND & EXTEND LEASE

GROUP#	NAME	F	TC	%-OWNER	TITLE-DESC
2 0011	CONTINENTAL INVESTMENT CO				LE
7 0011	SLEMONS ENTERPRISES INC				

10/31/1991
 INSTR-DESC: MEMORANDUM OF LEASE AGREEMENT
 LC-DOC-NO: 1862149 CERT NO: 95376
 AMOUNT: \$1,187,753 STATE-CONV-TAX: \$ 593.85
 AREA: 12,000 SQ.FT.

90440
 FROM: CONTINENTAL INVESTMENT COMPANY LTD
 TO: SLEMONS ENTERPRISES INC
 LOT 2 12,000.0 SF MAP 2 LCAPP 1796
 TMB NOTE: LE TO EKAAHI INVESTMENT INC EXPIRED 4/28/88.

GROUP#	NAME	F	TC	%-OWNER	TITLE-DESC
2 0011	CONTINENTAL INVESTMENT CO				LE
7 0011	SLEMONS ENTERPRISES INC				

10/07/1987

LC-DOC-NO: 1929608 CERT NO: 90440 REC-DATE: 07/09/1992
 AMOUNT: \$2,575,700 STATE-CONV-TAX: \$ 1287.85

95376
 FROM: SLEMONS ENTERPRISES, INC
 TO: JIM SLEMONS HAWAII, INC
 FIRST: LOT 2 12000 SF MAP 2 LCAPP 1796

GROUP#	NAME	F	TC	%-OWNER	TITLE-DESC
2 0011	CONTINENTAL INVESTMENT CO				LE
7 0011	JIM SLEMONS HAWAII INC				

07/09/1992
 INSTR-DESC: AMNDMT/EXTNSN OF LEASE AGREEMENT
 LC-DOC-NO: 1929607 CERT NO: 90440
 AMOUNT: \$1,761,772 STATE-CONV-TAX: \$ 880.89
 AREA: 12,000 SQ.FT.

95376
 FROM: CONTINENTAL INVESTMENT CO., LTD
 TO: SLEMONS ENTERPRISES INC
 FIRST: LOT 2 12000 SF MAP 2 LCAPP 1796
 LEASE DATED 10/28/91, DOC 1862149
 1 - SHALL BE & THE SAME IS HEREBY EXTENDED FOR 2 ADDITIONAL PERIODS OF 5 YEARS COMMENCING 5/1/2008 THROUGH 4/30/2013 & THE SECOND 5 YEAR PERIOD COMMENCING 5/1/2013 THROUGH 4/30/2018
 2 - RENT FIRST 5 YEAR PERIOD \$231,931.20 PER YEAR
 RENT SECOND 5 YEAR PERIOD \$249,326.04 PER YEAR
 F/D: KEYED ONLY - AMEND & EXTEND LEASE

GROUP#	NAME	F	TC	%-OWNER	TITLE-DESC
2 0011	CONTINENTAL INVESTMENT CO				LE
7 0011	SLEMONS ENTERPRISES INC				

10/31/1991
 INSTR-DESC: MEMORANDUM OF LEASE AGREEMENT
 LC-DOC-NO: 1862149 CERT NO: 95376
 AMOUNT: \$1,187,753 STATE-CONV-TAX: \$ 593.85
 AREA: 12,000 SQ.FT.

90440
 FROM: CONTINENTAL INVESTMENT COMPANY LTD
 TO: SLEMONS ENTERPRISES INC
 LOT 2 12,000.0 SF MAP 2 LCAPP 1796
 TMB NOTE: LE TO EKAAHI INVESTMENT INC EXPIRED 4/28/88.

GROUP#	NAME	F	TC	%-OWNER	TITLE-DESC
2 0011	CONTINENTAL INVESTMENT CO				LE
7 0011	SLEMONS ENTERPRISES INC				

10/07/1987

GROUP# NAME F TC %-OWNER TITLE-DESC
 2 0011 CONTINENTAL INVESTMENT CO A/LE
 7 0011 EKAH INVESTMENT INC

-----SEE HISTORY SHEET FOR MORE INFORMATION-----

TAX MAPS BRANCH HISTORY SHEET		1963		DIV	
DATE	LOCATION	AREA OF PARCEL	BRANCH	PLAT	PAR
DATE: 3/5/65 (D. Loh)	LOCATION: Honolulu, Hawaii			9	8 09 15
TITLE: Vol 2, Map 2, L4, 08, App 1796					
NO.	DESCRIPTION, ETC.	AREA OF PARCEL	BRANCH		
1.	TO: 558164 (9809-15 & 16) 1/17/64 In Elizabeth L. Marks et al RE-2199-65 1/16/64 3/27/64 Subl. 29, A/S Of Hirotochi Yamamoto et al Doc 324074 3-55376 RE-8440700 1/24/64 1/27/64 Subl. 78	12,000 sq	Hirotochi Yamamoto Sakae Takahashi (Continental Investment Co. Ltd.) A/S		
2.	TO: 558164 (9809-15 & 16) 1/17/64 In Elizabeth L. Marks et al RE-2199-65 1/16/64 3/27/64 Subl. 29, A/S Of Hirotochi Yamamoto et al Doc 324074 3-55376 RE-8440700 1/24/64 1/27/64 Subl. 78	12,000 sq	Hirotochi Yamamoto Sakae Takahashi (Continental Investment Co. Ltd.) A/S		
3.	TO: 558164 (9809-15 & 16) 1/17/64 In Elizabeth L. Marks et al RE-2199-65 1/16/64 3/27/64 Subl. 29, A/S Of Hirotochi Yamamoto et al Doc 324074 3-55376 RE-8440700 1/24/64 1/27/64 Subl. 78	12,000 sq	Hirotochi Yamamoto Sakae Takahashi (Continental Investment Co. Ltd.) A/S		
4.	TO: 558164 (9809-15 & 16) 1/17/64 In Elizabeth L. Marks et al RE-2199-65 1/16/64 3/27/64 Subl. 29, A/S Of Hirotochi Yamamoto et al Doc 324074 3-55376 RE-8440700 1/24/64 1/27/64 Subl. 78	12,000 sq	Hirotochi Yamamoto Sakae Takahashi (Continental Investment Co. Ltd.) A/S		
5.	TO: 558164 (9809-15 & 16) 1/17/64 In Elizabeth L. Marks et al RE-2199-65 1/16/64 3/27/64 Subl. 29, A/S Of Hirotochi Yamamoto et al Doc 324074 3-55376 RE-8440700 1/24/64 1/27/64 Subl. 78	12,000 sq	Hirotochi Yamamoto Sakae Takahashi (Continental Investment Co. Ltd.) A/S		
NOTE: INFORMATION ON THIS SHEET IS SUBJECT TO CHANGE					



TAX MAPS BRANCH HISTORY SHEET

DATE: _____ LOCATION: HULBERT, SW DIV. _____

TITLE: Page 2 Lot 2 AREA OF PARCELS: 12 000 DIV. _____

NO. 16 PARCELS: 2 0 0 0 0 15

NO.	DATE	DESCRIPTION	AREA OF PARCELS	DIV.
16	3/10/72	Continental Investment Co Ltd	12 000	15
15	3/21/72	(Inc-For. Inc) do		
14	3/21/72	Continental Investment Co Ltd		
13	3/21/72	(Inc-For. Inc) do		
12	3/21/72	Continental Investment Co Ltd		
11	3/21/72	(Inc-For. Inc) do		
10	3/21/72	Continental Investment Co Ltd		
9	3/21/72	(Inc-For. Inc) do		
8	3/21/72	Continental Investment Co Ltd		
7	3/21/72	(Inc-For. Inc) do		
6	3/21/72	Continental Investment Co Ltd		
5	3/21/72	(Inc-For. Inc) do		
4	3/21/72	Continental Investment Co Ltd		
3	3/21/72	(Inc-For. Inc) do		
2	3/21/72	Continental Investment Co Ltd		
1	3/21/72	(Inc-For. Inc) do		

NOTE: INFORMATION ON THIS SHEET IS SUBJECT TO CHANGE

TAX MAPS BRANCH HISTORY SHEET

DATE: _____ LOCATION: HULBERT, SW DIV. _____

TITLE: Page 3 Lot 2 AREA OF PARCELS: 12 000 DIV. _____

NO. 11 PARCELS: 9 0 0 0 15

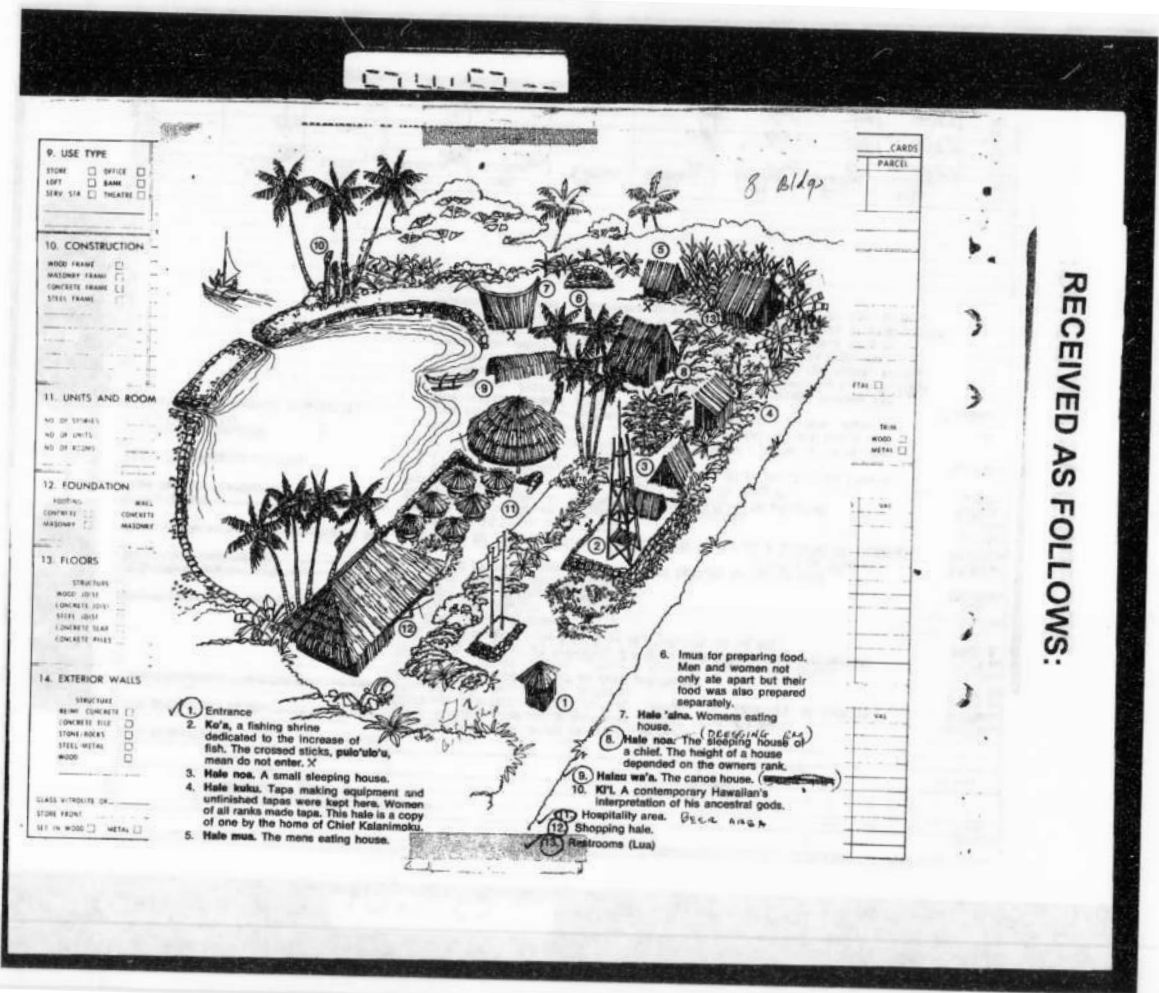
NO.	DATE	DESCRIPTION	AREA OF PARCELS	DIV.
11	3/21/72	Continental Investment Co Ltd	12 000	15
10	3/21/72	(Inc-For. Inc) do		
9	3/21/72	Continental Investment Co Ltd		
8	3/21/72	(Inc-For. Inc) do		
7	3/21/72	Continental Investment Co Ltd		
6	3/21/72	(Inc-For. Inc) do		
5	3/21/72	Continental Investment Co Ltd		
4	3/21/72	(Inc-For. Inc) do		
3	3/21/72	Continental Investment Co Ltd		
2	3/21/72	(Inc-For. Inc) do		
1	3/21/72	Continental Investment Co Ltd		

NOTE: INFORMATION ON THIS SHEET IS SUBJECT TO CHANGE

LINE	DESCRIPTION	DIVISION		
		ZONE	SEC	PLAT
	Waialeale - For 1-1-2009 - 1000 3500hrs Lot 16-1000-8500-0-0, Waialeale For Waialeale, Ewa	9	8	9
	OWNER	TITLE HISTORY		NET AREA
1	L. L. McCandless	Pub 4		
2	(For 1937 and prior years kept to 9-8-2-36)			
3	Proba 10/9/40 area not given. Died 10/5/40 Prob #11582			3.478ac.
4	Ord/Tosca L #1749 12/7/45 to T.H. .679ac. + 12/19/45 Hk 1926/29			2.799ac.
5	FBI: 8/10/49 Prob #11582 2.799 Ac			2.799 ac
6	(For 1950, 18,1608 or .417 Ac from 9-8-09-11)			3.216 Ac
7	Recondem: 2/25/50 1417/43 .679ac. 6/7/50 Hk 2344/197 loc 118691			3.216ac
8	(For 1952, 0.022 ac fr 9-8-10-1, 0.076 ac to 9-8-10-1, area corrected)			2.95 ac
9	(For 1952 subdiv. into lots 1 to 16, 9-8-9-7, 11 to 23)			38531 sq
10	For 1958 385316 to 9810-1			nil
11	L. L. McCandless Trust: Probate	(For 1952 18.03ac fr 9809-2)		13.02ac
12	(For 1961 18.03ac to 9809-02)			nil
13	L. L. McCandless Trust: Probate	(For 1961 17.991ac fr 9809-02)		17.991ac
14	Hirvooohi-Tamamoto (W)	Dt 1/15/60 fr McCandless Est 17.991ac RS \$460.55 (w par 11 eto)		
15	Honolulu Construction & Drying Co Ltd	Dt 1/15/60 fr Tamamoto 17.991ac RS \$1014.20 (w par 11) 1/26/60 Hk 3768/232		17.991ac
16		(For 1962 12.593ac to 9809-13)		17.991ac
17	H. C. & S., Inc	Decree: 3/21/63 Change of Name 3/25/63 Hk 4481/244		5.398ac
18	Jos Schlitz Brewing Co	Dt: 12/27/63 fr HCAD Ltd 5.398ac \$10 RS None 1/6/64 Hk 4661/591		5.398ac
19		Corr/Gz: 7/8/66 (easement) (w/11 stal) 8/3/66 Hk 5402/58		5.398ac
20	City Hill Company Limited	Dt: 8/15/62 CT \$900.00, \$900.00, \$900.00, \$475.00 fr Jos Schlitz Brewing Co 8/17/62 Hk 16517/635 (w/11)		5.398ac
21	(James S. Simons(m))	Short Form Le: 1/15/86 CT \$900.00, 900.00, 177.00 2/11/86 Hk 19284/488		
22	(Ray J. Perry(m))	Term: Rs 11/1/88 & ending 10/31/2000, optn to extend term for 3 yrs		
23	(Richard E. Fehrenwald Trust)(T/C)	upon rents, terms, covenants & conditions contained in that unrec le betw parties dated 1/15/86		
24		Short Form Le: 3/17/86 fr Simons stal to All Safe Storage Systems Ltd Partnership CT \$999.00 \$540.50 commencing 3/1/86 & expiring on 10/31/2000		
25		toq w/an option to extend the term for 5 yrs all upon the rents, terms, covenants, agrmt & conditions contained in that unrec le betw the parties dated 2/28/86, 5/15/86 Hk 19587/354 (All that certain bldg "C" located at 98-855 Kam Hwy Toq w/ an aluminum utility tunnel located within Easement C toq also w/ an easement 5 ft wide parallel to the east side of bldg C)		
26				5.398ac
27				
28				
29				
30				
31				
32				
33				
34				
35				
36				
37				
38				
39				
40				

RECEIVED AS FOLLOWS:

YEAR	1938	1939	1940	1941	1942	1943	1944	1945	1946	YEAR
AREA	3.478ac.	3.478ac.	3.478ac.	3.478ac.	3.478ac.	3.478ac.	3.478ac.	3.478ac.	3.478ac.	AREA
LAND	390	390	390	390	390	101	104	678	6017	LAND
IMP.										IMP.
TOT.	390	390	390	390		104	104	678	6017	TOT.
EX.	390	390	390	390		104	104	678	6017	EX.
NET	11.45	12.05	11.6	11.85		6.75	7.2	17.63	15.5	NET
TAK										TAK



RECEIVED AS FOLLOWS:

SOURCE: HW-217 DATE: 6/8/51 BY: HW-217 DATE: 9/8/51 DIV: 9/8/51
 DEED ETC. NO. 1951
 ROUTE SLIP NO. M-2, 1/2

Parcel 9809-7
 Revised Area 3,216 Ac.
 2,950 Ac.

Parcel 9809-7 has been subd into 16 lots. A por of Parcel 9809-1 (0.022 Ac +) has been dropped into 9809-7 and a por of 9809-7 (0.076 Ac+) dropped into Parcel 9810-1. Plan & Survey of this subd by James E Mann dated 5/7/50.

Break-up and carry the following new parcel numbers HW-217.

Lot 1, Por LCAW 8825-B Pt 3, 9809-11 (pick-up) 9,794 β
 2, do do (new) 5,848 β
 3, do do 5,330 β
 24

FINAL DATA AS SHOWN ON TAX MAPS AS OF DATE: 6/8/51

PARCEL NO.	CHANGE & DESCRIPTION	AREA, A	AREA, P
9810-1	dropped into 9809-7 (0.022 Ac)		
9809-7	dropped into 9810-1 (0.076 Ac)		
9809-7	Subd & dropped into 9809-18 to 25 Incl L L McCandless Trust Est		
9809-7	Area Lot 16 Por LCAW 8825-B, Pt 3	18,531 β	do
9809-11	Pick-up Lot 1, Por LCAW 8825-B, Pt 3	9,794 β	do

SOURCE: HW-217 DATE: 6/8/51 BY: HW-217 DATE: 9/8/51 DIV: 9/8/51
 DEED ETC. NO. 1951
 ROUTE SLIP NO. M-2, 1/2

Parcel 9809-7
 Revised Area 3,216 Ac.
 2,950 Ac.

Parcel 9809-7 has been subd into 16 lots. A por of Parcel 9809-1 (0.022 Ac +) has been dropped into 9809-7 and a por of 9809-7 (0.076 Ac+) dropped into Parcel 9810-1. Plan & Survey of this subd by James E Mann dated 5/7/50.

Break-up and carry the following new parcel numbers HW-217.

Lot 1, Por LCAW 8825-B Pt 3, 9809-11 (pick-up) 9,794 β
 2, do do (new) 5,848 β
 3, do do 5,330 β
 24

FINAL DATA AS SHOWN ON TAX MAPS AS OF DATE: 6/8/51

PARCEL NO.	CHANGE & DESCRIPTION	AREA, A	AREA, P
9810-1	dropped into 9809-7 (0.022 Ac)		
9809-7	dropped into 9810-1 (0.076 Ac)		
9809-7	Subd & dropped into 9809-18 to 25 Incl L L McCandless Trust Est		
9809-7	Area Lot 16 Por LCAW 8825-B, Pt 3	18,531 β	do
9809-11	Pick-up Lot 1, Por LCAW 8825-B, Pt 3	9,794 β	do

Reference Sheet

DATE 3/22/45

1945

INDEX REF INDEX MARKS

9 8 08 7

FOR PARTNER'S REFERENCE, NET

10 9 7 19 14 11

DATE 8/22/45 8995

LISEN PAGE

0.677

0.671 2c

0.677

3 473 3c
- 0.672 ac
= 2.799 ac

TAX PAID	REMARKS

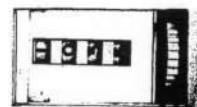
TOTAL DATA BY SOURCE ON TAX REFERENCE SHEET	DATE	INDEX	MARKS
6 ANVA	9 8 08 7	6	6
L.I. McCandless Estate			
2.7772			



Lot 4, For LGW 8525-B Pt 3, 8809-25 (new)

5,990 2	22 "
5,447 2	21 "
5,600 2	20 "
5,600 2	19 "
5,600 2	18 "
5,600 2	17 "
5,600 2	16 "
5,600 2	14 "
7,348 2	13 "
5,085 2	12 "
39,531 2	7 "

129,524 2
or
2.95 Ac.



AREA: 3.2780 ACRES
 R/S: DESIGNATION OF ELEC ESMT "1" [814 SF], SIGNAL LIGHT ESMT "2" [110 SF] AND SIGNAL LIGHT ESMT "3" [1463 SF], AFFECTING LOT 1, PER PLAN BY R.M. TOWILL CORPORATION. APPROVED 7/16/2017 (2017/SUB-83).
 F/D: ESMTS.

GROUP#	NAME	F	TC	%-OWNER	TITLE-DESC
2 0011	HEALANI LAND COMPANY INC				
FOR ASSESSMENT YEAR					
PITT 4	LAND VALUE: 2019				EXEMPT LAND VALUE: \$0
	BUILDING VALUE:				EXEMPT BUILDING VALUE: \$0
FOR ASSESSMENT YEAR					
PITT 4	LAND VALUE: 2018				EXEMPT LAND VALUE: \$0
	BUILDING VALUE:				EXEMPT BUILDING VALUE: \$0
SITE ADDRESS: 98-51 KAMEHAMEHA HWY ALEA 96701					

MAILING ADDRESS: HEALANI LAND COMPANY INC
 P O BOX 17658
 HONOLULU HI 96817

09/30/2005
 INSTR-DESC: ROUTE SLIP
 TRANS NO: 5173356
 INSTR-DATE: 08/26/2005

AREA: 3.2780 ACRES
 R/S: DESIGNATION PEDESTRIAN ACCESS ESMT "A-3" (2678 SF) & FLOWAGE ESMT "D-1" (3142 SF) AFFECTING LOT 1 PER PLAN BY AUSTIN, TSUTSUMI & ASSOCIATES INC APPROVED 8/26/2005 (2005/SUB-194).
 F/D: DESIGNATION ESMTS

GROUP#	NAME	F	TC	%-OWNER	TITLE-DESC
2 0011	HEALANI LAND COMPANY INC				
FOR ASSESSMENT YEAR					
PITT 4	LAND VALUE: 2017				EXEMPT LAND VALUE: \$0
	BUILDING VALUE:				EXEMPT BUILDING VALUE: \$0
FOR ASSESSMENT YEAR					
PITT 4	LAND VALUE: 2016				EXEMPT LAND VALUE: \$0
	BUILDING VALUE:				EXEMPT BUILDING VALUE: \$0
APPEAL EXISTS FOR THIS YEAR					
FOR ASSESSMENT YEAR					
PITT 4	LAND VALUE: 2015				EXEMPT LAND VALUE: \$0
	BUILDING VALUE:				EXEMPT BUILDING VALUE: \$0
FOR ASSESSMENT YEAR					
PITT 4	LAND VALUE: 2014				EXEMPT LAND VALUE: \$0
	BUILDING VALUE:				EXEMPT BUILDING VALUE: \$0

DATE	LOCATION	DESCRIPTION	AREA OF PARCEL	GRANTOR, ETC	GRANTEE, ETC	Z	S	CLASS	REV
						9	8	09	7
11	Shore/Fore/Les: Bk 19284 p488 SGT1977		5.398 Ac	City Mill Co Ltd					
				James B Slemmons					
				Ray J Parry					
				Richard E. Fahrenwald Trust T(C)LP					
12	Short Form/Les James B Slemmons etal To:			do					
	All Safe Storage System Ltd Partnership								
	Bk 19487 p354 SGT1539.50 Term commencing								
	3/1/86 expiring 10/31/2000, etc.								
	3/1/86 6/16/86 REVEY ONLY - Floor Space								

NOTE: INFORMATION ON THIS SHEET IS SUBJECT TO CHANGE

FOR ASSESSMENT YEAR 2013
 PITT 4 LAND VALUE: \$6,372,100 EXEMPT LAND VALUE: \$0
 BUILDING VALUE: \$8,587,200 EXEMPT BUILDING VALUE: \$0

FOR ASSESSMENT YEAR 2012
 PITT 4 LAND VALUE: \$5,809,700 EXEMPT LAND VALUE: \$0
 BUILDING VALUE: \$8,528,100 EXEMPT BUILDING VALUE: \$0

FOR ASSESSMENT YEAR 2011
 PITT 4 LAND VALUE: \$5,434,900 EXEMPT LAND VALUE: \$0
 BUILDING VALUE: \$8,413,000 EXEMPT BUILDING VALUE: \$0

FOR ASSESSMENT YEAR 2010
 PITT 4 LAND VALUE: \$5,434,900 EXEMPT LAND VALUE: \$0
 BUILDING VALUE: \$8,515,000 EXEMPT BUILDING VALUE: \$0

APPEAL EXISTS FOR THIS YEAR

FOR ASSESSMENT YEAR 2009
 PITT 4 LAND VALUE: \$5,997,100 EXEMPT LAND VALUE: \$0
 BUILDING VALUE: \$8,285,400 EXEMPT BUILDING VALUE: \$0

FOR ASSESSMENT YEAR 2008
 PITT 4 LAND VALUE: \$5,809,700 EXEMPT LAND VALUE: \$0
 BUILDING VALUE: \$8,072,500 EXEMPT BUILDING VALUE: \$0

FOR ASSESSMENT YEAR 2007
 PITT 4 LAND VALUE: \$5,153,800 EXEMPT LAND VALUE: \$0
 BUILDING VALUE: \$7,787,600 EXEMPT BUILDING VALUE: \$0

FOR ASSESSMENT YEAR 2006
 PITT 4 LAND VALUE: \$4,216,700 EXEMPT LAND VALUE: \$0
 BUILDING VALUE: \$5,698,000 EXEMPT BUILDING VALUE: \$0

SITE ADDRESS: 98-51 KAMEHAMEHA HWY
 AIEA 96701

04/12/1991
 INSTR-DESC: ASSIGNMENT OF LEASE
 INSTR_NO:9100046686
 AMOUNT:\$1,650,000
 AREA: 3.2780 ACRES
 STATE-CONV-TAX: \$ 825.00

FROM: PFLUEGER PROPERTIES INC
 TO: TONY HAWAII CORP
 THAT CERTAIN BUILDING KNOWN AS BUILDING "A"
 LOT 1 3.278 AC POR RP 4497 LCAW 8559 AP 1
 RP 453 LCAW 5956 AP 2
 TOG/BSMT
 F/D: KEYED ONLY - FLOOR SPACE

GROUP#	NAME	F	TC	%-OWNER	TITLE-DESC
2 0011	HEALANI LAND COMPANY INC				
FOR ASSESSMENT YEAR 2005					
PITT 4	LAND VALUE:	\$4,029,300			EXEMPT LAND VALUE: \$0
	BUILDING VALUE:	\$0			EXEMPT BUILDING VALUE: \$0
FOR ASSESSMENT YEAR 2004					
PITT 4	LAND VALUE:	\$3,863,900			EXEMPT LAND VALUE: \$0
	BUILDING VALUE:	\$2,909,100			EXEMPT BUILDING VALUE: \$0
FOR ASSESSMENT YEAR 2003					
PITT 4	LAND VALUE:	\$4,052,400			EXEMPT LAND VALUE: \$0
	BUILDING VALUE:	\$2,889,300			EXEMPT BUILDING VALUE: \$0
FOR ASSESSMENT YEAR 2002					
PITT 4	LAND VALUE:	\$4,052,400			EXEMPT LAND VALUE: \$0
	BUILDING VALUE:	\$2,889,100			EXEMPT BUILDING VALUE: \$0

FOR ASSESSMENT YEAR 2001
 PITT 4 LAND VALUE: \$4,052,400 EXEMPT LAND VALUE: \$0
 BUILDING VALUE: \$2,889,100 EXEMPT BUILDING VALUE: \$0

FOR ASSESSMENT YEAR 2000
 PITT 4 LAND VALUE: \$4,052,400 EXEMPT LAND VALUE: \$0
 BUILDING VALUE: \$3,108,100 EXEMPT BUILDING VALUE: \$0

FOR ASSESSMENT YEAR 1999
 PITT 4 LAND VALUE: \$3,844,600 EXEMPT LAND VALUE: \$0
 BUILDING VALUE: \$3,152,900 EXEMPT BUILDING VALUE: \$0

FOR ASSESSMENT YEAR 1998
 PITT 4 LAND VALUE: \$3,948,500 EXEMPT LAND VALUE: \$0
 BUILDING VALUE: \$3,166,600 EXEMPT BUILDING VALUE: \$0

FOR ASSESSMENT YEAR 1997
 PITT 4 LAND VALUE: \$3,948,500 EXEMPT LAND VALUE: \$0
 BUILDING VALUE: \$3,037,000 EXEMPT BUILDING VALUE: \$0

FOR ASSESSMENT YEAR 1996
 PITT 4 LAND VALUE: \$4,364,300 EXEMPT LAND VALUE: \$0
 BUILDING VALUE: \$3,782,100 EXEMPT BUILDING VALUE: \$0

FOR ASSESSMENT YEAR 1995
 PITT 4 LAND VALUE: \$4,364,200 EXEMPT LAND VALUE: \$0
 BUILDING VALUE: \$3,139,050 EXEMPT BUILDING VALUE: \$0

APPEAL EXISTS FOR THIS YEAR

FOR ASSESSMENT YEAR 1994
 PITT 4 LAND VALUE: \$4,364,300 EXEMPT LAND VALUE: \$0
 BUILDING VALUE: \$3,545,600 EXEMPT BUILDING VALUE: \$0

FOR ASSESSMENT YEAR 1993
 PITT 4 LAND VALUE: \$4,364,300 EXEMPT LAND VALUE: \$0
 BUILDING VALUE: \$3,454,000 EXEMPT BUILDING VALUE: \$0

FOR ASSESSMENT YEAR 1992
 PITT 4 LAND VALUE: \$4,156,400 EXEMPT LAND VALUE: \$0
 BUILDING VALUE: \$3,428,100 EXEMPT BUILDING VALUE: \$0

SITE ADDRESS: 98-51 KAM HWY
 AIEA 96701

11/19/1990
 INSTR-DESC: ASSMT OF LEASE
 INSTR_NO:9000177773
 AMOUNT:\$100,000
 AREA: 3.2780 ACRES
 STATE-CONV-TAX: \$ 50.00

FROM: JAMES H PFLUEGER (M)
 TO: PFLUEGER PROPERTIES INC
 ALL OF THAT CERTAIN BLDG KNOWN AS BLDG "A"
 F/D: KEYED ONLY-FLOOR SPACE

GROUP#	NAME	F	TC	%-OWNER	TITLE-DESC
2 0011	HEALANI LAND COMPANY INC				
FOR ASSESSMENT YEAR 1991					
PITT 4	LAND VALUE:	\$3,429,100			EXEMPT LAND VALUE: \$0
	BUILDING VALUE:	\$3,342,000			EXEMPT BUILDING VALUE: \$0
03/20/1990					
INSTR-DESC: DEED					
INSTR_NO:9000039472					
AMOUNT:\$11,057,000					
AREA: 3.2780 ACRES					
STATE-CONV-TAX: \$ 5528.50					

FROM: HOWARD K O CHONG JR TRS OF SELF-TRUSTEED TR OF HOWARD K O CHONG JR

UNDER THAT CERTAIN UNREC TR AGRMT DTD 1/6/84
 TO: HEALANI LAND COMPANY INC
 PAR POR RP 453 LCAW 5956 AP 2 RP 4497 LCAW 8559 AP 1 LP 8209
 LCAW 8525-B PART 3 RP 866 LCAW 9315 AP 2 WAIMALU EWA HONOLULU
 9.353 AC EXCL RAILWAY R/W .677 AC NET 8.676 AC
 TOG/W ESMTS

GROUP# NAME F TC %-OWNER TITLE-DESC
 2 0011 HEALANI LAND COMPANY INC

08/03/1989 INSTR-DESC: WARRANTY DEED TRANS NO: 233095
 INSTR-DATE: 08/02/1989
 LIBER/PAGE: 23486/191 REC-DATE: 08/03/1989

AMOUNT: \$8,000,000 STATE-CONV-TAX: \$ 4000.00
 AREA: 3.2780 ACRES
 FROM: CITY MILL COMPANY LIMITED
 TO: HOWARD K O CHONG JR TRUSTEE OF SELF-TRUSTEED TRUST OF HOWARD K O
 CHONG JR UNDER THAT CERTAIN UNRECORDED TRUST AGRMT DATED 1/6/84
 POR RP 453 LCAW 5956:2; RP 4497, LCAW 8559: 1, LP 8209 LCAW 8525-B PAR 3
 & RP 866 LCAW 9315:2 GROSS AREA OF 9.353 AC NET AREA OF 8.676 AC AFTER
 EXCLUDING THE OLD OAHU RAILWAY AND LAND COMPANY RAILROAD RIGHT-O WAY
 0.677 AC DES
 TOG/ESMTS

GROUP# NAME F TC %-OWNER TITLE-DESC
 2 0011 CHONG, HOWARD K O JR TRUST

FOR ASSESSMENT YEAR 1990 EXEMPT LAND VALUE: \$0
 PITT # 4 BUILDING VALUE: \$1,345,500 EXEMPT BUILDING VALUE: \$0

06/16/1989 INSTR-DESC: ASSMNT OF LEASE & LESSOR'S CONSENT TRANS NO: 233091
 INSTR-DATE: 04/18/1989
 LIBER/PAGE: 23307/92 REC-DATE: 06/16/1989

AREA: 3.2780 ACRES STATE-CONV-TAX: \$ 0.00
 FROM: TONY MASAMITSU (M)
 TO: TONY HAWAII CORP
 LOT 1 BLDG B 3.278 AC POR RP 4497 LCAW 8559
 APANA 1 RP 453 LCAW 5956 APANA 2
 TOG/W ESMTS
 SUBJ TO ESMTS
 F/D: KEYED ONLY - FLOOR SPACE

GROUP# NAME F TC %-OWNER TITLE-DESC
 2 0011 CITY MILL COMPANY LTD

02/13/1989 INSTR-DESC: ASSMNT/SUBLEASE TRANS NO: 233090
 INSTR-DATE: 12/18/1986
 LIBER/PAGE: 22856/557 REC-DATE: 02/13/1989

AREA: 3.2780 ACRES STATE-CONV-TAX: \$ 0.00
 FROM: TONY MASAMITSU (M)
 TO: TONY MASAMITSU, TRUSTEE OF THE TONY MASAMITSU REVOCABLE LIVING

TRUST DTD 8/27/84
 LOT 1 (POR RP 4497, LCAW 8559, AP 1 AND RP 453, LCAW 5956, AP 2)
 AREA 3.278 ACRES DES
 TOG/ESMT
 F/D: KEYED ONLY - FLOOR SPACE

GROUP# NAME F TC %-OWNER TITLE-DESC
 2 0011 CITY MILL COMPANY LTD
 10/07/1987

GROUP# NAME F TC %-OWNER TITLE-DESC
 2 0011 CITY MILL COMPANY LTD

FOR ASSESSMENT YEAR 1989 EXEMPT LAND VALUE: \$0
 PITT # 4 BUILDING VALUE: \$1,723,500 EXEMPT BUILDING VALUE: \$0
 FOR ASSESSMENT YEAR 1988 EXEMPT LAND VALUE: \$0
 PITT # 4 BUILDING VALUE: \$1,704,252 EXEMPT BUILDING VALUE: \$0
 BUILDING VALUE: \$1,553,318 EXEMPT BUILDING VALUE: \$0

-----SEE PARCEL SHEETS FOR MORE INFORMATION-----

YEAR	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
VAL	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
WTR																			
EX																			
TOTAL																			
INVESTMENT																			
LAND																			
VAL	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975

Handwritten notes:

- 1957 127
- 1958 36.6
- 1959 158
- 1960 127.9
- 1961 176
- 1962 196.2
- 1963 196.2
- 1964 91.4
- 1965 91.4
- 1966 91.4
- 1967 182.3
- 1968 101.3
- 1969 10.1
- 1970 10.1
- 1971 10.1
- 1972 10.1
- 1973 10.1
- 1974 10.1
- 1975 10.1

YEAR	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
VAL	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
WTR																			
EX																			
TOTAL																			
INVESTMENT																			
LAND																			
VAL	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975

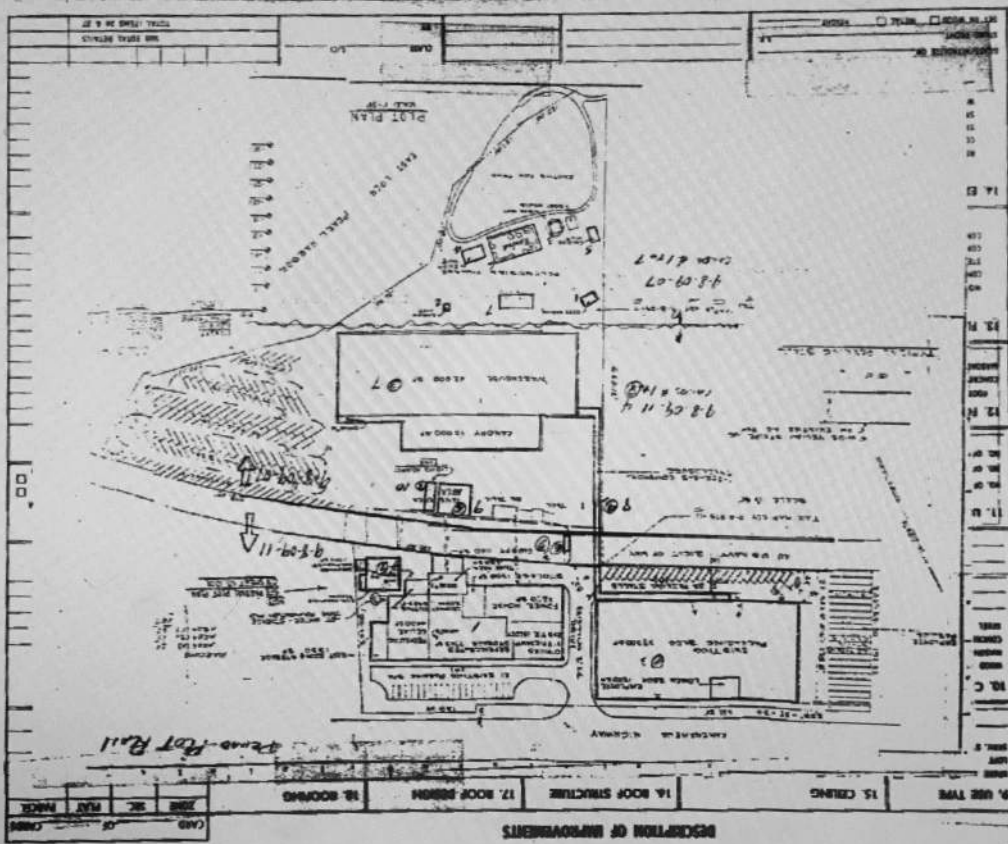
Deed History

- 1957: 12/22/49 Fr. Trust Hawaii 181606 BLD. S.S. 12/19/49 BK 2032/496
- 1958: (For 1958 area within fr. 9794 to 0.3504 thm 5/2/53)
- 1959: (For 1959 area within fr. 9809 to 0.3504 thm 5/2/53)
- 1960: (For 1960 area within fr. 9811 to 0.3504 thm 5/2/53)
- 1961: (For 1961 area within fr. 9811 to 0.3504 thm 5/2/53)
- 1962: (For 1962 area within fr. 9811 to 0.3504 thm 5/2/53)
- 1963: (For 1963 area within fr. 9811 to 0.3504 thm 5/2/53)
- 1964: (For 1964 area within fr. 9811 to 0.3504 thm 5/2/53)
- 1965: (For 1965 area within fr. 9811 to 0.3504 thm 5/2/53)
- 1966: (For 1966 area within fr. 9811 to 0.3504 thm 5/2/53)
- 1967: (For 1967 area within fr. 9811 to 0.3504 thm 5/2/53)
- 1968: (For 1968 area within fr. 9811 to 0.3504 thm 5/2/53)
- 1969: (For 1969 area within fr. 9811 to 0.3504 thm 5/2/53)
- 1970: (For 1970 area within fr. 9811 to 0.3504 thm 5/2/53)
- 1971: (For 1971 area within fr. 9811 to 0.3504 thm 5/2/53)
- 1972: (For 1972 area within fr. 9811 to 0.3504 thm 5/2/53)
- 1973: (For 1973 area within fr. 9811 to 0.3504 thm 5/2/53)
- 1974: (For 1974 area within fr. 9811 to 0.3504 thm 5/2/53)
- 1975: (For 1975 area within fr. 9811 to 0.3504 thm 5/2/53)

1. ADJUSTMENTS		2. ADDITIONAL RECORD		3. DISCREPANCY	
CLASS	DATE	CLASS	DATE	CLASS	DATE
11	09/11	11	09/11	11	09/11
9	08/11	9	08/11	9	08/11
8	09/11	8	09/11	8	09/11
6	09/11	6	09/11	6	09/11
11	09/11	11	09/11	11	09/11

RECAP
 COMMERCIAL & INDUSTRIAL APPRAISAL COMPANY
 DEPARTMENT OF REVENUE

1. ADJUSTMENTS		2. ADDITIONAL RECORD		3. DISCREPANCY	
CLASS	DATE	CLASS	DATE	CLASS	DATE
11	09/11	11	09/11	11	09/11
9	08/11	9	08/11	9	08/11
8	09/11	8	09/11	8	09/11
6	09/11	6	09/11	6	09/11
11	09/11	11	09/11	11	09/11



1. DEPRECIATION		2. R.O.G. REPAIR RECORD		3. ADULT IMPROV.		4. COMMENTS	
NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT
1	439081	1	1967	1	1967	1	1967
2	523818	2	1968	2	1968	2	1968
3	716000	3	1969	3	1969	3	1969
4	293834	4	1970	4	1970	4	1970
5	136723	5	1971	5	1971	5	1971
6	293834	6	1972	6	1972	6	1972
7	716000	7	1973	7	1973	7	1973
8	293834	8	1974	8	1974	8	1974
9	136723	9	1975	9	1975	9	1975
10	293834	10	1976	10	1976	10	1976
11	716000	11	1977	11	1977	11	1977
12	293834	12	1978	12	1978	12	1978
13	136723	13	1979	13	1979	13	1979
14	293834	14	1980	14	1980	14	1980
15	716000	15	1981	15	1981	15	1981
16	293834	16	1982	16	1982	16	1982
17	136723	17	1983	17	1983	17	1983
18	293834	18	1984	18	1984	18	1984
19	716000	19	1985	19	1985	19	1985
20	293834	20	1986	20	1986	20	1986
21	136723	21	1987	21	1987	21	1987
22	293834	22	1988	22	1988	22	1988
23	716000	23	1989	23	1989	23	1989
24	293834	24	1990	24	1990	24	1990
25	136723	25	1991	25	1991	25	1991
26	293834	26	1992	26	1992	26	1992
27	716000	27	1993	27	1993	27	1993
28	293834	28	1994	28	1994	28	1994
29	136723	29	1995	29	1995	29	1995
30	293834	30	1996	30	1996	30	1996
31	716000	31	1997	31	1997	31	1997
32	293834	32	1998	32	1998	32	1998
33	136723	33	1999	33	1999	33	1999
34	293834	34	2000	34	2000	34	2000
35	716000	35	2001	35	2001	35	2001
36	293834	36	2002	36	2002	36	2002
37	136723	37	2003	37	2003	37	2003
38	293834	38	2004	38	2004	38	2004
39	716000	39	2005	39	2005	39	2005
40	293834	40	2006	40	2006	40	2006
41	136723	41	2007	41	2007	41	2007
42	293834	42	2008	42	2008	42	2008
43	716000	43	2009	43	2009	43	2009
44	293834	44	2010	44	2010	44	2010
45	136723	45	2011	45	2011	45	2011
46	293834	46	2012	46	2012	46	2012
47	716000	47	2013	47	2013	47	2013
48	293834	48	2014	48	2014	48	2014
49	136723	49	2015	49	2015	49	2015
50	293834	50	2016	50	2016	50	2016
51	716000	51	2017	51	2017	51	2017
52	293834	52	2018	52	2018	52	2018
53	136723	53	2019	53	2019	53	2019
54	293834	54	2020	54	2020	54	2020
55	716000	55	2021	55	2021	55	2021
56	293834	56	2022	56	2022	56	2022
57	136723	57	2023	57	2023	57	2023
58	293834	58	2024	58	2024	58	2024
59	716000	59	2025	59	2025	59	2025
60	293834	60	2026	60	2026	60	2026
61	136723	61	2027	61	2027	61	2027
62	293834	62	2028	62	2028	62	2028
63	716000	63	2029	63	2029	63	2029
64	293834	64	2030	64	2030	64	2030
65	136723	65	2031	65	2031	65	2031
66	293834	66	2032	66	2032	66	2032
67	716000	67	2033	67	2033	67	2033
68	293834	68	2034	68	2034	68	2034
69	136723	69	2035	69	2035	69	2035
70	293834	70	2036	70	2036	70	2036
71	716000	71	2037	71	2037	71	2037
72	293834	72	2038	72	2038	72	2038
73	136723	73	2039	73	2039	73	2039
74	293834	74	2040	74	2040	74	2040
75	716000	75	2041	75	2041	75	2041
76	293834	76	2042	76	2042	76	2042
77	136723	77	2043	77	2043	77	2043
78	293834	78	2044	78	2044	78	2044
79	716000	79	2045	79	2045	79	2045
80	293834	80	2046	80	2046	80	2046
81	136723	81	2047	81	2047	81	2047
82	293834	82	2048	82	2048	82	2048
83	716000	83	2049	83	2049	83	2049
84	293834	84	2050	84	2050	84	2050
85	136723	85	2051	85	2051	85	2051
86	293834	86	2052	86	2052	86	2052
87	716000	87	2053	87	2053	87	2053
88	293834	88	2054	88	2054	88	2054
89	136723	89	2055	89	2055	89	2055
90	293834	90	2056	90	2056	90	2056
91	716000	91	2057	91	2057	91	2057
92	293834	92	2058	92	2058	92	2058
93	136723	93	2059	93	2059	93	2059
94	293834	94	2060	94	2060	94	2060
95	716000	95	2061	95	2061	95	2061
96	293834	96	2062	96	2062	96	2062
97	136723	97	2063	97	2063	97	2063
98	293834	98	2064	98	2064	98	2064
99	716000	99	2065	99	2065	99	2065
100	293834	100	2066	100	2066	100	2066

DESCRIPTION OF IMPROVEMENTS

<p>9. USE TYPE</p> <p>WHSB - <input type="checkbox"/> STORE <input type="checkbox"/> FACTORY <input type="checkbox"/> OFFICE <input type="checkbox"/> RESIDENTIAL <input type="checkbox"/> OTHER</p> <p>10. CONSTRUCTION</p> <p>FOR-PIVOT <input type="checkbox"/> CONCRETE <input type="checkbox"/> BRICK <input type="checkbox"/> OTHER</p>	<p>11. UNITS AND ROOMS</p> <p>NO. OF ROOMS: 26 NO. OF UNITS: 15</p> <p>12. FOUNDATION</p> <p>CONCRETE: <input type="checkbox"/> BRICK: <input type="checkbox"/> OTHER: <input type="checkbox"/></p>	<p>13. FLOORS</p> <p>CONCRETE: <input type="checkbox"/> BRICK: <input type="checkbox"/> OTHER: <input type="checkbox"/></p> <p>14. EXTERIOR WALLS</p> <p>CONCRETE: <input type="checkbox"/> BRICK: <input type="checkbox"/> OTHER: <input type="checkbox"/></p>	<p>15. CEILING</p> <p>CONCRETE: <input type="checkbox"/> BRICK: <input type="checkbox"/> OTHER: <input type="checkbox"/></p> <p>16. ROOF STRUCTURE</p> <p>CONCRETE: <input type="checkbox"/> BRICK: <input type="checkbox"/> OTHER: <input type="checkbox"/></p>	<p>17. ROOF DESIGN</p> <p>FLAT: <input type="checkbox"/> GABLE: <input type="checkbox"/> OTHER: <input type="checkbox"/></p> <p>18. ROOFING</p> <p>ASPH: <input type="checkbox"/> CORR: <input type="checkbox"/> CONC: <input type="checkbox"/> TILE: <input type="checkbox"/></p>	<p>19. EXTERIOR FINISH</p> <p>STUCCO: <input type="checkbox"/> BRICK: <input type="checkbox"/> OTHER: <input type="checkbox"/></p> <p>20. MILLWORK</p> <p>WOOD: <input type="checkbox"/> METAL: <input type="checkbox"/></p> <p>21. FURNISHING</p> <p>WOOD: <input type="checkbox"/> METAL: <input type="checkbox"/></p>	<p>22. REMARKS</p> <p>23. CLASSIFICATION</p> <p>24. CONDITION</p> <p>25. ADD'L UNIT DETAILS</p> <p>26. ADD'L FLOOR DET.</p> <p>27. ELECTRICAL</p> <p>28. MECHANICAL</p> <p>29. PLUMBING</p> <p>30. OTHER</p>
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COMMERCIAL & INDUSTRIAL APPRAISAL CARD

DEPARTMENT OF TAXATION

Troy, Hawaii

<p>1. DEPRECIATION</p> <p>1967</p>	<p>2. BLDG. PERMIT RECORD</p> <p>1967</p>	<p>3. ADD'L IMP'TS</p> <p>1971</p>	<p>4. CODE</p> <p>98-051-Kom. Hkt</p>	<p>5. ZONE</p> <p>98-051-Kom. Hkt</p>	<p>6. CODE</p> <p>4--</p>	<p>7. USE</p> <p>Commercial</p>	<p>8. COMPUTATION OF IMPROVEMENT VALUE</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Year</th> <th>Value</th> <th>Rate</th> <th>Amount</th> </tr> <tr> <td>1967</td> <td>10,500</td> <td>2.25%</td> <td>236.25</td> </tr> <tr> <td>1968</td> <td>10,500</td> <td>2.25%</td> <td>236.25</td> </tr> <tr> <td>1969</td> <td>10,500</td> <td>2.25%</td> <td>236.25</td> </tr> <tr> <td>1970</td> <td>10,500</td> <td>2.25%</td> <td>236.25</td> </tr> <tr> <td>1971</td> <td>10,500</td> <td>2.25%</td> <td>236.25</td> </tr> <tr> <td>1972</td> <td>10,500</td> <td>2.25%</td> <td>236.25</td> </tr> <tr> <td>1973</td> <td>10,500</td> <td>2.25%</td> <td>236.25</td> </tr> <tr> <td>1974</td> <td>10,500</td> <td>2.25%</td> <td>236.25</td> </tr> <tr> <td>1975</td> <td>10,500</td> <td>2.25%</td> <td>236.25</td> </tr> <tr> <td>1976</td> <td>10,500</td> <td>2.25%</td> <td>236.25</td> </tr> <tr> <td>1977</td> <td>10,500</td> <td>2.25%</td> <td>236.25</td> </tr> <tr> <td>1978</td> <td>10,500</td> 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</table>	Year	Value	Rate	Amount	1967	10,500	2.25%	236.25	1968	10,500	2.25%	236.25	1969	10,500	2.25%	236.25	1970	10,500	2.25%	236.25	1971	10,500	2.25%	236.25	1972	10,500	2.25%	236.25	1973	10,500	2.25%	236.25	1974	10,500	2.25%	236.25	1975	10,500	2.25%	236.25	1976	10,500	2.25%	236.25	1977	10,500	2.25%	236.25	1978	10,500	2.25%	236.25	1979	10,500	2.25%	236.25	1980	10,500	2.25%	236.25	1981	10,500	2.25%	236.25	1982	10,500	2.25%	236.25	1983	10,500	2.25%	236.25	1984	10,500	2.25%	236.25	1985	10,500	2.25%	236.25	1986	10,500	2.25%	236.25	1987	10,500	2.25%	236.25	1988	10,500	2.25%	236.25	1989	10,500	2.25%	236.25	1990	10,500	2.25%	236.25	1991	10,500	2.25%	236.25	1992	10,500	2.25%	236.25	1993	10,500	2.25%	236.25	1994	10,500	2.25%	236.25	1995	10,500	2.25%	236.25	1996	10,500	2.25%	236.25	1997	10,500	2.25%	236.25	1998	10,500	2.25%	236.25	1999	10,500	2.25%	236.25	2000	10,500	2.25%	236.25	2001	10,500	2.25%	236.25	2002	10,500	2.25%	236.25	2003	10,500	2.25%	236.25	2004	10,500	2.25%	236.25	2005	10,500	2.25%	236.25	2006	10,500	2.25%	236.25	2007	10,500	2.25%	236.25	2008	10,500	2.25%	236.25	2009	10,500	2.25%	236.25	2010	10,500	2.25%	236.25	2011	10,500	2.25%	236.25	2012	10,500	2.25%	236.25	2013	10,500	2.25%	236.25	2014	10,500	2.25%	236.25	2015	10,500	2.25%	236.25	2016	10,500	2.25%	236.25	2017	10,500	2.25%	236.25	2018	10,500	2.25%	236.25	2019	10,500	2.25%	236.25	2020	10,500	2.25%	236.25	2021	10,500	2.25%	236.25	2022	10,500	2.25%	236.25	2023	10,500	2.25%	236.25	2024	10,500	2.25%	236.25	2025	10,500	2.25%	236.25	2026	10,500	2.25%	236.25	2027	10,500	2.25%	236.25	2028	10,500	2.25%	236.25	2029	10,500	2.25%	236.25	2030	10,500	2.25%	236.25
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COMMERCIAL & INDUSTRIAL APPRAISAL CARD

UNIVERSITY OF CALIFORNIA

1. DESCRIPTION **982 No**

2. BLDG. FINISH RECORD

NO.	DATE	FINISH	NO. OF	NO. OF	NO. OF	NO. OF	NO. OF	NO. OF	NO. OF
1	1966	CONC.	1	1	1	1	1	1	1
2	1966	CONC.	1	1	1	1	1	1	1
3	1966	CONC.	1	1	1	1	1	1	1
4	1966	CONC.	1	1	1	1	1	1	1
5	1966	CONC.	1	1	1	1	1	1	1
6	1966	CONC.	1	1	1	1	1	1	1
7	1966	CONC.	1	1	1	1	1	1	1
8	1966	CONC.	1	1	1	1	1	1	1
9	1966	CONC.	1	1	1	1	1	1	1
10	1966	CONC.	1	1	1	1	1	1	1
11	1966	CONC.	1	1	1	1	1	1	1
12	1966	CONC.	1	1	1	1	1	1	1
13	1966	CONC.	1	1	1	1	1	1	1
14	1966	CONC.	1	1	1	1	1	1	1
15	1966	CONC.	1	1	1	1	1	1	1
16	1966	CONC.	1	1	1	1	1	1	1
17	1966	CONC.	1	1	1	1	1	1	1
18	1966	CONC.	1	1	1	1	1	1	1
19	1966	CONC.	1	1	1	1	1	1	1
20	1966	CONC.	1	1	1	1	1	1	1
21	1966	CONC.	1	1	1	1	1	1	1
22	1966	CONC.	1	1	1	1	1	1	1
23	1966	CONC.	1	1	1	1	1	1	1
24	1966	CONC.	1	1	1	1	1	1	1
25	1966	CONC.	1	1	1	1	1	1	1
26	1966	CONC.	1	1	1	1	1	1	1
27	1966	CONC.	1	1	1	1	1	1	1
28	1966	CONC.	1	1	1	1	1	1	1
29	1966	CONC.	1	1	1	1	1	1	1
30	1966	CONC.	1	1	1	1	1	1	1
31	1966	CONC.	1	1	1	1	1	1	1
32	1966	CONC.	1	1	1	1	1	1	1
33	1966	CONC.	1	1	1	1	1	1	1
34	1966	CONC.	1	1	1	1	1	1	1
35	1966	CONC.	1	1	1	1	1	1	1
36	1966	CONC.	1	1	1	1	1	1	1
37	1966	CONC.	1	1	1	1	1	1	1
38	1966	CONC.	1	1	1	1	1	1	1
39	1966	CONC.	1	1	1	1	1	1	1
40	1966	CONC.	1	1	1	1	1	1	1
41	1966	CONC.	1	1	1	1	1	1	1
42	1966	CONC.	1	1	1	1	1	1	1
43	1966	CONC.	1	1	1	1	1	1	1
44	1966	CONC.	1	1	1	1	1	1	1
45	1966	CONC.	1	1	1	1	1	1	1
46	1966	CONC.	1	1	1	1	1	1	1
47	1966	CONC.	1	1	1	1	1	1	1
48	1966	CONC.	1	1	1	1	1	1	1
49	1966	CONC.	1	1	1	1	1	1	1
50	1966	CONC.	1	1	1	1	1	1	1
51	1966	CONC.	1	1	1	1	1	1	1
52	1966	CONC.	1	1	1	1	1	1	1
53	1966	CONC.	1	1	1	1	1	1	1
54	1966	CONC.	1	1	1	1	1	1	1
55	1966	CONC.	1	1	1	1	1	1	1
56	1966	CONC.	1	1	1	1	1	1	1
57	1966	CONC.	1	1	1	1	1	1	1
58	1966	CONC.	1	1	1	1	1	1	1
59	1966	CONC.	1	1	1	1	1	1	1
60	1966	CONC.	1	1	1	1	1	1	1
61	1966	CONC.	1	1	1	1	1	1	1
62	1966	CONC.	1	1	1	1	1	1	1
63	1966	CONC.	1	1	1	1	1	1	1
64	1966	CONC.	1	1	1	1	1	1	1
65	1966	CONC.	1	1	1	1	1	1	1
66	1966	CONC.	1	1	1	1	1	1	1
67	1966	CONC.	1	1	1	1	1	1	1
68	1966	CONC.	1	1	1	1	1	1	1
69	1966	CONC.	1	1	1	1	1	1	1
70	1966	CONC.	1	1	1	1	1	1	1
71	1966	CONC.	1	1	1	1	1	1	1
72	1966	CONC.	1	1	1	1	1	1	1
73	1966	CONC.	1	1	1	1	1	1	1
74	1966	CONC.	1	1	1	1	1	1	1
75	1966	CONC.	1	1	1	1	1	1	1
76	1966	CONC.	1	1	1	1	1	1	1
77	1966	CONC.	1	1	1	1	1	1	1
78	1966	CONC.	1	1	1	1	1	1	1
79	1966	CONC.	1	1	1	1	1	1	1
80	1966	CONC.	1	1	1	1	1	1	1
81	1966	CONC.	1	1	1	1	1	1	1
82	1966	CONC.	1	1	1	1	1	1	1
83	1966	CONC.	1	1	1	1	1	1	1
84	1966	CONC.	1	1	1	1	1	1	1
85	1966	CONC.	1	1	1	1	1	1	1
86	1966	CONC.	1	1	1	1	1	1	1
87	1966	CONC.	1	1	1	1	1	1	1
88	1966	CONC.	1	1	1	1	1	1	1
89	1966	CONC.	1	1	1	1	1	1	1
90	1966	CONC.	1	1	1	1	1	1	1
91	1966	CONC.	1	1	1	1	1	1	1
92	1966	CONC.	1	1	1	1	1	1	1
93	1966	CONC.	1	1	1	1	1	1	1
94	1966	CONC.	1	1	1	1	1	1	1
95	1966	CONC.	1	1	1	1	1	1	1
96	1966	CONC.	1	1	1	1	1	1	1
97	1966	CONC.	1	1	1	1	1	1	1
98	1966	CONC.	1	1	1	1	1	1	1
99	1966	CONC.	1	1	1	1	1	1	1
100	1966	CONC.	1	1	1	1	1	1	1

3. COMPUTATION OF IMPROVEMENT VALUE

4. ADJUSTMENTS

5. FINISH RECORD

6. CODE

7. USE

8. ACN

9. INST.

10. DATE

11. RECORD BY

12. ZONE

13. MAP

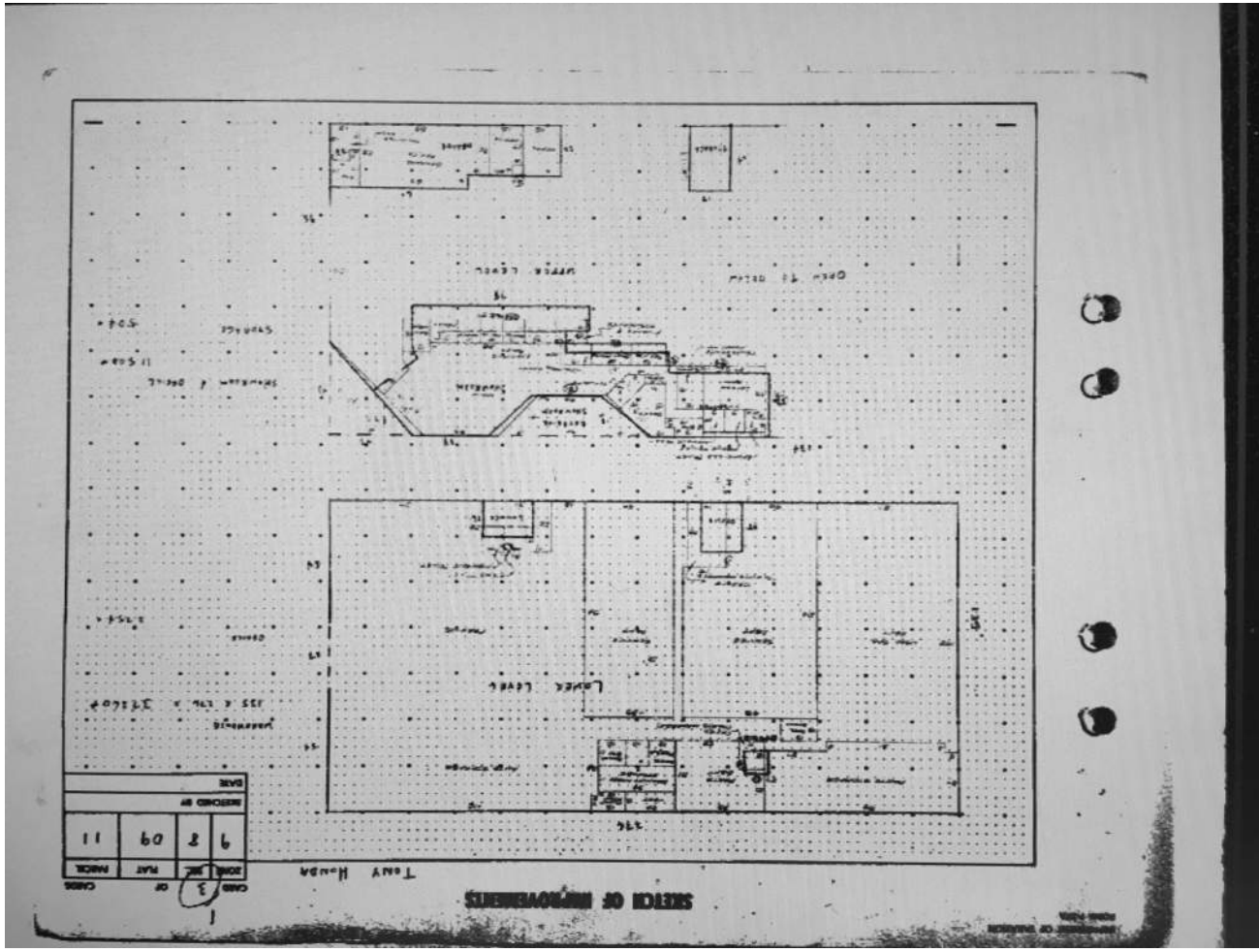
14. PARCEL

15. CARDS

16. TONY HUDON

17. SHEET NO. 3

18. SECTION OF IMPROVEMENTS



COMMERCIAL & INDUSTRIAL APPRAISAL CARD

DEPARTMENT OF REVENUE

FORM 100 (1-67)

1. DESIGNATION	100	2. BLDG. PERMIT RECORD	1976 - 1977	3. ADOT. LISTS	1976	4. AREA	1976	5. VALUE	1976
6. USE	IND. <input type="checkbox"/> RES. <input type="checkbox"/>	7. USE	IND. <input type="checkbox"/> RES. <input type="checkbox"/>	8. CODE	4	9. REMARKS	SALES TAX 100.00		
10. FOUNDATION	CONCRETE <input type="checkbox"/> BRICK <input type="checkbox"/> OTHER <input type="checkbox"/>	11. UNITS AND ROOMS	NO. OF UNITS <input type="checkbox"/> NO. OF ROOMS <input type="checkbox"/>	12. ROOF STRUCTURE	FLAT <input type="checkbox"/> GABLE <input type="checkbox"/> OTHER <input type="checkbox"/>	13. ROOF DESIGN	SHED <input type="checkbox"/> GABLE <input type="checkbox"/> OTHER <input type="checkbox"/>	14. ROOF FINISH	ASPH. <input type="checkbox"/> CORR. <input type="checkbox"/> OTHER <input type="checkbox"/>
15. CEILING	PLASTER <input type="checkbox"/> LATH & PLASTER <input type="checkbox"/> OTHER <input type="checkbox"/>	16. EXTERIOR WALLS	STUCCO <input type="checkbox"/> BRICK <input type="checkbox"/> OTHER <input type="checkbox"/>	17. ELECTRICAL	WIRING <input type="checkbox"/> SWITCHES <input type="checkbox"/> OTHER <input type="checkbox"/>	18. FLOOR DET.	WOOD <input type="checkbox"/> CONCRETE <input type="checkbox"/> OTHER <input type="checkbox"/>	19. FLOOR FINISH	WOOD <input type="checkbox"/> CONCRETE <input type="checkbox"/> OTHER <input type="checkbox"/>

DESCRIPTION OF IMPROVEMENTS

Blk-A - Front 1st Floor

SALES TAX 100.000000

9. USE TYPE	IND. <input type="checkbox"/> RES. <input type="checkbox"/>	10. CONSTRUCTION	WOOD FRAME <input type="checkbox"/> BRICK FRAME <input type="checkbox"/> OTHER <input type="checkbox"/>	11. UNITS AND ROOMS	NO. OF UNITS <input type="checkbox"/> NO. OF ROOMS <input type="checkbox"/>	12. FOUNDATION	CONCRETE <input type="checkbox"/> BRICK <input type="checkbox"/> OTHER <input type="checkbox"/>	13. FLOORS	WOOD <input type="checkbox"/> CONCRETE <input type="checkbox"/> OTHER <input type="checkbox"/>
14. EXTERIOR WALLS	STUCCO <input type="checkbox"/> BRICK <input type="checkbox"/> OTHER <input type="checkbox"/>	15. CEILING	PLASTER <input type="checkbox"/> LATH & PLASTER <input type="checkbox"/> OTHER <input type="checkbox"/>	16. EXTERIOR WALLS	STUCCO <input type="checkbox"/> BRICK <input type="checkbox"/> OTHER <input type="checkbox"/>	17. ELECTRICAL	WIRING <input type="checkbox"/> SWITCHES <input type="checkbox"/> OTHER <input type="checkbox"/>	18. FLOOR DET.	WOOD <input type="checkbox"/> CONCRETE <input type="checkbox"/> OTHER <input type="checkbox"/>
19. FLOOR FINISH	WOOD <input type="checkbox"/> CONCRETE <input type="checkbox"/> OTHER <input type="checkbox"/>	20. NETWORK	WIRE <input type="checkbox"/> CABLE <input type="checkbox"/> OTHER <input type="checkbox"/>	21. REMARKS	REPAIR WORK	22. ADOT. FLOOR DET.	WOOD <input type="checkbox"/> CONCRETE <input type="checkbox"/> OTHER <input type="checkbox"/>	23. CLASSIFICATION	IND. <input type="checkbox"/> RES. <input type="checkbox"/>
24. PLUMBING	COPPER <input type="checkbox"/> GALV. <input type="checkbox"/> OTHER <input type="checkbox"/>	25. ADOT. WPT DETAILS	NO. OF UNITS <input type="checkbox"/> NO. OF ROOMS <input type="checkbox"/>	26. ADOT. WPT DETAILS	NO. OF UNITS <input type="checkbox"/> NO. OF ROOMS <input type="checkbox"/>	27. ADOT. WPT DETAILS	NO. OF UNITS <input type="checkbox"/> NO. OF ROOMS <input type="checkbox"/>	28. ADOT. WPT DETAILS	NO. OF UNITS <input type="checkbox"/> NO. OF ROOMS <input type="checkbox"/>

RECEPTION OF IMPROVEMENTS

9. USE TYPE DRINK <input type="checkbox"/> WATER <input type="checkbox"/> WASTING <input type="checkbox"/> LAUNDRY <input type="checkbox"/> BATH <input type="checkbox"/> OTHER <input type="checkbox"/>		15. CEILING PLASTER <input type="checkbox"/> GYP. <input type="checkbox"/> CORR. <input type="checkbox"/>		16. ROOF STRUCTURE CORR. <input type="checkbox"/> GYP. <input type="checkbox"/> CORR. <input type="checkbox"/>		17. ROOF DESIGN CORR. <input type="checkbox"/> GYP. <input type="checkbox"/> CORR. <input type="checkbox"/>		18. ROOMING CORR. <input type="checkbox"/> GYP. <input type="checkbox"/> CORR. <input type="checkbox"/>		19. INTERIOR FINISH CORR. <input type="checkbox"/> GYP. <input type="checkbox"/> CORR. <input type="checkbox"/>		20. MILLWORK CORR. <input type="checkbox"/> GYP. <input type="checkbox"/> CORR. <input type="checkbox"/>		26. PLUMBING CORR. <input type="checkbox"/> GYP. <input type="checkbox"/> CORR. <input type="checkbox"/>		27. ADPT. WPT. DETAILS CORR. <input type="checkbox"/> GYP. <input type="checkbox"/> CORR. <input type="checkbox"/>		28. ADPT. WPT. DETAILS CORR. <input type="checkbox"/> GYP. <input type="checkbox"/> CORR. <input type="checkbox"/>		29. CLASSIFICATION CORR. <input type="checkbox"/> GYP. <input type="checkbox"/> CORR. <input type="checkbox"/>		30. ADPT. WPT. DETAILS CORR. <input type="checkbox"/> GYP. <input type="checkbox"/> CORR. <input type="checkbox"/>	
11. UNITS AND ROOMS NO. OF UNITS _____ NO. OF ROOMS _____		12. FOUNDATION CORR. <input type="checkbox"/> GYP. <input type="checkbox"/> CORR. <input type="checkbox"/>		13. FLOORS CORR. <input type="checkbox"/> GYP. <input type="checkbox"/> CORR. <input type="checkbox"/>		14. EXTERIOR WALLS CORR. <input type="checkbox"/> GYP. <input type="checkbox"/> CORR. <input type="checkbox"/>		21. ELECTRICAL CORR. <input type="checkbox"/> GYP. <input type="checkbox"/> CORR. <input type="checkbox"/>		22. ADPT. FLOOR DET. CORR. <input type="checkbox"/> GYP. <input type="checkbox"/> CORR. <input type="checkbox"/>		23. REMARKS CORR. <input type="checkbox"/> GYP. <input type="checkbox"/> CORR. <input type="checkbox"/>		24. CONDITION CORR. <input type="checkbox"/> GYP. <input type="checkbox"/> CORR. <input type="checkbox"/>		25. CLASSIFICATION CORR. <input type="checkbox"/> GYP. <input type="checkbox"/> CORR. <input type="checkbox"/>		26. PLUMBING CORR. <input type="checkbox"/> GYP. <input type="checkbox"/> CORR. <input type="checkbox"/>		27. ADPT. WPT. DETAILS CORR. <input type="checkbox"/> GYP. <input type="checkbox"/> CORR. <input type="checkbox"/>		28. ADPT. WPT. DETAILS CORR. <input type="checkbox"/> GYP. <input type="checkbox"/> CORR. <input type="checkbox"/>	



CARDS
 ZONE SEC. PLAT. PARCEL
 11 60 8 6
 11 60 11



REGULATORY RECORDS
DOCUMENTATION

98-51 KAMEHAMEHA HWY
98-51 KAMEHAMEHA HWY
AIEA, HI 96701

Inquiry Number: 5756722.2s
August 16, 2019

The EDR Radius Map™ Report with GeoCheck®



6 Armstrong Road, 4th floor
Aiea, HI 96701
Toll Free: 800.352.0050
www.edrmet.com

FORM-LBDOCA

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

98-51 KAMEHAMEHA HWY
AIEA, HI 96701

COORDINATES

Latitude (North): 21° 23' 3.41"
Longitude (West): 157° 56' 56.88"
Universal Transverse Mercator: Zone 4
UTM X (Meters): 608939.3
UTM Y (Meters): 2364903.2
Elevation: 16 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map: 5941089 WAIPAHAU, HI
Version Date: 2013
South Map: 5941087 PEARL HARBOR, HI
Version Date: 2013

MAPPED SITES SUMMARY

Target Property Address:
98-51 KAMEHAMEHA HWY
AIEA, HI 96701

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIRECTION	DIST (ft. & mi.)
Reg	FORD ISLAND NAVAL ST		DOD	Same		3033, 0.574, South
Reg	PEARL HARBOR NAVAL S		DOD	Same		3630, 0.668, West
Reg	PEARL HARBOR NAVAL C	US NAVAL COMMAND	NPL, SEMS, US ENG CONTROLS, US INST CONTROL, ROD...	Same		4681, 0.883, ESE
A1	VOLVO HAWAII	98-075 KAMEHAMEHA HW	HI RGA LUST	Lower		1 ft.
B2	PACIFIC OLDSMOBILE G	98 055 KAM HWY	RCRA-CESQG, FINDS, ECHO	Higher		1 ft.
A3	CONTINENTAL INVESTME	98-069 KAMEHAMEHA HW	HI LUST	Higher		1 ft.
A4	VOLVO HAWAII	98-075 KAMEHAMEHA HW	HI LUST, HI LUST	Lower		1 ft.
A5	ARMY HAWAII RESIDENT		FINDS	Lower		1 ft.
B6	TONY HONDA PEARLRIDG	98-055 KAMEHAMEHA HW	HI LUST, HI LUST, HI Financial Assurance	Higher		9, 0.002, ENE
A7	ALOHA PETROLEUM: YUN	98-135 KAMEHAMEHA HW	RCRA-CESQG	Lower		17, 0.003, ESE
A8	SHELL SERVICE STATIO	98-080 KAMEHAMEHA HW	RCRA NonGen / NLR	Lower		17, 0.003, ESE
B9	TONY HONDA PEARLRIDG	98051 KAMEHAMEHA HWY	RCRA-CESQG, FINDS, ECHO	Lower		28, 0.005, NNW
A10	JIM SLEMONS VOLVO HI	98 075 KAM HWY	RCRA NonGen / NLR	Higher		63, 0.012, ESE
A11	ASSOCIATED STEEL WOR	98-085 KAMEHAMEHA HW	HI LUST, HI LUST	Higher		72, 0.014, ESE
A12	SHELL SERVICE STATIO	98-080 KAMEHAMEHA HW	HI SHWS, HI LUST, HI LUST, HI SPILLS, HI Financial...	Higher		91, 0.017, East
A13	AIEA CUE (FORMERLY P	98-064 KAMEHAMEHA HW	HI LUST, HI LUST, HI SPILLS, HI LUC	Higher		93, 0.018, East
14	FARM PROPERTY	98-87 KAMEHAMEHA HIG	US BROWNFIELDS	Lower		117, 0.022, SE
B15	WAIMALU CHEYRON SERV	98-104 KANUKU ST	HI LUST	Higher		171, 0.032, NNE
16	HEALANI LAND COMPANY	98-55 KAMEHAMEHA HIG	US BROWNFIELDS	Lower		251, 0.048, South
C17	NATIONAL TIRE OF HAW	98-115 KAMEHAMEHA HW	EDR Hist Auto	Lower		420, 0.080, ESE
18	HAWAII BAKING CO INC	98 736 MOANALUA LOOP	RCRA-CESQG, HI SHWS, HI LUST, HI LUST, HI SPILLS...	Higher		443, 0.084, ENE
D19	PEERLESS ROOFING COM	98-021 KAMEHAMEHA HW	HI LUST, HI LUST, HI Financial Assurance	Lower		446, 0.084, WNW
D20	AUTO REPAIR OF HAWAI	98 019 KAM HWY	RCRA-CESQG, FINDS, ECHO	Lower		471, 0.089, NW
C21	IES RETAIL AIEA	98-121 KAMEHAMEHA HW	HI LUST, HI Financial Assurance	Lower		521, 0.099, ESE
22	HI-GRADE PLUMBING, I	98-121 LIPOA PL	HI SHWS, HI LUST, HI LUST, HI ENG CONTROLS, HI INST...	Lower		535, 0.101, SE
D23	CUTTER FORD ISUZU	98 015 KAM HWY	RCRA-CESQG, HI LUST, HI LUST, HI LUST, HI LUST, HI LUST...	Lower		602, 0.114, WNW
C24	SHELL SERVICE STATIO	98-003 FARRINGTON HW	RCRA NonGen / NLR, FINDS, ECHO	Lower		699, 0.132, ESE
25	HI-GRADE PLUMBING	98-151 LIPOA PL	HI SHWS, HI LUST, HI LUST, HI ENG CONTROLS, HI INST...	Lower		887, 0.168, SE
26	EQUIPMENT YARD	98-155 KAMEHAMEHA HW	HI LUST	Lower		1015, 0.192, ESE
27	WAIU DRUM STORAGE		FUDS	Lower		1067, 0.202, West
28	WAIMALU WPPS	245 KAMEHAMEHA HWY	HI LUST, HI Financial Assurance	Lower		1183, 0.226, WNW
29	OLEPE LOOP STORM DRA	98-152 OLEPE LP	HI LUST, HI LUST, HI Financial Assurance	Lower		1288, 0.240, NW
E30	SEARS ROEBUCK & CO	98-180 KAMEHAMEHA HW	HI LUST, HI LUST, HI Financial Assurance	Lower		1442, 0.273, ESE
E31	MAHALO EXPRESS PEARL	98-189 KAMEHAMEHA HW	HI LUST, HI LUST, HI Financial Assurance	Lower		1588, 0.301, ESE
32	HECO TRANSFORMER 520	98-199 KAMEHAMEHA HW	HI SHWS, HI SPILLS	Lower		1761, 0.334, ESE
33	HALAWA MEDIUM SECURI	99-902 MOANALUA HWY	HI LUST, HI LUST	Higher		1869, 0.354, NE
34	PEARL CITY SELF STOR	98-138 HILA PLACE	HI LUST, HI LUST	Higher		1984, 0.376, WNW
35	WAIMALU 767-ELEVEN	98-1277 KAAHUMANU ST	HI LUST, HI LUST, HI SPILLS, HI Financial Assurance	Higher		2089, 0.396, NW
36	PEARLRIDGE SHOPPING	98-1005 MOANALUA RD	HI SHWS, HI SPILLS	Higher		2204, 0.417, ENE

MAPPED SITES SUMMARY

Target Property Address:
98-51 KAMEHAMEHA HWY
AIEA, HI 96701

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIRECTION	DIST (ft. & mi.)
37	J C PENNEY CO., INC.	98-1025 MOANALUA RD	HI LUST, HI UST	Higher	2569, 0.487, East	
38	406 KAMEHAMEHA HIGHW	406 KAMEHAMEHA HWY	HI SHWS	Higher	2702, 0.512, WNW	
39	AIEA MILITARY RESERV		FUDS	Lower	4236, 0.802, ESE	
F40	HECO GENERATING STAT	475 KAMEHAMEHA HWY	HI SHWS	Higher	4515, 0.855, WNW	
F41	HECO WAI'AU GENERATIN	475 KAMEHAMEHA HWY	HI SHWS	Higher	4515, 0.855, WNW	
F42	HECO WAI'AU GENERATIN	475 KAMEHAMEHA HWY	HI SHWS	Higher	4515, 0.855, WNW	
F43	HAWAIIAN ELECTRIC. -	475 KAMEHAMEHA HIGHW	SEMS-ARCHIVE, CORRACTS, RCRA-TSDF, RCRA-SQG, 2020	Higher	4515, 0.855, WNW	

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

Proposed NPL..... Proposed National Priority List Sites
NPL LIENS..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL..... National Priority List Deletions

Federal CERCLIS list

FEDERAL FACILITY..... Federal Facility Site Information listing

Federal RCRA generators list

RCRA-LOG..... RCRA - Large Quantity Generators

Federal institutional controls / engineering controls registries

LUCIS..... Land Use Control Information System

Federal ERNS list

ERNS..... Emergency Response Notification System

State and tribal landfill and/or solid waste disposal site lists

HI SWF/LF..... Permitted Landfills in the State of Hawaii

State and tribal leaking storage tank lists

INDIAN LUST..... Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

FEIMA UST..... Underground Storage Tank Listing
INDIAN UST..... Underground Storage Tanks on Indian Land

EXECUTIVE SUMMARY

State and tribal voluntary cleanup sites

HI VCP Voluntary Response Program Sites
INDIAN VCP Voluntary Cleanup Priority Listing

State and tribal Brownfields sites

HI BROWNFIELDS Brownfields Sites

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Landfill / Solid Waste Disposal Sites

INDIAN ODI Report on the Status of Open Dumps on Indian Lands
DEBRIS REGION 9 Torres Martinez Reservation Illegal Dump Site Locations
ODI Open Dump Inventory
IHS OPEN DUMPS Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL Delisted National Clandestine Laboratory Register
HI CDL Clandestine Drug Lab Listing
US CDL National Clandestine Laboratory Register

Local Land Records

LIENS 2 CERCLA Lien Information

Records of Emergency Release Reports

HMIRS Hazardous Materials Information Reporting System
HI SPILLS 90 SPILLS 90 data from FirstSearch

Other Ascertainable Records

SCRD DRYCLEANERS State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR Financial Assurance Information
EPA WATCH LIST EPA WATCH LIST
TSCA Toxic Substances Control Act
TRIS Toxic Chemical Release Inventory System
SSTS Section 7 Tracking Systems
RMP Risk Management Plans
RAATS RCRA Administrative Action Tracking System
PADS PCB Activity Database System
ICIS Integrated Compliance Information System
FTTS FIFRA/TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS Material Licensing Tracking System
COAL ASH DOE Steam-Electric Plant Operation Data
COAL ASH EPA Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER PCB Transformer Registration Database
RADINFO Radiation Information Database
HIST FTTS FIFRA/TSCA Tracking System Administrative Case Listing

EXECUTIVE SUMMARY

DOT OPS Incident and Accident Data
CONSENT Superfund (CERCLA) Consent Decreases
INDIAN RESERV Indian Reservations
FUSRAP Formerly Utilized Sites Remedial Action Program
UMTRA Uranium Mill Tailings Sites
LEAD SMELTERS Lead Smelter Sites
US AIRS Aromatic Information Retrieval System Facility Subsystem
US MINES Mines Master Index File
ABANDONED MINES Abandoned Mines
UXO Unexploded Ordnance Sites
DOCKET HWC Hazardous Waste Compliance Docket Listing
FUELS PROGRAM EPA Fuels Program Registered Listing
HI AIRS List of Permitted Facilities
HI DRYCLEANERS Permitted Drycleaner Facility Listing
HI LEAD LEAD

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP EDR Proprietary/Manufactured Gas Plants
EDR Hist Cleaner EDR Exclusive Historical Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

HI RGA HWS Recovered Government Archive State Hazardous Waste Facilities List
HI RGA LF Recovered Government Archive Solid Waste Facilities List

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property. Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in **bold italics** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: Also known as Superfund, the National Priority List database is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund program. The source of this database is the U.S. EPA.

A review of the NPL list, as provided by EDR, and dated 04/11/2019 has revealed that there is 1 NPL

EXECUTIVE SUMMARY

site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
PEARL HARBOR NAVAL C Cerclis ID: 904481 EPA id: HI4170090076	US NAVAL COMMAND	ESE 1/2 - 1 (0.883 mi.)	0	8

Federal RCRA CORRACTS facilities list

CORRACTS: CORRACTS is a list of handlers with RCRA Corrective Action Activity. This report shows which nationally-defined corrective action core events have occurred for every handler that has had corrective action activity.

A review of the CORRACTS list, as provided by EDR, and dated 03/25/2019 has revealed that there is 1 CORRACTS site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
HAWAIIAN ELECTRIC - EPA ID: HIT0000610873	475 KAMEHAMEHA HIGHW	WNW 1/2 - 1 (0.855 mi.)	F43	124

Federal RCRA generators list

RCRA-CESQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

A review of the RCRA-CESQG list, as provided by EDR, and dated 03/25/2019 has revealed that there are 6 RCRA-CESQG sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
PACIFIC OLDSMOBILE G EPA ID: HID92437659	98 055 KAM HIWY	0 - 1/8 (0.000 mi.)	B2	50
HAWAII/BAKING CO INC EPA ID: HID984470013	98 736 MOANALUA LOOP	ENE 0 - 1/8 (0.084 mi.)	18	77

Lower Elevation

Address	Direction / Distance	Map ID	Page
ALOHA PETROLEUM: YUN EPA ID: HIR000110874	ENE 0 - 1/8 (0.003 mi.)	A7	55
TONY HONDA PEARLRIDG EPA ID: HID981638059	NNW 0 - 1/8 (0.005 mi.)	B9	58
AUTO REPAIR OF HAWAI EPA ID: HID981628035	NW 0 - 1/8 (0.089 mi.)	D20	85
CUTTER FORD ISUZU	WNW 0 - 1/8 (0.114 mi.)	D23	91

EXECUTIVE SUMMARY

EPA ID: HID981626534

State- and tribal - equivalent CERCLIS

HI SHWS: The State Hazardous Waste Sites records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. The data come from the Department of Health.

A review of the HI SHWS list, as provided by EDR, and dated 04/17/2019 has revealed that there are 10 HI SHWS sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
SHELL SERVICE STATO	98-080 KAMEHAMEHA HW	E 0 - 1/8 (0.017 mi.)	A12	62
HAWAII/BAKING CO INC	98 736 MOANALUA LOOP	ENE 0 - 1/8 (0.084 mi.)	18	77
PEARLRIDGE SHOPPING	98-7005 MOANALUA RD	ENE 1/4 - 1/2 (0.417 mi.)	36	117
408 KAMEHAMEHA HIGHW	NNW 1/2 - 1 (0.512 mi.)		38	120
HECO GENERATING STAT	475 KAMEHAMEHA HWY	WNW 1/2 - 1 (0.855 mi.)	F40	122
HECO WAAIU GENERATIN	475 KAMEHAMEHA HWY	WNW 1/2 - 1 (0.855 mi.)	F41	122
HECO WAAIU GENERATIN	475 KAMEHAMEHA HWY	WNW 1/2 - 1 (0.855 mi.)	F42	123

Lower Elevation	Address	Direction / Distance	Map ID	Page
HI-GRADE PLUMBING, I	98-121 LIPOA PL	SE 0 - 1/8 (0.101 mi.)	22	90
HI-GRADE PLUMBING	98-151 LIPOA PL	SE 1/8 - 1/4 (0.168 mi.)	25	96
HECO TRANSFORMER 520	98-199 KAMEHAMEHA HW	ESE 1/4 - 1/2 (0.334 mi.)	32	103

State and tribal leaking storage tank lists

HI LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the Department of Health's Active Leaking Underground Storage Tank Log Listing.

A review of the HI LUST list, as provided by EDR, and dated 03/01/2019 has revealed that there are 17 HI LUST sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
TONY HONDA PEARLRIDG Release ID: 990072 Facility id: 9-201475 Facility Status: Site Cleanup Completed (NFA)	98-055 KAMEHAMEHA HW	ENE 0 - 1/8 (0.002 mi.)	B6	54
ASSOCIATED STEEL WOR Release ID: 030006 Facility id: 9-202700 Facility Status: Site Cleanup Completed (NFA)	98-085 KAMEHAMEHA HW	ESE 0 - 1/8 (0.014 mi.)	A11	62
SHELL SERVICE STATO Release ID: 030026 Release ID: 870003 Release ID: 030025	98-080 KAMEHAMEHA HW	E 0 - 1/8 (0.017 mi.)	A12	62

EXECUTIVE SUMMARY

Facility Id: 9-201889 Facility Status: Site Cleanup Completed (NFA) AIEA CUE (FORMERLY P) Release ID: 930136 Facility Id: 9-200293 Facility Status: Site Cleanup Completed (NFA) HAWAII BAKING CO INC Release ID: 900157 Facility Id: 9-200230 Facility Status: Site Cleanup Completed (NFA) HALAWA MEDIUM SECURI Release ID: 990204 Release ID: 000091 Release ID: 860020 Facility Id: 9-202153 Facility Id: 9-202399 Facility Status: Site Cleanup Completed (NFA) PEARL CITY SELF STOR Release ID: 050001 Facility Id: 9-203788 Facility Status: Site Cleanup Completed (NFA) WAIMALU 767-ELEVEN Release ID: 090007 Release ID: 950123 Release ID: 960086 Facility Id: 9-200921 Facility Id: 9-201535 Facility Status: Site Cleanup Completed (NFA) J C PENNEY CO, INC. Release ID: 010044 Facility Id: 9-201541 Facility Status: Site Cleanup Completed with EHE/EHMP	98-064 KAMEHAMEHA HW E 0 - 1/8 (0.016 mi.)	A13	66	
98-736 MOANALUA LOOP Release ID: 900230 Facility Status: Site Cleanup Completed (NFA) 98-902 MOANALUA HWY Release ID: 990204 Release ID: 000091 Release ID: 860020 Facility Id: 9-202153 Facility Id: 9-202399 Facility Status: Site Cleanup Completed (NFA) 98-138 HILA PLACE Release ID: 050001 Facility Id: 9-203788 Facility Status: Site Cleanup Completed (NFA) 98-1277 KAHUMANU ST Release ID: 090007 Release ID: 950123 Release ID: 960086 Facility Id: 9-200921 Facility Id: 9-201535 Facility Status: Site Cleanup Completed (NFA) 98-1025 MOANALUA RD Release ID: 010044 Facility Id: 9-201541 Facility Status: Site Cleanup Completed with EHE/EHMP	ENE 0 - 1/8 (0.084 mi.) NE 1/4 - 1/2 (0.354 mi.) WNW 1/4 - 1/2 (0.376 mi.) WNW 1/4 - 1/2 (0.396 mi.) E 1/4 - 1/2 (0.487 mi.)	18 33 34 35 37	77 106 108 108 119	
Lower Elevation	Address	Direction / Distance	Map ID	Page
VOLVO HAWAII Release ID: 960257 Facility Id: 9-200359 Facility Status: Site Cleanup Completed (NFA) PEERLESS ROOFING COM Release ID: 930115 Facility Id: 9-201476 Facility Id: 9-202211 Facility Status: Site Cleanup Completed (NFA) HIGRADE PLUMBING, I Release ID: 020014 Facility Id: 9-201529 Facility Status: Site Cleanup Completed (NFA) CUTTER FORD ISUZU Release ID: 970104 Release ID: 920190	98-075 KAMEHAMEHA HW 98-021 KAMEHAMEHA HW 98-121 LIPOA PL 98 015 KAM HWY	0 - 1/8 (0.000 mi.) WNW 0 - 1/8 (0.084 mi.) SE 0 - 1/8 (0.101 mi.) WNW 0 - 1/8 (0.114 mi.)	A4 D19 22 D23	52 83 90 91

EXECUTIVE SUMMARY

Facility Id: 9-200188 Facility Status: Site Cleanup Completed (NFA) HIGRADE PLUMBING Release ID: 910080 Facility Id: 9-201389 Facility Status: Site Cleanup Completed (NFA) OLEPE LOOP-STORM DRA Release ID: 970079 Facility Id: 9-200143 Facility Status: Site Cleanup Completed (NFA) SEARS ROEBUCK & CO Release ID: 940047 Facility Id: 9-201636 Facility Status: Remedy Decision Pending (ongoing monitoring) MAHALO EXPRESS PEARL Release ID: 960080 Facility Id: 9-201723 Facility Status: Site Cleanup Completed (NFA)	98-151 LIPOA PL SE 1/8 - 1/4 (0.168 mi.)	25	96	
98-152 OLEPE LP Release ID: 970079 Facility Id: 9-200143 Facility Status: Site Cleanup Completed (NFA) 98-169 KAMEHAMEHA HW Release ID: 940047 Facility Id: 9-201636 Facility Status: Remedy Decision Pending (ongoing monitoring) 98-189 KAMEHAMEHA HW Release ID: 960080 Facility Id: 9-201723 Facility Status: Site Cleanup Completed (NFA)	NW 1/8 - 1/4 (0.240 mi.) ESE 1/4 - 1/2 (0.273 mi.) ESE 1/4 - 1/2 (0.307 mi.)	29 E30 E31	100 101 102	
State and tribal registered storage tank lists	Address	Direction / Distance	Map ID	Page
CONTINENTAL INVESTME Tank Status: Permanently Out of Use Facility Id: 9-200907 Date Closed: 10/13/1992 TONY HONDA PEARLRIDG Tank Status: Permanently Out of Use Facility Id: 9-201475 Facility Id: 9-202918 Date Closed: 11/21/1998 Date Closed: 02/25/1994 ASSOCIATED STEEL WOR Tank Status: Permanently Out of Use Facility Id: 9-202700 Date Closed: 10/12/1992 SHELL SERVICE STATO Tank Status: Permanently Out of Use Facility Id: 9-201889 Date Closed: 03/25/2003 AIEA CUE (FORMERLY P Tank Status: Permanently Out of Use	98-069 KAMEHAMEHA HW 98-055 KAMEHAMEHA HW 98-085 KAMEHAMEHA HW 98-080 KAMEHAMEHA HW 98-064 KAMEHAMEHA HW	0 - 1/8 (0.000 mi.) ENE 0 - 1/8 (0.002 mi.) ESE 0 - 1/8 (0.014 mi.) E 0 - 1/8 (0.017 mi.) E 0 - 1/8 (0.018 mi.)	A3 B6 A11 A12 A13	52 54 62 62 66

A review of the HI UST list, as provided by EDR, and dated 03/01/2019 has revealed that there are 16 HI UST sites within approximately 0.25 miles of the target property.

State and tribal registered storage tank lists
HI UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the Department of Health's Listing of Underground Storage Tanks.

EXECUTIVE SUMMARY

Facility Id: 9-200293 Date Closed: 08/27/1993 Date Closed: 09/07/1993 WAIMALU CHEVRON SERV Tank Status: Permanently Out of Use Facility Id: 9-201270 Date Closed: 02/16/1989	NNE 0 - 1/8 (0.032 mi.)	B15	73
HAWAII BAKING CO INC Tank Status: Permanently Out of Use Facility Id: 9-200230 Date Closed: 02/09/1999	ENE 0 - 1/8 (0.084 mi.)	18	77
Lower Elevation	Address	Direction / Distance	Map ID
VOLVO HAWAII Tank Status: Permanently Out of Use Facility Id: 9-200356 Date Closed: 09/12/1988	98-075 KAMEHAMEHA HW	0 - 1/8 (0.000 mi.)	A4
PEERLESS ROOFING COM Tank Status: Permanently Out of Use Facility Id: 9-201476 Facility Id: 9-202211 Date Closed: 03/18/1993 Date Closed: 01/18/1993 Date Closed: 02/16/1991 Date Closed: 02/18/1991	98-021 KAMEHAMEHA HW	WNW 0 - 1/8 (0.084 mi.)	D19
IES RETAIL AIEA Tank Status: Currently in Use Facility Id: 9-201226 Date Closed: 10/01/1991	98-121 KAMEHAMEHA HW	ESE 0 - 1/8 (0.099 mi.)	C21
HI-GRADE PLUMBING, I Tank Status: Permanently Out of Use Facility Id: 9-201529 Date Closed: 01/28/2002	98-121 LIPOA PL	SE 0 - 1/8 (0.101 mi.)	22
CUTTER FORD ISUZU Tank Status: Permanently Out of Use Facility Id: 9-200188 Date Closed: 08/14/1992 Date Closed: 08/15/1992	98 015 KAM HWY	WNW 0 - 1/8 (0.114 mi.)	D23
HI-GRADE PLUMBING Tank Status: Permanently Out of Use Facility Id: 9-201389 Date Closed: 07/30/1991	98-151 LIPOA PL	SE 1/8 - 1/4 (0.168 mi.)	25
EQUIPMENT YARD Tank Status: Permanently Out of Use Facility Id: 9-201489	98-155 KAMEHAMEHA HW	ESE 1/8 - 1/4 (0.192 mi.)	26
WAIMALU WWPS Tank Status: Currently in Use Facility Id: 9-201992	245 KAMEHAMEHA HWY	WNW 1/8 - 1/4 (0.226 mi.)	28
OLEPE LOOP STORM DRA	98-155 OLEPE LP	NW 1/8 - 1/4 (0.240 mi.)	29

EXECUTIVE SUMMARY

Tank Status: Currently in Use Tank Status: Permanently Out of Use Facility Id: 9-200143 Date Closed: 04/22/1997			
State and tribal institutional control / engineering control registries			
HI ENG CONTROLS: A listing of sites with engineering controls in place.			
A review of the HI ENG CONTROLS list, as provided by EDR, and dated 04/17/2019 has revealed that there are 2 HI ENG CONTROLS sites within approximately 0.5 miles of the target property.			
Lower Elevation	Address	Direction / Distance	Map ID
HI-GRADE PLUMBING, I	98-121 LIPOA PL	SE 0 - 1/8 (0.101 mi.)	22
HI-GRADE PLUMBING	98-151 LIPOA PL	SE 1/8 - 1/4 (0.168 mi.)	25
			96
Voluntary Remediation Program and Brownfields sites with institutional controls in place.			
A review of the HI INST CONTROL list, as provided by EDR, and dated 04/17/2019 has revealed that there are 2 HI INST CONTROL sites within approximately 0.5 miles of the target property.			
Lower Elevation	Address	Direction / Distance	Map ID
HI-GRADE PLUMBING, I	98-121 LIPOA PL	SE 0 - 1/8 (0.101 mi.)	22
HI-GRADE PLUMBING	98-151 LIPOA PL	SE 1/8 - 1/4 (0.168 mi.)	25
			96

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: The EPA's listing of Brownfields properties from the Cleanups in My Community program, which provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

A review of the US BROWNFIELDS list, as provided by EDR, and dated 12/17/2018 has revealed that there are 2 US BROWNFIELDS sites within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
FARM PROPERTY ACRES property ID: 235226	98-87 KAMEHAMEHA HIG	SE 0 - 1/8 (0.022 mi.)	14	68
HEALANI LAND COMPANY ACRES property ID: 226001	98-55 KAMEHAMEHA HIG	S 0 - 1/8 (0.048 mi.)	16	74

EXECUTIVE SUMMARY

Other Ascertainable Records

RCRA NonGen / NLR: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

A review of the RCRA NonGen / NLR list, as provided by EDR, and dated 03/25/2019 has revealed that there are 3 RCRA NonGen / NLR sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
JIM SLEMONS VOLVO HI EPA ID: H1D982370512	98 075 KAM HWY	ESE 0 - 1/8 (0.012 mi.)	A10	60
Lower Elevation	Address	Direction / Distance	Map ID	Page
SHELL SERVICE STATIO EPA ID: H1R00011708	98-080 KAMEHAMEHA HW	ESE 0 - 1/8 (0.003 mi.)	A8	56
SHELL SERVICE STATIO EPA ID: H1R000116081	86-003 FARRINGTON HW	ESE 1/8 - 1/4 (0.132 mi.)	C24	94

FUDS: The Listing includes locations of Formerly Used Defense Sites Properties where the US Army Corps Of Engineers is actively working or will take necessary cleanup actions.

A review of the FUDS list, as provided by EDR, and dated 03/07/2019 has revealed that there are 2 FUDS sites within approximately 1 mile of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
WAKU DRUM STORAGE AIEA MILITARY RESERV		W 1/8 - 1/4 (0.202 mi.) ESE 1/2 - 1 (0.802 mi.)	27 39	98 121

DOD: Consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

A review of the DOD list, as provided by EDR, and dated 12/31/2005 has revealed that there are 2 DOD sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
FORD ISLAND NAVAL ST PEARL HARBOR NAVAL S		S 1/2 - 1 (0.574 mi.) W 1/2 - 1 (0.688 mi.)	0 0	8 8

ROD: Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid the cleanup.

A review of the ROD list, as provided by EDR, and dated 04/11/2019 has revealed that there is 1 ROD site within approximately 1 mile of the target property.

EXECUTIVE SUMMARY

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
PEARL HARBOR NAVAL C EPA ID: H14170090076	US NAVAL COMMAND	ESE 1/2 - 1 (0.889 mi.)	0	8

FINDS: The Facility Index System contains both facility information and "pointers" to other sources of information that contain more detail. These include: RCRS; Permit Compliance System (PCS); Aromatics Information Retrieval System (AIRS); FATES (FIFRA [Federal Insecticide, Fungicide, Rodenticide Act] and TSCA Enforcement System, FTIS [FIFRA/TSCA Tracking System]; CERCLIS; DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes); Federal Underground Injection Control (FUIS); Federal Reporting Data System (FRDS); Surface Impoundments (SIA); TSCA Chemicals in Commerce Information System (CICS); PAIDS; RCRA-J (medical waste transporters/disposers); TRIS; and TSCA. The source of this database is the U.S. EPA/NTIS.

A review of the FINDS list, as provided by EDR, and dated 02/15/2019 has revealed that there are 2 FINDS sites within approximately 0.001 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
PACIFIC OLDSMOBILE G Registry ID: 11000935942	98 055 KAM HWY	0 - 1/8 (0.000 mi.)	B2	50

Lower Elevation	Address	Direction / Distance	Map ID	Page
ARMY HAWAII RESIDENT Registry ID: 110055400105 Registry ID: 110055400196 Registry ID: 110055400221 Registry ID: 110055125289 Registry ID: 110055125939		0 - 1/8 (0.000 mi.)	A5	53

ECHO: ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

A review of the ECHO list, as provided by EDR, and dated 04/07/2019 has revealed that there is 1 ECHO site within approximately 0.001 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
PACIFIC OLDSMOBILE G Registry ID: 11000935942	98 055 KAM HWY	0 - 1/8 (0.000 mi.)	B2	50

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR Hist Auto: EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include

EXECUTIVE SUMMARY

gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

A review of the EDR Hist Auto list, as provided by EDR, has revealed that there is 1 EDR Hist Auto site within approximately 0.125 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
NATIONAL TIRE OF HAW	98-115 KAMEHAMEHA HW	ESE 0 - 1/8 (0.080 mi.)	C17	77

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

HI RGA LUST: The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Health in Hawaii.

A review of the HI RGA LUST list, as provided by EDR, has revealed that there is 1 HI RGA LUST site within approximately 0.001 miles of the target property.

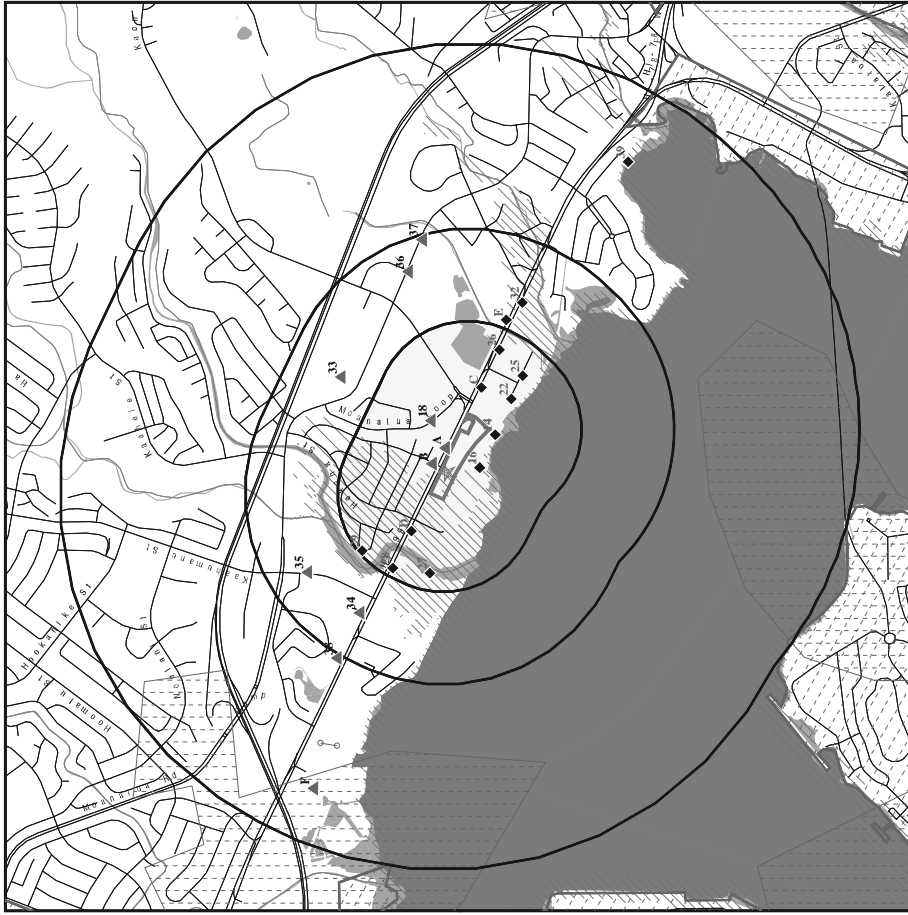
Lower Elevation	Address	Direction / Distance	Map ID	Page
VOLVO HAWAII Facility ID: 9-200359	98-075 KAMEHAMEHA HW	0 - 1/8 (0.000 mi.)	A1	49

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 11 records.

Site Name	Database(s)
SEARS PEARLRIDGE #1578 ELEVATOR JA	HI SHWS, HI ENG CONTROLS, HI INST CONTROL
HONOLULU TRANSIT-ORIENTED DEVELOPM	HI SHWS, HI BROWNFIELDS
HICKAM POL ST20, SPILL SITE ST20	HI SHWS
SEARS PEARLRIDGE #1578 HYDRAULIC H	HI SHWS
HICKAM POL ST08, SPILL SITE ST08	HI SHWS
98-55 KAMEHAMEHA HIGHWAY	HI SHWS
HICKAM POL ST11, SPILL SITE ST11	HI SHWS
HICKAM POL ST15, SPILL SITE ST15	HI SHWS
HICKAM POL ST16, SPILL SITE ST16	HI SHWS, HI INST CONTROL
CHEVRON'S PIPELINE OIL SPILL AT WA	HI LUST, HI UST, HI Financial Assurance
PEARL CITY SHELL	

OVERVIEW MAP - 5756722.2S



- ▲ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- ▲ Power transmission lines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands

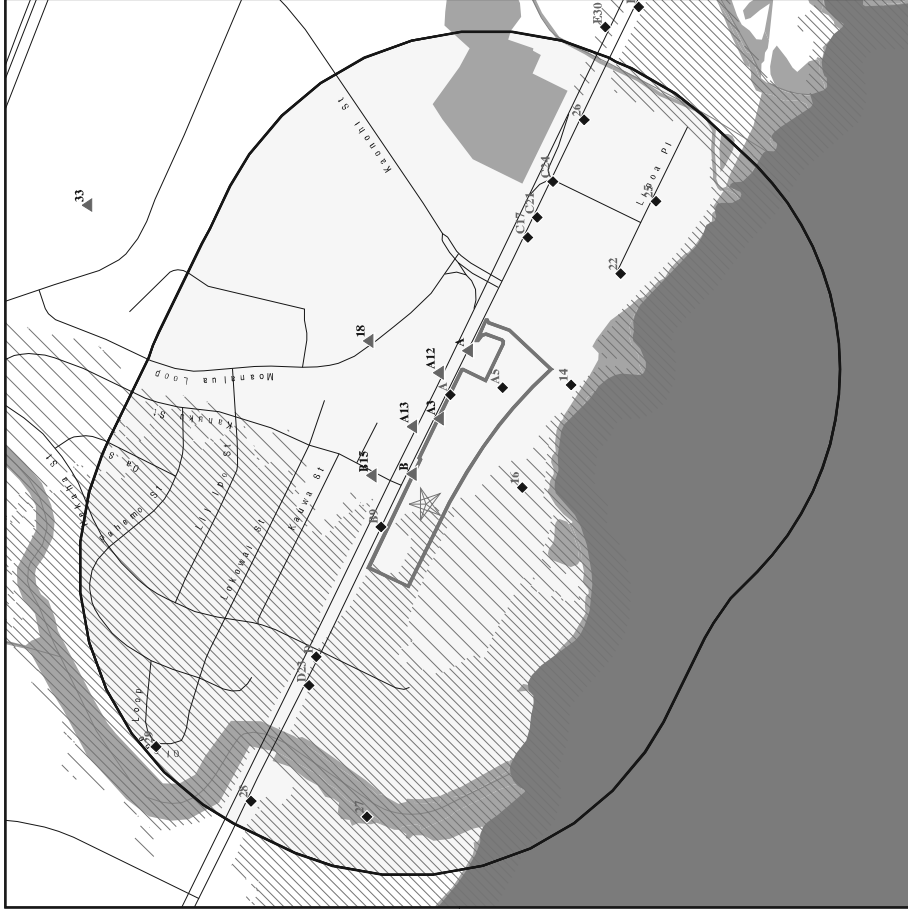
This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: 98-51 KAMEHAMEHA HWY
 ADDRESS: 98-51 KAMEHAMEHA HWY
 AIEA HI 96701
 LAT/LONG: 21.364281 / 157.949136

CLIENT: ENPRO, Env. Professionals
 CONTACT: Shawn Champion
 INQUIRY #: 5756722.2S
 DATE: August 16, 2019 7:45 pm

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DETAIL MAP - 5756722.2S



- ▲ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: 98-51 KAMEHAMEHA HWY
 ADDRESS: 98-51 KAMEHAMEHA HWY
 AIEA HI 96701
 LAT/LONG: 21.364281 / 157.949136

CLIENT: ENPRO, Env. Professionals
 CONTACT: Shawn Champion
 INQUIRY #: 5756722.2S
 DATE: August 16, 2019 7:45 pm

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
<i>Federal NPL site list</i>								
NPL	1,000		0	0	0	1	NR	1
Proposed NPL	1,000		0	0	0	0	NR	0
NPL LIENS	1,000		0	0	0	0	NR	0
<i>Federal Delisted NPL site list</i>								
Delisted NPL	1,000		0	0	0	0	NR	0
<i>Federal CERCLIS list</i>								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
<i>Federal CERCLIS NFRAP site list</i>								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
<i>Federal RCRA CORRACTS facilities list</i>								
CORRACTS	1,000		0	0	0	1	NR	1
<i>Federal RCRA non-CORRACTS TSD facilities list</i>								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
<i>Federal RCRA generators list</i>								
RCRA-LOG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250		6	0	NR	NR	NR	6
<i>Federal institutional controls / engineering controls registries</i>								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
<i>Federal ERNS list</i>								
ERNS	0.001		0	NR	NR	NR	NR	0
<i>State- and tribal - equivalent CERCLIS</i>								
HI SHWS	1,000		3	1	2	4	NR	10
<i>State and tribal landfill and/or solid waste disposal site lists</i>								
HI SWFILE	0.500		0	0	0	NR	NR	0
<i>State and tribal leaking storage tank lists</i>								
HI LUST	0.500		9	2	6	NR	NR	17
INDIAN LUST	0.500		0	0	0	NR	NR	0
<i>State and tribal registered storage tank lists</i>								
FEMA UST	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
HI UST	0.250		12	4	NR	NR	NR	16
INDIAN UST	0.250		0	0	NR	NR	NR	0
<i>State and tribal institutional control / engineering control registries</i>								
HI ENG CONTROLS	0.500		1	1	0	NR	NR	2
HI INST CONTROL	0.500		1	1	0	NR	NR	2
<i>State and tribal voluntary cleanup sites</i>								
HI VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
<i>State and tribal Brownfields sites</i>								
HI BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
<i>Local / Brownfield lists</i>								
US BROWNFIELDS	0.500		2	0	0	NR	NR	2
<i>Local Lists of Landfill / Solid Waste Disposal Sites</i>								
INDIAN ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
<i>Local Lists of Hazardous waste / Contaminated Sites</i>								
US HIST CDL	0.001		0	NR	NR	NR	NR	0
HI CDL	0.001		0	NR	NR	NR	NR	0
US CDL	0.001		0	NR	NR	NR	NR	0
<i>Local / Land Records</i>								
LIENS 2	0.001		0	NR	NR	NR	NR	0
<i>Records of Emergency Release Reports</i>								
HMIRS	0.001		0	NR	NR	NR	NR	0
HI SPILLS	0.001		0	NR	NR	NR	NR	0
HI SPILLS 90	0.001		0	NR	NR	NR	NR	0
<i>Other Ascertainable Records</i>								
RCRA NonGen / NLR	0.250		2	1	NR	NR	NR	3
FUDS	1,000		0	1	0	1	NR	2
DOD	1,000		0	0	0	2	NR	2
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0
EPA WATCHLIST	0.001		0	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	0.001		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
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NOTES:
 TP = Target Property
 NR = Not Requested at this Search Distance
 Sites may be listed in more than one database

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
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TRIS	0.001		NR	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ROD	1.000		0	0	NR	NR	NR	1
RWD	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
COALASHDOE	0.001		0	NR	NR	NR	NR	0
COALASHEPA	0.500		0	0	NR	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	0	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
US MINES	0.250		0	NR	NR	NR	NR	0
ABANDONED MINES	0.250		0	NR	NR	NR	NR	0
FINDS	0.001		2	NR	NR	NR	NR	2
UXO	1.000		0	0	0	0	NR	0
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
ECHO	0.001		1	NR	NR	NR	NR	1
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
HI AIRS	0.001		0	NR	NR	NR	NR	0
HI DRYCLEANERS	0.250		0	0	NR	NR	NR	0
HI Financial Assurance	0.001		0	NR	NR	NR	NR	0
CA HAZNET	TP		NR	NR	NR	NR	NR	0
HI LEAD	0.001		0	NR	NR	NR	NR	0
HI UIC	0.001		0	NR	NR	NR	NR	0

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		1	NR	NR	NR	NR	1
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

HI RGA HWS	0.001		0	NR	NR	NR	NR	0
HI RGA LF	0.001		0	NR	NR	NR	NR	0
HI RGA LUST	0.001		1	NR	NR	NR	NR	1

- Totals --

			0	41	11	8	10	0	70
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Map ID
Direction
Distance
Elevation

MAP FINDINGS

Map ID
Direction
Distance
Elevation

MAP FINDINGS

EDR ID Number
EPA ID Number

Database(s)

Site

Database(s)

EDR ID Number
EPA ID Number

DOD
Region
South
1/2-1
3033 ft.

FORD ISLAND NAVAL STATION ANNEX
FORD ISLAND NAVAL STATION (County), HI

DOD:
Feature 1: Navy DOD
Feature 2: Not reported
Feature 3: Not reported
URL: Not reported
Name 1: Ford Island Naval Station Annex
Name 2: Not reported
Name 3: Not reported
State: HI
DOD Site: Yes
Tile name: HIHONOLULU

DOD **CUSA147750**
N/A

PEARL HARBOR NAVAL COMPLEX (Continued)

Site Details:
Site Name: PEARL HARBOR NAVAL COMPLEX
Final Site Status: Final
Site Zip: 96860
Site City: PEARL HARBOR
Site State: HI
Federal Site: Yes
Site County: HONOLULU
EPA Region: 09
Date Proposed: 07/29/91
Date Deleted: Not reported
Date Finalized: 10/14/92

Substance Details:
NPL Status: Currently on the Final NPL
Substance ID: Not reported
Substance: Not reported
CAS #: Not reported
Pathway: Not reported
Scoring: Not reported

DOD
Region
West
1/2-1
3630 ft.

PEARL HARBOR NAVAL STATION
PEARL HARBOR NAVAL STATIO (County), HI

DOD:
Feature 1: Navy DOD
Feature 2: Not reported
Feature 3: Not reported
URL: Not reported
Name 1: Pearl Harbor Naval Station
Name 2: Not reported
Name 3: Not reported
State: HI
DOD Site: Yes
Tile name: HIHONOLULU

DOD **CUSA147744**
N/A

Substance Details:
NPL Status: Currently on the Final NPL
Substance ID: A023
Substance: DDE
CAS #: 72-55-9
Pathway: SURFACE WATER PATHWAY
Scoring: 3

Substance Details:
NPL Status: Currently on the Final NPL
Substance ID: A046
Substance: POLYCHLORINATED BIPHENYLS
CAS #: 1336-36-3
Pathway: SURFACE WATER PATHWAY
Scoring: 3

NPL
Region
ESE
1/2-1
4661 ft.

PEARL HARBOR NAVAL COMPLEX
US NAVAL COMMAND
PEARL HARBOR, HI 96860

NPL:
EPA ID: HI4770090076
Cercils ID: 904481
EPA Region: 9
Federal: Y
Final Date: 1992-10-14 00:00:00
Site Score: 70.8199999999999993
Latitude: 21.3888889999999999
Longitude: -157.96333299999999

NPL **100070626**
SEMS **HI4170090076**
US ENG CONTROLS
US INST CONTROL
ROD
PRP

Category Details:
NPL Status: Currently on the Final NPL
Category Description: Surface Water Adjacent To Site-Other-Unknown
Category Value: WETLAND

100070626

Map ID Direction Distance Elevation	MAP FINDINGS	Site	Database(s)	EDR ID Number EPA ID Number
PEARL HARBOR NAVAL COMPLEX (Continued)				
		Substance ID: P037 DIELDRIN		
		Substance: 60-57-1		
		CAS #: NO PATHWAY INDICATED		
		Pathway: NO PATHWAY INDICATED		
		Scoring: 1		
		NPL Status: Currently on the Final NPL		
		Substance ID: U028 BIS(2-ETHYLHEXYL)PHTHALATE		
		Substance: 117-81-7		
		CAS #: SURFACE WATER PATHWAY		
		Pathway: SURFACE WATER PATHWAY		
		Scoring: 2		
		NPL Status: Currently on the Final NPL		
		Substance ID: U036 CHLORDANE		
		Substance: 57-74-9		
		CAS #: SURFACE WATER PATHWAY		
		Pathway: SURFACE WATER PATHWAY		
		Scoring: 3		
		NPL Status: Currently on the Final NPL		
		Substance ID: U037 CHLOROBENZENE		
		Substance: 108-90-7		
		CAS #: AIR PATHWAY		
		Pathway: AIR PATHWAY		
		Scoring: 3		
		NPL Status: Currently on the Final NPL		
		Substance ID: U037 CHLOROBENZENE		
		Substance: 108-90-7		
		CAS #: SURFACE WATER PATHWAY		
		Pathway: SURFACE WATER PATHWAY		
		Scoring: 2		
		NPL Status: Currently on the Final NPL		
		Substance ID: U061 DDT		
		Substance: 50-29-3		
		CAS #: SURFACE WATER PATHWAY		
		Pathway: SURFACE WATER PATHWAY		
		Scoring: 3		
		NPL Status: Currently on the Final NPL		
		Substance ID: U079 TRANS-DICHLOROETHYLENE, 1,2-		
		Substance: 156-60-5		
		CAS #: AIR PATHWAY		
		Pathway: AIR PATHWAY		
		Scoring: 3		
		NPL Status: Currently on the Final NPL		
		Substance ID: U079 TRANS-DICHLOROETHYLENE, 1,2-		
		Substance: 156-60-5		
		CAS #: GROUND WATER PATHWAY		
		Pathway: GROUND WATER PATHWAY		
		Scoring: 3		
		NPL Status: Currently on the Final NPL		
		Substance ID: U079		

Map ID Direction Distance Elevation	MAP FINDINGS	Site	Database(s)	EDR ID Number EPA ID Number
PEARL HARBOR NAVAL COMPLEX (Continued)				
		NPL Status: Currently on the Final NPL		
		Substance ID: C315 CHROMIC ACID		
		Substance: 7738-94-5		
		CAS #: NO PATHWAY INDICATED		
		Pathway: NO PATHWAY INDICATED		
		Scoring: 1		
		NPL Status: Currently on the Final NPL		
		Substance ID: C320 CHROMIUM, HEXAVALENT		
		Substance: 18540-29-9		
		CAS #: NO PATHWAY INDICATED		
		Pathway: NO PATHWAY INDICATED		
		Scoring: 1		
		NPL Status: Currently on the Final NPL		
		Substance ID: C460 MERCURY		
		Substance: 7439-97-6		
		CAS #: SURFACE WATER PATHWAY		
		Pathway: SURFACE WATER PATHWAY		
		Scoring: 4		
		NPL Status: Currently on the Final NPL		
		Substance ID: C497 STODDARD SOLVENT		
		Substance: 8052-41-3		
		CAS #: NO PATHWAY INDICATED		
		Pathway: NO PATHWAY INDICATED		
		Scoring: 1		
		NPL Status: Currently on the Final NPL		
		Substance ID: C517 XYLENE M-		
		Substance: 108-38-3		
		CAS #: SOIL EXPOSURE PATHWAY		
		Pathway: SOIL EXPOSURE PATHWAY		
		Scoring: 2		
		NPL Status: Currently on the Final NPL		
		Substance ID: C525 BROMACL		
		Substance: 314-40-9		
		CAS #: NO PATHWAY INDICATED		
		Pathway: NO PATHWAY INDICATED		
		Scoring: 1		
		NPL Status: Currently on the Final NPL		
		Substance ID: C573 DIAZINON		
		Substance: 333-41-5		
		CAS #: NO PATHWAY INDICATED		
		Pathway: NO PATHWAY INDICATED		
		Scoring: 1		
		NPL Status: Currently on the Final NPL		
		Substance ID: D004 ARSENIC		
		Substance: 7440-38-2		
		CAS #: GROUND WATER PATHWAY		
		Pathway: GROUND WATER PATHWAY		
		Scoring: 3		
		NPL Status: Currently on the Final NPL		

MAP FINDINGS

MAP FINDINGS

1000707626

PEARL HARBOR NAVAL COMPLEX (Continued)

areas, thus exposing workers on the site less than 100) to potential contamination. Many of these chemicals have also been found at the remaining 25 areas identified to date.) Tetrachloroethene was found 15.2 feet below ground surface in one area. Soils beneath the site are permeable, facilitating movement of contaminants into ground water. Approximately 110,700 people obtain drinking water from wells within 2 miles of the six sources in 1988, the Navy detected bis 2-ethylhexylphthalate in sediment samples taken from a National Wildlife Refuge that borders an abandoned Navy landfill. The refuge contains habitat for four Federally endangered species, as well as wetlands, Pearl Harbor and nearby portions of the Pacific Ocean contain recreational and commercial fisheries, habitat for endangered species, wetlands, and water-contact recreation areas. The volatile organic compounds in on-site soil also create potential for gases to be released to the atmosphere. Status October 1992; EPA and the Navy are planning to negotiate a Federal Facilities Agreement under CERCLA Section 120 to cover future activities at the site. The description of the site (release) is based on information available at the time the site was scored. The description may change as additional information is gathered on the sources and extent of contamination. See FR 5600, February 11, 1991 or subsequent FR notices.)

Site Status Details:

NPL Status: Final
Proposed Date: 07/29/1991
Final Date: 10/14/1992
Deleted Date: Not reported

Narratives Details:

NPL Name: PEARL HARBOR NAVAL COMPLEX
City: PEARL HARBOR
State: HI

SEMS:

Site ID: 0904481
EPA ID: HI4170090076
Cong District: 01
FIPS Code: 15003
Latitude: 21.386889
Longitude: -157.983333
FF: Y
NPL: Currently on the Final NPL
Non NPL Status: Not reported

SEMS Detail:

Region: 09
Site ID: 0904481
EPA ID: HI4170090076
Site Name: PEARL HARBOR NAVAL COMPLEX
NPL: F
FF: Y
OU: 00
Action Code: DS
Action Name: DISCVRY
SEQ: 1
Start Date: 1980-10-01 04:00:00
Finish Date: 10/1/1980 4:00:00 AM

1000707626

PEARL HARBOR NAVAL COMPLEX (Continued)

TRANS-DICHLOROETHYLENE, 1,2-
156-60-5
SOIL EXPOSURE PATHWAY
4

Currently on the Final NPL
U210

TETRACHLOROETHENE
127-18-4
AIR PATHWAY
3

Currently on the Final NPL
U210

TETRACHLOROETHENE
127-18-4
SOIL EXPOSURE PATHWAY
4

Currently on the Final NPL
U220

TOLUENE
108-88-3
SOIL EXPOSURE PATHWAY
2

Currently on the Final NPL
U228

TRICHLOROETHYLENE (TCE)
79-01-6
SOIL EXPOSURE PATHWAY
2

Summary Details:

Conditions at Proposal July 29, 1991: The Pearl Harbor Naval Complex occupies at least 6,300 acres in Pearl Harbor on the Island of Oahu, Honolulu County, Hawaii. Land around the complex supports agriculture, aquaculture, industry, urban and commercial uses. The complex consists of these major facilities: Naval Shipyard, Naval Supply Center, Naval Station, Submarine Base, Public Works Center, Inactive Ships, and Navy Maga (the Luailualei Westlock Branch and Waipio Peninsula). The Pearl Harbor Naval Complex began operation in 1901 when the Navy received an appropriation to acquire land for a naval station. After the attack by the Japanese on December 7, 1941, industrial activity at the complex skyrocketed, reaching 24,000 civilians by mid-1943. After World War II, activity declined and has fluctuated with the Navy's requirements. In 1983, the Navy identified 30 potential hazardous waste sources within the six facilities. Subsequently, an additional source was identified. The 31 sources include unlined landfills, pesticide disposal pits, chromic acid disposal areas, PCB disposal areas, mercury-contaminated harbor sediments, leaking underground solvent tanks, waste oil facilities, and numerous other types of sources resulting from industrial activities at the complex. Six of the sources were initially evaluated, based primarily on toxicity of contaminants present, availability of waste quantity information, sampling results, affected populations, and a documented release of a hazardous substance. Many investigations have found hazardous substances - including mercury, chromium, PCBs, pesticides, trichloroethene, trans-1,2-dichloroethene, and other volatile organic compounds - in soil in the six

Site	PEARL HARBOR NAVAL COMPLEX (Continued)	1000707626	1000707626
Map ID Direction Distance Elevation	MAP FINDINGS	Database(s)	EDR ID Number EPA ID Number
Site	PEARL HARBOR NAVAL COMPLEX (Continued)	1000707626	1000707626
	<p>Qual: Not reported Current Action Lead: EPA Perf</p> <p>Region: 09 Site ID: 0904481 EPA ID: HI4170090076 Site Name: PEARL HARBOR NAVAL COMPLEX NPL: F FF: Y OU: 00 Action Code: AR Action Name: ADMIN REC SEQ: 1 Start Date: 2000-10-24 04:00:00 Finish Date: Not reported Qual: Not reported Current Action Lead: EPA Perf</p> <p>Region: 09 Site ID: 0904481 EPA ID: HI4170090076 Site Name: PEARL HARBOR NAVAL COMPLEX NPL: F FF: Y OU: 00 Action Code: NP Action Name: PROPOSED SEQ: 1 Start Date: 1991-07-29 04:00:00 Finish Date: 7/29/1991 4:00:00 AM Qual: Not reported Current Action Lead: EPA Perf</p> <p>Region: 09 Site ID: 0904481 EPA ID: HI4170090076 Site Name: PEARL HARBOR NAVAL COMPLEX NPL: F FF: Y OU: 35 Action Code: RO Action Name: ROD SEQ: 31 Start Date: 2017-03-10 05:00:00 Finish Date: 3/10/2017 5:00:00 AM Qual: Not reported Current Action Lead: Fed Fac</p> <p>Region: 09 Site ID: 0904481 EPA ID: HI4170090076 Site Name: PEARL HARBOR NAVAL COMPLEX NPL: F FF: Y OU: 35 Action Code: NI Action Name: FF FS</p>		

Site	PEARL HARBOR NAVAL COMPLEX (Continued)	1000707626	1000707626
Map ID Direction Distance Elevation	MAP FINDINGS	Database(s)	EDR ID Number EPA ID Number
Site	PEARL HARBOR NAVAL COMPLEX (Continued)	1000707626	1000707626
	<p>SEQ: 1 Start Date: 2017-03-10 05:00:00 Finish Date: 3/10/2017 5:00:00 AM Qual: Not reported Current Action Lead: Fed Fac</p> <p>Region: 09 Site ID: 0904481 EPA ID: HI4170090076 Site Name: PEARL HARBOR NAVAL COMPLEX NPL: F FF: Y OU: 00 Action Code: NF Action Name: NPL FINL SEQ: 1 Start Date: 1992-10-14 04:00:00 Finish Date: 10/14/1992 4:00:00 AM Qual: Not reported Current Action Lead: Fed Fac</p> <p>Region: 09 Site ID: 0904481 EPA ID: HI4170090076 Site Name: PEARL HARBOR NAVAL COMPLEX NPL: F FF: Y OU: 05 Action Code: LW Action Name: FF RI/FS SEQ: 7 Start Date: 1993-09-30 04:00:00 Finish Date: 9/23/2011 4:00:00 AM Qual: Not reported Current Action Lead: Fed Fac</p> <p>Region: 09 Site ID: 0904481 EPA ID: HI4170090076 Site Name: PEARL HARBOR NAVAL COMPLEX NPL: F FF: Y OU: 01 Action Code: LW Action Name: FF RI/FS SEQ: 5 Start Date: 1993-09-30 04:00:00 Finish Date: 9/14/2010 4:00:00 AM Qual: Not reported Current Action Lead: Fed Fac</p> <p>Region: 09 Site ID: 0904481 EPA ID: HI4170090076 Site Name: PEARL HARBOR NAVAL COMPLEX NPL: F FF: Y</p>		

PEARL HARBOR NAVAL COMPLEX (Continued) 1000707626

Region: 09
 Site ID: 0904481
 EPA ID: HI4170090076
 Site Name: PEARL HARBOR NAVAL COMPLEX
 NPL: F
 FF: Y
 OU: 29
 Action Code: ROD
 Action Name: ROD
 SEQ: 29
 Start Date: 2016-08-14 05:00:00
 Finish Date: 9/14/2016 5:00:00 AM
 Qual: Not reported
 Current Action Lead: Fed Fac

Region: 09
 Site ID: 0904481
 EPA ID: HI4170090076
 Site Name: PEARL HARBOR NAVAL COMPLEX
 NPL: F
 FF: Y
 OU: 27
 Action Code: ROD
 Action Name: ROD
 SEQ: 27
 Start Date: 2016-08-22 05:00:00
 Finish Date: 8/22/2016 5:00:00 AM
 Qual: Not reported
 Current Action Lead: Fed Fac

Region: 09
 Site ID: 0904481
 EPA ID: HI4170090076
 Site Name: PEARL HARBOR NAVAL COMPLEX
 NPL: F
 FF: Y
 OU: 22
 Action Code: ROD
 Action Name: ROD
 SEQ: 26
 Start Date: 2013-08-23 05:00:00
 Finish Date: 9/23/2013 5:00:00 AM
 Qual: Not reported
 Current Action Lead: Fed Fac

Region: 09
 Site ID: 0904481
 EPA ID: HI4170090076
 Site Name: PEARL HARBOR NAVAL COMPLEX
 NPL: F
 FF: Y
 OU: 30
 Action Code: ROD
 Action Name: ROD
 SEQ: 25
 Start Date: 2013-03-29 04:00:00
 Finish Date: 3/29/2013 4:00:00 AM

PEARL HARBOR NAVAL COMPLEX (Continued) 1000707626

Region: 09
 Site ID: 0904481
 EPA ID: HI4170090076
 Site Name: PEARL HARBOR NAVAL COMPLEX
 NPL: F
 FF: Y
 OU: 17
 Action Code: LY
 Action Name: FF RA
 SEQ: 5
 Start Date: 2014-12-13 05:00:00
 Finish Date: 3/23/2015 4:00:00 AM
 Qual: Not reported
 Current Action Lead: Fed Fac

Region: 09
 Site ID: 0904481
 EPA ID: HI4170090076
 Site Name: PEARL HARBOR NAVAL COMPLEX
 NPL: F
 FF: Y
 OU: 17
 Action Code: LX
 Action Name: FF RD
 SEQ: 2
 Start Date: 2012-07-12 05:00:00
 Finish Date: 12/13/2014 5:00:00 AM
 Qual: Not reported
 Current Action Lead: Fed Fac

Region: 09
 Site ID: 0904481
 EPA ID: HI4170090076
 Site Name: PEARL HARBOR NAVAL COMPLEX
 NPL: F
 FF: Y
 OU: 00
 Action Code: PA
 Action Name: PA
 SEQ: 1
 Start Date: 1986-04-01 05:00:00
 Finish Date: 4/1/1986 5:00:00 AM
 Qual: Not reported
 Current Action Lead: Fed Fac

Region: 09
 Site ID: 0904481
 EPA ID: HI4170090076
 Site Name: PEARL HARBOR NAVAL COMPLEX
 NPL: F
 FF: Y
 OU: 06
 Action Code: LV
 Action Name: FF RV

Map ID	Direction	Distance	Elevation	Site	Database(s)	EDR ID Number	EPA ID Number
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Map ID	Direction	Distance	Elevation	Site	Database(s)	EDR ID Number	EPA ID Number
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PEARL HARBOR NAVAL COMPLEX (Continued)
 1000707626

PEARL HARBOR NAVAL COMPLEX (Continued)
 1000707626

OU: 11
 Action Code: LW
 Action Name: FF RI/FS
 SEQ: 11
 Start Date: 1995-08-01 04:00:00
 Finish Date: Not reported
 Qual: Not reported
 Current Action Lead: Fed Fac

Region: 09
 Site ID: 0904481
 EPA ID: HI4170090076
 Site Name: PEARL HARBOR NAVAL COMPLEX
 NPL: F
 FF: Y
 OU: 06
 Action Code: LW
 Action Name: FF RI/FS
 SEQ: 8
 Start Date: 1993-09-30 04:00:00
 Finish Date: 7/22/2010 5:00:00 AM
 Qual: Not reported
 Current Action Lead: Fed Fac

Region: 09
 Site ID: 0904481
 EPA ID: HI4170090076
 Site Name: PEARL HARBOR NAVAL COMPLEX
 NPL: F
 FF: Y
 OU: 00
 Action Code: HR
 Action Name: HAZFRANK
 SEQ: 1
 Start Date: 1991-07-25 04:00:00
 Finish Date: 7/25/1991 4:00:00 AM
 Qual: Not reported
 Current Action Lead: Fed Fac

Region: 09
 Site ID: 0904481
 EPA ID: HI4170090076
 Site Name: PEARL HARBOR NAVAL COMPLEX
 NPL: F
 FF: Y
 OU: 02
 Action Code: LW
 Action Name: FF RI/FS
 SEQ: 3
 Start Date: 1993-09-30 04:00:00
 Finish Date: 4/5/2016 4:00:00 AM
 Qual: Not reported
 Current Action Lead: Fed Fac

Region: 09
 Site ID: 0904481
 EPA ID: HI4170090076

PEARL HARBOR NAVAL COMPLEX (Continued)
 1000707626

PEARL HARBOR NAVAL COMPLEX (Continued)
 1000707626

SEQ: 1
 Start Date: 1995-07-17 04:00:00
 Finish Date: 8/23/1996 4:00:00 AM
 Qual: P
 Current Action Lead: Fed Fac

Region: 09
 Site ID: 0904481
 EPA ID: HI4170090076
 Site Name: PEARL HARBOR NAVAL COMPLEX
 NPL: F
 FF: Y
 OU: 10
 Action Code: LW
 Action Name: FF RI/FS
 SEQ: 1
 Start Date: 1994-08-23 04:00:00
 Finish Date: 9/28/2006 4:00:00 AM
 Qual: Not reported
 Current Action Lead: Fed Fac

Region: 09
 Site ID: 0904481
 EPA ID: HI4170090076
 Site Name: PEARL HARBOR NAVAL COMPLEX
 NPL: F
 FF: Y
 OU: 08
 Action Code: LW
 Action Name: FF RI/FS
 SEQ: 10
 Start Date: 1993-09-30 04:00:00
 Finish Date: 9/28/2006 4:00:00 AM
 Qual: Not reported
 Current Action Lead: Fed Fac

Region: 09
 Site ID: 0904481
 EPA ID: HI4170090076
 Site Name: PEARL HARBOR NAVAL COMPLEX
 NPL: F
 FF: Y
 OU: 03
 Action Code: LW
 Action Name: FF RI/FS
 SEQ: 4
 Start Date: 1993-08-30 04:00:00
 Finish Date: 9/27/2010 4:00:00 AM
 Qual: Not reported
 Current Action Lead: Fed Fac

Region: 09
 Site ID: 0904481
 EPA ID: HI4170090076
 Site Name: PEARL HARBOR NAVAL COMPLEX
 NPL: F
 FF: Y

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

EDR ID Number
EPA ID Number

Database(s)

EDR ID Number
EPA ID Number

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

PEARL HARBOR NAVAL COMPLEX (Continued) 1000707626

Region: 09
Site ID: 0904481
EPA ID: HI4170090076
Site Name: PEARL HARBOR NAVAL COMPLEX
NPL: F
FF: Y
OU: 16
Action Code: LV
Action Name: FF RV
SEQ: 9
Start Date: 2007-08-24 04:00:00
Finish Date: 9/27/2007 4:00:00 AM
Qual: Not reported
Current Action Lead: Fed Fac

Region: 09
Site ID: 0904481
EPA ID: HI4170090076
Site Name: PEARL HARBOR NAVAL COMPLEX
NPL: F
FF: Y
OU: 21
Action Code: LW
Action Name: FF RIIFS
SEQ: 19
Start Date: 2008-04-28 04:00:00
Finish Date: Not reported
Qual: Not reported
Current Action Lead: Fed Fac

Region: 09
Site ID: 0904481
EPA ID: HI4170090076
Site Name: PEARL HARBOR NAVAL COMPLEX
NPL: F
FF: Y
OU: 14
Action Code: RO
Action Name: ROD
SEQ: 18
Start Date: 2010-08-27 04:00:00
Finish Date: 9/27/2010 4:00:00 AM
Qual: Not reported
Current Action Lead: Fed Fac

Region: 09
Site ID: 0904481
EPA ID: HI4170090076
Site Name: PEARL HARBOR NAVAL COMPLEX
NPL: F
FF: Y
OU: 12
Action Code: RO
Action Name: ROD
SEQ: 17
Start Date: 2009-09-29 04:00:00
Finish Date: 9/29/2009 4:00:00 AM

PEARL HARBOR NAVAL COMPLEX (Continued) 1000707626

Region: 09
Site ID: 0904481
EPA ID: HI4170090076
Site Name: PEARL HARBOR NAVAL COMPLEX
NPL: F
FF: Y
OU: 12
Action Code: LV
Action Name: FF RV
SEQ: 3
Start Date: 1995-02-23 05:00:00
Finish Date: 4/1/1997 5:00:00 AM
Qual: Fed Fac

Region: 09
Site ID: 0904481
EPA ID: HI4170090076
Site Name: PEARL HARBOR NAVAL COMPLEX
NPL: F
FF: Y
OU: 24
Action Code: RO
Action Name: ROD
SEQ: 24
Start Date: 2014-08-15 05:00:00
Finish Date: 9/15/2014 5:00:00 AM
Qual: Not reported
Current Action Lead: Fed Fac

Region: 09
Site ID: 0904481
EPA ID: HI4170090076
Site Name: PEARL HARBOR NAVAL COMPLEX
NPL: F
FF: Y
OU: 22
Action Code: LW
Action Name: FF RIIFS
SEQ: 21
Start Date: 2009-03-13 04:00:00
Finish Date: 9/23/2013 5:00:00 AM
Qual: Not reported
Current Action Lead: Fed Fac

Region: 09
Site ID: 0904481
EPA ID: HI4170090076
Site Name: PEARL HARBOR NAVAL COMPLEX
NPL: F
FF: Y
OU: 22
Action Code: LW
Action Name: FF RIIFS
SEQ: 21
Start Date: 2009-03-13 04:00:00
Finish Date: 9/23/2013 5:00:00 AM
Qual: Not reported
Current Action Lead: Fed Fac

PEARL HARBOR NAVAL COMPLEX (Continued) 1000707626

Qual:	Not reported	Region:	09
Current Action Lead:	Fed Fac	Site ID:	0904481
		EPA ID:	H14170090076
		Site Name:	PEARL HARBOR NAVAL COMPLEX
		NPL:	F
		FF:	Y
		OU:	05
		Action Code:	RO
		Action Name:	ROD
		SEQ:	15
		Start Date:	2011-09-23 04:00:00
		Finish Date:	9/23/2011 4:00:00 AM
		Qual:	Not reported
		Current Action Lead:	Fed Fac
		Region:	09
		Site ID:	0904481
		EPA ID:	H14170090076
		Site Name:	PEARL HARBOR NAVAL COMPLEX
		NPL:	F
		FF:	Y
		OU:	20
		Action Code:	LW
		Action Name:	FF RI/FS
		SEQ:	18
		Start Date:	2006-06-26 04:00:00
		Finish Date:	Not reported
		Qual:	Not reported
		Current Action Lead:	Fed Fac
		Region:	09
		Site ID:	0904481
		EPA ID:	H14170090076
		Site Name:	PEARL HARBOR NAVAL COMPLEX
		NPL:	F
		FF:	Y
		OU:	29
		Action Code:	LW
		Action Name:	FF RI/FS
		SEQ:	25
		Start Date:	2011-08-17 04:00:00
		Finish Date:	9/14/2016 5:00:00 AM
		Qual:	Not reported
		Current Action Lead:	Fed Fac
		Region:	09
		Site ID:	0904481
		EPA ID:	H14170090076
		Site Name:	PEARL HARBOR NAVAL COMPLEX
		NPL:	F
		FF:	Y
		OU:	27
		Action Code:	LW
		Action Name:	FF RI/FS

PEARL HARBOR NAVAL COMPLEX (Continued) 1000707626

Qual:	Not reported	Region:	09
Current Action Lead:	Fed Fac	Site ID:	0904481
		EPA ID:	H14170090076
		Site Name:	PEARL HARBOR NAVAL COMPLEX
		NPL:	F
		FF:	Y
		OU:	06
		Action Code:	LY
		Action Name:	FF RA
		SEQ:	3
		Start Date:	2011-08-10 04:00:00
		Finish Date:	8/27/2012 5:00:00 AM
		Qual:	Not reported
		Current Action Lead:	Fed Fac
		Region:	09
		Site ID:	0904481
		EPA ID:	H14170090076
		Site Name:	PEARL HARBOR NAVAL COMPLEX
		NPL:	F
		FF:	Y
		OU:	01
		Action Code:	LY
		Action Name:	FF RA
		SEQ:	4
		Start Date:	2011-06-09 05:00:00
		Finish Date:	7/11/2012 5:00:00 AM
		Qual:	Not reported
		Current Action Lead:	Fed Fac
		Region:	09
		Site ID:	0904481
		EPA ID:	H14170090076
		Site Name:	PEARL HARBOR NAVAL COMPLEX
		NPL:	F
		FF:	Y
		OU:	01
		Action Code:	LY
		Action Name:	FF RA
		SEQ:	4
		Start Date:	2011-06-09 05:00:00
		Finish Date:	7/11/2012 5:00:00 AM
		Qual:	Not reported
		Current Action Lead:	Fed Fac
		Region:	09
		Site ID:	0904481
		EPA ID:	H14170090076
		Site Name:	PEARL HARBOR NAVAL COMPLEX
		NPL:	F
		FF:	Y
		OU:	01
		Action Code:	LY
		Action Name:	FF RA
		SEQ:	4
		Start Date:	2011-06-09 05:00:00
		Finish Date:	7/11/2012 5:00:00 AM
		Qual:	Not reported
		Current Action Lead:	Fed Fac
		Region:	09
		Site ID:	0904481
		EPA ID:	H14170090076
		Site Name:	PEARL HARBOR NAVAL COMPLEX
		NPL:	F
		FF:	Y
		OU:	01
		Action Code:	LY
		Action Name:	FF RA
		SEQ:	4
		Start Date:	2011-06-09 05:00:00
		Finish Date:	7/11/2012 5:00:00 AM
		Qual:	Not reported
		Current Action Lead:	Fed Fac

PEARL HARBOR NAVAL COMPLEX (Continued)

1000707626

Site Name:	PEARL HARBOR NAVAL COMPLEX
NPL:	F
FF:	Y
OU:	03
Action Code:	LX
Action Name:	FF RD
SEQ:	1
Start Date:	2010-09-27 04:00:00
Finish Date:	10/25/2010 4:00:00 AM
Qual:	Not reported
Current Action Lead:	Fed Fac
Region:	09
Site ID:	0904481
EPA ID:	HI4170090076
Site Name:	PEARL HARBOR NAVAL COMPLEX
NPL:	F
FF:	Y
OU:	26
Action Code:	LV
Action Name:	FF RV
SEQ:	10
Start Date:	2010-05-07 05:00:00
Finish Date:	5/27/2011 5:00:00 AM
Qual:	Not reported
Current Action Lead:	Fed Fac
Region:	09
Site ID:	0904481
EPA ID:	HI4170090076
Site Name:	PEARL HARBOR NAVAL COMPLEX
NPL:	F
FF:	Y
OU:	16
Action Code:	RO
Action Name:	ROD
SEQ:	14
Start Date:	2010-09-27 04:00:00
Finish Date:	9/27/2010 4:00:00 AM
Qual:	Not reported
Current Action Lead:	Fed Fac
Region:	09
Site ID:	0904481
EPA ID:	HI4170090076
Site Name:	PEARL HARBOR NAVAL COMPLEX
NPL:	F
FF:	Y
OU:	24
Action Code:	LW
Action Name:	FF RI/FS
SEQ:	20
Start Date:	2009-03-03 05:00:00
Finish Date:	9/15/2014 5:00:00 AM
Qual:	Not reported
Current Action Lead:	Fed Fac

PEARL HARBOR NAVAL COMPLEX (Continued)

1000707626

OU:	26
Action Code:	EE
Action Name:	EE/CA
SEQ:	2
Start Date:	2010-03-18 04:00:00
Finish Date:	3/18/2010 4:00:00 AM
Qual:	Not reported
Current Action Lead:	Fed Fac
Region:	09
Site ID:	0904481
EPA ID:	HI4170090076
Site Name:	PEARL HARBOR NAVAL COMPLEX
NPL:	F
FF:	Y
OU:	09
Action Code:	LW
Action Name:	FF RI/FS
SEQ:	22
Start Date:	2009-05-29 04:00:00
Finish Date:	Not reported
Qual:	Not reported
Current Action Lead:	Fed Fac
Region:	09
Site ID:	0904481
EPA ID:	HI4170090076
Site Name:	PEARL HARBOR NAVAL COMPLEX
NPL:	F
FF:	Y
OU:	12
Action Code:	LY
Action Name:	FF RA
SEQ:	2
Start Date:	2009-09-29 04:00:00
Finish Date:	1/20/2011 5:00:00 AM
Qual:	Not reported
Current Action Lead:	Fed Fac
Region:	09
Site ID:	0904481
EPA ID:	HI4170090076
Site Name:	PEARL HARBOR NAVAL COMPLEX
NPL:	F
FF:	Y
OU:	03
Action Code:	LY
Action Name:	FF RA
SEQ:	1
Start Date:	2010-11-22 05:00:00
Finish Date:	8/23/2016 5:00:00 AM
Qual:	Not reported
Current Action Lead:	Fed Fac
Region:	09
Site ID:	0904481
EPA ID:	HI4170090076

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

EDR ID Number
EPA ID Number

Database(s)

EDR ID Number
EPA ID Number

Database(s)

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

EDR ID Number
EPA ID Number

Database(s)

EDR ID Number
EPA ID Number

Database(s)

PEARL HARBOR NAVAL COMPLEX (Continued)

1000707626

MAP FINDINGS

Site

EDR ID Number
EPA ID Number

Database(s)

EDR ID Number
EPA ID Number

Database(s)

Region: 09
Site ID: 0904481
EPA ID: HI4170090076
Site Name: PEARL HARBOR NAVAL COMPLEX
NPL: F
FF: Y
OU: 10
Action Code: RO
Action Name: ROD
SEQ: 3
Start Date: 2006-09-28 04:00:00
Finish Date: 9/28/2006 4:00:00 AM
Qual: Not reported
Current Action Lead: Fed Fac

Region: 09
Site ID: 0904481
EPA ID: HI4170090076
Site Name: PEARL HARBOR NAVAL COMPLEX
NPL: F
FF: Y
OU: 08
Action Code: RO
Action Name: ROD
SEQ: 2
Start Date: 2006-09-28 04:00:00
Finish Date: 9/28/2006 4:00:00 AM
Qual: Not reported
Current Action Lead: Fed Fac

Region: 09
Site ID: 0904481
EPA ID: HI4170090076
Site Name: PEARL HARBOR NAVAL COMPLEX
NPL: F
FF: Y
OU: 12
Action Code: LV
Action Name: FF RV
SEQ: 8
Start Date: 2006-06-02 04:00:00
Finish Date: 8/22/2006 4:00:00 AM
Qual: Not reported
Current Action Lead: Fed Fac

Region: 09
Site ID: 0904481
EPA ID: HI4170090076
Site Name: PEARL HARBOR NAVAL COMPLEX
NPL: F
FF: Y
OU: 12
Action Code: LV
Action Name: FF RV

PEARL HARBOR NAVAL COMPLEX (Continued)

1000707626

MAP FINDINGS

Site

EDR ID Number
EPA ID Number

Database(s)

EDR ID Number
EPA ID Number

Database(s)

Region: 09
Site ID: 0904481
EPA ID: HI4170090076
Site Name: PEARL HARBOR NAVAL COMPLEX
NPL: F
FF: Y
OU: 17
Action Code: RO
Action Name: ROD
SEQ: 21
Start Date: 2012-07-12 05:00:00
Finish Date: 7/12/2012 5:00:00 AM
Qual: Not reported
Current Action Lead: Fed Fac

Region: 09
Site ID: 0904481
EPA ID: HI4170090076
Site Name: PEARL HARBOR NAVAL COMPLEX
NPL: F
FF: Y
OU: 13
Action Code: RO
Action Name: ROD
SEQ: 6
Start Date: 2018-09-26 05:00:00
Finish Date: 9/26/2018 5:00:00 AM
Qual: Not reported
Current Action Lead: Fed Fac

Region: 09
Site ID: 0904481
EPA ID: HI4170090076
Site Name: PEARL HARBOR NAVAL COMPLEX
NPL: F
FF: Y
OU: 12
Action Code: RO
Action Name: ROD
SEQ: 5
Start Date: 2008-09-29 04:00:00
Finish Date: 9/29/2009 4:00:00 AM
Qual: Not reported
Current Action Lead: Fed Fac

Region: 09
Site ID: 0904481
EPA ID: HI4170090076
Site Name: PEARL HARBOR NAVAL COMPLEX
NPL: F
FF: Y
OU: 06
Action Code: RO
Action Name: ROD
SEQ: 4
Start Date: 2010-07-02 05:00:00
Finish Date: 7/2/2010 5:00:00 AM

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PEARL HARBOR NAVAL COMPLEX (Continued)

PEARL HARBOR NAVAL COMPLEX (Continued)

PEARL HARBOR NAVAL COMPLEX (Continued)

PEARL HARBOR NAVAL COMPLEX (Continued)

PEARL HARBOR NAVAL COMPLEX (Continued)

PEARL HARBOR NAVAL COMPLEX (Continued)

PEARL HARBOR NAVAL COMPLEX (Continued)

PEARL HARBOR NAVAL COMPLEX (Continued)

PEARL HARBOR NAVAL COMPLEX (Continued)

PEARL HARBOR NAVAL COMPLEX (Continued)

PEARL HARBOR NAVAL COMPLEX (Continued)

PEARL HARBOR NAVAL COMPLEX (Continued)

PEARL HARBOR NAVAL COMPLEX (Continued)

PEARL HARBOR NAVAL COMPLEX (Continued)

PEARL HARBOR NAVAL COMPLEX (Continued)
 Region: 09
 Site ID: 0904481
 EPA ID: HI4170090076
 Site Name: PEARL HARBOR NAVAL COMPLEX
 NPL: F
 FF: Y
 OU: 11
 Action Code: LV
 Action Name: FF RV
 SEQ: 4
 Start Date: 1993-04-01 05:00:00
 Finish Date: 4/11/1994 5:00:00 AM
 Qual: S
 Current Action Lead: Fed Fac

PEARL HARBOR NAVAL COMPLEX (Continued)
 Region: 09
 Site ID: 0904481
 EPA ID: HI4170090076
 Site Name: PEARL HARBOR NAVAL COMPLEX
 NPL: F
 FF: Y
 OU: 25
 Action Code: EE
 Action Name: EE/CA
 SEQ: 1
 Start Date: 2009-09-28 04:00:00
 Finish Date: Not reported
 Qual: Not reported
 Current Action Lead: EPA Oversight

US ENG CONTROLS:
 EPA Region: 09
 Site ID: HI4170090076
 Name: PEARL HARBOR NAVAL COMPLEX
 Address: US NAVAL COMMAND
 PEARL HARBOR, HI 96860
 County: HONOLULU
 Event Code: Not reported
 Actual Date: 06/30/2013
 Contact Name: Not reported
 Contact Phone and Ext: Not reported
 Event Code Description: Not reported

US ENG CONTROLS:
 EPA Region: 09
 Site ID: HI4170090076
 Name: PEARL HARBOR NAVAL COMPLEX
 Address: US NAVAL COMMAND
 PEARL HARBOR, HI 96860
 County: HONOLULU
 Event Code: Not reported
 Actual Date: 06/30/2013
 Contact Name: Not reported
 Contact Phone and Ext: Not reported
 Event Code Description: Not reported

PEARL HARBOR NAVAL COMPLEX (Continued)
 Region: 09
 Site ID: 0904481
 EPA ID: HI4170090076
 Site Name: PEARL HARBOR NAVAL COMPLEX
 NPL: F
 FF: Y
 OU: 17
 Action Code: LW
 Action Name: FF R/IFS
 SEQ: 16
 Start Date: 1993-08-30 04:00:00
 Finish Date: 7/12/2012 5:00:00 AM
 Qual: Not reported
 Current Action Lead: Fed Fac

PEARL HARBOR NAVAL COMPLEX (Continued)
 Region: 09
 Site ID: 0904481
 EPA ID: HI4170090076
 Site Name: PEARL HARBOR NAVAL COMPLEX
 NPL: F
 FF: Y
 OU: 07
 Action Code: LW
 Action Name: FF R/IFS
 SEQ: 9
 Start Date: 1993-08-30 04:00:00
 Finish Date: Not reported
 Qual: Not reported
 Current Action Lead: Fed Fac

PEARL HARBOR NAVAL COMPLEX (Continued)
 Region: 09
 Site ID: 0904481
 EPA ID: HI4170090076
 Site Name: PEARL HARBOR NAVAL COMPLEX
 NPL: F
 FF: Y
 OU: 01
 Action Code: LV
 Action Name: FF RV
 SEQ: 5
 Start Date: 2000-01-03 05:00:00
 Finish Date: 9/14/2010 4:00:00 AM
 Qual: Not reported
 Current Action Lead: Fed Fac

PEARL HARBOR NAVAL COMPLEX (Continued)
 Region: 09
 Site ID: 0904481
 EPA ID: HI4170090076
 Site Name: PEARL HARBOR NAVAL COMPLEX
 NPL: F
 FF: Y
 OU: 01
 Action Code: LV
 Action Name: FF RV
 SEQ: 5
 Start Date: 2000-01-03 05:00:00
 Finish Date: 9/14/2010 4:00:00 AM
 Qual: Not reported
 Current Action Lead: Fed Fac

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

Database(s)

EDR ID Number
EPA ID Number

PEARL HARBOR NAVAL COMPLEX (Continued)

1000707626

PEARL HARBOR NAVAL COMPLEX (Continued)

1000707626

Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 012
Action Name: RECORD OF DECISION
Action Completion date: 09/28/2007
Operable Unit: 01
Contaminated Media : Soil
Engineering Control: No Further Action
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 014
Action Name: RECORD OF DECISION
Action Completion date: 09/27/2010
Operable Unit: 16
Contaminated Media : Groundwater
Engineering Control: No Further Action
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 014
Action Name: RECORD OF DECISION
Action Completion date: 09/27/2010
Operable Unit: 16
Contaminated Media : Soil
Engineering Control: Not reported
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 015
Action Name: RECORD OF DECISION
Action Completion date: 09/23/2011
Operable Unit: 05
Contaminated Media : Groundwater
Engineering Control: Monitoring
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Contaminated Media : Soil
Engineering Control: Monitoring
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 015
Action Name: RECORD OF DECISION
Action Completion date: 09/23/2011
Operable Unit: 05
Contaminated Media : Soil
Engineering Control: Operations & Maintenance (O&M)
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 015
Action Name: RECORD OF DECISION
Action Completion date: 09/23/2011
Operable Unit: 05
Contaminated Media : Soil Gas
Engineering Control: Monitoring
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 015
Action Name: RECORD OF DECISION
Action Completion date: 09/23/2011
Operable Unit: 05
Contaminated Media : Surface Water
Engineering Control: Monitoring
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 017
Action Name: RECORD OF DECISION
Action Completion date: 09/29/2009
Operable Unit: 12
Contaminated Media : Groundwater
Engineering Control: No Further Action
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 017
Action Name: RECORD OF DECISION
Action Completion date: 09/29/2009
Operable Unit: 12
Contaminated Media : Liquid Waste
Engineering Control: No Further Action
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 017

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Map ID
Direction
Distance
Elevation

MAP FINDINGS

EDR ID Number
EPA ID Number

Site

Database(s)

EDR ID Number
EPA ID Number

PEARL HARBOR NAVAL COMPLEX (Continued) 1000707626

Action Name: RECORD OF DECISION
Action Completion date: 09/29/2009
Operable Unit: 12
Contaminated Media : Soil
Engineering Control: No Further Action
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

Action ID: 021
Action Name: RECORD OF DECISION
Action Completion date: 07/12/2012
Operable Unit: 17
Contaminated Media : Soil
Engineering Control: Cap
Contact Name: Not reported
Contact Phone and Ext: Not reported
Event Code Description: Not reported

US INST CONTROL:

EPA ID: HI4170090076
Site ID: 0904481
Name: PEARL HARBOR NAVAL COMPLEX
Action Name: RECORD OF DECISION
Address: US NAVAL COMMAND
PEARL HARBOR, HI 96860

EPA Region: 09
County: HONOLULU
Event Code: Not reported
Inst. Control: Land Use Restriction
Actual Date: 09/30/2010
Comple. Date: 07/02/2010
Operable Unit: 06
Contaminated Media : Soil
Contact Name : Not reported
Contact Phone and Ext.: Not reported
Event Code Description: Not reported

EPA ID: HI4170090076
Site ID: 0904481
Name: PEARL HARBOR NAVAL COMPLEX
Action Name: RECORD OF DECISION
Address: US NAVAL COMMAND
PEARL HARBOR, HI 96860

EPA Region: 09
County: HONOLULU
Event Code: Not reported
Inst. Control: Groundwater use/well drilling regulation
Actual Date: 09/30/2009
Comple. Date: 09/29/2009
Operable Unit: 12
Contaminated Media : Groundwater
Contact Name : Not reported
Contact Phone and Ext.: Not reported
Event Code Description: Not reported

PEARL HARBOR NAVAL COMPLEX (Continued) 1000707626

EPA ID: HI4170090076
Site ID: 0904481
Name: PEARL HARBOR NAVAL COMPLEX
Action Name: RECORD OF DECISION
Address: US NAVAL COMMAND
PEARL HARBOR, HI 96860

EPA Region: 09
County: HONOLULU
Event Code: Not reported
Inst. Control: Access Restriction
Actual Date: 09/30/2009
Comple. Date: 09/29/2009
Operable Unit: 12
Contaminated Media : Soil
Contact Name : Not reported
Contact Phone and Ext.: Not reported
Event Code Description: Not reported

EPA ID: HI4170090076
Site ID: 0904481
Name: PEARL HARBOR NAVAL COMPLEX
Action Name: RECORD OF DECISION
Address: US NAVAL COMMAND
PEARL HARBOR, HI 96860

EPA Region: 09
County: HONOLULU
Event Code: Not reported
Inst. Control: Building, demolition, or excavation regulation
Actual Date: 09/30/2009
Comple. Date: 09/29/2009
Operable Unit: 12
Contaminated Media : Soil
Contact Name : Not reported
Contact Phone and Ext.: Not reported
Event Code Description: Not reported

EPA ID: HI4170090076
Site ID: 0904481
Name: PEARL HARBOR NAVAL COMPLEX
Action Name: RECORD OF DECISION
Address: US NAVAL COMMAND
PEARL HARBOR, HI 96860

EPA Region: 09
County: HONOLULU
Event Code: Not reported
Inst. Control: Deed Restriction
Actual Date: 09/30/2009
Comple. Date: 09/29/2009
Operable Unit: 12
Contaminated Media : Soil
Contact Name : Not reported
Contact Phone and Ext.: Not reported
Event Code Description: Not reported

EPA ID: HI4170090076
Site ID: 0904481
Name: PEARL HARBOR NAVAL COMPLEX

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site
Database(s)
EPA ID Number
EPA ID Number

Site
Database(s)
EPA ID Number
EPA ID Number

PEARL HARBOR NAVAL COMPLEX (Continued)

PEARL HARBOR NAVAL COMPLEX (Continued)

Action Name: RECORD OF DECISION
Address: PEARL HARBOR, HI 96860
EPA Region: 09 HONOLULU
County: HONOLULU
Event Code: Not reported
Inst. Control: Deed Restriction
Actual Date: 09/30/2010
Contact Name: Not reported
Operable Unit: 01
Contaminated Media : Buildings/Structures
Contact Name : Not reported
Contact Phone and Ext.: Not reported
Event Code Description: Not reported
EPA ID: HI4170090076
Site ID: 0904481
Name: PEARL HARBOR NAVAL COMPLEX
Action Name: RECORD OF DECISION
Address: US NAVAL COMMAND
PEARL HARBOR, HI 96860
EPA Region: 09 HONOLULU
County: HONOLULU
Event Code: Not reported
Inst. Control: Land Use Restriction
Actual Date: 09/30/2010
Contact Name: Not reported
Operable Unit: 01
Contaminated Media : Buildings/Structures
Contact Name : Not reported
Contact Phone and Ext.: Not reported
Event Code Description: Not reported
EPA ID: HI4170090076
Site ID: 0904481
Name: PEARL HARBOR NAVAL COMPLEX
Action Name: RECORD OF DECISION
Address: US NAVAL COMMAND
PEARL HARBOR, HI 96860
EPA Region: 09 HONOLULU
County: HONOLULU
Event Code: Not reported
Inst. Control: Deed Restriction
Actual Date: 09/30/2010
Contact Name: Not reported
Operable Unit: 01
Contaminated Media : Buildings/Structures
Contact Name : Not reported
Contact Phone and Ext.: Not reported
Event Code Description: Not reported
EPA ID: HI4170090076
Site ID: 0904481
Name: PEARL HARBOR NAVAL COMPLEX
Action Name: RECORD OF DECISION
Address: US NAVAL COMMAND
PEARL HARBOR, HI 96860

EPA Region: 09 HONOLULU
County: HONOLULU
Event Code: Not reported
Inst. Control: Land Use Restriction
Actual Date: 09/30/2010
Contact Name: Not reported
Operable Unit: 01
Contaminated Media : Soil
Contact Name : Not reported
Contact Phone and Ext.: Not reported
Event Code Description: Not reported
EPA ID: HI4170090076
Site ID: 0904481
Name: PEARL HARBOR NAVAL COMPLEX
Action Name: RECORD OF DECISION
Address: US NAVAL COMMAND
PEARL HARBOR, HI 96860
EPA Region: 09 HONOLULU
County: HONOLULU
Event Code: Not reported
Inst. Control: Covenant
Actual Date: 09/30/2011
Contact Name: Not reported
Operable Unit: 05
Contaminated Media : Soil
Contact Name : Not reported
Contact Phone and Ext.: Not reported
Event Code Description: Not reported
EPA ID: HI4170090076
Site ID: 0904481
Name: PEARL HARBOR NAVAL COMPLEX
Action Name: RECORD OF DECISION
Address: US NAVAL COMMAND
PEARL HARBOR, HI 96860
EPA Region: 09 HONOLULU
County: HONOLULU
Event Code: Not reported
Inst. Control: Institutional Controls, (N.O.S.)
Actual Date: 09/30/2011
Contact Name: Not reported
Operable Unit: 06
Contaminated Media : Soil
Contact Name : Not reported
Contact Phone and Ext.: Not reported
Event Code Description: Not reported
EPA ID: HI4170090076
Site ID: 0904481
Name: PEARL HARBOR NAVAL COMPLEX
Action Name: RECORD OF DECISION
Address: US NAVAL COMMAND
PEARL HARBOR, HI 96860
EPA Region: 09 HONOLULU
County: HONOLULU
Event Code: Not reported

Map ID
Direction
Distance
Elevation



Site

Database(s)

Map ID
Direction
Distance
Elevation



Site

Database(s)

EDR ID Number
EPA ID Number

PEARL HARBOR NAVAL COMPLEX (Continued)

100070626

100070626

Inst. Control: Land Use Restriction
Actual Date: 09/30/2011
Comple. Date: 09/23/2011
Operable Unit: 05
Contaminated Media : Soil
Contact Name : Not reported
Contact Phone and Ext.: Not reported
Event Code Description: Not reported

EPA ID: HI4170090076
Site ID: 0904481
Name: PEARL HARBOR NAVAL COMPLEX
Action Name: RECORD OF DECISION
Address: US NAVAL COMMAND
PEARL HARBOR, HI 96860

EPA Region: 09
County: HONOLULU
Event Code: Not reported
Inst. Control: Access Restriction, Fencing
Actual Date: 09/30/2010
Comple. Date: 09/27/2010
Operable Unit: 14
Contaminated Media : Groundwater
Contact Name : Not reported
Contact Phone and Ext.: Not reported
Event Code Description: Not reported

EPA ID: HI4170090076
Site ID: 0904481
Name: PEARL HARBOR NAVAL COMPLEX
Action Name: RECORD OF DECISION
Address: US NAVAL COMMAND
PEARL HARBOR, HI 96860

EPA Region: 09
County: HONOLULU
Event Code: Not reported
Inst. Control: Access Restriction, Guards
Actual Date: 09/30/2010
Comple. Date: 09/27/2010
Operable Unit: 14
Contaminated Media : Groundwater
Contact Name : Not reported
Contact Phone and Ext.: Not reported
Event Code Description: Not reported

EPA ID: HI4170090076
Site ID: 0904481
Name: PEARL HARBOR NAVAL COMPLEX
Action Name: RECORD OF DECISION
Address: US NAVAL COMMAND
PEARL HARBOR, HI 96860

EPA Region: 09
County: HONOLULU
Event Code: Not reported
Inst. Control: Covenant
Actual Date: 09/30/2010
Comple. Date: 09/27/2010

Operable Unit: 14
Contaminated Media : Groundwater
Contact Name : Not reported
Contact Phone and Ext.: Not reported
Event Code Description: Not reported

EPA ID: HI4170090076
Site ID: 0904481
Name: PEARL HARBOR NAVAL COMPLEX
Action Name: RECORD OF DECISION
Address: US NAVAL COMMAND
PEARL HARBOR, HI 96860

EPA Region: 09
County: HONOLULU
Event Code: Not reported
Inst. Control: Deed Notices
Actual Date: 09/30/2010
Comple. Date: 09/27/2010
Operable Unit: 14
Contaminated Media : Groundwater
Contact Name : Not reported
Contact Phone and Ext.: Not reported
Event Code Description: Not reported

EPA ID: HI4170090076
Site ID: 0904481
Name: PEARL HARBOR NAVAL COMPLEX
Action Name: RECORD OF DECISION
Address: US NAVAL COMMAND
PEARL HARBOR, HI 96860

EPA Region: 09
County: HONOLULU
Event Code: Not reported
Inst. Control: Deed Restriction
Actual Date: 09/30/2010
Comple. Date: 09/27/2010
Operable Unit: 14
Contaminated Media : Groundwater
Contact Name : Not reported
Contact Phone and Ext.: Not reported
Event Code Description: Not reported

EPA ID: HI4170090076
Site ID: 0904481
Name: PEARL HARBOR NAVAL COMPLEX
Action Name: RECORD OF DECISION
Address: US NAVAL COMMAND
PEARL HARBOR, HI 96860

EPA Region: 09
County: HONOLULU
Event Code: Not reported
Inst. Control: Access Restriction, Fencing
Actual Date: 09/30/2010
Comple. Date: 09/27/2010
Operable Unit: 14
Contaminated Media : Soil
Contact Name : Not reported

MAP FINDINGS

100070626

PEARL HARBOR NAVAL COMPLEX (Continued)

EPA ID: HI4170090076
 Site ID: 0904481
 Name: PEARL HARBOR NAVAL COMPLEX
 Action Name: RECORD OF DECISION
 Address: US NAVAL COMMAND
 PEARL HARBOR, HI 96860
 EPA Region: 09
 County: HONOLULU
 Event Code: Not reported
 Inst. Control: Deed Restriction
 Actual Date: 09/30/2010
 Complet. Date: 09/27/2010
 Operable Unit: 14
 Contaminated Media : Soil
 Contact Name : Not reported
 Contact Phone and Ext.: Not reported
 Event Code Description: Not reported

EPA ID: HI4170090076
 Site ID: 0904481
 Name: PEARL HARBOR NAVAL COMPLEX
 Action Name: RECORD OF DECISION
 Address: US NAVAL COMMAND
 PEARL HARBOR, HI 96860
 EPA Region: 09
 County: HONOLULU
 Event Code: Not reported
 Inst. Control: Land Use Restriction
 Actual Date: 06/30/2013
 Complet. Date: 07/12/2012
 Operable Unit: 17
 Contaminated Media : Soil
 Contact Name : Not reported
 Contact Phone and Ext.: Not reported
 Event Code Description: Not reported

ROD:

EPA ID: HI4170090076
 Site ID: 9
 Name: PEARL HARBOR NAVAL COMPLEX
 Action: FF ROD (RCRA Statement of Basis/RTC)
 Operable Unit Number: 2
 SEQ ID: WESTLOCH BLDG 49
 Action Completion: 2006-09-28 00:00:00
 NPL Status: Final
 Non NPL Status: Not reported

EPA ID: HI4170090076
 Site ID: 9
 Name: PEARL HARBOR NAVAL COMPLEX
 Action: FF ROD (RCRA Statement of Basis/RTC)
 Operable Unit Number: 3
 SEQ ID: MANANA STORAGE
 Action Completion: 2006-09-28 00:00:00
 NPL Status: Final

MAP FINDINGS

100070626

PEARL HARBOR NAVAL COMPLEX (Continued)

Contact Phone and Ext.: Not reported
 Event Code Description: Not reported

EPA ID: HI4170090076
 Site ID: 0904481
 Name: PEARL HARBOR NAVAL COMPLEX
 Action Name: RECORD OF DECISION
 Address: US NAVAL COMMAND
 PEARL HARBOR, HI 96860
 EPA Region: 09
 County: HONOLULU
 Event Code: Not reported
 Inst. Control: Access Restriction, Guards
 Actual Date: 09/30/2010
 Complet. Date: 09/27/2010
 Operable Unit: 14
 Contaminated Media : Soil
 Contact Name : Not reported
 Contact Phone and Ext.: Not reported
 Event Code Description: Not reported

EPA ID: HI4170090076
 Site ID: 0904481
 Name: PEARL HARBOR NAVAL COMPLEX
 Action Name: RECORD OF DECISION
 Address: US NAVAL COMMAND
 PEARL HARBOR, HI 96860
 EPA Region: 09
 County: HONOLULU
 Event Code: Not reported
 Inst. Control: Covenant
 Actual Date: 09/30/2010
 Complet. Date: 09/27/2010
 Operable Unit: 14
 Contaminated Media : Soil
 Contact Name : Not reported
 Contact Phone and Ext.: Not reported
 Event Code Description: Not reported

ROD:

EPA ID: HI4170090076
 Site ID: 0904481
 Name: PEARL HARBOR NAVAL COMPLEX
 Action Name: RECORD OF DECISION
 Address: US NAVAL COMMAND
 PEARL HARBOR, HI 96860
 EPA Region: 09
 County: HONOLULU
 Event Code: Not reported
 Inst. Control: Deed Notices
 Actual Date: 09/30/2010
 Complet. Date: 09/27/2010
 Operable Unit: 14
 Contaminated Media : Soil
 Contact Name : Not reported
 Contact Phone and Ext.: Not reported
 Event Code Description: Not reported

Site	PEARL HARBOR NAVAL COMPLEX (Continued)	Database(s)	EDR ID Number EPA ID Number
	Non NPL Status: Not reported		1000707626
	EPA ID: H14170090076		1000707626
	RG: 9		
	Site ID: 904481		
	Name: PEARL HARBOR NAVAL COMPLEX		
	Action: FF ROD (RCRA Statement of Basis/RTC)		
	Operable Unit Number: PCB THERMAL DESORPTION SITES		
	SEQ ID: 13		
	Action Completion: 2010-09-14 00:00:00		
	NPL Status: Final		
	Non NPL Status: Not reported		
	EPA ID: H14170090076		
	RG: 9		
	Site ID: 904481		
	Name: PEARL HARBOR NAVAL COMPLEX		
	Action: FF ROD (RCRA Statement of Basis/RTC)		
	Operable Unit Number: FORD ISLAND LANDFILL		
	SEQ ID: 15		
	Action Completion: 2011-09-23 00:00:00		
	NPL Status: Final		
	Non NPL Status: Not reported		
	EPA ID: H14170090076		
	RG: 9		
	Site ID: 904481		
	Name: PEARL HARBOR NAVAL COMPLEX		
	Action: FF ROD (RCRA Statement of Basis/RTC)		
	Operable Unit Number: FORD IS HAZ SITES (SANS LF)		
	SEQ ID: 17		
	Action Completion: 2009-09-29 00:00:00		
	NPL Status: Final		
	Non NPL Status: Not reported		
	EPA ID: H14170090076		
	RG: 0		
	Site ID: 904481		
	Name: PEARL HARBOR NAVAL COMPLEX		
	Action: FF ROD (RCRA Statement of Basis/RTC)		
	Operable Unit Number: PEARL CITY JUNCTION		
	SEQ ID: 18		
	Action Completion: 2010-09-27 00:00:00		
	NPL Status: Final		
	Non NPL Status: Not reported		
	EPA ID: H14170090076		
	RG: 9		
	Site ID: 904481		
	Name: PEARL HARBOR NAVAL COMPLEX		
	Action: FF ROD (RCRA Statement of Basis/RTC)		
	Operable Unit Number: NSY BLDG 6, FORMER FOUNDRY		
	SEQ ID: 21		
	Action Completion: 2012-07-12 00:00:00		
	NPL Status: Final		
	Non NPL Status: Not reported		
	EPA ID: H14170090076		
	RG: 9		

Site	PEARL HARBOR NAVAL COMPLEX (Continued)	Database(s)	EDR ID Number EPA ID Number
	Non NPL Status: Not reported		1000707626
	EPA ID: H14170090076		1000707626
	RG: 9		
	Site ID: 904481		
	Name: PEARL HARBOR NAVAL COMPLEX		
	Action: FF ROD (RCRA Statement of Basis/RTC)		
	Operable Unit Number: NSY DRY DOCK #3		
	SEQ ID: 4		
	Action Completion: 2010-07-02 00:00:00		
	NPL Status: Final		
	Non NPL Status: Not reported		
	EPA ID: H14170090076		
	RG: 9		
	Site ID: 904481		
	Name: PEARL HARBOR NAVAL COMPLEX		
	Action: FF ROD (RCRA Statement of Basis/RTC)		
	Operable Unit Number: FORD IS HAZ SITES (SANS LF)		
	SEQ ID: 5		
	Action Completion: 2009-09-29 00:00:00		
	NPL Status: Final		
	Non NPL Status: Not reported		
	EPA ID: H14170090076		
	RG: 9		
	Site ID: 904481		
	Name: PEARL HARBOR NAVAL COMPLEX		
	Action: FF ROD (RCRA Statement of Basis/RTC)		
	Operable Unit Number: PH SEDIMENT		
	SEQ ID: 6		
	Action Completion: 2018-09-26 00:00:00		
	NPL Status: Final		
	Non NPL Status: Not reported		
	EPA ID: H14170090076		
	RG: 0		
	Site ID: 904481		
	Name: PEARL HARBOR NAVAL COMPLEX		
	Action: PWC-IMAKALAPA RINSATE PIT		
	Operable Unit Number: PEARL HARBOR NAVAL COMPLEX		
	SEQ ID: 10		
	Action Completion: 2010-09-27 00:00:00		
	NPL Status: Final		
	Non NPL Status: Not reported		
	EPA ID: H14170090076		
	RG: 9		
	Site ID: 904481		
	Name: PEARL HARBOR NAVAL COMPLEX		
	Action: FF ROD (RCRA Statement of Basis/RTC)		
	Operable Unit Number: PCB THERMAL DESORPTION SITES		
	SEQ ID: 12		
	Action Completion: 2007-09-28 00:00:00		
	NPL Status: Final		
	Non NPL Status: Not reported		

MAP FINDINGS

PEARL HARBOR NAVAL COMPLEX (Continued)

1000707626

1000707626

1000707626

Site ID: 904481
Name: PEARL HARBOR NAVAL COMPLEX
Action: FF ROD (RCRA Statement of Basis/RTC)
SEQ ID: WEST LOCH 4TH ST, CORAL PIT LF
24
Action Completion: 2014-09-15 00:00:00
NPL Status: Final
Non NPL Status: Not reported

EPA ID: H14170090076
RG: 9
Site ID: 904481
Name: PEARL HARBOR NAVAL COMPLEX
Action: GOVT Decision Document (ROD)
SEQ ID: RAA 11 AND 13
25
Action Completion: 2013-03-29 00:00:00
NPL Status: Final
Non NPL Status: Not reported

EPA ID: H14170090076
RG: 9
Site ID: 904481
Name: PEARL HARBOR NAVAL COMPLEX
Action: GOVT Decision Document (ROD)
SEQ ID: RAA 11 AND 13
25
Action Completion: 2013-03-29 00:00:00
NPL Status: Final
Non NPL Status: Not reported

EPA ID: H14170090076
RG: 9
Site ID: 904481
Name: PEARL HARBOR NAVAL COMPLEX
Action: GOVT Decision Document (ROD)
SEQ ID: RAA 11 AND 13
25
Action Completion: 2013-03-29 00:00:00
NPL Status: Final
Non NPL Status: Not reported

Site ID: H14170090076
RG: 9
Site ID: 904481
Name: PEARL HARBOR NAVAL COMPLEX
Action: PWC MAKALAPA RINSATE PIT
1
Action Completion: 2016-02-11 00:00:00
NPL Status: Final
Non NPL Status: Not reported

Site ID: H14170090076
RG: 9
Site ID: 904481
Name: PEARL HARBOR NAVAL COMPLEX
Action: PWC MAKALAPA RINSATE PIT
1
Action Completion: 2016-02-11 00:00:00
NPL Status: Final
Non NPL Status: Not reported

Site ID: H14170090076
RG: 9
Site ID: 904481
Name: PEARL HARBOR NAVAL COMPLEX
Action: PWC MAKALAPA RINSATE PIT
1
Action Completion: 2016-02-11 00:00:00
NPL Status: Final
Non NPL Status: Not reported

Site ID: H14170090076
RG: 9
Site ID: 904481
Name: PEARL HARBOR NAVAL COMPLEX
Action: PWC MAKALAPA RINSATE PIT
1
Action Completion: 2016-02-11 00:00:00
NPL Status: Final
Non NPL Status: Not reported

PRP: OAHU SUGAR COMPANY, LLC
OAHU SUGAR COMPANY, LLC

PRP: OAHU SUGAR COMPANY, LLC
OAHU SUGAR COMPANY, LLC

PRP: OAHU SUGAR COMPANY, LLC
OAHU SUGAR COMPANY, LLC

PRP: OAHU SUGAR COMPANY, LLC
OAHU SUGAR COMPANY, LLC

A1
< 1/8
1 ft.

Relative:
Lower
Actual:
15 ft.

Relative:
Lower
Actual:
15 ft.

Relative:
Lower
Actual:
15 ft.

VOLVO HAWAII
98-075 KAMEHAMEHA HWY
AIEA, HI

Site 1 of 10 in cluster A

Site 1 of 10 in cluster A

Site 1 of 10 in cluster A

RGA LUST:
2012 VOLVO HAWAII 98-075 KAMEHAMEHA HWY
2011 VOLVO HAWAII 98-075 KAMEHAMEHA HWY
2010 VOLVO HAWAII 98-075 KAMEHAMEHA HWY
2009 VOLVO HAWAII 98-075 KAMEHAMEHA HWY
2008 VOLVO HAWAII 98-075 KAMEHAMEHA HWY
2007 VOLVO HAWAII 98-075 KAMEHAMEHA HWY
2006 VOLVO HAWAII 98-075 KAMEHAMEHA HWY
2005 VOLVO HAWAII 98-075 KAMEHAMEHA HWY
2004 VOLVO HAWAII 98-075 KAMEHAMEHA HWY
2003 VOLVO HAWAII 98-075 KAMEHAMEHA HWY
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2001 VOLVO HAWAII 98-075 KAMEHAMEHA HWY
2000 VOLVO HAWAII 98-075 KAMEHAMEHA HWY
1999 VOLVO HAWAII 98-075 KAMEHAMEHA HWY

RGA LUST:
2012 VOLVO HAWAII 98-075 KAMEHAMEHA HWY
2011 VOLVO HAWAII 98-075 KAMEHAMEHA HWY
2010 VOLVO HAWAII 98-075 KAMEHAMEHA HWY
2009 VOLVO HAWAII 98-075 KAMEHAMEHA HWY
2008 VOLVO HAWAII 98-075 KAMEHAMEHA HWY
2007 VOLVO HAWAII 98-075 KAMEHAMEHA HWY
2006 VOLVO HAWAII 98-075 KAMEHAMEHA HWY
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2003 VOLVO HAWAII 98-075 KAMEHAMEHA HWY
2002 VOLVO HAWAII 98-075 KAMEHAMEHA HWY
2001 VOLVO HAWAII 98-075 KAMEHAMEHA HWY
2000 VOLVO HAWAII 98-075 KAMEHAMEHA HWY
1999 VOLVO HAWAII 98-075 KAMEHAMEHA HWY

RGA LUST:
2012 VOLVO HAWAII 98-075 KAMEHAMEHA HWY
2011 VOLVO HAWAII 98-075 KAMEHAMEHA HWY
2010 VOLVO HAWAII 98-075 KAMEHAMEHA HWY
2009 VOLVO HAWAII 98-075 KAMEHAMEHA HWY
2008 VOLVO HAWAII 98-075 KAMEHAMEHA HWY
2007 VOLVO HAWAII 98-075 KAMEHAMEHA HWY
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2001 VOLVO HAWAII 98-075 KAMEHAMEHA HWY
2000 VOLVO HAWAII 98-075 KAMEHAMEHA HWY
1999 VOLVO HAWAII 98-075 KAMEHAMEHA HWY

RGA LUST:
2012 VOLVO HAWAII 98-075 KAMEHAMEHA HWY
2011 VOLVO HAWAII 98-075 KAMEHAMEHA HWY
2010 VOLVO HAWAII 98-075 KAMEHAMEHA HWY
2009 VOLVO HAWAII 98-075 KAMEHAMEHA HWY
2008 VOLVO HAWAII 98-075 KAMEHAMEHA HWY
2007 VOLVO HAWAII 98-075 KAMEHAMEHA HWY
2006 VOLVO HAWAII 98-075 KAMEHAMEHA HWY
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2002 VOLVO HAWAII 98-075 KAMEHAMEHA HWY
2001 VOLVO HAWAII 98-075 KAMEHAMEHA HWY
2000 VOLVO HAWAII 98-075 KAMEHAMEHA HWY
1999 VOLVO HAWAII 98-075 KAMEHAMEHA HWY

B2 PACIFIC OLDSMOBILE GMC VOLKSWAGEN (Continued) 1000601368

Relative: Higher Actual: 16 ft.

Site 1 of 4 in cluster B

RCRA-CESQG: PACIFIC OLDSMOBILE GMC VOLKSWAGEN
 Date form received by agency: 12/30/1987
 Facility name: 98 055 KAM HWY
 Facility address: AIEA, HI 96701
 EPA ID: 98055KAMHWY
 Mailing address: 900 ALA MOANA BLVD
 HONOLULU, HI 96814
 Contact: Not reported
 Contact address: Not reported
 Contact country: Not reported
 Contact telephone: Not reported
 Contact email: Not reported
 EPA Region: 09
 Land type: Not reported
 Classification: Not reported
 Description: Facility is not located on Indian land. Additional information is not known. Conditionally Exempt Small Quantity Generator

Owner/Operator Summary: Not reported
 Legal status: Private
 Owner/Operator Type: Operator
 Owner/Op start date: Not reported
 Owner/Op end date: Not reported

Handler Activities Summary:
 U.S. importer of hazardous waste: No
 Mixed waste (haz and radioactive): No
 Recycler of hazardous waste: No
 Transporter of hazardous waste: No
 Treater, storer, or disposer of HW: No
 Underground injection activity: No
 On-site burner exemption: No
 Furnace exemption: No
 Used oil fuel burner: No
 Used oil processor: No
 Used oil refiner: No
 Used oil fuel marketer to burner: No
 Used oil Specification marketer: No
 Used oil transfer facility: No
 Used oil transporter: No

Historical Generators:
 Date form received by agency: 03/11/1991
 Site name: PACIFIC OLDSMOBILE GMC VOLKSWAGEN
 Classification: Small Quantity Generator

Violation Status: No violations found

Evaluation Action Summary:
 Evaluation date: 04/01/1996
 Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
 Area of violation: Not reported
 Date achieved compliance: Not reported
 Evaluation lead agency: State

Environmental Interests/Information System
 RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

ECHO:
 Envid: 1000601368
 Registry ID: 11009359942

Click [this hyperlink](#) while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

B2 PACIFIC OLDSMOBILE GMC VOLKSWAGEN 1000601368

Relative: Higher Actual: 16 ft.

Site 1 of 4 in cluster B

RCRA-CESQG: PACIFIC OLDSMOBILE GMC VOLKSWAGEN
 Date form received by agency: 12/30/1987
 Facility name: 98 055 KAM HWY
 Facility address: AIEA, HI 96701
 EPA ID: 98055KAMHWY
 Mailing address: 900 ALA MOANA BLVD
 HONOLULU, HI 96814
 Contact: Not reported
 Contact address: Not reported
 Contact country: Not reported
 Contact telephone: Not reported
 Contact email: Not reported
 EPA Region: 09
 Land type: Not reported
 Classification: Not reported
 Description: Facility is not located on Indian land. Additional information is not known. Conditionally Exempt Small Quantity Generator

Owner/Operator Summary: Not reported
 Legal status: Private
 Owner/Operator Type: Operator
 Owner/Op start date: Not reported
 Owner/Op end date: Not reported

Historical Generators:
 Date form received by agency: 03/11/1991
 Site name: PACIFIC OLDSMOBILE GMC VOLKSWAGEN
 Classification: Small Quantity Generator

Violation Status: No violations found

Evaluation Action Summary:
 Evaluation date: 04/01/1996
 Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
 Area of violation: Not reported
 Date achieved compliance: Not reported
 Evaluation lead agency: State

Environmental Interests/Information System
 RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

ECHO:
 Envid: 1000601368
 Registry ID: 11009359942

Click [this hyperlink](#) while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

PACIFIC OLDSMOBILE GMC VOLKSWAGEN (Continued)
 DFR URL: <http://echo.epa.gov/detailed-facility-report?Id=110009595842>

A3
 < 1/8
 1 ft.
 Relative:
 Higher
 Actual:
 17 ft.

CONTINENTAL INVESTMENT CO.
98-069 KAMEHAMEHA HWY
AIEA, HI 96701
 Site 2 of 10 in cluster A

UST:
 Facility ID: 9-200359
 Owner: ASSOCIATED STEEL WORKERS, LTD
 Owner Address: Not reported
 Owner City, St, Zip: Aiea, 96701, 96701
 Latitude: Not reported
 Longitude: Not reported
 Horizontal Reference Datum Name: Not reported
 Horizontal Collection Method Name: Not reported

Tank ID: R-1
 Date Installed: 04/28/1966
Tank Status: Permanently Out of Use
 Date Closed: 10/13/1992
 Tank Capacity: 1000
 Substance: Gasoline

Tank ID: R-2
 Date Installed: Not reported
Tank Status: Permanently Out of Use
 Date Closed: 10/13/1992
 Tank Capacity: 2000
 Substance: Diesel

Tank ID: R-3
 Date Installed: Not reported
Tank Status: Permanently Out of Use
 Date Closed: 10/13/1992
 Tank Capacity: 1000
 Substance: Diesel

A4
 < 1/8
 1 ft.
 Relative:
 Lower
 Actual:
 15 ft.

VOLVO HAWAII
98-075 KAMEHAMEHA HWY
AIEA, HI 96701
 Site 3 of 10 in cluster A

LUST:
 Facility ID: 9-200359
 Facility Status: Site Cleanup Completed (NFA)
 Facility Status Date: 06/10/1999
 Release ID: 980257
 Project Officer: Jose Ruiz

UST:
 Facility ID: 9-200359

VOLVO HAWAII (Continued)

JIM SLEMONS HAWAII INC.
98-075 KAMEHAMEHA HWY
Aiea, 96701 96701
 Owner Address: 21,383,718
 Latitude: -157,947,527
 Longitude: NAD83
 Horizontal Reference Datum Name: Address Matching
 Horizontal Collection Method Name:

Tank ID: R-1
 Date Installed: 05/19/1978
Tank Status: Permanently Out of Use
 Date Closed: 09/12/1998
 Tank Capacity: 550
 Substance: Used Oil

A5
 < 1/8
 1 ft.
 Relative:
 Lower
 Actual:
 11 ft.

ARMY HAWAII RESIDENTIAL COMMUNITIES INITIATIVE-SCH
 HI
 Site 4 of 10 in cluster A

Environmental Interest/Information System
 STATE MASTER
 Registry ID: 110055400105

Environmental Interest/Information System
 STATE MASTER
 Registry ID: 110055400196

Environmental Interest/Information System
 STATE MASTER
 Registry ID: 110055125289

Environmental Interest/Information System
 STATE MASTER
 Registry ID: 110055125939

Environmental Interest/Information System
 STATE MASTER

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

EDR ID Number
EPA ID Number

Database(s)

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

EDR ID Number
EPA ID Number

Database(s)

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

EDR ID Number
EPA ID Number

Database(s)

B6
ENE
< 1/8
0.002 mi.
9 ft.

Relative:
Higher
Actual:
16 ft.

Site 2 of 4 in cluster B

LUST:
Facility ID: 9-201475
Facility Status: Site Cleanup Completed (NFA)
Facility Status Date: 10/01/2004
Release ID: 990072
Project Officer: Randall Heu

UST:
Facility ID: 9-202018
Owner: ISLAND LANDSCAPING
Owner Address: 98-055 KAMEHAMEHA HWY
Owner City/ST/Zip: Aiea, 96701 96701
Latitude: Not reported
Longitude: Not reported
Horizontal Reference Datum Name: Not reported
Horizontal Collection Method Name: Not reported

Tank ID:
Date Installed: R-1
Date Closed: Not reported
Tank Capacity: 4000
Substance: Gasoline

Tank Status:
Permanently Out of Use

Tank ID:
Date Installed: r-1
Date Closed: 03/19/1984
Tank Capacity: 550
Substance: Other

Tank Status:
Permanently Out of Use

Tank ID:
Date Installed: r-2
Date Closed: 03/19/1984
Tank Capacity: 1000
Substance: Used Oil

Tank Status:
Permanently Out of Use

HI Financial Assurance:
Alt Facility ID: 9-201475
Tank Id: r-1
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

Alt Facility ID:
9-201475
Tank Id:
r-2
Tank Status:
Permanently Out of Use
FRTYPE:
Insurance
Expiration Date:
Not reported

TONY HONDA PEARLRIDGE
98-055 KAMEHAMEHA HWY
AIEA, HI 96701

Site 2 of 4 in cluster B

LUST:
Facility ID: 9-201475
Facility Status: Site Cleanup Completed (NFA)
Facility Status Date: 10/01/2004
Release ID: 990072
Project Officer: Randall Heu

UST:
Facility ID: 9-202018
Owner: ISLAND LANDSCAPING
Owner Address: 98-055 KAMEHAMEHA HWY
Owner City/ST/Zip: Aiea, 96701 96701
Latitude: Not reported
Longitude: Not reported
Horizontal Reference Datum Name: Not reported
Horizontal Collection Method Name: Not reported

Tank ID:
Date Installed: R-1
Date Closed: Not reported
Tank Capacity: 4000
Substance: Gasoline

Tank Status:
Permanently Out of Use

Tank ID:
Date Installed: r-1
Date Closed: 03/19/1984
Tank Capacity: 550
Substance: Other

Tank Status:
Permanently Out of Use

Tank ID:
Date Installed: r-2
Date Closed: 03/19/1984
Tank Capacity: 1000
Substance: Used Oil

Tank Status:
Permanently Out of Use

HI Financial Assurance:
Alt Facility ID: 9-201475
Tank Id: r-1
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

Alt Facility ID:
9-201475
Tank Id:
r-2
Tank Status:
Permanently Out of Use
FRTYPE:
Insurance
Expiration Date:
Not reported

ALOHA PETROLEUM: YUNNIE'S SHELL
98-135 KAMEHAMEHA HWY
AIEA, HI 96701

Site 5 of 10 in cluster A

Relative:
Lower
Actual:
15 ft.

RCRA-CESQG:
Date form received by agency: 07/06/2018
Facility name: ALOHA PETROLEUM: YUNNIE'S SHELL
Facility address: 98-135 KAMEHAMEHA HWY
AIEA, HI 96701
HIR000110874

EPA ID:
GREGORY MCCARTNEY
1132 BISHOP ST, SUITE 1700
HONOLULU, HI 96813

Contact:
Contact address:
Contact country: US
Contact telephone: 808-522-9704
Contact email: GIMCCARTNEY@ALOHAGAS.COM
EPA Region: 09

Classification:
Conditionally Exempt Small Quantity Generator
Description:
Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

ALOHA PETROLEUM LTD
1132 BISHOP ST, SUITE 1700
HONOLULU, HI 96813

Owner/Operator Summary:
Owner/operator name:
ALOHA PETROLEUM LTD
Owner/operator address:
1132 BISHOP ST, SUITE 1700
HONOLULU, HI 96813
US

Owner/operator country:
808-522-9700
Owner/operator telephone:
Not reported
Owner/operator email:
Not reported
Owner/operator fax:
Not reported
Owner/operator extension:
Not reported
Legal status:
Private
Owner/Operator Type:
Owner
Owner/Op start date:
03/01/1999
Owner/Op end date:
Not reported

Owner/operator name:
ALOHA PETROLEUM LTD
Owner/operator address:
1132 BISHOP ST, SUITE 1700
HONOLULU, HI 96813
US

Owner/operator country:
808-522-9700
Owner/operator telephone:
Not reported
Owner/operator email:
Not reported
Owner/operator fax:
Not reported
Owner/operator extension:
Not reported
Legal status:
Private
Owner/Operator Type:
Operator

Owner/Op start date: 03/01/1999
 Owner/Op end date: Not reported

Handler Activities Summary:
 U.S. importer of hazardous waste: No
 Mixed waste (haz. and radioactive): No
 Recycler of hazardous waste: No
 Transporter of hazardous waste: No
 Treater, storer or disposer of HW: No
 Underground injection activity: No
 On-site burner exemption: No
 Furnace exemption: No
 Used oil fuel burner: No
 Used oil processor: No
 Used oil refiner: No
 Used oil fuel marketer to burner: No
 Used oil Specification marketer: No
 Used oil transfer facility: No
 Used oil transporter: No

Historical Generators:
 Date form received by agency: 06/12/2018
 Site name: YUNNIE'S SHELL
 Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 03/01/2012
 Site name: YUNNIE'S SHELL
 Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 12/20/2001
 Site name: SHELL SERVICE STATION
 Classification: Small Quantity Generator

Hazardous Waste Summary:

- Waste code: D001
- Waste name: IGNITABLE WASTE
- Waste code: D018
- Waste name: BENZENE

Violation Status: No violations found

SHELL SERVICE STATION SAP 139535
 98-080 KAMEHAMEHA HWY
 AIEA, HI 96701

RCRA NonGen / NLR 1005415822
 HIR00011708

Site 6 of 10 in cluster A

RCRA NonGen / NLR:
 Date form received by agency: 12/06/2018
 Facility name: SHELL SERVICE STATION SAP 139535
 Facility address: 98-080 KAMEHAMEHA HWY
 AIEA, HI 96701
 HIR00011708
 EPA ID: S. WILMINGTON AVE
 Mailing address: CARSON, CA 90810

A8
ESE
 < 1/8
 0.003 mi.
 17 ft.

Relative Lower Actual: 15 ft.

Contact:
 SCOTT BURKEY
 S. WILMINGTON AVE
 CARSON, CA 90810

Contact country: US
Contact telephone: 214-483-5460
Contact email: WASTECOPLIANCE@GHD.COM
EPA Region: 09
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: EQUILON ENTERPRISES L L C
Owner/operator address: P.O. BOX 2648
 HOUSTON, TX 77252
Owner/operator country: Not reported
Owner/operator telephone: 713-241-5036
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Private
Legal status: Owner
Owner/Operator Type: Not reported
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: EQUILON ENTERPRISES LLC DBA SHELL OIL PRODUCTS US
Owner/operator address: S. WILMINGTON AVE
 CARSON, CA 90810

Owner/operator country: US
Owner/operator telephone: 214-483-5460
Owner/operator email: WASTECOPLIANCE@GHD.COM
Owner/operator fax: Not reported
Owner/operator extension: Private
Legal status: Operator
Owner/Operator Type: Not reported
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: EQUILON ENTERPRISES LLC DBA SHELL OIL PRODUCTS US
Owner/operator address: S. WILMINGTON AVE
 CARSON, CA 90810

Owner/operator country: US
Owner/operator telephone: 214-483-5460
Owner/operator email: WASTECOPLIANCE@GHD.COM
Owner/operator fax: Not reported
Owner/operator extension: Private
Legal status: Owner
Owner/Operator Type: Not reported
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
 U.S. importer of hazardous waste: No
 Mixed waste (haz. and radioactive): No
 Recycler of hazardous waste: No
 Transporter of hazardous waste: No
 Treater, storer or disposer of HW: No

TONY HONDA PEARLRIDGE (Continued)

any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of facility hazardous waste

1005415822

1000440084

Owner/Operator Summary:
 Owner/operator name: TONY MASAMITSU
 Owner/operator address: NOT REQUIRED, ME 99999
 Owner/operator country: Not reported
 Owner/operator telephone: 415-555-1212
 Owner/operator email: Not reported
 Owner/operator fax: Not reported
 Owner/operator extension: Not reported
 Legal status: Private
 Owner/Operator Type: Owner
 Owner/Op start date: Not reported
 Owner/Op end date: Not reported

Owner/operator name: NOT REQUIRED
 Owner/operator address: NOT REQUIRED, ME 99999
 Owner/operator country: Not reported
 Owner/operator telephone: 415-555-1212
 Owner/operator email: Not reported
 Owner/operator fax: Not reported
 Owner/operator extension: Not reported
 Legal status: Private
 Owner/Operator Type: Operator
 Owner/Op start date: Not reported
 Owner/Op end date: Not reported

SHELL SERVICE STATION SAP 139535 (Continued)

Underground injection activity: No
 On-site burner exemption: No
 Furnace exemption: No
 Used oil fuel burner: No
 Used oil processor: No
 User oil refiner: No
 Used oil fuel marketer to burner: No
 Used oil Specification marketer: No
 Used oil transfer facility: No
 Used oil transporter: No

Historical Generators:
 Date form received by agency: 01/24/2002
 Site name: SHELL SERVICE STATION
 Classification: Small Quantity Generator

Hazardous Waste Summary:
 Waste code: D001
 Waste name: IGNITABLE WASTE
 Waste code: D018
 Waste name: BENZENE
 Violation Status: No violations found

1005415822

1000440084

TONY HONDA PEARLRIDGE

RCRA-CESQG
 98051 KAMEHAMEHA HWY
 AIEA, HI 96701

1000440084
 FINDS
 ECHO

SHELL SERVICE STATION SAP 139535

Site 3 of 4 in cluster B
 RCRA-CESQG
 Date form received by agency: 12/30/1987
 Facility name: TONY HONDA PEARLRIDGE
 Facility address: 98051 KAMEHAMEHA HWY
 AIEA, HI 96701
 EPA ID: HID981638059
 Contact: Not reported
 Contact address: Not reported
 Contact country: Not reported
 Contact telephone: Not reported
 Contact email: Not reported
 EPA Region: 09
 Land type: Facility is not located on Indian land. Additional information is not known.
 Classification: Conditionally Exempt Small Quantity Generator
 Description: Facility generates 100 kg or less of hazardous waste per calendar month and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month and accumulates at any time; 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, or acutely hazardous waste, or generates 100 kg or less from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time; 1 kg or less of acutely hazardous waste, or 100 kg or less of

1005415822

1000440084

TONY HONDA PEARLIDGE (Continued) **1000440084**

Evaluation Action Summary: 04/01/1986
 Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
 Area of violation: Not reported
 Date achieved compliance: Not reported
 Evaluation lead agency: State

FINDS:
 Registry ID: 110014032288

Environmental Interest/Information System

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

[Click this hyperlink](#) while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
 Envid: 1000440084
 Registry ID: 110014032288
 DFR URL: <http://echo.epa.gov/detailed-facility-report?fid=110014032288>

JIM SLEMONS VOLVO HI INC **RCRA NonGen / NLR** **1000131914**
98 075 KAM HWY **AIEA, HI 96701** **HD982370512**

Site 7 of 10 in cluster A

RCRA NonGen/ NLR:
 Date form received by agency: 06/25/1997
 Facility name: JIM SLEMONS VOLVO HI INC
 Facility address: 98 075 KAM HWY
 AIEA, HI 96701
 EPA ID: SEVENTY FIFTH KAM HWY
 Mailing address: AIEA, HI 96701
 Contact: Not reported
 Contact address: Not reported
 Contact country: Not reported
 Contact telephone: Not reported
 Contact email: Not reported
 EPA Region: 09
 Land type: Non-Generator
 Classification: Non-Generators do not presently generate hazardous waste
 Description: Facility is not located on Indian land. Additional information is not known.

Owner/Operator Summary:
 Owner/operator name: NOT REQUIRED
 Owner/operator address: NOT REQUIRED, ME 99999

JIM SLEMONS VOLVO HI INC (Continued) **1000131914**

Owner/operator country: Not reported
 Owner/operator telephone: 415-555-1212
 Owner/operator email: Not reported
 Owner/operator fax: Not reported
 Owner/operator extension: Not reported
 Legal status: Private
 Owner/Operator Type: Operator
 Owner/Op start date: Not reported
 Owner/Op end date: Not reported

Owner/operator name: SLEMONS JIM
 Owner/operator address: NOT REQUIRED, ME 99999

Owner/operator country: Not reported
 Owner/operator telephone: 415-555-1212
 Owner/operator email: Not reported
 Owner/operator fax: Not reported
 Owner/operator extension: Not reported
 Legal status: Private
 Owner/Operator Type: Owner
 Owner/Op start date: Not reported
 Owner/Op end date: Not reported

Handler Activities Summary:
 U.S. importer of hazardous waste: No
 Mixed waste (haz. and radioactive): No
 Recycler of hazardous waste: No
 Transporter of hazardous waste: No
 Treater, storer or disposer of HW: No
 Underground injection activity: No
 On-site burner exemption: No
 Furnace exemption: No
 Used oil fuel burner: No
 Used oil processor: No
 Used oil refiner: No
 Used oil fuel marketer to burner: No
 Used oil Specification marketer: No
 Used oil transfer facility: No
 Used oil transporter: No

Violation Status: No violations found

Evaluation Action Summary:
 Evaluation date: 04/01/1986
 Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
 Area of violation: Not reported
 Date achieved compliance: Not reported
 Evaluation lead agency: State

A11
ESE
< 1/8
0.014 mi.
72 ft.
Relative:
Higher
Actual:
16 ft.

ASSOCIATED STEEL WORKERS, LTD
98-085 KAMEHAMEHA HWY
AIEA, HI 96701
Site 8 of 10 in cluster A

LUST:
 Facility ID: 9-202700
 Site Cleanup Completed (NFA)
 Facility Status: 11/28/1995
 Release ID: 930006
 Project Officer: Roger Brewer

UST:
 Facility ID: 9-202700
 Owner: ASSOCIATED STEEL WORKERS, LTD
 Owner Address: 98-085 KAMEHAMEHA HIGHWAY
 Owner City, St, Zip: Aiea, 96701 96701
 Latitude: 21.365291
 Longitude: -157.947571
 Horizontal Reference Datum Name: NAD83
 Horizontal Collection Method Name: Address Matching
 Tank ID: R-1
 Date Installed: Not reported
Tank Status: Permanently Out of Use
 Date Closed: 10/21/1992
 Tank Capacity: 2000
 Substance: Diesel

A12
East
< 1/8
0.017 mi.
91 ft.
Relative:
Higher
Actual:
20 ft.

SHELL SERVICE STATION
98-080 KAMEHAMEHA HWY
AIEA, HI 96701
Site 9 of 10 in cluster A

SHWS:
 Organization: Not reported
 Supplemental Location: Oahu
 Island: Oahu
 Environmental Interest: Hydraulic Hoist Removal
 HID Number: Not reported
 Facility Registry Identifier: 110013777751

U001236550
HI LUST
HI LUST
HI LUST
HI SPILLS
HI Financial Assurance

U001236426
U001236426

SHELL SERVICE STATION (Continued)

Lead Agency: HEER
 State: HEER
 Program: Mark Sutterfield
 Project Manager: NFA
 Hazard Priority: No Hazard
 Potential Hazards And Controls: Oahu
 Island: Hydraulic Hoist Removal
 SDAR Environmental Interest Name: Not reported
 HID Number: 110013777751
 Facility Registry Identifier: HEER
 Lead Agency: HEER
 Potential Hazard And Controls: No Hazard
 Priority: NFA
 Assessment: Assessment Ongoing
 Response: Response Complete
 Nature of Contamination: Not reported
 Use of Residual Contamination: Not reported
 Nature of Residual Contamination: No Hazard Present for Unrestricted Residential Use
 Use Restrictions: Not reported
 Engineering Control: Not reported
 Description of Restrictions: Not reported
 Institutional Control: Not reported
 Within Designated Area-wide Contamination: No Further Action Letter - Unrestricted Residential Use
 Site Closure Type: 01/08/2004
 Document Date: 2004-005-MS
 Document Number: NFA for Former Shell Service Station 98-080 Kamehameha Hwy, Aiea
 Project Manager: Mark Sutterfield
 Contact Information: (808) 586-4249 2385 Waimano Home Rd, Pearl City, HI 96782

U001236426

SHWS:
 Organization: Not reported
 Supplemental Location: Oahu
 Island: Oahu
 Environmental Interest: Hydraulic Hoist Removal
 HID Number: Not reported
 Facility Registry Identifier: 110013777751

U001236426

SHWS:
 Organization: Not reported
 Supplemental Location: Oahu
 Island: Oahu
 Environmental Interest: Hydraulic Hoist Removal
 HID Number: Not reported
 Facility Registry Identifier: 110013777751



U001236426

U001236426

U001236426

U001236426

U001236426

U001236426

SHELL SERVICE STATION (Continued)

Is the Release a Fugitive Dumping: Not reported
 Tax Map Key: Not reported
 Assigned SOSOC: Not reported
 Notified Agencies: Not reported
 Response Measures Taken: Not reported
 Incident Report Number: Not reported
 Coordination Needed: Not reported
 Tier II Facility: Not reported
 RMP: Not reported
 Follow-up Received On: Not reported
 Cost Recovery: Not reported
 Invoice To: Not reported
 Closed Date: Not reported
 Comments: Not reported
 Latitude: 21.397516
 Longitude: -157.8962830000001

SHELL SERVICE STATION (Continued)

HI Financial Assurance:
 All Facility ID: 9-201889
 Tank Id: R-3
 Tank Status: Permanently Out of Use
 FRTYPE: Insurance
 Expiration Date: Not reported

All Facility ID: 9-201889
 Tank Id: R-4
 Tank Status: Permanently Out of Use
 FRTYPE: Insurance
 Expiration Date: Not reported

All Facility ID: 9-201889
 Tank Id: R-4
 Tank Status: Permanently Out of Use
 FRTYPE: Other
 Expiration Date: Not reported

All Facility ID: 9-201889
 Tank Id: R-3
 Tank Status: Permanently Out of Use
 FRTYPE: Other
 Expiration Date: Not reported

All Facility ID: 9-201889
 Tank Id: R-2
 Tank Status: Permanently Out of Use
 FRTYPE: Insurance
 Expiration Date: Not reported

All Facility ID: 9-201889
 Tank Id: R-1
 Tank Status: Permanently Out of Use
 FRTYPE: Insurance
 Expiration Date: Not reported

All Facility ID: 9-201889
 Tank Id: R-2
 Tank Status: Permanently Out of Use

SHELL SERVICE STATION (Continued)

Tank ID: R-1
 Date Installed: 04/22/1985
Tank Status: Permanently Out of Use
 Date Closed: 03/25/2003
 Tank Capacity: 10000
 Substance: Gasoline

Tank ID: R-2
 Date Installed: 04/22/1985
Tank Status: Permanently Out of Use
 Date Closed: 03/25/2003
 Tank Capacity: 10000
 Substance: Gasoline

Tank ID: R-3
 Date Installed: 04/22/1985
Tank Status: Permanently Out of Use
 Date Closed: 03/25/2003
 Tank Capacity: 10000
 Substance: Gasoline

Tank ID: R-4
 Date Installed: 04/22/1985
Tank Status: Permanently Out of Use
 Date Closed: 03/25/2003
 Tank Capacity: 550
 Substance: Used Oil

SHELL SERVICE STATION (Continued)

2nd Address:
 Island:
 Supplemental Loc. Text:
 Case Number:
 Facility Registry ID:
 HID Number:
 Lead and Program:
 ER:
 Less Or Greater Than:
 Units:
 Activity Type:
 Activity Lead:
 Assignment/End Date:
 Result:
 File Under:
 Substances:
 Quantity:
 Units:
 Reported Date:
 Release Date:
 Release Duration:
 Media:
 Waterbody:
 Summary:
 Is Noteworthy for Reports:

SHELL SERVICE STATION (Continued)

Not reported
 Oahu
 Not reported
 20030603-1503
 110013777751
 Not reported
 HEER EP&R
 No
 Not reported
 Two Hydraulic Hoist removed
 Response
 Terry Corpus
 Not reported
 Refer to ISST
 Shell Oil Company
 Hydraulic Oil
 25
 Gallons
 Not reported
 Not reported
 Not reported
 Not reported
 Not reported
 Not reported
 Not reported
 Not reported

Map ID
Direction
Distance
Elevation



Map ID
Direction
Distance
Elevation



EDR ID Number
EPA ID Number
Database(s)

U001236426
U001236117

SHELL SERVICE STATION (Continued)

AIEA CUE (FORMERLY PEARL AUTO SERVICE & SUPPLY) (Continued)

FRTYPE: Other
 Expiration Date: Not reported
 Alt Facility ID: 9-201889
 Tank ID: R-1
 Tank Status: Permanently Out of Use
 FRTYPE: Other
 Expiration Date: Not reported

Date Installed: 03/22/1993
 Tank Status: Permanently Out of Use
 Date Closed: 09/07/1993
 Tank Capacity: 500
 Substance: Used Oil

AIEA CUE (FORMERLY PEARL AUTO SERVICE & SUPPLY)
 98-064 KAMEHAMEHA HWY
 AIEA, HI 96701
 Site 10 of 10 in cluster A

SPILLS:
 2nd Address: Not reported
 Island: Oahu
 Supplemental Loc. Text: Not reported
 Case Number: 20121226-1413
 Facility Registry ID: Not reported
 HID Number: Not reported
 Lead and Program: HEER EP&R
 ER: None
 Less Or Greater Than: None
 Units: HECO Transformer Pad-Mounted #69237 Release

LUST:
 Facility ID: 9-200293
 Facility Status: Site Cleanup Completed (NFA)
 Facility Status Date: 06/17/2009
 Release ID: 930138
 Project Officer: Josh Nagashima

Activity Type: Response
 Activity Lead: Curtis Martin
 Assignment End Date: Not reported
 Result: Not reported
 File Under: Not reported
 Substances: Transformer Oil
 Quantity: 3
 Units: Gallons

UIC:
 Owner: 9-200293
 PEARL AUTO SERVICE & SUPPLY INC.
 Owner Address: P.O. BOX 1179
 Aiea, HI 96701 96701
 Latitude: 21.384634
 Longitude: -157.947968
 Horizontal Reference Datum Name: NAD83
 Horizontal Collection Method Name: Map

Reported Date: Not reported
 Release Date: Not reported
 Release Duration: Not reported
 Media: Not reported
 Waterbody: Not reported
 Summary: Not reported
 Is Noteworthy for Reports: Not reported
 Is the Release a Fugitive Dumping: Not reported
 Tax Map Key: Not reported
 Assigned SOSQ: Not reported
 Notified Agencies: Not reported
 Response Measures Taken: Not reported
 Incident Report Number: Not reported
 Coordination Needed: Not reported
 Tier II Facility: Not reported
 RMP: Not reported
 Follow-up Received On: Not reported
 Cost Recovery: Not reported
 Invoice To: Not reported
 Closed Date: Not reported
 Comments: Not reported
 Latitude: Not reported
 Longitude: Not reported

Tank ID:
 Date Installed: R-001
 Date Closed: 03/21/1965
 Tank Status: Permanently Out of Use
 Tank Capacity: 2000
 Substance: Gasoline

UIC Permit Number: UO-2561
 Facility Id/Lat Long Minute Coordinates: 3-21 23 15
 Central Latitude Of The Site: 155 57 1
 Central Longitude Of The Site: Not reported
 Flow In Gallons Per Day: Not reported
 Total Number Of Inj. Well(S) On Permit: Not reported

Tank ID:
 Date Installed: R-002
 Date Closed: 03/21/1965
 Tank Status: Permanently Out of Use
 Tank Capacity: 2000
 Substance: Gasoline

UIC Permit Number: UO-2561
 Facility Id/Lat Long Minute Coordinates: 3-21 23 15
 Central Latitude Of The Site: 155 57 1
 Central Longitude Of The Site: Not reported
 Flow In Gallons Per Day: Not reported
 Total Number Of Inj. Well(S) On Permit: Not reported

Tank ID:
 Date Installed: R-003
 Date Closed: 03/22/1971
 Tank Status: Permanently Out of Use
 Tank Capacity: 6000
 Substance: Gasoline

UIC Permit Number: UO-2561
 Facility Id/Lat Long Minute Coordinates: 3-21 23 15
 Central Latitude Of The Site: 155 57 1
 Central Longitude Of The Site: Not reported
 Flow In Gallons Per Day: Not reported
 Total Number Of Inj. Well(S) On Permit: Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

EDR ID Number
EPA ID Number

Database(s)

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

EDR ID Number
EPA ID Number

Database(s)

AIEA CUE (FORMERLY PEARL AUTO SERVICE & SUPPLY) (Continued)

U001236117

Island: Oahu
Location In Relation To UIC Line: Not reported
Facility Type: SEW
Subclass: A
Facility Operator, Not Contract Opr: Wayne K. Choe
Operator Address: 1212 Punahoa St., Apt. 1907, Honolulu, HI 96823
Facility Owner: Wayne K. Choe
Owner Address: Not reported
Tax Map Key Number: 1:9-8-010:090
Owner Of Land Property On Leasehold: Not reported
Consultant Serving The Application: Bow Engineering & Dev. Inc.
Receipt Of Initial Application: Not reported
Public Notice Date: Not reported
Approval-To-Construct Issuance Date: Not reported
Exemption Issuance Date: Not reported
1st Issuance Of Permit: Not reported
Last Issuance Of Permit: Not reported
Type: Not reported
Permit Expiration Date: Not reported
Date When File Is Closed: 6/15/2012
UIC Project Geologist: Not reported
Remarks: Not reported

FARM PROPERTY
98-87 KAMEHAMEHA HIGHWAY
AIEA, HI 96701

1024247011

US BROWNFIELDS
N/A

14
SE
< 1/8
0.022 mi.
117 ft.
Relative:
Lower
Actual:
3 ft.

US BROWNFIELDS:
Property Name: FARM PROPERTY
Recipient Name: CITY & COUNTY OF HONOLULU
Grant Type: Assessment
Property Number: Not reported
Parcel size: .48
Latitude: 21.3824289
Longitude: -157.947534
HCM Label: Not reported
Map Scale: Not reported
Point of Reference: Not reported
Highlights: Not reported
Datum: Not reported
Acres Property ID: 235226
IC Data Access: Not reported
Start Date: Not reported
Redev Completion Date: Not reported
Completed Date: Not reported
Acres Cleaned Up: Not reported
Cleanup Funding: Not reported
Cleanup Funding Source: Not reported
Assessment Funding: 21080
Assessment Funding Source: US EPA - Brownfields Assessment Cooperative Agreement
Redevelopment Funding: Not reported
Redev. Funding Source: Not reported
Redev. Funding Entity Name: Not reported
Redevelopment Start Date: Not reported
Assessment Funding Entity: EPA
Cleanup Funding Entity: Not reported

FARM PROPERTY (Continued)

1024247011

Grant Type: Hazardous
Accomplishment Type: Phase II Environmental Assessment
Cooperative Agreement Number: 98T22501
Start Date: 10/10/2017 00:00:00
Ownership Entity: Private
Completion Date: 06/15/2018 00:00:00
Current Owner: Kevin Farn
Did Owner Change: N
Cleanup Required: N
Video Available: Y
Photo Available: Y
Institutional Controls Required: N
IC Category Proprietary Controls: Not reported
IC Cat. Info. Devices: Not reported
IC Cat. Gov. Controls: Not reported
IC Cat. Enforcement Permit Tools: Not reported
IC in place date: Not reported
State/tribal program date: Not reported
State/tribal program ID: Not reported
State/tribal NFA date: Not reported
Air contaminated: Not reported
Air cleaned: Not reported
Asbestos found: Y
Asbestos cleaned: Not reported
Controlled substance found: Y
Controlled substance cleaned: Not reported
Drinking water affected: Not reported
Drinking water cleaned: Not reported
Groundwater affected: Y
Groundwater cleaned: Not reported
Lead contaminant found: Y
Lead cleaned up: Not reported
No media affected: Not reported
Unknown media affected: Not reported
Other metals found: Y
Other metals cleaned: Not reported
Other contaminants found: Not reported
Other contaminants found description: Not reported
PAHs found: Y
PAHs cleaned up: Not reported
PCBs found: Y
PCBs cleaned up: Not reported
Petro products found: Y
Petro products cleaned: Not reported
Sediments found: Not reported
Sediments cleaned: Y
Soil affected: Not reported
Soil cleaned up: Not reported
Surface water cleaned: Y
VOCs found: Not reported
VOCs cleaned: Not reported
Cleanup other description: Not reported
Num. of cleanup and re-dev. jobs: Not reported
Past use greenspace acreage: Not reported

Map ID	Direction	Distance	Elevation	Site	Database(s)	EDR ID Number	EPA ID Number
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Map ID	Direction	Distance	Elevation	Site	Database(s)	EDR ID Number	EPA ID Number
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Map ID	Direction	Distance	Elevation	Site	Database(s)	EDR ID Number	EPA ID Number
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Map ID	Direction	Distance	Elevation	Site	Database(s)	EDR ID Number	EPA ID Number
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Map ID	Direction	Distance	Elevation	Site	Database(s)	EDR ID Number	EPA ID Number
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Map ID	Direction	Distance	Elevation	Site	Database(s)	EDR ID Number	EPA ID Number
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Map ID	Direction	Distance	Elevation	Site	Database(s)	EDR ID Number	EPA ID Number
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Map ID	Direction	Distance	Elevation	Site	Database(s)	EDR ID Number	EPA ID Number
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Map ID	Direction	Distance	Elevation	Site	Database(s)	EDR ID Number	EPA ID Number
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Map ID	Direction	Distance	Elevation	Site	Database(s)	EDR ID Number	EPA ID Number
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Map ID	Direction	Distance	Elevation	Site	Database(s)	EDR ID Number	EPA ID Number
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FARM PROPERTY (Continued)

12.4%
172
3.4%

FARM PROPERTY
CITY & COUNTY OF HONOLULU

Property Name:
Grant Type:
Property Number:
Parcel size:
Latitude:
Longitude:
HCM Label:
Map Scale:
Point of Reference:
Highlights:
Datum:
Acres Property ID:
IC Data Access:
Start Date:
Redev Completion Date:
Completed Date:
Acres Cleaned Up:
Cleanup Funding:
Cleanup Funding Source:
Assessment Funding:
Assessment Funding Source:
Redevlopment Funding:
Redev. Funding Source:
Redev. Funding Entity Name:
Redevlopment Start Date:
Assessment Funding Entity:
Cleanup Funding Entity:
Grant Type:
Accomplishment Type:
Cooperative Agreement Number:
Start Date:
Ownership Entity:
Completion Date:
Current Owner:
Did Owner Change:
Cleanup Required:
Video Available:
Institutional Controls Required:
IC Cat. Info. Devices:
IC Cat. Gov. Controls:
IC Cat. Enforcement Permit Tools:
IC in place date:
IC in place:
State/fribal program date:
State/fribal program ID:
Air contaminated:
Air cleaned:
Asbestos found:

21.3824289
-157.947534
Not reported
Not reported
Not reported
Not reported
235228
Not reported
Not reported
Not reported
Not reported
Not reported
US EPA - Brownfields Assessment Cooperative Agreement
Not reported
Not reported
Not reported
EPA
Not reported
Phase I Environmental Assessment
98722501
08/28/2017 00:00:00
Private
09/01/2017 00:00:00
Kevin Farm
N
N
N
Y
N
Not reported
Not reported
Not reported
Not reported
Not reported
Not reported
N
Not reported
Not reported
Not reported
Not reported
Y

1024247011

1024247011

1024247011

1024247011

1024247011

1024247011

Past use residential acreage:
Surface Water:
Past use commercial acreage:
Future use greenspace acreage:
Future use residential acreage:
Future use commercial acreage:
Greenspace acreage and type:
Superfund Fed. landowner flag:
Arsenic cleaned up:
Cadmium cleaned up:
Chromium cleaned up:
Copper cleaned up:
Iron cleaned up:
mercury cleaned up:
Nickel Cleaned Up:
No clean up:
Pesticides cleaned up:
Selenium cleaned up:
SVOCs cleaned up:
Unknown clean up:
Arsenic contaminant found:
Cadmium contaminant found:
Chromium contaminant found:
Copper contaminant found:
Iron contaminant found:
Mercury contaminant found:
Nickel contaminant found:
No contaminant found:
Pesticides contaminant found:
Selenium contaminant found:
SVOCs contaminant found:
Unknown contaminant found:
Future Use: Multistory
Media affected Blinding Material:
Building material media cleaned up:
Indoor air media cleaned up:
Unknown media cleaned up:
Past Use: Multistory
Property Description:
The site was historically the location of Kalaueo Station of the Oahu Railroad and Land Company (OR&L). This portion of the OR&L was in operation between the early 1890s and the mid-1940s. The site has been owned by the Farm family since the 1940s, and was the location of the family residence from the 1940s to 1990s. During this time, the site was also periodically used for car storage. A used tire business is currently located on the eastern portion of the site, while it formally occupied the entire site until 2012. The western portion of the site has been occupied by a scrap metal recycling company since 2012.
232
4.7%
6347
1058
21.2%
242

Below Poverty Number:
Below Poverty Percent:
Median Income:
Median Income Number:
Median Income Percent:
Vacant Housing Number:

Below Poverty Number:
Below Poverty Percent:
Median Income:
Median Income Number:
Median Income Percent:
Vacant Housing Number:

Below Poverty Number:
Below Poverty Percent:
Median Income:
Median Income Number:
Median Income Percent:
Vacant Housing Number:

Below Poverty Number:
Below Poverty Percent:
Median Income:
Median Income Number:
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Median Income:
Median Income Number:
Median Income Percent:
Vacant Housing Number:

Below Poverty Number:
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Median Income:
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Median Income Percent:
Vacant Housing Number:

Below Poverty Number:
Below Poverty Percent:
Median Income:
Median Income Number:
Median Income Percent:
Vacant Housing Number:

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Below Poverty Percent:
Median Income:
Median Income Number:
Median Income Percent:
Vacant Housing Number:

Below Poverty Number:
Below Poverty Percent:
Median Income:
Median Income Number:
Median Income Percent:
Vacant Housing Number:

Below Poverty Number:
Below Poverty Percent:
Median Income:
Median Income Number:
Median Income Percent:
Vacant Housing Number:

FARM PROPERTY (Continued)

Asbestos cleaned: Not reported
 Controlled substance cleaned: Y
 Drinking water affected: Not reported
 Groundwater affected: Not reported
 Lead cleaned up: Not reported
 No media affected: Not reported
 Unknown media affected: Not reported
 Other metals found: Y
 Other contaminants found: Not reported
 Other contaminants found description: Not reported
 PAHs cleaned up: Not reported
 PCBs found: Y
 Petro products found: Y
 Sediments cleaned: Not reported
 Soil affected: Y
 Soil cleaned up: Not reported
 Surface water cleaned: Y
 VOCs found: Not reported
 VOCs cleaned: Not reported
 Cleanup other description: Not reported
 Num. of cleanup and re-dev. jobs: Not reported
 Past use greenspace acreage: Not reported
 Past use residential acreage: 18
 Surface Water: Not reported
 Past use commercial acreage: .3
 Future use greenspace acreage: .48
 Future use residential acreage: Not reported
 Future use commercial acreage: Not reported
 Greenspace acreage and type: Not reported
 Superfund Fed. landowner flag: Not reported
 Arsenic cleaned up: Not reported
 Cadmium cleaned up: Not reported
 Copper cleaned up: Not reported
 Iron cleaned up: Not reported
 mercury cleaned up: Not reported
 Nickel Cleaned Up: Not reported
 No clean up: Not reported
 Pesticides cleaned up: Not reported
 Selenium cleaned up: Not reported
 SVOCs cleaned up: Not reported
 Unknown clean up: Not reported
 Arsenic contaminant found: Y
 Cadmium contaminant found: Y
 Chromium contaminant found: Y

FARM PROPERTY (Continued)

Copper contaminant found: Not reported
 Iron contaminant found: Y
 Mercury contaminant found: Not reported
 Nickel contaminant found: Not reported
 No contaminant found: Not reported
 Pesticides contaminant found: Y
 Selenium contaminant found: Y
 SVOCs contaminant found: Not reported
 Unknown contaminant found: Not reported
 Future Use: Multistory
 Media affected Building Material: Not reported
 Media affected indoor air: Not reported
 Building material media cleaned up: Not reported
 Indoor air media cleaned up: Not reported
 Unknown media cleaned up: Not reported
 Past Use: Multistory
 Property Description:
 The site was historically the location of Kalauao Station of the Oahu Railroad and Land Company (OR&L). This portion of the OR&L was in operation between the early 1890s and the mid-1940s. The site has been owned by the Farm family since the 1940s, and was the location of the family residence from the 1940s to 1990s. During this time, the site was also periodically used for car storage. A used fire business is currently located on the eastern portion of the site, while it formally occupied the entire site until 2012. The western portion of the site has been occupied by a scrap metal recycling company since 2012.
 232
 Below Poverty Percent: 4.7%
 Median Income: 6347
 Median Income Number: 1058
 Median Income Percent: 21.2%
 Vacant Housing Number: 242
 Vacant Housing Percent: 12.4%
 Unemployed Number: 172
 Unemployed Percent: 3.4%

FARM PROPERTY (Continued)

Not reported
 R-1
 Date Installed: 07/18/1982
 Tank Status: Permanently Out of Use
 Date Closed: 02/06/1989
 Tank Capacity: 10000
 Substance: Gasoline

FARM PROPERTY (Continued)

Below Poverty Percent: 4.7%
 Median Income: 6347
 Median Income Number: 1058
 Median Income Percent: 21.2%
 Vacant Housing Number: 242
 Vacant Housing Percent: 12.4%
 Unemployed Number: 172
 Unemployed Percent: 3.4%

FARM PROPERTY (Continued)

Below Poverty Percent: 4.7%
 Median Income: 6347
 Median Income Number: 1058
 Median Income Percent: 21.2%
 Vacant Housing Number: 242
 Vacant Housing Percent: 12.4%
 Unemployed Number: 172
 Unemployed Percent: 3.4%

FARM PROPERTY (Continued)

Below Poverty Percent: 4.7%
 Median Income: 6347
 Median Income Number: 1058
 Median Income Percent: 21.2%
 Vacant Housing Number: 242
 Vacant Housing Percent: 12.4%
 Unemployed Number: 172
 Unemployed Percent: 3.4%

FARM PROPERTY (Continued)

Below Poverty Percent: 4.7%
 Median Income: 6347
 Median Income Number: 1058
 Median Income Percent: 21.2%
 Vacant Housing Number: 242
 Vacant Housing Percent: 12.4%
 Unemployed Number: 172
 Unemployed Percent: 3.4%

FARM PROPERTY (Continued)

Below Poverty Percent: 4.7%
 Median Income: 6347
 Median Income Number: 1058
 Median Income Percent: 21.2%
 Vacant Housing Number: 242
 Vacant Housing Percent: 12.4%
 Unemployed Number: 172
 Unemployed Percent: 3.4%

FARM PROPERTY (Continued)

Below Poverty Percent: 4.7%
 Median Income: 6347
 Median Income Number: 1058
 Median Income Percent: 21.2%
 Vacant Housing Number: 242
 Vacant Housing Percent: 12.4%
 Unemployed Number: 172
 Unemployed Percent: 3.4%

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site EDR ID Number 1024247125 EPA ID Number Database(s)

HEALANI LAND COMPANY (Continued)

Soil affected:
 Soil cleaned up:
 Surface water cleaned:
 VOCs found:
 VOCs cleaned:
 Cleanup other description:
 Num. of cleanup and re-dev. jobs:
 Past use greenspace acreage:
 Past use residential acreage:
 Surface Water:
 Past use commercial acreage:
 Past use industrial acreage:
 Future use greenspace acreage:
 Future use residential acreage:
 Future use commercial acreage:
 Future use industrial acreage:
 Greenspace acreage and type:
 Superfund Fed. landowner flag:
 Arsenic cleaned up:
 Cadmium cleaned up:
 Chromium cleaned up:
 Copper cleaned up:
 Iron cleaned up:
 mercury cleaned up:
 Nickel Cleaned Up:
 No clean up:
 Pesticides cleaned up:
 Selenium cleaned up:
 SVOCs cleaned up:
 Unknown clean up:
 Arsenic contaminant found:
 Cadmium contaminant found:
 Chromium contaminant found:
 Copper contaminant found:
 Iron contaminant found:
 Mercury contaminant found:
 Nickel contaminant found:
 No contaminant found:
 Pesticides contaminant found:
 Selenium contaminant found:
 SVOCs contaminant found:
 Unknown contaminant found:
 Future Use: Multistory
 Media affected Blinding Material:
 Media affected indoor air:
 Building material media cleaned up:
 Indoor air media cleaned up:
 Unknown media cleaned up:
 Past Use: Multistory
 Property Description:

The Site was historically part of a 10-acre fish pond which was intermittently filled in the 1960s and 1970s. In the 1960s the Site was used as a warehouse for storage of brewery products and a beer garden for event hosting. The former brewing company was converted into the Tony Automotive Group car dealership on the north side of the Site and various commercial tenants including Primo Mini Storage Winward Moving Company and a medical transcription company occupied the warehouse at that time. During the tenancy of the Tony Automotive

HEALANI LAND COMPANY (Continued)

Dealership the southern portion of the Site was leased for approximately three years to a car detailing business. Since 2001 the Site has been occupied by various small tenants including retail spaces, auto mechanics seasonal retail stores, and a nursery.
 232
 4.7%
 6347
 1058
 21.2%
 242
 12.4%
 172
 3.4%

1024247125

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site EDR ID Number 1024247125 EPA ID Number Database(s)

NATIONAL TIRE OF HAWAII LTD

EDR Hist Auto 1021489758 N/A

98-115 KAMEHAMEHA HWY
 AIEA, HI 96701
 Site 1 of 3 in cluster C
 EDR Hist Auto
 Year: Name: Type:
 1998 NATIONAL TIRE OF HAWAII LTD Auto And Home Supply Stores, NEC
 1999 NATIONAL TIRE OF HAWAII LTD Auto And Home Supply Stores, NEC
 2000 NATIONAL TIRE OF HAWAII LTD Auto And Home Supply Stores, NEC
 2001 NATIONAL TIRE OF HAWAII LTD Auto And Home Supply Stores, NEC
 2002 LEX BROTHERS TIRES Auto And Home Supply Stores, NEC
 2003 HILO TIRE COMPANY Auto And Home Supply Stores, NEC
 2004 HILO TIRE COMPANY Auto And Home Supply Stores, NEC
 2005 HAWAII TIRE CO LLC Auto And Home Supply Stores, NEC
 2006 HAWAII TIRE CO LLC Auto And Home Supply Stores, NEC

HAWAII BAKING CO INC

RCRA-CESQG 1000860471
 HI SHWS
 HI LUST
 HI LUST
 HI SPILLS
 FINDS
 ECHO
 CA HAZNET

EDR Hist Auto 1021489758 N/A
 18
 ENE
 < 1/8
 0.084 mi.
 443 ft.
 Relative:
 Higher
 Actual:
 32 ft.
 RCRA-CESQG:
 Date form received by agency: 06/28/1993
 Facility name: HAWAII BAKING CO INC
 Facility address: 98 736 MOANALUA LOOP
 AIEA, HI 96701
 EPA ID: SHANNON SULLIVAN
 Contact: 98 736 MOANALUA LOOP
 AIEA, HI 96701
 Contact country: US
 Contact telephone: 714-671-7777
 Contact email: Not reported
 EPA Region: 09
 Land type: Private



1000860471

HAWAII BAKING CO INC (Continued)

SHWS:
 Organization: Not reported
 Supplemental Location: Not reported
 Island: Oahu
 Environmental Interest: Hawaii Baking Company
 HID Number: Not reported
 Facility Registry Identifier: 110005728962
 Lead Agency: HEER
 Program: State
 Project Manager: Richard Palmer
 Hazard Priority: Low
 Potential Hazards And Controls: Hazard Undetermined
 Island: Oahu
 SDAR Environmental Interest Name: Hawaii Baking Company
 HID Number: Not reported
 Lead Agency: 110005728962
 Facility Registry Identifier: HEER
 Potential Hazard And Controls: Hazard Undetermined
 Priority: Low
 Assessment: Assessment Ongoing
 Response: Not reported
 Nature of Contamination: Not reported
 Use Restrictions: Not reported
 Engineering Control: Undetermined
 Description of Restrictions: Not reported
 Institutional Control: Not reported
 Within Designated Area-wide Contamination: Not reported
 Site Closure Type: Not reported
 Document Date: Not reported
 Document Number: Not reported
 Document Subject: Not reported
 Project Manager: Richard Palmer
 Contact Information: (808) 586-4249 2385 Waimano Home Rd, Pearl City, HI 96782

1000860471

HAWAII BAKING CO INC (Continued)

Classification:
 Description:
 Handler; generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time; 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time; 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

Owner/Operator Summary:
 Owner/operator name: HAWAII BAKING CO INC
 Owner/operator address: 98 736 MOANALUA LOOP AIEA, HI 96701
 Owner/operator country: Not reported
 Owner/operator telephone: 808-488-6871
 Owner/operator email: Not reported
 Owner/operator fax: Not reported
 Owner/operator extension: Not reported
 Legal status: Private
 Owner/Operator Type: Owner
 Owner/Op start date: Not reported
 Owner/Op end date: Not reported

Handler Activities Summary:
 U.S. importer of hazardous waste: No
 Mixed waste (haz. and radioactive): No
 Recycler of hazardous waste: No
 Transporter of hazardous waste: No
 Treater, storer or disposer of HW: No
 Underground injection activity: No
 On-site burner exemption: No
 Furnace exemption: No
 Used oil fuel burner: No
 Used oil processor: No
 User oil refiner: No
 Used oil fuel marketer to burner: No
 Used oil Specification marketer: No
 Used oil transfer facility: No
 Used oil transporter: No

Violation Status: No violations found

Evaluation Action Summary:
 Evaluation date: 12/11/1995
 Compliance Evaluation Inspection On-Site
 Evaluation: Not reported
 Area of Violation: Not reported
 Date achieved compliance: Not reported
 Evaluation lead agency: State

1000860471

HAWAII BAKING CO INC (Continued)

SHWS:
 Organization: Not reported
 Supplemental Location: Not reported
 Island: Oahu
 Environmental Interest: Hawaii Baking Company
 HID Number: Not reported
 Facility Registry Identifier: 110005728962
 Lead Agency: HEER
 Program: State
 Project Manager: Richard Palmer
 Hazard Priority: Low
 Potential Hazards And Controls: Hazard Undetermined
 Island: Oahu
 SDAR Environmental Interest Name: Hawaii Baking Company
 HID Number: Not reported
 Lead Agency: 110005728962
 Facility Registry Identifier: HEER
 Potential Hazard And Controls: Hazard Undetermined
 Priority: Low
 Assessment: Assessment Ongoing
 Response: Not reported
 Nature of Contamination: Not reported
 Use Restrictions: Not reported
 Engineering Control: Undetermined
 Description of Restrictions: Not reported
 Institutional Control: Not reported
 Within Designated Area-wide Contamination: Not reported
 Site Closure Type: Not reported
 Document Date: Not reported
 Document Number: Not reported
 Document Subject: Not reported
 Project Manager: Richard Palmer
 Contact Information: (808) 586-4249 2385 Waimano Home Rd, Pearl City, HI 96782

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Database(s)
EPA ID Number
EDR ID Number

HAWAII BAKING CO INC (Continued)

1000860471

HAWAII BAKING CO INC (Continued)

1000860471

Tank Capacity: 4000
Substance: Gasoline

SPILLS:
2nd Address: Not reported
Island: Oahu
Supplemental Loc. Text: Not reported
Case Number: 19871015-0908
Facility Registry ID: 110005728962
HID Number: Not reported
Lead and Program: HEER EP&R
ER: Yes
Less Or Greater Than: Not reported
Units: Hawaii Baking Company
Activity Type: Response
Activity Lead: Mike Cripps
Assignment End Date: Not reported
Result: Refer to ISST
File Under: Hawaii Baking Company
Substances: PCB
Quantity: Not reported
Units: Not reported
Reported Date: Not reported
Release Date: Not reported
Release Duration: Not reported
Media: Not reported
Waterbody: Not reported
Summary: Not reported
Is Noteworthy for Reports: Not reported
Is the Release a Fugitive Dumping: Not reported
Tax Map Key: Not reported
Assigned SOSOC: Not reported
Notified Agencies: Not reported
Response Measures Taken: Not reported
Incident Report Number: Not reported
Coordination Needed: Not reported
Tier II Facility: Not reported
RMP: Not reported
Follow-up Received On: Not reported
Cost Recovery: Not reported
Invoice To: Not reported
Closed Date: Not reported
Waterbody: Not reported
Summary: Not reported
Is Noteworthy for Reports: Not reported
Is the Release a Fugitive Dumping: Not reported
Tax Map Key: Not reported
Assigned SOSOC: Not reported
Notified Agencies: Not reported
Response Measures Taken: Not reported
Incident Report Number: Not reported
Coordination Needed: Not reported
Tier II Facility: Not reported
RMP: Not reported
Follow-up Received On: Not reported
Cost Recovery: Not reported
Invoice To: Not reported
Closed Date: Not reported
Comments: Not reported
Latitude: 21.3841
Longitude: -157.946145

2nd Address: Not reported
Island: Oahu
Supplemental Loc. Text: Not reported
Case Number: 19871015-0908
Facility Registry ID: 110005728962
HID Number: Not reported
Lead and Program: HEER EP&R
ER: Yes
Units: Not reported
Less Or Greater Than: Not reported
Activity Type: Response
Activity Lead: Hawaii Baking Company
Assignment End Date: Not reported
Result: Refer to ISST
File Under: Hawaii Baking Company
Substances: PCB
Quantity: Not reported
Units: Not reported
Reported Date: Not reported
Release Date: Not reported
Release Duration: Not reported
Media: Not reported
Waterbody: Not reported
Summary: Not reported
Is Noteworthy for Reports: Not reported
Is the Release a Fugitive Dumping: Not reported

Activity Lead: Mike Cripps
Assignment End Date: Not reported
Result: Refer to ISST
File Under: Hawaii Baking Company
Substances: PCB
Quantity: Not reported
Units: Not reported
Reported Date: Not reported
Release Date: Not reported
Release Duration: Not reported
Media: Not reported
Waterbody: Not reported
Summary: Not reported
Is Noteworthy for Reports: Not reported
Is the Release a Fugitive Dumping: Not reported
Tax Map Key: Not reported
Assigned SOSOC: Not reported
Notified Agencies: Not reported
Response Measures Taken: Not reported
Incident Report Number: Not reported
Coordination Needed: Not reported
Tier II Facility: Not reported
RMP: Not reported
Follow-up Received On: Not reported
Cost Recovery: Not reported
Invoice To: Not reported
Closed Date: Not reported
Comments: Not reported
Latitude: 21.397516
Longitude: -157.89626300000001

2nd Address: Not reported
Island: Oahu
Supplemental Loc. Text: Not reported
Case Number: 19871015-0908
Facility Registry ID: 110005728962
HID Number: Not reported
Lead and Program: HEER EP&R
ER: Yes
Units: Not reported
Less Or Greater Than: Not reported
Activity Type: Response
Activity Lead: Hawaii Baking Company
Assignment End Date: Not reported
Result: Refer to ISST
File Under: Hawaii Baking Company
Substances: PCB
Quantity: Not reported
Units: Not reported
Reported Date: Not reported
Release Date: Not reported
Release Duration: Not reported
Media: Not reported
Waterbody: Not reported
Summary: Not reported
Is Noteworthy for Reports: Not reported
Is the Release a Fugitive Dumping: Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

EDR ID Number
EPA ID Number

Database(s)

MAP FINDINGS

EDR ID Number
EPA ID Number

Site

Database(s)

PEERLESS ROOFING COMPANY, LTD (Continued)

U003154966

UST:
Facility ID: 9-202405
Owner: F. T. OPPERMAN COMPANY
Owner Address: Not reported
Owner City/State/Zip: Aiea, 96701 96701
Latitude: Not reported
Longitude: Not reported
Horizontal Reference Datum Name: Not reported
Horizontal Collection Method Name: Not reported

Tank ID: R-1
Date Installed: Not reported
Tank Status: Permanently Out of Use
Date Closed: 02/18/1991
Tank Capacity: 550
Substance: Diesel

Tank ID: R-1
Date Installed: 01/30/1985
Tank Status: Permanently Out of Use
Date Closed: 01/18/1993
Tank Capacity: 4000
Substance: Gasoline

Tank ID: R-1
Date Installed: 03/06/1986
Tank Status: Permanently Out of Use
Date Closed: 03/18/1993
Tank Capacity: 3000
Substance: Gasoline

Tank ID: R-2
Date Installed: Not reported
Tank Status: Permanently Out of Use
Date Closed: 02/18/1991
Tank Capacity: 1000
Substance: Gasoline

Tank ID: R-2
Date Installed: 01/30/1985
Tank Status: Permanently Out of Use
Date Closed: 01/18/1993
Tank Capacity: 1000
Substance: Diesel

HI Financial Assurance:
Alt Facility ID: 9-202211
Tank ID: R-1
Tank Status: Permanently Out of Use
FRTYPE: Self Insured
Expiration Date: Not reported

PEERLESS ROOFING COMPANY, LTD (Continued)

U003154966

Alt Facility ID: 9-202211
Tank ID: R-2
Tank Status: Permanently Out of Use
FRTYPE: Self Insured
Expiration Date: Not reported

D20
NW
0.089 mi.
< 1/8
471 ft.
Relative:
Lower
Actual:
3 ft.

AUTO REPAIR OF HAWAII
98 019 KAM HWY
AIEA, HI 96701

Site 2 of 3 in cluster D

RCRA-CESQG: RCRA-CESQG 100026794
FINDS
ECHO
Date form received by agency: 07/17/1993
Facility name: AUTO REPAIR OF HAWAII
Facility address: 98 019 KAM HWY
AIEA, HI 96701

EPA ID: HID981628035
Contact: GLENN HIGA
Contact address: 98 019 KAM HWY
AIEA, HI 96701
Contact country: US
Contact telephone: 808-488-7555
Contact email: Not reported
EPA Region: 09
Land type: Other land type
Classification: Conditionally Exempt Small Quantity Generator
Description: Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

Owner/Operator Summary:
Owner/operator name: GLENN A HIGA
Owner/operator address: NOT REQUIRED, ME 99999
Owner/operator country: Not reported
Owner/operator telephone: 415-555-1212
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported
Owner/operator name: NOT REQUIRED



AUTO REPAIR OF HAWAII (Continued) 1000326794 1000326794

Owner/operator address: NOT REQUIRED
 NOT REQUIRED, ME 99999
 Owner/operator country: Not reported
 Owner/operator telephone: 415-555-1212
 Owner/operator email: Not reported
 Owner/operator fax: Not reported
 Owner/operator extension: Not reported
 Legal status: Private
 Owner/Operator Type: Operator
 Owner/Op start date: Not reported
 Owner/Op end date: Not reported

Registry ID: 110005723985
 DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110005723985

Handler Activities Summary:
 U.S. importer of hazardous waste: No
 Mixed waste (haz. and radioactive): No
 Recycler of hazardous waste: No
 Transporter of hazardous waste: No
 Treater, storer or disposer of HW: No
 Underground injection activity: No
 On-site burner exemption: No
 Furnace exemption: No
 Used oil fuel burner: No
 Used oil processor: No
 Used oil refiner: No
 Used oil fuel marketer to burner: No
 Used oil Specification marketer: No
 Used oil transfer facility: No
 Used oil transporter: No

Site 2 of 3 in cluster C
 UST:
 Facility ID: 9-201226
 Owner: CHEVRON PRODUCTS COMPANY
 Altn Permit Desk, PO Box 6004
 Aiea, HI 96701
 Longitude: 21.362600
 Latitude: -157.945180
 Horizontal Reference Datum Name: NAD83
 Horizontal Collection Method Name: GPS

Violation Status: No violations found

UST:
 Tank ID: 1
 Date Installed: 07/19/1983
Tank Status: Currently in Use
 Date Closed: Not reported
 Tank Capacity: 10000
 Substance: Gasohol

Evaluation Action Summary:
 Evaluation date: 06/03/1996
 Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
 Area of violation: Not reported
 Date achieved compliance: Not reported
 Evaluation lead agency: State

IES RETAIL AIEA
 98-121 KAMEHAMEHA HWY
 AIEA, HI 96701
 HI UST U004228177
 HI Financial Assurance N/A

Environmental Interest/Information System
 RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Relative:
 Lower
 Actual: 12 ft.

Environmental Interest/Information System
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Relative:
 Lower
 Actual: 12 ft.

Environmental Interest/Information System
 RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Relative:
 Lower
 Actual: 12 ft.

Environmental Interest/Information System
 RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Relative:
 Lower
 Actual: 12 ft.

Environmental Interest/Information System
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Relative:
 Lower
 Actual: 12 ft.

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Relative:
 Lower
 Actual: 12 ft.

Environmental Interest/Information System
 RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Relative:
 Lower
 Actual: 12 ft.

Environmental Interest/Information System
 RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Relative:
 Lower
 Actual: 12 ft.

U004228177

IES RETAIL AIEA (Continued)

U004228177

IES RETAIL AIEA (Continued)

U004228177

IES RETAIL AIEA (Continued)

U004228177

IES RETAIL AIEA (Continued)

U004228177

Tank ID: 3
Date Installed: 07/19/1983
Tank Status: Currently in Use
Date Closed: Not reported
Tank Capacity: 10000
Substance: Gasohol

Tank ID: R-4
Date Installed: 07/19/1983
Tank Status: Permanently Out of Use
Date Closed: 100/1/1991
Tank Capacity: 1000
Substance: Used Oil

Tank ID: R-4
Date Installed: 07/19/1983
Tank Status: Permanently Out of Use
Date Closed: 100/1/1991
Tank Capacity: 1000
Substance: Used Oil

HI Financial Assurance:
Alt Facility ID: 9-201226
Tank Id: 3
Tank Status: Currently in Use
Other: Not reported
Expiration Date: Not reported

Alt Facility ID: 9-201226
Tank Id: R-4
Tank Status: Permanently Out of Use
Other: Not reported
Expiration Date: Not reported

Alt Facility ID: 9-201226
Tank Id: 1
Tank Status: Currently in Use
Other: Not reported
Expiration Date: Not reported

Alt Facility ID: 9-201226
Tank Id: 2
Tank Status: Currently in Use
Other: Not reported
Expiration Date: Not reported

Alt Facility ID: 9-201226
Tank Id: R-4
Tank Status: Permanently Out of Use
Self Insured: 04/23/2010
Expiration Date: Not reported

Alt Facility ID: 9-201226
Tank Id: 1
Tank Status: Currently in Use

Self Insured: 04/23/2010
Alt Facility ID: 9-201226
Tank Id: 3
Tank Status: Currently in Use
Self Insured: 04/23/2010
Expiration Date: Not reported

Alt Facility ID: 9-201226
Tank Id: 2
Tank Status: Currently in Use
Self Insured: 04/23/2010
Expiration Date: Not reported

Alt Facility ID: 9-201226
Tank Id: R-4
Tank Status: Permanently Out of Use
Guarantee: 04/27/2012
Expiration Date: Not reported

Alt Facility ID: 9-201226
Tank Id: 3
Tank Status: Currently in Use
Guarantee: 04/27/2012
Expiration Date: Not reported

Alt Facility ID: 9-201226
Tank Id: 2
Tank Status: Currently in Use
Guarantee: 04/27/2012
Expiration Date: Not reported

Alt Facility ID: 9-201226
Tank Id: 1
Tank Status: Currently in Use
Guarantee: 04/27/2012
Expiration Date: Not reported

Alt Facility ID: 9-201226
Tank Id: 3
Tank Status: Currently in Use
Guarantee: 04/24/2015
Expiration Date: Not reported

Alt Facility ID: 9-201226
Tank Id: 1
Tank Status: Currently in Use
Guarantee: 04/24/2015
Expiration Date: Not reported

Alt Facility ID: 9-201226
Tank Id: R-4
Tank Status: Permanently Out of Use
Guarantee: 04/24/2015
Expiration Date: Not reported

Map ID
Direction
Distance
Elevation



Map ID Number
EPA ID Number

Site

EDR ID Number
EPA ID Number

Site

Database(s)

IES RETAIL AIEA (Continued)

U004228177

HI-GRADE PLUMBING, INC. (Continued)

U001236373

Alt Facility ID: 9-201226
Tank ID: 2
Tank Status: Currently in Use
FRTYPE: Guarantee
Expiration Date: 04/24/2015

Owner: HI-GRADE PLUMBING, INC.
Owner Address: 98-121 LIPOA PLACE
Owner City, St, Zip: Aiea, 96701 96701
Latitude: 21.381965
Longitude: -157.946279
Horizontal Reference Datum Name: NAD83
Horizontal Collection Method Name: Address Matching

HI-GRADE PLUMBING, INC.
98-121 LIPOA PL
AIEA, HI 96701

U001236373
N/A

HI SHWS
HI LUST
HI LUST
HI ENG CONTROLS
HI INST CONTROL

SHWS:
Organization: Not reported
Supplemental Location: Former HI-Grade Plumbing Facility
Island: Oahu
Environmental Interest: 98-121 Lipoa Place
HID Number: Not reported
Facility Registry Identifier: HEER
Lead Agency: State
Program: Cal Miyahara
Project Manager: NFA
Hazard Priority: NFA
Potential Hazards And Controls: Hazard Managed With Controls
Island: Oahu
SDAR Environmental Interest Name: 98-121 Lipoa Place
HID Number: Not reported
Facility Registry Identifier: HEER
Lead Agency: HEER
Potential Hazard And Controls: Hazard Managed With Controls
Priority: NFA
Assessment: Response Necessary
Response: Response Complete
Nature of Contamination: Found: TPH-G and blex at 6.6 ft bgs in soil, TPH-G, benz, mbe in sv. TPH-G in gw. All COC above Tier 1 EALS.
Nature of Residual Contamination: Not reported
Use Restrictions: Controls Required to Manage Contamination
Engineering Control: Engineering Control Required
Description of Restrictions: Not reported
Institutional Control: Government - Hawaii Dept. of Health Letter Issued
Within Designated Area-wide Contamination: No
Site Closure Type: No Further Action Letter - Restricted Use
Document Date: 07/31/2013
Document Number: 2013-402-CMM
Document Subject: Amended NFA letter for 98-121 Lipoa Pl, Aiea HI
Project Manager: Cal Miyahara
Contact Information: (808) 586-4249 2385 Waimano Home Rd, Pearl City, HI 96782

LUST:
Facility ID: 9-201529
Facility Status: Site Cleanup Completed (NFA)
Facility Status Date: 08/23/2005
Release ID: 020014
Project Officer: Richard Takaba

UST:
Facility ID: 9-201529

22
SE
< 1/8
0.101 mi.
535 ft.
Relative:
Lower
Actual:
3 ft.

Tank ID: R-1
Date Installed: 05/15/1979
Tank Status: Permanently Out of Use
Date Closed: 01/28/2002
Tank Capacity: 1000
Substance: Gasoline

Tank ID: R-2
Date Installed: 05/14/1974
Tank Status: Permanently Out of Use
Date Closed: 01/28/2002
Tank Capacity: 1000
Substance: Gasoline

Tank ID: R-3
Date Installed: Not reported
Tank Status: Permanently Out of Use
Date Closed: 01/28/2002
Tank Capacity: 1000
Substance: Gasoline

ENG CONTROLS:
Supplemental Location Text: Former HI-Grade Plumbing Facility
Zip Suffix: Not reported
Island: Oahu
Potential Hazards And Controls: Hazard Managed With Controls
Engineering Control: Engineering Control Required

INST CONTROL:
Potential Hazards and controls: Hazard Managed With Controls
Supplemental Location: Former HI-Grade Plumbing Facility
Zip Suffix: Not reported
Island: Oahu
Institutional Control: Government - Hawaii Dept. of Health Letter Issued

D23
WNW
< 1/8
0.114 mi.
602 ft.
Relative:
Lower
Actual:
3 ft.

CUTTER FORD ISUZU
98 015 KAM HWY
AIEA, HI 96701
Site 3 of 3 in cluster D
RCRA-CESQG:
Date form received by agency: 12/05/1996
Facility name: CUTTER FORD ISUZU
Facility address: 98 015 KAM HWY
AIEA, HI 96701
EPA ID: HID981626534

RCRA-CESQG
HI LUST
HI LUST
FINDS
ECHO

1000401588
HID981626534



1000401588

1000401588

CUTTER FORD ISUZU (Continued)

Contact: Not reported
 Contact address: Not reported
 Contact country: Not reported
 Contact telephone: Not reported
 Contact email: Not reported
 EPA Region: 09
 Land type: Facility is not located on Indian land. Additional information is not known.
 Classification: Conditionally Exempt Small Quantity Generator
 Description: Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

CUTTER FORD ISUZU (Continued)

Treater, storer or disposer of HW: No
 Underground injection activity: No
 On-site burner exemption: No
 Furnace exemption: No
 Used of fuel burner: No
 Used of processor: No
 User oil refiner: No
 Used oil fuel marketer to burner: No
 Used of Specification marketer: No
 Used oil transfer facility: No
 Used of transporter: No

Historical Generators:
 Date form received by agency: 01/02/1987
 Site name: CUTTER FORD ISUZU
 Classification: Not a generator, verified
 Violation Status: No violations found

Evaluation Action Summary:
 Evaluation date: 04/01/1986
 Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
 Area of violation: Not reported
 Date achieved compliance: Not reported
 Evaluation lead agency: State

Owner/Operator Summary:
 Owner/operator name: L L MAGBA INC
 Owner/operator address: NOT REQUIRED, ME 99899
 Owner/operator country: Not reported
 Owner/operator telephone: 415-555-1212
 Owner/operator email: Not reported
 Owner/operator fax: Not reported
 Owner/operator extension: Private
 Legal status: Owner
 Owner/Operator Type: Not reported
 Owner/Op start date: Not reported
 Owner/Op end date: Not reported

LUST:
 Facility ID: 9-200188
 Facility Status: Site Cleanup Completed (NFA)
 Facility Status Date: 09/24/1998
 Release ID: 970104
 Project Officer: Richard Takaba
 Facility ID: 9-200188
 Facility Status: Site Cleanup Completed (NFA)
 Facility Status Date: 11/05/1993
 Release ID: 920190
 Project Officer: Richard Takaba

Owner/operator name: NOT REQUIRED
 Owner/operator address: NOT REQUIRED, ME 99899
 Owner/operator country: Not reported
 Owner/operator telephone: 415-555-1212
 Owner/operator email: Not reported
 Owner/operator fax: Not reported
 Owner/operator extension: Private
 Legal status: Operator
 Owner/Operator Type: Not reported
 Owner/Op start date: Not reported
 Owner/Op end date: Not reported

UST:
 Facility ID: 9-200188
 Owner: L. L. MAGBA INC.
 Owner Address: 445 SEASIDE AVE. SUITE #3
 Owner City, St, Zip: Alea, 96701 96701
 Latitude: 21.385632
 Longitude: -157.951781
 Horizontal Reference Datum Name: NAD83
 Horizontal Collection Method Name: Address Matching
 Tank ID: R-1
 Date Installed: 05/02/1974
 Tank Status: Permanently Out of Use
 Date Closed: 08/14/1992
 Tank Capacity: 5000
 Substance: Gasoline

Handler Activities Summary:
 U.S. importer of hazardous waste: No
 Mixed waste (haz. and radioactive): No
 Recycler of hazardous waste: No
 Transporter of hazardous waste: No

CUTTER FORD ISUZU (Continued) **1000401688** **1005443249**

Tank ID: R-2
 Date Installed: 05/02/1974
Tank Status: Permanently Out of Use
 Date Closed: 08/15/1992
 Tank Capacity: 1000
 Substance: Used Oil

FINDS:
 Registry ID: 110005723976
 Environmental Interest Information System
 RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

[Click this.lypsizlink](http://clickthis.lypsizlink) while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
 Envid: 1000401688
 Registry ID: 110005723976
 DFR URL: <http://echo.epa.gov/detailed-facility-report?fid=110005723976>

C24
ESSE
 1/8-1/4
 0.132 mi.
 899 ft.
Relative:
Lower
Actual:
 13 ft.

SHELL SERVICE STATION SAP139578 **1005443249**
86-003 FARRINGTON HWY **FINDS**
WAIANAHE, HI 96792 **ECHO**

RCRA NonGen / NLR
RCRA NonGen / NLR
1005443249
FINDS
HR000116061
ECHO

Site 3 of 3 in cluster C
 RCRA NonGen / NLR:
 Date form received by agency: 12/06/2018
 Facility name: SHELL SERVICE STATION SAP139578
 Facility address: 86-003 FARRINGTON HWY
 WAIANAHE, HI 96792
 EPA ID: HIR000116061
 Mailing address: S. WILMINGTON AVE
 CARSON, CA 90810
 Contact: SCOTT BURKEY
 Contact address: S. WILMINGTON AVE
 CARSON, CA 90810
 US
 Contact country: 214-483-5460
 Contact telephone: WASTECOPLIANCE@GHD.COM
 Contact email: 09
 EPA Region: Non-Generator
 Classification: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
 Owner/operator name: EQUILON ENTERPRISES LLC DBA SHELL OIL PRODUCTS US
 Owner/operator address: S. WILMINGTON AVE
 CARSON, CA 90810



Map ID Direction Distance Elevation



Map ID Direction Distance Elevation

SHELL SERVICE STATION SAP139578 (Continued)

Owner/operator country: US
 Owner/operator telephone: 214-483-5460
 Owner/operator email: WASTECOPLIANCE@GHD.COM
 Owner/operator fax: Not reported
 Owner/operator extension: Not reported
 Legal status: Private
 Owner/Operator Type: Operator
 Owner/Op start date: Not reported
 Owner/Op end date: Not reported

Owner/operator name: EQUILON ENTERPRISES LLC DBA SHELL OIL PRODUCTS US
 Owner/operator address: S. WILMINGTON AVE
 CARSON, CA 90810
 US

Owner/operator country: US
 Owner/operator telephone: 214-483-5460
 Owner/operator email: WASTECOPLIANCE@GHD.COM
 Owner/operator fax: Not reported
 Owner/operator extension: Not reported
 Legal status: Private
 Owner/Operator Type: Owner
 Owner/Op start date: Not reported
 Owner/Op end date: Not reported

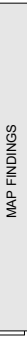
Owner/operator name: EQUILON ENT LLC DBA S O P US
 Owner/operator address: P O BOX 2648
 HOUSTON, TX 77252

Owner/operator country: Not reported
 Owner/operator telephone: 713-241-5036
 Owner/operator email: Not reported
 Owner/operator fax: Not reported
 Owner/operator extension: Not reported
 Legal status: Private
 Owner/Operator Type: Owner
 Owner/Op start date: Not reported
 Owner/Op end date: Not reported

Handler Activities Summary:
 U.S. importer of hazardous waste: No
 Mixed waste (haz. and radioactive): No
 Recycler of hazardous waste: No
 Transporter of hazardous waste: No
 Treater, storer or disposer of HW: No
 Underground injection activity: No
 On-site burner exemption: No
 Furnace exemption: No
 Used oil processor: No
 Used oil refiner: No
 Used oil fuel marketer to burner: No
 Used oil Specification marketer: No
 Used oil transfer facility: No
 Used oil transporter: No

Historical Generators:
 Date form received by agency: 05/13/2002
 Site name: SHELL SERVICE STATION

Map ID
Direction
Distance
Elevation



Map ID
Direction
Distance
Elevation



Site
Database(s)
EPA ID Number
EDR ID Number

Site
Database(s)
EPA ID Number
EDR ID Number

Site
Database(s)
EPA ID Number
EDR ID Number

SHELL SERVICE STATION SAP 139578 (Continued)

1005443249

HI-GRADE PLUMBING (Continued)

U003832863

Classification: Small Quantity Generator

Island: Oahu

Hazardous Waste Summary:

- Waste code: D000 Not Defined
- Waste code: D001 IGNITABLE WASTE
- Waste code: D018 BENZENE

SDAR Environmental Interest Name: Not reported

Facility Registry Identifier: HEER

Lead Agency: Hazard Managed With Controls

Potential Hazard And Controls: NFA

Priority: Response Necessary

Assessment: Response Complete

Nature of Contamination: Found: TPH-G, benzene, ethylbenzene, xylene, and naphthalene in soil above residential EAL for GC, DE and leaching. TPH-G and d, benz, ethylbenz, xyl, naphth, and lead found in gw above residential EALs for AT and GC.

Violation Status: No violations found

Nature of Residual Contamination: Not reported

Use Restrictions: Controls Required to Manage Contamination

Engineering Control: Engineering Control Required

Description of Restrictions: Not reported

Institutional Control: Government - Hawaii Dept. of Health Letter Issued

Within Designated Area-wide Contamination: No Further Action Letter - Restricted Use

Site Closure Type: 07/31/2013

Document Date: 2013-4-03-C/M/M

Document Number: Amended NFA letter for 98-151 Lipoa Pl, Aiea HI

Project Manager: Cal Miyahara

Contact Information: (808) 586-4249 2385 Waimano Home Rd, Pearl City, HI 96782

FINDS:

Registry ID: 110013777662

Environmental Interest/Information System

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

STATE MASTER

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid: 1005443249
Registry ID: 110013777662
DFR URL: <http://echo.epa.gov/detailed-facility-report?fid=110013777662>

HI-GRADE PLUMBING

98-151 LIPOA PL

AIEA, HI 96701

Relative: 0.168 mi.

Lower: 887 ft.

Actual: 4 ft.

U003832863

N/A

HI SHWS

HI LUST

HI LUST

HI ENG CONTROL

HI INST CONTROL

HI Financial Assurance

SHWS:

Organization: Not reported
Supplemental Location: Not reported
Island: Oahu
Environmental Interest: 98-151 Lipoa Place
Facility Registry Identifier: Not reported
Lead Agency: HEER
Program: State
Project Manager: Cal Miyahara
Hazard Priority: NFA
Potential Hazards And Controls: Hazard Managed With Controls

ENG CONTROL:

Supplemental Location Text: Not reported
Zip Suffix: Not reported
Island: Oahu
Potential Hazards And Controls: Hazard Managed With Controls
Engineering Control: Engineering Control Required

Tank Status:

Date Installed: 01/01/1974
Date Closed: 07/30/1991
Tank Capacity: 1000
Substance: Gasoline

Horizontal Reference Datum Name:

Address Matching

Horizontal Collection Method Name:

Address Matching

Facility ID:

9-201389

Owner Address:

UNOCAL CORPORATION
3815 Mission Avenue #4 16
Aiea, 96701 96701

Owner City, St, Zip:

Aiea, HI 96701

Latitude:

-157.944600

Longitude:

155.073100

Address Matching:

Address Matching

Facility Status:

Site Cleanup Completed (NFA)

Facility Status Date:

08/25/2005

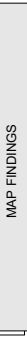
Release ID:

910080

Project Officer:

Richard Takaba

Map ID
Direction
Distance
Elevation



EDR ID Number
EPA ID Number

Database(s)

Site

Map ID
Direction
Distance
Elevation



EDR ID Number
EPA ID Number

Database(s)

Site

HI-GRADE PLUMBING (Continued)

U003832863

INST CONTROL:
Potential hazards and controls: Hazard Managed With Controls
Supplemental Location: Not reported
Zip Suffix: Not reported
Island: Oahu
Institutional Control: Government - Hawaii Dept. of Health Letter issued

HI Financial Assurance: 9-201389
Alt Facility ID: R-1
Tank Id: R-1
Tank Status: Permanently Out of Use
FRTYPE: Self Insured
Expiration Date: Not reported

EQUIPMENT YARD
98-165 KAMEHAMEHA HWY
AIEA, HI 96701

HI UST
U003541837
N/A

26
ESE
1/8-1/4
0.192 mi.
1015 ft.

UST:
Facility ID: 9-201489
Owner: ALOHA STATE CORPORATION
Owner Address: 1150 S KING ST., SUITE 1103
Owner City, St, Zip: Aiea, 96701 96701
Latitude: Not reported
Longitude: Not reported
Horizontal Reference Datum Name: Not reported
Horizontal Collection Method Name: Not reported

Tank ID: R-001
Date Installed: 04/28/1966
Tank Status: **Permanently Out of Use**
Date Closed: Not reported
Tank Capacity: 3000
Substance: Gasoline

WAAU DRUM STORAGE
PEARL CITY, HI

FUDS
1012129415
N/A

27
West
1/8-1/4
0.202 mi.
1067 ft.

FUDS:
EPA Region: 9
Installation ID: HI99799F407100
Congressional District Number: 1
Facility Name: WAAU DRUM STORAGE
FUDS Number: H09HD0351
City: PEARL CITY
State: HI
County: HONOLULU
Telephone: 808-835-4004
USACE Division: Pacific Ocean Division (POD)
USACE District: Honolulu District (POH)

HI Financial Assurances:
Alt Facility ID: 9-201982
Tank Id: M-1
Tank Status: Currently in Use
FRTYPE: Not reported
Expiration Date: Not reported
Alt Facility ID: 9-201982
Tank Id: M-1
Tank Status: Currently in Use
Other: 06/30/2011
Expiration Date:

Tank ID: M-1
Date Installed: 05/31/1989
Tank Status: **Currently in Use**
Date Closed: Not reported
Tank Capacity: 4000
Substance: Diesel

WAAU DRUM STORAGE (Continued)

1012129415

Status: Properties with all projects at site doseout
Current Owner: Local Government
X Coord: -157.9560340002801
Y Coord: 21.385649999748502
Latitude: 21.385649999999998
Longitude: -157.956033999999999

FUDS Detail as of Jan 2015:

Fiscal Year: 2013
Federal Facility ID: HI9799F4071
RAB: Not reported
NPL Status: Not Listed
Description: 26 ACRE SITE ACQUIRED FOR THE PURPOSE OF ESTABLISHING AN EMPTY DRUM CLEANING AND STORAGE FACILITY.
History: THE SITE CONTAINS AN UNDERGROUND OIL SEPARATOR TANK AND AN OIL BURNING PIT WHICH ARE POTENTIAL SOURCES OF ENVIRONMENTAL CONTAMINANTS.
CTC: 530.5
Current Program: Not reported
Future Program: Not reported
Institutional ID: 54624

28
WNW
1/8-1/4
0.226 mi.
1193 ft.

WAIMALU WWPDS
245 KAMEHAMEHA HWY
AIEA, HI 96701

HI UST
U004228184
N/A

Relative:
Lower
Actual:
10 ft.

UST:
Facility ID: 9-201982
Owner: C&C of Honolulu Dept of Environmental Services
Owner Address: 1000 Ulukouia Street, Suite 308
Owner City, St, Zip: Aiea, 96701 96701
Latitude: 21.385649
Longitude: -157.952892
Horizontal Reference Datum Name: NAD83
Horizontal Collection Method Name: Map

Tank ID: M-1
Date Installed: 05/31/1989
Tank Status: **Currently in Use**
Date Closed: Not reported
Tank Capacity: 4000
Substance: Diesel

29 NW
1/8-1/4
0.240 mi.
1268 ft.
Relative: Lower
Actual: 3 ft.

WAIMALU WWPS (Continued)
 Alt Facility ID: 9-201992
 Tank Id: M-1
 Tank Status: Currently In Use
 FRTYPE: Other
 Expiration Date: 08/25/2018

OLEPE LOOP STORM DRAIN PS
98-152 OLEPE LP
AIEA, HI 96701

U004228154
HI LUST
HI LUST
HI Financial Assurance

U001236415
HI LUST
HI LUST
HI Financial Assurance

UST:
 Facility ID: 9-200143
 Facility Status: Site Cleanup Completed (NFA)
 Facility Status Date: 05/12/1997
 Release ID: 970079
 Project Officer: Jose Ruiz

UST:
 Facility ID: 9-201836
 Owner: SEARS ROEBUCK & COMPANY
 Owner Address: Not reported
 Owner City, St, Zip: Aiea, 96701 96701
 Latitude: 21.387350
 Longitude: -157.952680
 Horizontal Reference Datum Name: NAD83
 Horizontal Collection Method Name: GPS

UST:
 Facility ID: 9-201836
 Owner: SEARS ROEBUCK & COMPANY
 Owner Address: Not reported
 Owner City, St, Zip: Aiea, 96701 96701
 Latitude: 21.387352
 Longitude: -157.942010
 Horizontal Reference Datum Name: NAD83
 Horizontal Collection Method Name: Address Matching

UST:
 Tank ID: 9-200143
 Date Installed: 05/01/1997
Tank Status: Currently In Use
 Date Closed: Not reported
 Tank Capacity: 1000
 Substance: Diesel

UST:
 Tank ID: R-001
 Date Installed: 05/06/1974
Tank Status: Permanently Out of Use
 Date Closed: 12/15/1993
 Tank Capacity: 1000
 Substance: Used Oil

UST:
 Tank ID: R-002
 Date Installed: 05/06/1974
Tank Status: Permanently Out of Use
 Date Closed: 02/22/1994
 Tank Capacity: 320
 Substance: Hazardous Substance

HI Financial Assurance:
 Alt Facility ID: 9-200143
 Tank Id: M-1
 Tank Status: Currently In Use
 FRTYPE: Other
 Expiration Date: 06/30/2014

HI Financial Assurance:
 Alt Facility ID: 9-201836
 Tank Id: R-002
 Tank Status: Permanently Out of Use
 FRTYPE: Self Insured
 Expiration Date: Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

SEARS ROEBUCK & CO (Continued)

Alt Facility ID: 9-201836
Tank Id: R-001
Tank Status: Permanently Out of Use
FRTYPE: Self Insured
Expiration Date: Not reported

Alt Facility ID: 9-201836
Tank Id: R-001
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

U001236415

HI Financial Assurance:
Alt Facility ID: 9-201723
Tank Id: R-89
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

Alt Facility ID: 9-201723
Tank Id: R-89
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-201723
Tank Id: r-92
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

Alt Facility ID: 9-201723
Tank Id: r-87
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-201723
Tank Id: r-92
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

MAHALO EXPRESS PEARL KAI 12818 (Continued)

HI Financial Assurance:
Alt Facility ID: 9-201723
Tank Id: R-89
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

Alt Facility ID: 9-201723
Tank Id: R-89
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-201723
Tank Id: r-92
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

Alt Facility ID: 9-201723
Tank Id: r-87
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-201723
Tank Id: r-92
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

MAHALO EXPRESS PEARL KAI 12818

98-189 KAMEHAMEHA HWY
AIEA, HI 96701

U001236393

HI LUST
HI LUST
HI Financial Assurance
NIA

U001236393

HI Financial Assurance:
Alt Facility ID: 9-201723
Tank Id: R-89
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

Alt Facility ID: 9-201723
Tank Id: R-89
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-201723
Tank Id: r-92
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

Alt Facility ID: 9-201723
Tank Id: r-87
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-201723
Tank Id: r-92
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

Site 2 of 2 in cluster E

LUST:
Facility ID: 9-201723
Facility Status: Site Cleanup Completed (NFA)
Facility Status Date: 01/16/2013
Release ID: 980080
Project Officer: Josh Nagashima

U001236393

HI LUST
HI LUST
HI Financial Assurance
NIA

U001236393

HI Financial Assurance:
Alt Facility ID: 9-201723
Tank Id: R-89
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

Alt Facility ID: 9-201723
Tank Id: R-89
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-201723
Tank Id: r-92
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

Alt Facility ID: 9-201723
Tank Id: r-87
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-201723
Tank Id: r-92
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

UST:

Facility ID: 9-201723
Owner: U.S. RESTAURANT PROPERTIES, INC
Owner Address: 12240 INWOOD RD #200
Owner City/ST/Zip: Aiea, 96701 96701
Latitude: 21.381271
Longitude: -157.842160
Horizontal Reference Datum Name: NAD83
Horizontal Collection Method Name: GPS

U001236393

HI LUST
HI LUST
HI Financial Assurance
NIA

U001236393

HI Financial Assurance:
Alt Facility ID: 9-201723
Tank Id: R-89
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

Alt Facility ID: 9-201723
Tank Id: R-89
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-201723
Tank Id: r-92
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

Alt Facility ID: 9-201723
Tank Id: r-87
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-201723
Tank Id: r-92
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

Tank ID:

1231/1988
Date Installed:
Tank Status: Permanently Out of Use
Date Closed: 06/14/2005
Tank Capacity: 10000
Substance: Gasoline

U001236393

HI LUST
HI LUST
HI Financial Assurance
NIA

U001236393

HI Financial Assurance:
Alt Facility ID: 9-201723
Tank Id: R-89
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

Alt Facility ID: 9-201723
Tank Id: R-89
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-201723
Tank Id: r-92
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

Alt Facility ID: 9-201723
Tank Id: r-87
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-201723
Tank Id: r-92
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

Tank ID:

1231/1988
Date Installed:
Tank Status: Permanently Out of Use
Date Closed: 06/14/2005
Tank Capacity: 10000
Substance: Gasoline

U001236393

HI LUST
HI LUST
HI Financial Assurance
NIA

U001236393

HI Financial Assurance:
Alt Facility ID: 9-201723
Tank Id: R-89
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

Alt Facility ID: 9-201723
Tank Id: R-89
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-201723
Tank Id: r-92
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

Alt Facility ID: 9-201723
Tank Id: r-87
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-201723
Tank Id: r-92
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

Tank ID:

1231/1988
Date Installed:
Tank Status: Permanently Out of Use
Date Closed: 06/14/2005
Tank Capacity: 10000
Substance: Gasoline

U001236393

HI LUST
HI LUST
HI Financial Assurance
NIA

U001236393

HI Financial Assurance:
Alt Facility ID: 9-201723
Tank Id: R-89
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

Alt Facility ID: 9-201723
Tank Id: R-89
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-201723
Tank Id: r-92
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

Alt Facility ID: 9-201723
Tank Id: r-87
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-201723
Tank Id: r-92
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

Tank ID:

1231/1988
Date Installed:
Tank Status: Permanently Out of Use
Date Closed: 06/14/2005
Tank Capacity: 10000
Substance: Gasoline

U001236393

HI LUST
HI LUST
HI Financial Assurance
NIA

U001236393

HI Financial Assurance:
Alt Facility ID: 9-201723
Tank Id: R-89
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

Alt Facility ID: 9-201723
Tank Id: R-89
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-201723
Tank Id: r-92
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

Alt Facility ID: 9-201723
Tank Id: r-87
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-201723
Tank Id: r-92
Tank Status: Permanently Out of Use
FRTYPE: Insurance
Expiration Date: Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

EDR ID Number
EPA ID Number

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

HECO TRANSFORMER 52091 (Continued)

Less Or Greater Than:
Units: Not reported
Activity Type: HECO Transformer 52091
Activity Lead: Response
Assignment End Date: Mike Chippis
2003-09-29 00:00:00
Relief to ISS: Refer to ISS
Substances: Hawaiian Electric Co., Inc. (HECO)
Shell/Diala Oil
Quantity: 150
Units: Gallons
Reported Date: Not reported
Release Date: Not reported
Release Duration: Not reported
Media: Not reported
Waterbody: Not reported
Summary: Not reported
is Noteworthy for Reports: Not reported
is the Release a Fugitive Dumping: Not reported
Tax Map Key: Not reported
Assigned SOS: Not reported
Notified Agencies: Not reported
Response Measures Taken: Not reported
Incident Report Number: Not reported
Coordination Needed: Not reported
Tier II Facility: Not reported
RMP: Not reported
Follow-up Received On: Not reported
Cost Recovery: Not reported
Invoice To: Not reported
Closed Date: Not reported
Comments: Not reported
Latitude: 21.390672000000001
Longitude: -157.94339500000001

S107025991

HALAWA MEDIUM SECURITY CORRECTIONAL FACILITY (Continued)

UST:
Facility ID: 9-202399
Owner: STATE PSD
Owner Address: 919 ALA MOANA BLVD, 4th Floor
Owner City, St, Zip: Aiea, 96701 96701
Latitude: 21.398521
Longitude: -157.945119
Horizontal Reference Datum Name: NAD83
Horizontal Collection Method Name: Address Matching
Tank ID: R-1
Date Installed: 11/28/1974
Tank Status: **Permanently Out of Use**
Date Closed: 03/03/1994
Tank Capacity: 2000
Substance: Gasoline
Tank ID: R-2
Date Installed: 11/28/1974
Tank Status: **Permanently Out of Use**
Date Closed: 03/03/1994
Tank Capacity: 2000
Substance: Gasoline
Tank ID: R-3
Date Installed: 11/28/1977
Tank Status: **Permanently Out of Use**
Date Closed: 02/28/1994
Tank Capacity: 550
Substance: Diesel
Tank ID: R-M-1
Date Installed: 11/28/1984
Tank Status: **Permanently Out of Use**
Date Closed: 04/20/1999
Tank Capacity: 2550
Substance: Gasoline
Tank ID: R-M-2
Date Installed: 11/28/1984
Tank Status: **Permanently Out of Use**
Date Closed: 04/20/1999
Tank Capacity: 2550
Substance: Gasoline
Tank ID: R-M-3
Date Installed: 11/28/1984
Tank Status: **Permanently Out of Use**
Date Closed: 04/20/1999
Tank Capacity: 2550
Substance: Diesel

U003346405

33
NE
1/4-1/2
0.354 mi.
1869 ft.

Relative:
Higher
Actual:
94 ft.

HALAWA MEDIUM SECURITY CORRECTIONAL FACILITY
89-902 MOANALUA HWY
AIEA, HI 96701

HI LUST U003346405
HI LUST N/A

LUST:
Facility ID: 9-202153
Facility Status: Site Cleanup Completed (NFA)
Facility Status Date: 06/07/2000
Release ID: 990204
Project Officer: Jose Ruiz
Facility ID: 9-202399
Facility Status: Site Cleanup Completed (NFA)
Facility Status Date: 08/11/2000
Release ID: 000091
Project Officer: Shaobin Li
Facility ID: 9-202153
Facility Status: Site Cleanup Completed (NFA)
Facility Status Date: 06/07/2000
Release ID: 860020
Project Officer: Jose Ruiz

HALAWA MEDIUM SECURITY CORRECTIONAL FACILITY (Continued) U003346405

Tank ID: R-M-4
 Date Installed: 1/28/1984
Tank Status: Permanently Out of Use
 Date Closed: 04/20/1999
 Tank Capacity: 4000
 Substance: Diesel

PEARL CITY SELF STORAGE
 98-138 HILA PLACE
 PEARL CITY, HI 96782

Relative: 0.376 mi.
Higher: 1984 ft.
Actual: 20 ft.

LUST:
 Facility ID: 9-203788
 Facility Status: Site Cleanup Completed (NFA)
 Release ID: 050001
 Project Officer: Shunsheng Fu

UST:
 Facility ID: 9-203788
 Owner: COLIN YOKOYAMA
 Owner Address: MW GROUP LTD, 900 FORT STREET MALL, SUITE 1188
 Pearl City, HI 96782 96782
 Latitude: 21.387965
 Longitude: -157.955033
 Horizontal Reference Datum Name: NAD83
 Horizontal Collection Method Name: Address Matching

Tank ID: r-1
 Date Installed: Not reported
Tank Status: Permanently Out of Use
 Date Closed: 100/1/2004
 Tank Capacity: 300
 Substance: Not Listed

WAIMALU 767-ELEVEN
 98-1277 KAAHUMANU ST
 AIEA, HI 96701

LUST:
 Facility ID: 9-200921
 Facility Status: Site Cleanup Completed (NFA)
 Release ID: 090007
 Project Officer: Shunsheng Fu

Relative: 0.396 mi.
Higher: 2089 ft.
Actual: 29 ft.

UST:
 Facility ID: 9-200921
 Owner: Mid Pac Petroleum LLC
 Owner Address: 1100 Alaska Street, 8th floor
 Aiea, HI 96701 96701
 Latitude: 21.388733
 Longitude: -157.953228
 Horizontal Reference Datum Name: NAD83
 Horizontal Collection Method Name: Address Matching

Tank ID: 1
 Date Installed: 01/20/2009
Tank Status: Currently in Use
 Date Closed: Not reported
 Tank Capacity: 15000
 Substance: Gasohol

Tank ID: 1
 Date Installed: 01/20/2009
Tank Status: Currently in Use
 Date Closed: Not reported
 Tank Capacity: 15000
 Substance: Gasohol

Tank ID: 2a
 Date Installed: 01/20/2009
Tank Status: Currently in Use
 Date Closed: Not reported
 Tank Capacity: 7000
 Substance: Gasohol

Tank ID: 2a

Site	WAIMALU 767-ELEVEN (Continued)	WAIMALU 767-ELEVEN (Continued)	Database(s)	EDR ID Number EPA ID Number
<p>Date Installed: Tank Status: Date Closed: Tank Capacity: Substance:</p> <p>Tank ID: Date Installed: Tank Status: Date Closed: Tank Capacity: Substance:</p> <p>Tank ID: Date Installed: Tank Status: Date Closed: Tank Capacity: Substance:</p> <p>Tank ID: Date Installed: Tank Status: Date Closed: Tank Capacity: Substance:</p> <p>Tank ID: Date Installed: Tank Status: Date Closed: Tank Capacity: Substance:</p> <p>Tank ID: Date Installed: Tank Status: Date Closed: Tank Capacity: Substance:</p> <p>Tank ID: Date Installed: Tank Status: Date Closed: Tank Capacity: Substance:</p> <p>Tank ID: Date Installed: Tank Status: Date Closed: Tank Capacity: Substance:</p> <p>Tank ID: Date Installed: Tank Status: Date Closed: Tank Capacity: Substance:</p> <p>Tank ID: Date Installed: Tank Status: Date Closed: Tank Capacity: Substance:</p> <p>Tank ID: Date Installed: Tank Status: Date Closed: Tank Capacity: Substance:</p>	<p>01/20/2009 Currently in Use Not reported 7000 Gasohol</p> <p>2a 01/20/2009 Currently in Use Not reported 7000 Gasohol</p> <p>2a 01/20/2009 Currently in Use Not reported 7000 Gasohol</p> <p>2b 01/20/2009 Currently in Use Not reported 5000 Diesel</p> <p>2b 01/20/2009 Currently in Use Not reported 5000 Diesel</p> <p>2b 01/20/2009 Currently in Use Not reported 5000 Diesel</p> <p>2b 01/20/2009 Currently in Use Not reported 5000 Diesel</p> <p>R-1 05/06/1974</p>	<p>Permanently Out of Use 08/05/1996 12000 Gasoline</p> <p>R-1 05/06/1974 Permanently Out of Use 08/05/1996 12000 Gasoline</p> <p>R-1 05/06/1974 Permanently Out of Use 08/05/1996 12000 Gasoline</p> <p>R-1 05/06/1974 Permanently Out of Use 08/05/1996 12000 Gasoline</p> <p>R-1 01/01/1975 Permanently Out of Use 08/04/1995 560 Used Oil</p> <p>R-2 05/06/1974 Permanently Out of Use 08/05/1996 12000 Gasoline</p> <p>R-2 05/06/1974 Permanently Out of Use 08/05/1996 12000 Gasoline</p> <p>R-2 05/06/1974 Permanently Out of Use 08/05/1996 12000 Gasoline</p>	U001236222	U001236222

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Map ID
Direction
Distance
Elevation

EDR ID Number
EPA ID Number

MAP FINDINGS

EDR ID Number
EPA ID Number

Database(s)

Database(s)

Database(s)

Site

Site

Site

WAIMALU 76/7-ELEVEN (Continued)

WAIMALU 76/7-ELEVEN (Continued)

WAIMALU 76/7-ELEVEN (Continued)

U001236222

U001236222

U001236222

Date Closed:
Tank Capacity:
Substance:

Date Closed:
Tank Capacity:
Substance:

Date Closed:
Tank Capacity:
Substance:

08/05/1996
12000
Gasoline

12000
Gasoline

12000
Gasoline

Tank ID:
Date Installed:
Tank Status:
Date Closed:
Tank Capacity:
Substance:

Tank ID:
Date Installed:
Tank Status:
Date Closed:
Tank Capacity:
Substance:

Tank ID:
Date Installed:
Tank Status:
Date Closed:
Tank Capacity:
Substance:

R-2
05/06/1974
Permanently Out of Use
08/05/1996
12000
Gasoline

r-87
12/01/1996
Permanently out of Use
11/24/2008
12000
Gasoline

r-87
12/01/1996
Permanently out of Use
11/24/2008
12000
Gasoline

Tank ID:
Date Installed:
Tank Status:
Date Closed:
Tank Capacity:
Substance:

Tank ID:
Date Installed:
Tank Status:
Date Closed:
Tank Capacity:
Substance:

Tank ID:
Date Installed:
Tank Status:
Date Closed:
Tank Capacity:
Substance:

R-3
05/06/1985
Permanently Out of Use
08/05/1996
10000
Gasoline

r-87
12/01/1996
Permanently out of Use
11/24/2008
12000
Gasoline

r-87
12/01/1996
Permanently out of Use
11/24/2008
12000
Gasoline

Tank ID:
Date Installed:
Tank Status:
Date Closed:
Tank Capacity:
Substance:

Tank ID:
Date Installed:
Tank Status:
Date Closed:
Tank Capacity:
Substance:

Tank ID:
Date Installed:
Tank Status:
Date Closed:
Tank Capacity:
Substance:

R-3
05/06/1985
Permanently Out of Use
08/05/1996
10000
Gasoline

r-92
12/01/1996
Permanently out of Use
11/24/2008
12000
Gasoline

r-92
12/01/1996
Permanently out of Use
11/24/2008
12000
Gasoline

Tank ID:
Date Installed:
Tank Status:
Date Closed:
Tank Capacity:
Substance:

Tank ID:
Date Installed:
Tank Status:
Date Closed:
Tank Capacity:
Substance:

Tank ID:
Date Installed:
Tank Status:
Date Closed:
Tank Capacity:
Substance:

R-3
05/06/1985
Permanently Out of Use
08/05/1996
10000
Gasoline

r-92
12/01/1996
Permanently out of Use
11/24/2008
12000
Gasoline

r-92
12/01/1996
Permanently out of Use
11/24/2008
12000
Gasoline

Tank ID:
Date Installed:
Tank Status:
Date Closed:
Tank Capacity:
Substance:

Tank ID:
Date Installed:
Tank Status:
Date Closed:
Tank Capacity:
Substance:

Tank ID:
Date Installed:
Tank Status:
Date Closed:
Tank Capacity:
Substance:

R-3
05/06/1985
Permanently Out of Use
08/05/1996
10000
Gasoline

r-92
12/01/1996
Permanently out of Use
11/24/2008
12000
Gasoline

r-92
12/01/1996
Permanently out of Use
11/24/2008
12000
Gasoline

Tank ID:
Date Installed:
Tank Status:
Date Closed:
Tank Capacity:
Substance:

Tank ID:
Date Installed:
Tank Status:
Date Closed:
Tank Capacity:
Substance:

Tank ID:
Date Installed:
Tank Status:
Date Closed:
Tank Capacity:
Substance:

r-87
12/01/1996
Permanently out of Use
11/24/2008
12000
Gasoline

r-92
12/01/1996
Permanently out of Use
11/24/2008
12000
Gasoline

r-92
12/01/1996
Permanently out of Use
11/24/2008
12000
Gasoline

Tank ID:
Date Installed:
Tank Status:
Date Closed:

Tank ID:
Date Installed:
Tank Status:
Date Closed:

Tank ID:
Date Installed:
Tank Status:
Date Closed:

r-87
12/01/1996
Permanently out of Use
11/24/2008

r-92
12/01/1996
Permanently out of Use
11/24/2008

r-92
12/01/1996
Permanently out of Use
11/24/2008

2nd Address:
Island:
Supplemental Loc. Text:
Case Number:
Facility Registry ID:

2nd Address:
Island:
Supplemental Loc. Text:
Case Number:
Facility Registry ID:

2nd Address:
Island:
Supplemental Loc. Text:
Case Number:
Facility Registry ID:

WAIMALU PLAZA SHOPPING CENTER
Oahu
Heco Pad-mount Transformers No. 35058 & 57269
20110307-1359
Not reported

WAIMALU 767-ELEVEN (Continued)

U001236222

WAIMALU 767-ELEVEN (Continued)

U001236222

WAIMALU 767-ELEVEN (Continued)

U001236222

WAIMALU 767-ELEVEN (Continued)

U001236222

WAIMALU 767-ELEVEN (Continued)

U001236222

WAIMALU 767-ELEVEN (Continued)

U001236222

HID Number: Not reported
Lead and Program: HEER EP&R
ER: None
Units: HECO Pad-Mounter Transformers # 35058 & 57265 Release
Activity Type: Curtis Martin
Assignment End Date: Not reported
Result: Not reported
File Under: Hawaiian Electric Co., Inc. (HECO)
Substances: Transformer Oil
Quantity: 0
Units: Unknown
Reported Date: Not reported
Release Date: Not reported
Release Duration: Not reported
Media: Not reported
Waterbody: Not reported
Summary: Not reported
Is Noteworthy for Reports: Not reported
Is the Release a Fugitive Dumping: Not reported
Tax Map Key: Not reported
Assigned SOSQ: Not reported
Notified Agencies: Not reported
Response Measures Taken: Not reported
Incident Report Number: Not reported
Coordination Needed: Not reported
Tier II Facility: Not reported
RMP: Not reported
Follow-up Received On: Not reported
Cost Recovery: Not reported
Invoice To: Not reported
Closed Date: Not reported
Comments: Not reported
Latitude: Not reported
Longitude: Not reported

Alt Facility ID: 9-200921
Tank Id: r-87
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-200921
Tank Id: 1
Tank Status: Currently in Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-200921
Tank Id: r-87
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-200921
Tank Id: R-1
Tank Status: Permanently Out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-200921
Tank Id: r-92
Tank Status: Permanently out of Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-200921
Tank Id: r-87
Tank Status: Permanently out of Use
FRTYPE: Guarantee
Expiration Date: 03/31/2009

Alt Facility ID: 9-200921
Tank Id: R-3
Tank Status: Permanently Out of Use
FRTYPE: Guarantee
Expiration Date: 03/31/2009

Alt Facility ID: 9-200921
Tank Id: R-2
Tank Status: Permanently Out of Use
FRTYPE: Guarantee
Expiration Date: 03/31/2009

Alt Facility ID: 9-200921
Tank Id: r-92
Tank Status: Permanently out of Use
FRTYPE: Guarantee
Expiration Date: 03/31/2009

Alt Facility ID: 9-200921
Tank Id: 1
Tank Status: Currently in Use
FRTYPE: Guarantee

Alt Facility ID: 9-200921
Tank Id: 2b
Tank Status: Currently in Use
FRTYPE: Other
Expiration Date: Not reported

Map ID
Direction
Distance
Elevation



Site

EPA ID Number

EPA ID Number



Site

EPA ID Number

EPA ID Number

WAIMALU 767-ELEVEN (Continued)

U001236222

WAIMALU 767-ELEVEN (Continued)

U001236222

Expiration Date: 03/31/2009

Tank Status: R-2

All Facility ID: 9-200921

Permanently Out of Use

Tank Id: 2b

Insurance

Tank Status: Currently In Use

Expiration Date: 09/30/2017

FRTYPE: Guarantee

9-200921

Expiration Date: 03/31/2009

r-92

All Facility ID: 9-200921

Permanently out of Use

Tank Id: R-1

Insurance

Tank Status: Permanently Out of Use

Expiration Date: 09/30/2017

FRTYPE: Guarantee

9-200921

Expiration Date: 03/31/2009

2a

All Facility ID: 9-200921

Currently In Use

Tank Id: 2a

Guarantee

Tank Status: Currently In Use

03/31/2009

FRTYPE: Guarantee

SHWS:

Expiration Date: 03/31/2009

Organization: Not reported

All Facility ID: 9-200921

Supplemental Location: TMK 1-9-8-016:049

Tank Id: R-1

Oahu

Tank Status: Permanently Out of Use

Former, JC Penny Auto Center

FRTYPE: Insurance

Not reported

Expiration Date: 09/30/2017

HEER

All Facility ID: 9-200921

State

Tank Id: 1

Amelia Hicks

Tank Status: Currently In Use

Project Manager:

FRTYPE: Insurance

Hazard Priority: NFA

Expiration Date: 09/30/2017

Potential Hazards And Controls:

All Facility ID: 9-200921

No Hazard

Tank Id: r-87

Oahu

Tank Status: Permanently out of Use

Former, JC Penny Auto Center

FRTYPE: Insurance

Not reported

Expiration Date: 09/30/2017

HEER

All Facility ID: 9-200921

NFA

Tank Id: 2a

Response Necessary

Tank Status: Currently In Use

Response Complete

FRTYPE: Insurance

TPH-O detected at 580 mg/kg in one sample; PAH not detected; PCB not detected

Expiration Date: 09/30/2017

No Hazard Present For Unrestricted Residential Use

All Facility ID: 9-200921

Not reported

Tank Id: 2a

Not reported

Tank Status: Permanently Out of Use

Not reported

FRTYPE: Insurance

Within Designated Area-wide Contamination:

Expiration Date: 09/30/2017

No Further Action Letter - Unrestricted Residential Use

All Facility ID: 9-200921

2012-386-AH

Tank Id: 2b

No Further Action Unrestricted Use Determination for Former JC Penny

Tank Status: Currently In Use

Auto Center

FRTYPE: Insurance

Amelia Hicks

Expiration Date: 09/30/2017

(808) 586-4249 2385 Waimano Home Rd, Pearl City, HI 96782

All Facility ID: 9-200921

Not reported

Tank Id: 9-200921

Oahu

SPILLS:

2nd Address:

Island:

Oahu

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Site

EDR ID Number
EPA ID Number
Database(s)

PEARLRIDGE SHOPPING CENTER (Continued) \$106819700

Supplemental Loc. Text: PearlrIDGE Phase I
Case Number: 19990127-1845
Facility Registry ID: Not reported
HID Number: Not reported
Lead and Program: HEER EP&R
ER: Site Visit
Less Or Greater Than: Not reported
Units: PearlrIDGE Shopping Center, phone contaminant
Activity Type: Response
Activity Lead: Mike Cripps
Assignment End Date: Not reported
Result: SOSC NFA
File Under: Not reported
Substances: Not reported
Quantity: Not reported
Reported Date: Not reported
Release Date: Not reported
Release Duration: Not reported
Media: Not reported
Waterbody: Not reported
Summary: Not reported
Is Noteworthy for Reports: Not reported
Is the Release a Fugitive Dumping: Not reported
Tax Map Key: Not reported
Notified Agencies: Not reported
Response Measures Taken: Not reported
Incident Report Number: Not reported
Coordination Needed: Not reported
Tier II Facility: Not reported
RMP: Not reported
Follow-up Received On: Not reported
Cost Recovery: Not reported
Invoice To: Not reported
Closed Date: Not reported
Comments: Not reported
Latitude: Not reported
Longitude: Not reported
2nd Address: Not reported
Island: Oahu
Supplemental Loc. Text: PearlrIDGE Shopping Center
Case Number: 19930227
Facility Registry ID: Not reported
HID Number: Not reported
Lead and Program: HEER EP&R
ER: Not reported
Less Or Greater Than: Not reported
Units: PearlrIDGE Shopping Center
Activity Type: Response
Activity Lead: Not reported
Assignment End Date: Not reported
Result: SOSC NFA
File Under: Not reported
Substances: Not reported
Quantity: Not reported

PEARLRIDGE SHOPPING CENTER (Continued) \$106819700

Units: Not reported
Reported Date: Not reported
Release Date: Not reported
Release Duration: Not reported
Media: Not reported
Waterbody: Not reported
Summary: Not reported
Is Noteworthy for Reports: Not reported
Is the Release a Fugitive Dumping: Not reported
Tax Map Key: Not reported
Assigned SOSC: Not reported
Notified Agencies: Not reported
Response Measures Taken: Not reported
Incident Report Number: Not reported
Coordination Needed: Not reported
Tier II Facility: Not reported
RMP: Not reported
Follow-up Received On: Not reported
Cost Recovery: Not reported
Invoice To: Not reported
Closed Date: Not reported
Comments: Not reported
Latitude: Not reported
Longitude: Not reported

37
East
1/4-1/2
0.487 mi.
2589 ft.
Relative:
Higher
Actual:
55 ft.

J.C PENNEY CO. INC.
98-1025 MOANALUA RD
AIEA, HI 96701

HILLUST U001236371
HIUST N/A

LUST: 9-201541
Facility ID: 9-201541
Facility Status: Site Cleanup Completed with EHE/EHMP
Facility Status Date: 02/27/2017
Release ID: 010044
Project Officer: Richard Takaba

UST: 9-201541
Facility ID: 9-201541
Owner: J.C. PENNEY
Owner Address: P.O. BOX 10001
Owner City, St, Zip: Aiea, 96701 96701
Latitude: 21.385959
Longitude: -157.940807
Horizontal Reference Datum Name: NAD83
Horizontal Collection Method Name: Address Matching

Tank ID: R-001
Date Installed: Not reported
Tank Status: Permanently Out of Use
Date Closed: 02/01/1982
Tank Capacity: 10000
Substance: Gasoline

Tank ID: R-002

J C PENNEY CO., INC. (Continued) U001236371 S118422781

Date Installed: Not reported
 Tank Status: **Permanently Out of Use**
 Date Closed: 02/01/1982
 Tank Capacity: 10000
 Substance: Gasoline

Tank ID: R-003
 Date Installed: Not reported
 Tank Status: **Permanently Out of Use**
 Date Closed: 02/01/1982
 Tank Capacity: 10000
 Substance: Gasoline

Tank ID: R-4
 Date Installed: Not reported
 Tank Status: **Permanently Out of Use**
 Date Closed: 10/06/1994
 Tank Capacity: 550
 Substance: Used Oil

Document Number: Not reported
 Document Subject: Not reported
 Project Manager: Cal Miyahara
 Contact Information: (808) 586-4249 2385 Waimano Home Rd., Pearl City, HI 96782

406 KAMEHAMEHA HIGHWAY HI SHWS S118422781

Relative: 0.512 mi.
 Higher
 Actual: 2702 ft.
 16 ft.

Organization: Not reported
 Supplemental Location: Not reported
 Island: Oahu
 Environmental Interest: 406 Kamehameha Highway
 HID Number: Not reported
 Facility Registry Identifier: HEER
 Lead Agency: HEER
 Program: State
 Project Manager: Cal Miyahara
 Hazard Priority: Medium
 Potential Hazards And Controls: Hazard Present
 Island: Oahu
 SDAR Environmental Interest Name: 406 Kamehameha Highway
 HID Number: Not reported
 Facility Registry Identifier: HEER
 Lead Agency: HEER
 Potential Hazard And Controls: Hazard Present
 Priority: Medium
 Assessment: Assessment Ongoing
 Response: Not reported
 Nature of Contamination: Found: TPH in soil and groundwater.
 Nature of Residual Contamination: Not reported
 Use Restrictions: Controls Required to Manage Contamination
 Engineering Control: Not reported
 Description of Restrictions: Not reported
 Institutional Control: Not reported
 Within Designated Area-wide Contamination: Not reported
 Site Closure Type: Not reported
 Document Date: Not reported

406 KAMEHAMEHA HIGHWAY (Continued) U001236371 S118422781

Document Number: Not reported
 Document Subject: Not reported
 Project Manager: Cal Miyahara
 Contact Information: (808) 586-4249 2385 Waimano Home Rd., Pearl City, HI 96782

AIEA MILITARY RESERVATION FUDS 1007372710

Relative: 0.802 mi.
 Higher
 Actual: 4236 ft.

EPA Region: 9
 Installation ID: HI99799F375900
 Congressional District Number: 1
 Facility Name: AIEA MILITARY RESERVATION
 FUDS Number: H09HI0011
 City: AIEA
 State: HI
 County: HONOLULU
 Telephone: 808-835-4004
 USACE Division: Pacific Ocean Division (POD)
 USACE District: Honolulu District (POH)
 Status: Properties with all projects at site closeout
 Current Owner: Private Sector: State Government
 X Coord: -157.930999999649
 Y Coord: 21.375199999800398
 Latitude: 21.3752
 Longitude: -157.93100000000001

FUDS Detail as of Jan 2015:
 Fiscal Year: 2013
 Federal Facility ID: HI9799F3759
 RAB: Not reported
 NPL Status: Not Listed
 Description: The Aiea Military Reservation comprises 274.07 acres and is located across from the Admiral's boat house in Pearl Harbor, near Aiea State Park. The buildings were unoccupied and much vandalism has occurred including the unauthorized removal of mercury from the pump house which contaminated the Puu Momi subdivision. The State of Hawaii has secured the site to prohibit further access. The property is currently owned by the State of Hawaii.

History:
 The land was withdrawn by the U.S. from the Territory of Hawaii and set aside for military purposes. By Executive Order 8320, dated 15 January 1940, the description of the Aiea Military Reservation was amended to an area of 8,471 acres. The property having the Aiea Pump house was a former Navy facility and was turned over to the State of Hawaii in 1962. Since then, the buildings have been unoccupied and subject to vandalism.
 CTC: 3231.69999999999998
 Current Program: Not reported
 Future Program: Not reported
 Institutional ID: 62506

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site EDR ID Number S121406064 EPA ID Number N/A Database(s)

F40
WNW
1/2-1
0.855 mi.
4515 ft.
Relative:
Higher
Actual:
23 ft.

HI SHWS **S121406064**
N/A

S121406066

HECO GENERATING STATION: WAIAIU
475 KAMEHAMEHA HWY
PEARL CITY, HI 96782
Site 1 of 4 in cluster F

HECO WAIU GENERATING STATION UNIT 5 PCB CLEANUP (Continued)

Organization: Not reported
Supplemental Location: Waiu Generating Station
Island: Oahu
Environmental Interest: Hawaiian Electric Co.-Waiu Generating Station
HID Number: HIT000610873
Facility Registry Identifier: 110000486420
Lead Agency: EPA
Program: State
Project Manager: Maria Reyes
Hazard Priority: Medium
Potential Hazards And Controls: Hazard Present
Island: Oahu
SDAR Environmental Interest Name: Hawaiian Electric Co.-Waiu Generating Station
HID Number: HIT000610873
Facility Registry Identifier: 110000486420
Lead Agency: EPA
Potential Hazard And Controls: Hazard Present
Priority: Medium
Assessment: Assessment Ongoing
Response: Response Ongoing
Nature of Contamination: Found: PCBs in sediments
Use Restrictions: Not reported
Engineering Control: Controls Required to Manage Contamination
Description of Restrictions: Not reported
Institutional Control: Not reported
Within Designated Area-wide Contamination: Not reported
Site Closure Type: Not reported
Document Date: Not reported
Document Number: Not reported
Document Subject: Not reported
Project Manager: Maria Reyes
Contact Information: (808) 586-4249 2385 Waimano Home Rd, Pearl City, HI 96782

SDAR Environmental Interest Name: HECO Waiu Generating Station Unit 5 PCB Cleanup
HID Number: HIT000610873
Facility Registry Identifier: Not reported
Lead Agency: EPA TSCA
Potential Hazard And Controls: Hazard Present
Priority: Medium
Assessment: Response Necessary
Response: Self Implementing TSCA Cleanup
Nature of Contamination: Found: PCBs in soil.
Use Restrictions: Not reported
Engineering Control: Controls Required to Manage Contamination
Description of Restrictions: Not reported
Institutional Control: Not reported
Within Designated Area-wide Contamination: Not reported
Site Closure Type: Not reported
Document Date: Not reported
Document Number: Not reported
Document Subject: Not reported
Project Manager: Jordan Nakayama
Contact Information: (808) 586-4249 2385 Waimano Home Rd, Pearl City, HI 96782

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site EDR ID Number S121406066 EPA ID Number N/A Database(s)

F41
WNW
1/2-1
0.855 mi.
4515 ft.
Relative:
Higher
Actual:
23 ft.

HI SHWS **S121406066**
N/A

HECO GENERATING STATION: WAIAIU
475 KAMEHAMEHA HWY
PEARL CITY, HI 96782
Site 2 of 4 in cluster F

HECO WAIU GENERATING STATION UNIT 5 PCB CLEANUP

Organization: Not reported
Supplemental Location: HECO Waiu Generating Station
Island: Oahu
Environmental Interest: HECO Waiu Generating Station Unit 5 PCB Cleanup
HID Number: HIT000610873
Facility Registry Identifier: Not reported
Lead Agency: EPA TSCA
Program: State
Project Manager: Jordan Nakayama
Hazard Priority: Medium
Potential Hazards And Controls: Hazard Present
Island: Oahu

SDAR Environmental Interest Name: HECO Waiu Generating Station Unit 5 PCB Cleanup
HID Number: HIT000610873
Facility Registry Identifier: Not reported
Lead Agency: EPA TSCA
Potential Hazard And Controls: Hazard Present
Priority: Low
Assessment: Response Necessary
Response: Response Ongoing
Nature of Contamination: Presumed: Low sulfur fuel oil (LFSO) in soil and groundwater.
Use Restrictions: Not reported
Engineering Control: Controls Required to Manage Contamination
Description of Restrictions: Not reported
Institutional Control: Not reported
Within Designated Area-wide Contamination: Not reported
Site Closure Type: Not reported
Document Date: Not reported
Document Number: Not reported
Document Subject: Not reported
Project Manager: Not reported
Contact Information: Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site EDR ID Number S121406066 EPA ID Number N/A Database(s)

F42
WNW
1/2-1
0.855 mi.
4515 ft.
Relative:
Higher
Actual:
23 ft.

HI SHWS **S121406065**
N/A

S121406065

HECO WAIU GENERATING STATION TANK 4
475 KAMEHAMEHA HWY
PEARL CITY, HI 96782
Site 3 of 4 in cluster F

HECO WAIU GENERATING STATION TANK 4

Organization: Not reported
Supplemental Location: HECO Waiu Generating Station
Island: Oahu
Environmental Interest: HECO Waiu Generating Station Tank 4
HID Number: Not reported
Facility Registry Identifier: Not reported
Lead Agency: HEER
Program: State
Project Manager: Steve Mow
Hazard Priority: Low
Potential Hazards And Controls: Hazard Present
Island: Oahu
SDAR Environmental Interest Name: HECO Waiu Generating Station Tank 4
HID Number: Not reported
Facility Registry Identifier: HEER
Lead Agency: HEER
Priority: Low
Assessment: Response Necessary
Response: Response Ongoing
Nature of Contamination: Presumed: Low sulfur fuel oil (LFSO) in soil and groundwater.
Use Restrictions: Not reported
Engineering Control: Controls Required to Manage Contamination
Description of Restrictions: Not reported
Institutional Control: Not reported
Within Designated Area-wide Contamination: Not reported
Site Closure Type: Not reported
Document Date: Not reported
Document Number: Not reported
Document Subject: Not reported
Project Manager: Not reported
Contact Information: Not reported

Organization: Not reported
Supplemental Location: HECO Waiu Generating Station
Island: Oahu
Environmental Interest: HECO Waiu Generating Station Tank 4
HID Number: Not reported
Facility Registry Identifier: HEER
Lead Agency: HEER
Program: State
Project Manager: Steve Mow
Hazard Priority: Low
Potential Hazards And Controls: Hazard Present
Island: Oahu
SDAR Environmental Interest Name: HECO Waiu Generating Station Tank 4
HID Number: Not reported
Facility Registry Identifier: HEER
Lead Agency: HEER
Priority: Low
Assessment: Response Necessary
Response: Response Ongoing
Nature of Contamination: Presumed: Low sulfur fuel oil (LFSO) in soil and groundwater.
Use Restrictions: Not reported
Engineering Control: Controls Required to Manage Contamination
Description of Restrictions: Not reported
Institutional Control: Not reported
Within Designated Area-wide Contamination: Not reported
Site Closure Type: Not reported
Document Date: Not reported
Document Number: Not reported
Document Subject: Not reported
Project Manager: Not reported
Contact Information: Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

Site

Database(s)

EDR ID Number
EPA ID Number

HECO WAI'AU GENERATING STATION TANK 4 (Continued)

S121406065

Document Number: Not reported
Project/Manager: Steve Mow
Contact Information: (608) 586-4249 2385 Waimano Home Rd, Pearl City, HI 96782

S121406065

F43
WNW
1/2-1
0.865 mi.
4515 ft.
Relative:
Higher
Actual:
23 ft.

HAWAIIAN ELECTRIC - WAI'AU GENERATING STATION
475 KAMEHAMEHA HIGHWAY
PEARL CITY, HI 96782
SEMS-ARCHIVE 1000146685
CORRACTS HIT000610873
RCRA-TSDF
RCRA-SQG
2020 COR ACTION

SEMS Archive:
Site ID: 0902897
EPA ID: HIT000610873
Cong District: 02
FIP-S Code: 15003
FF: N

Site 4 of 4 in cluster F

Not on the NPL
NFRAP-Site does not qualify for the NPL based on existing information

SEMS Archive Detail:

Region: 09
Site ID: 0902897
EPA ID: HIT000610873
Site Name: HAWAIIAN ELECTRIC CO WAI'AU GEN STA
NPL: N
OU: 00
Action Code: VS
Action Name: ARCH SITE
SEQ: 1
Start Date: Not reported
Finish Date: 1984-09-01 05:00:00
Qual: Not reported
Current Action Lead: EPA Perf In-Hse

Region: 09
Site ID: 0902897
EPA ID: HIT000610873
Site Name: HAWAIIAN ELECTRIC CO WAI'AU GEN STA
NPL: N
OU: 00
Action Code: DS
Action Name: DISCVRY
SEQ: 1
Start Date: 1980-07-01 04:00:00
Finish Date: 1980-07-01 04:00:00
Qual: Not reported
Current Action Lead: EPA Perf

Region: 09
Site ID: 0902897
EPA ID: HIT000610873
Site Name: HAWAIIAN ELECTRIC CO WAI'AU GEN STA
NPL: N
OU: 00

HAWAIIAN ELECTRIC - WAI'AU GENERATING STATION (Continued)

1000146685

Action Code: SI
Action Name: SI
SEQ: 1
Start Date: Not reported
Finish Date: 1984-09-01 05:00:00
Qual: N
Current Action Lead: EPA Perf

Region: 09
Site ID: 0902897
EPA ID: HIT000610873
Site Name: HAWAIIAN ELECTRIC CO WAI'AU GEN STA
NPL: N
OU: 00
Action Code: PA
Action Name: PA
SEQ: 1
Start Date: Not reported
Finish Date: 1980-11-01 05:00:00
Qual: L
Current Action Lead: EPA Perf

CORRACTS:
EPA ID: HIT000610873
Area Name: ENTIRE FACILITY
Actual Date: 20180528
Action: CA900NC
NAICS Code(s): 221112
Original schedule date: Fossil Fuel Electric Power Generation
Schedule end date: Not reported

EPA ID: HIT000610873
Area Name: ENTIRE FACILITY
Actual Date: 20121211
Action: CA550RC
NAICS Code(s): 221112
Original schedule date: Fossil Fuel Electric Power Generation
Schedule end date: Not reported

EPA ID: HIT000610873
Area Name: ENTIRE FACILITY
Actual Date: 20121211
Action: CA750YE - Migration of Contaminated Groundwater Under Control, Yes
NAICS Code(s): Migration of Contaminated Groundwater Under Control has been verified
Original schedule date: Fossil Fuel Electric Power Generation
Schedule end date: Not reported
EPA ID: HIT000610873

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

EDR ID Number
EPA ID Number

Database(s)

EDR ID Number
EPA ID Number

HAWAIIAN ELECTRIC - WAIJU GENERATING STATION (Continued)

1000146685

HAWAIIAN ELECTRIC - WAIJU GENERATING STATION (Continued)

1000146685

EPA ID: 09
EPA Region: ENTIRE FACILITY
Area Name: 20100430
Actual Date: CA725YE - Current Human Exposures Under Control, Yes, Current Human Exposures Under Control has been verified
Action:
NAICS Code(s): 221112
Original schedule date: Fossil Fuel Electric Power Generation
Schedule end date: 20100430
Not reported

EPA ID: 09
EPA Region: ENTIRE FACILITY
Area Name: ENTIRE FACILITY
Actual Date: 19801101
Action: CA075LO - CA Prioritization, Facility or area was assigned a low corrective action priority
NAICS Code(s): 221112
Original schedule date: Fossil Fuel Electric Power Generation
Schedule end date: Not reported

EPA ID: 09
EPA Region: ENTIRE FACILITY
Area Name: 19920320
Actual Date: CA225NR - Stabilization Measures Evaluation, This facility is, not amenable to stabilization activity at the, present time for reasons other than (1) it appears to be technically, infeasible or inappropriate (NF) or (2) there is a lack of technical, information (IN). Reasons for this conclusion may be the status of, closure at the facility, the degree of risk, timing considerations, the status of corrective action work at the facility, or other, administrative considerations
NAICS Code(s): 221112
Original schedule date: Fossil Fuel Electric Power Generation
Schedule end date: Not reported

EPA ID: 09
EPA Region: ENTIRE FACILITY
Area Name: 19801101
Actual Date: CA075LO - CA Prioritization, Facility or area was assigned a low corrective action priority
Action:
NAICS Code(s): 221112
Original schedule date: Fossil Fuel Electric Power Generation
Schedule end date: Not reported

EPA ID: 09
EPA Region: ENTIRE FACILITY
Area Name: 19920320
Actual Date: CA075ME - CA Prioritization, Facility or area was assigned a medium corrective action priority
NAICS Code(s): 221112
Original schedule date: Fossil Fuel Electric Power Generation
Schedule end date: Not reported

EPA ID: 09
EPA Region: ENTIRE FACILITY
Area Name: 19801101
Actual Date: CA074LO
Action:
NAICS Code(s): 221112
Original schedule date: Fossil Fuel Electric Power Generation
Schedule end date: Not reported

EPA ID: 09
EPA Region: ENTIRE FACILITY
Area Name: 19900101
Actual Date: CA029ST
NAICS Code(s): 221112
Original schedule date: Fossil Fuel Electric Power Generation
Schedule end date: Not reported

EPA ID: 09
EPA Region: ENTIRE FACILITY
Area Name: 19801101
Actual Date: CA049PA
Action:
NAICS Code(s): 221112
Original schedule date: Fossil Fuel Electric Power Generation
Schedule end date: Not reported

EPA ID: 09
EPA Region: ENTIRE FACILITY
Area Name: 19900101
Actual Date: CA029ST
NAICS Code(s): 221112
Original schedule date: Fossil Fuel Electric Power Generation
Schedule end date: Not reported

EPA ID: 09
EPA Region: ENTIRE FACILITY
Area Name: 19801101
Actual Date: CA049PA
Action:
NAICS Code(s): 221112
Original schedule date: Fossil Fuel Electric Power Generation
Schedule end date: Not reported

EPA ID: 09
EPA Region: ENTIRE FACILITY
Area Name: 19870123
Actual Date: CA050RF - RFA Completed, Assessment was an RFA
Action:
NAICS Code(s): 221112
Original schedule date: Fossil Fuel Electric Power Generation
Schedule end date: Not reported

EPA ID: 09
EPA Region: ENTIRE FACILITY
Area Name: 19801101
Actual Date: CA049PA
Action:
NAICS Code(s): 221112
Original schedule date: Fossil Fuel Electric Power Generation
Schedule end date: Not reported

RCRA-TSDF:
Date form received by agency: 02/29/2016
Facility name: HAWAIIAN ELECTRIC - WAIJU GENERATING STATION
Facility address: 475 KAMEHAMEHA HIGHWAY PEARL CITY, HI 96782
EPA ID: HIT000610873
Mailing address: P.O. BOX 2750 (ATTN: CP6-JW) HONOLULU, HI 96740
Contact: WARREN S HALL
Contact address: P.O. BOX 2750 (CP6-JW) HONOLULU, HI 96740
Contact country: US
Contact telephone: 808-543-4524
Contact email: WARREN.HALL@HAWAIIANELECTRIC.COM
EPA Region: 09
Land type: Private

Classification: TSDF
Description: Handler is engaged in the treatment, storage or disposal of hazardous waste

Owner/Operator Summary:
Owner/operator name: HAWAIIAN ELECTRIC COMPANY, INC.
Owner/operator address: P. O. BOX 2750 (CP6-JIV)
HONOLULU, HI 96740
US
Owner/operator country: 808-543-4524
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 01/01/1937
Owner/Op end date: Not reported

Owner/operator name: HAWAIIAN ELECTRIC COMPANY, INC.
Owner/operator address: Not reported
Owner/operator country: Not reported
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 01/01/1937
Owner/Op end date: Not reported

Date form received by agency: 02/26/2004
Site name: WAIAU GENERATING STATION AND BASEYARD
Classification: Small Quantity Generator

Date form received by agency: 03/19/2003
Site name: WAIAU GENERATING STATION
Classification: Small Quantity Generator

Date form received by agency: 03/19/2003
Site name: WAIAU GENERATING STATION
Classification: Small Quantity Generator

Date form received by agency: 02/26/2002
Site name: HAWAIIAN ELECTRIC COMPANY, INC. WAIAU GE
Classification: Small Quantity Generator

Date form received by agency: 02/27/1996
Site name: WAIAU GENERATING STA
Classification: Large Quantity Generator

Date form received by agency: 12/02/1992
Site name: HAWAIIAN ELECTRIC CO WAIAU GEN STA
Classification: Large Quantity Generator

Date form received by agency: 09/25/1986
Site name: HAWAIIAN ELECTRIC CO WAIAU GEN STATION
Classification: Not a generator, verified

Date form received by agency: 08/01/1980
Site name: HAWAIIAN ELECTRIC CO WAIAU GEN STA
Classification: Large Quantity Generator

Hazardous Waste Summary:

- . Waste code: D001
- . Waste name: IGNITABLE WASTE
- . Waste code: D002
- . Waste name: CORROSIVE WASTE
- . Waste code: D003
- . Waste name: REACTIVE WASTE
- . Waste code: D004
- . Waste name: ARSENIC
- . Waste code: D005
- . Waste name: BARIUM
- . Waste code: D006
- . Waste name: CADMIUM
- . Waste code: D007
- . Waste name: CHROMIUM
- . Waste code: D008
- . Waste name: LEAD

Classification: TSDF
Description: Handler is engaged in the treatment, storage or disposal of hazardous waste

Owner/Operator Summary:
Owner/operator name: HAWAIIAN ELECTRIC COMPANY, INC.
Owner/operator address: P. O. BOX 2750 (CP6-JIV)
HONOLULU, HI 96740
US
Owner/operator country: 808-543-4524
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 01/01/1937
Owner/Op end date: Not reported

Owner/operator name: HAWAIIAN ELECTRIC COMPANY, INC.
Owner/operator address: Not reported
Owner/operator country: Not reported
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 01/01/1937
Owner/Op end date: Not reported

Date form received by agency: 04/08/2014
Site name: HAWAIIAN ELECTRIC - WAIAU GENERATING STATION
Classification: Small Quantity Generator

Date form received by agency: 02/10/2006
Site name: WAIAU GENERATING STATION AND BASEYARD
Classification: Conditionally Exempt Small Quantity Generator

Handler Activities Summary:

- . U.S. importer of hazardous waste: No
- . Mixed waste (haz. and radioactive): No
- . Recycler of hazardous waste: No
- . Transporter of hazardous waste: No
- . Treater, storer or disposer of HW: No
- . Underground injection activity: No
- . On-site burner exemption: No
- . Furnace exemption: No
- . Used oil fuel burner: No
- . Used oil processor: No
- . User oil refiner: No
- . Used oil fuel marketer to burner: No
- . Used oil Specification marketer: No
- . Used oil transfer facility: No
- . Used oil transporter: No

Map ID
Direction
Distance
Elevation

MAP FINDINGS

EDR ID Number
EPA ID Number

Database(s)

Site

HAWAIIAN ELECTRIC - WAIU GENERATING STATION (Continued)

1000146685

- . Waste code: D009
- . Waste name: MERCURY
- . Waste code: D010
- . Waste name: SELENIUM
- . Waste code: D011
- . Waste name: SILVER
- . Waste code: D014
- . Waste name: METHOXYCHLOR (1,1,1-TRICHLORO-2,2-BIS [P-METHOXYPHENYL] ETHANE)
- . Waste code: D016
- . Waste name: 2,4-D (2,4-DICHLOROPHENOXYACETIC ACID)
- . Waste code: D017
- . Waste name: 2,4,5-TP SILVEX (2,4,5-TRICHLOROPHENOXYPROPIONIC ACID)
- . Waste code: D018
- . Waste name: BENZENE
- . Waste code: D020
- . Waste name: CHLORDANE
- . Waste code: D022
- . Waste name: CHLOROFORM
- . Waste code: D023
- . Waste name: O-CRESOL
- . Waste code: D024
- . Waste name: M-CRESOL
- . Waste code: D025
- . Waste name: P-CRESOL
- . Waste code: D027
- . Waste name: 1,4-DICHLOROBENZENE
- . Waste code: D029
- . Waste name: 1,1-DICHLOROETHYLENE
- . Waste code: D030
- . Waste name: 2,4-DINITROTOLUENE
- . Waste code: D031
- . Waste name: HEPTACHLOR (AND ITS EPOXIDE)
- . Waste code: D032
- . Waste name: HEXACHLOROBENZENE
- . Waste code: D033
- . Waste name: HEXACHLOROBUTADIENE
- . Waste code: D034
- . Waste name: HEXACHLOROETHANE

Map ID
Direction
Distance
Elevation

MAP FINDINGS

EDR ID Number
EPA ID Number

Database(s)

Site

HAWAIIAN ELECTRIC - WAIU GENERATING STATION (Continued)

1000146685

- . Waste code: D035
- . Waste name: METHYL ETHYL KETONE
- . Waste code: D037
- . Waste name: PENTACHLOROPHENOL
- . Waste code: D038
- . Waste name: PYRIDINE
- . Waste code: D040
- . Waste name: TRICHLOROETHYLENE
- . Waste code: D041
- . Waste name: 2,4,5-TRICHLOROPHENOL
- . Waste code: D042
- . Waste name: 2,4,6-TRICHLOROPHENOL
- . Waste code: D043
- . Waste name: VINYL CHLORIDE
- . Waste code: F001
- . Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS USED IN DEGREASING: TETRACHLOROETHYLENE, TRICHLOROETHYLENE, METHYLENE CHLORIDE, 1,1,1-TRICHLOROETHANE, CARBON TETRACHLORIDE AND CHLORINATED FLUOROCARBONS; ALL SPENT SOLVENT MIXTURES/BLENDS USED IN DEGREASING CONTAINING BEFORE USE A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

- . Waste code: F002
- . Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE, TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHODICHLOROBENZENE, TRICHLOROFLUOROETHANE, AND 1,1,2-TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

- . Waste code: F003
- . Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

- . Waste code: F005
- . Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE.

HAWAIIAN ELECTRIC - WAIU GENERATING STATION (Continued) 1000146685

2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

P004
 1,4,5,6-DIMETHANONAPHTHALENE,
 1,2,3,4,10-HEXA-CHLORO-1,4,4A,5,8,8A-HEXAHYDRO-, (1ALPHA, 4ALPHA,
 4BETA, 5ALPHA, 8ALPHA, 8ABETA)- (OR) ALDRIN

P008
 4-AMINOPYRIDINE (OR) 4-PYRIDINAMINE

P012
 ARSENIC OXIDE AS2O3 (OR) ARSENIC TRIOXIDE

P018
 BRUCINE (OR) STRYCHNIDIN-10-ONE, 2,3-DIMETHOXY-

P020
 DINOSEB (OR) PHENOL, 2-(1-METHYLPROPYL)-4,6-DINITRO-

P029
 COPPER CYANIDE (OR) COPPER CYANIDE CU(CN)

P037
 2,7,3,6-DIMETHANONAPHTHIC 3,6-DIOXIRENE
 3,4,5,6,9-HEXACHLORO-1A,2,2A,3,6,6A,7A-OCTAHYDRO-, (1AALPHA,
 2BETA, 2AALPHA, 3BETA, 6BETA, 6ALPHA, 7BETA, 7AALPHA)- (OR) DIELDRIN

P044
 DIMETHOATE (OR) PHOSPHORODITHIOIC ACID, O,O-DIMETHYL
 S-[2-(METHYLAMINO)-2-OXOETHYL] ESTER

P046
 ALPHA,ALPHA-DIMETHYLPHENETHYLAMINE (OR) BENZENEEETHANAMINE, ALPHA,
 ALPHA-DIMETHYL-

P048
 2,4-DINITROPHENOL (OR) PHENOL, 2,4-DINITRO-

P050
 6,9-METHANO-2,4,5-BENZODIOXATHIEPIN,6,7,8,9,10,10-HEXACHLORO-1,5,5A,6,
 9,9A-HEXAHYDRO-,3-OXIDE (OR) ENDOSULFAN

P057
 ACETAMIDE, 2-FLUORO- (OR) FLUOROACETAMIDE

P066
 ETHANIMIDOTHIOIC ACID, N-[[[(METHYLAMINO)CARBONYL]OXY]-, METHYL ESTER
 (OR) METHOMYL

P070
 ALDICARB (OR) PROPANAL, 2-METHYL-2-(METHYLTHIO)-,
 O-[(METHYLAMINO)CARBONYL]OXIME

HAWAIIAN ELECTRIC - WAIU GENERATING STATION (Continued) 1000146685

P071
 METHYL PARATHION (OR) PHOSPHOROTHIOIC ACID, O,O-DIMETHYL
 O-(4-NITROPHENYL) ESTER

P089
 PARATHION (OR) PHOSPHOROTHIOIC ACID, O,O-DIETHYL-O-(4-NITROPHENYL)
 ESTER

P094
 PHORATE (OR) PHOSPHORODITHIOIC ACID, O,O-DIETHYL S-[(ETHYLTHIOMETHYL)
 ESTER

P104
 SILVER CYANIDE (OR) SILVER CYANIDE AG(CN)

P105
 SODIUM AZIDE

P106
 SODIUM CYANIDE (OR) SODIUM CYANIDE NA(CN)

P123
 TOXAPHENE

P127
 7-BENZOFURANOL, 2,3-DIHYDRO-2,2-DIMETHYL-, METHYL CARBAMATE (OR)
 CARBOFURAN

P194
 ETHANIMIDOTHIOIC ACID, 2-(DIMETHYLAMINO)-N-[(METHYLAMINO)
 CARBONYL]OXY]-2-OXO-, METHYL ESTER (OR) OXAMYL

P199
 METHIOCARB (OR) MEXACARBATE (OR) PHENOL,
 (3,5-DIMETHYL-4-(METHYLTHIO)-, METHYL CARBAMATE

P201
 PHENOL, 3-METHYL-5-(1-METHYLETHYL)-, METHYL CARBAMATE (OR) PROMECARB

U002
 2-PROPANONE (I) (OR) ACETONE (I)

U003
 ACETONITRILE (I, T)

U021
 [1,1'-BIPHENYL]-4,4'-DIAMINE (OR) BENZIDINE

U036
 4,7-METHANO-1H-INDENE,
 1,2,4,5,6,7,8,8-OCTACHLORO-2,3,3A,4,7,7A-HEXAHYDRO-, (OR) CHLORDANE,
 ALPHA & GAMMA ISOMERS

U041
 EPICHLOROHYDRIN (OR) OXIRANE, (CHLOROMETHYL)-

U048

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site Database(s) EDR ID Number
EPA ID Number

HAWAIIAN ELECTRIC - WAIALU GENERATING STATION (Continued) 1000146685

- . Waste name: O-CHLOROPHENOL (OR) PHENOL, 2-CHLORO-
- . Waste code: U052
- . Waste name: CRESOL (CRESYLIC ACID) (OR) PHENOL, METHYL-
- . Waste code: U060
- . Waste name: BENZENE, 1,1'-(2,2-DICHLOROETHYLENE)BIS(4-CHLORO-, (OR) DDD
- . Waste code: U061
- . Waste name: BENZENE, 1,1'-(2,2,2-TRICHLOROETHYLENE)BIS(4-CHLORO-, (OR) DDT
- . Waste code: U062
- . Waste name: CARBAMOTHOIC ACID, BIS(1-METHYLETHYL-, S-(2,3-DICHLORO-2-PROPENYL) ESTER (OR) DIALLATE
- . Waste code: U066
- . Waste name: 1,2-DIBROMO-3-CHLOROPROPANE (OR) PROPANE, 1,2-DIBROMO-3-CHLORO-
- . Waste code: U068
- . Waste name: METHANE, DIBROMO-, (OR) METHYLENE BROMIDE
- . Waste code: U071
- . Waste name: BENZENE, 1,3-DICHLORO-, (OR) M-DICHLOROBENZENE
- . Waste code: U079
- . Waste name: 1,2-DICHLOROETHYLENE (OR) ETHENE, 1,2-DICHLORO-, (E)-
- . Waste code: U080
- . Waste name: METHANE, DICHLORO-, (OR) METHYLENE CHLORIDE
- . Waste code: U081
- . Waste name: 2,4-DICHLOROPHENOL (OR) PHENOL, 2,4-DICHLORO-
- . Waste code: U084
- . Waste name: 1,3-DICHLOROPROPENE (OR) 1-PROPENE, 1,3-DICHLORO-
- . Waste code: U105
- . Waste name: 2,4-DINITROTOLUENE (OR) BENZENE, 1-METHYL-2,4-DINITRO-
- . Waste code: U117
- . Waste name: ETHANE, 1,1'-OXYBIS-(O) ETHYL ETHER (I)
- . Waste code: U127
- . Waste name: BENZENE, HEXACHLORO-, (OR) HEXACHLOROBENZENE
- . Waste code: U128
- . Waste name: 1,3-BUTADIENE, 1,1,2,3,4,4-HEXACHLORO-, (OR) HEXACHLOROBUTADIENE
- . Waste code: U130
- . Waste name: 1,3-CYCLOPENTADIENE, 1,2,3,4,5-HEXACHLORO-, (OR) HEXACHLOROCYCLOPENTADIENE
- . Waste code: U132
- . Waste name: HEXACHLOROPHENE (OR) PHENOL, 2,2'-METHYLENEBIS(3,4,6-TRICHLORO-
- . Waste code: U144
- . Waste name: ACETIC ACID, LEAD(2+) SALT (OR) LEAD ACETATE

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site Database(s) EDR ID Number
EPA ID Number

HAWAIIAN ELECTRIC - WAIALU GENERATING STATION (Continued) 1000146685

- . Waste code: U151
- . Waste name: MERCURY
- . Waste code: U154
- . Waste name: METHANOL (I) (OR) METHYL ALCOHOL (I)
- . Waste code: U159
- . Waste name: 2-BUTANONE (I,T) (OR) METHYL ETHYL KETONE (MEK) (I,T)
- . Waste code: U160
- . Waste name: 2-BUTANONE, PEROXIDE (R,T) (OR) METHYL ETHYL KETONE PEROXIDE (R,T)
- . Waste code: U161
- . Waste name: 4-METHYL-2-PENTANONE (I) (OR) METHYL ISOBUTYL KETONE (I) (OR) PENTANOL, 4-METHYL-
- . Waste code: U165
- . Waste name: NAPHTHALENE
- . Waste code: U169
- . Waste name: BENZENE, NITRO-, (OR) NITROBENZENE (I,T)
- . Waste code: U188
- . Waste name: PHENOL
- . Waste code: U191
- . Waste name: 2-PICOLINE (OR) PYRIDINE, 2-METHYL-
- . Waste code: U208
- . Waste name: 1,1,1,2-TETRACHLOROETHANE (OR) ETHANE, 1,1,1,2-TETRACHLORO-
- . Waste code: U209
- . Waste name: 1,1,2,2-TETRACHLOROETHANE (OR) ETHANE, 1,1,2,2-TETRACHLORO-
- . Waste code: U211
- . Waste name: CARBON TETRACHLORIDE (OR) METHANE, TETRACHLORO-
- . Waste code: U219
- . Waste name: THIOUREA
- . Waste code: U220
- . Waste name: BENZENE, METHYL-, (OR) TOLUENE
- . Waste code: U227
- . Waste name: 1,1,2-TRICHLOROETHANE (OR) ETHANE, 1,1,2-TRICHLORO-
- . Waste code: U228
- . Waste name: ETHENE, TRICHLORO-, (OR) TRICHLOROETHYLENE
- . Waste code: U239
- . Waste name: BENZENE, DIMETHYL-, (I,T) (OR) XYLENE (I)
- . Waste code: U247
- . Waste name: BENZENE, 1,1'-(2,2,2-TRICHLOROETHYLENE)BIS(4-METHOXY-, (OR) METHOXYCHLOR
- . Waste code: U271

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site Database(s) EDR ID Number EPA ID Number

HAWAIIAN ELECTRIC - WAIAU GENERATING STATION (Continued) 1000146685

- Waste name: BENZYL (OR) CARBAMIC ACID, [1-(BUTYLAMINO)CARBONYL]-1H-BENZIMIDAZOL-2-YL]-, METHYL ESTER
- Waste code: U278
- Waste name: BENDIOCARB (OR) 1,3-BENZODIOXOL-4-OL, 2,2-DIMETHYL-, METHYL CARBAMATE
- Waste code: U373
- Waste name: CARBAMIC ACID, PHENYL-, 1-METHYLETHYL ESTER (OR) PROPAN

Corrective Action Summary:

- Event date: 11/01/1980 PA OR CERCLA INSPECTION
- Event: CA PRIORITY
- Event date: 11/01/1980 CA PRIORITY
- Event: CA PRIORITY-LOW CA PRIORITY
- Event date: 11/01/1980 NCAPS RANKING PRIORITY
- Event: PA OR CERCLA INSPECTION
- Event date: 09/01/1984
- Event: RFA COMPLETED-ASSESSMENT WAS A RFA
- Event date: 01/23/1987
- Event: LEAD AGENCY DETERMINATION
- Event date: 03/20/1992
- Event: STABILIZATION MEASURES EVALUATION-FACILITY NOT AMENABLE TO STABILIZATION
- Event date: 03/20/1992
- Event: CA PRIORITY-MEDIUM CA PRIORITY
- Event date: 04/30/2010
- Event: HUMAN EXPOSURES CONTROLLED DETERMINATION-YES, APPLICABLE AS OF THIS DATE
- Event date: 12/11/2012
- Event: RELEASE TO GW CONTROLLED DETERMINATION-YES, APPLICABLE AS OF THIS DATE
- Event date: 12/11/2012
- Event: REMEDY CONSTRUCTION-REMEDY CONSTRUCTED
- Event date: 09/28/2018
- Event: CA PERFORMANCE STANDARDS ATTAINED - NO CONTROLS NECESSARY

Facility Has Received Notices of Violations:
Regulation violated: Not reported
Area of violation: Generators - General
Date violation determined: 06/03/2009
Date achieved compliance: 11/23/2010
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 06/03/2009

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site Database(s) EDR ID Number EPA ID Number

HAWAIIAN ELECTRIC - WAIAU GENERATING STATION (Continued) 1000146685

- Enf. disposition status: Not reported
- Enf. disp. status date: Not reported
- Enforcement lead agency: State
- Proposed penalty amount: Not reported
- Final penalty amount: Not reported
- Paid penalty amount: Not reported
- Regulation violated: Not reported
- Area of violation: TSD IS-Container Use and Management
- Date violation determined: 06/03/2009
- Date achieved compliance: 11/23/2010
- Violation lead agency: State
- Enforcement action: FINAL 3008(A) COMPLIANCE ORDER
- Enforcement action date: 11/03/2010
- Enf. disposition status: Action Satisfied (Case Closed)
- Enf. disp. status date: 11/03/2010
- Enforcement lead agency: State
- Proposed penalty amount: Not reported
- Final penalty amount: 50000
- Paid penalty amount: 50000
- Regulation violated: Not reported
- Area of violation: TSD IS-Container Use and Management
- Date violation determined: 06/03/2009
- Date achieved compliance: 11/23/2010
- Violation lead agency: State
- Enforcement action: WRITTEN INFORMAL
- Enforcement action date: 06/03/2009
- Enf. disposition status: Not reported
- Enf. disp. status date: Not reported
- Enforcement lead agency: State
- Proposed penalty amount: Not reported
- Final penalty amount: Not reported
- Paid penalty amount: Not reported
- Regulation violated: Not reported
- Area of violation: Used Oil - Generators
- Date violation determined: 06/03/2009
- Date achieved compliance: 11/23/2010
- Violation lead agency: State
- Enforcement action: FINAL 3008(A) COMPLIANCE ORDER
- Enforcement action date: 11/03/2010
- Enf. disposition status: Action Satisfied (Case Closed)
- Enf. disp. status date: 11/03/2010
- Enforcement lead agency: State
- Proposed penalty amount: Not reported
- Final penalty amount: 50000
- Paid penalty amount: 50000
- Regulation violated: Not reported
- Area of violation: Generators - General
- Date violation determined: 06/03/2009
- Date achieved compliance: 11/23/2010
- Violation lead agency: State
- Enforcement action: INITIAL 3008(A) COMPLIANCE
- Enforcement action date: 05/10/2010
- Enf. disposition status: Not reported

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HAWAIIAN ELECTRIC - WAIAU GENERATING STATION (Continued)

Not reported

Enforcement lead agency: State

Proposed penalty amount: 53500

Final penalty amount: Not reported

Paid penalty amount: Not reported

Regulation violated:

Area of violation: Generators - Pre-transport

Date violation determined: 06/03/2009

Date achieved compliance: 11/23/2010

Violation lead agency: State

Enforcement action: INITIAL 3008(A) COMPLIANCE

Enforcement action date: 05/10/2010

Enf. disposition status: Not reported

Enf. disp. status date: Not reported

Enforcement lead agency: State

Proposed penalty amount: 53500

Final penalty amount: Not reported

Paid penalty amount: Not reported

Regulation violated:

Area of violation: Permits - General Information

Date violation determined: 06/03/2009

Date achieved compliance: 11/23/2010

Violation lead agency: State

Enforcement action: INITIAL 3008(A) COMPLIANCE ORDER

Enforcement action date: 11/03/2010

Enf. disposition status: Action Satisfied (Case Closed)

Enf. disp. status date: 11/03/2010

Enforcement lead agency: State

Proposed penalty amount: Not reported

Final penalty amount: 50000

Paid penalty amount: 50000

Regulation violated:

Area of violation: Used Oil - Generators

Date violation determined: 06/03/2009

Date achieved compliance: 11/23/2010

Violation lead agency: State

Enforcement action: INITIAL 3008(A) COMPLIANCE

Enforcement action date: 05/10/2010

Enf. disposition status: Not reported

Enf. disp. status date: Not reported

Enforcement lead agency: State

Proposed penalty amount: 53500

Final penalty amount: Not reported

Paid penalty amount: Not reported

Regulation violated:

Area of violation: Permits - General Information

Date violation determined: 06/03/2009

Date achieved compliance: 11/23/2010

Violation lead agency: State

Enforcement action: WRITTEN INFORMAL

Enforcement action date: 06/03/2009

Enf. disposition status: Not reported

Enf. disp. status date: Not reported

Enforcement lead agency: State

Proposed penalty amount: Not reported

Final penalty amount: Not reported

Paid penalty amount: Not reported

Regulation violated:

Area of violation: Generators - General

Date violation determined: 06/03/2009

Date achieved compliance: 11/23/2010

Violation lead agency: State

Enforcement action: FINAL 3008(A) COMPLIANCE ORDER

Enforcement action date: 11/03/2010

Enf. disposition status: Action Satisfied (Case Closed)

Enf. disp. status date: 11/03/2010

Enforcement lead agency: State

Enforcement lead agency: State

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HAWAIIAN ELECTRIC - WAIAU GENERATING STATION (Continued)

Not reported

Enforcement lead agency: State

Proposed penalty amount: 53500

Final penalty amount: Not reported

Paid penalty amount: Not reported

Regulation violated:

Area of violation: Generators - Pre-transport

Date violation determined: 06/03/2009

Date achieved compliance: 11/23/2010

Violation lead agency: State

Enforcement action: INITIAL 3008(A) COMPLIANCE

Enforcement action date: 05/10/2010

Enf. disposition status: Not reported

Enf. disp. status date: Not reported

Enforcement lead agency: State

Proposed penalty amount: 53500

Final penalty amount: Not reported

Paid penalty amount: Not reported

Regulation violated:

Area of violation: Permits - General Information

Date violation determined: 06/03/2009

Date achieved compliance: 11/23/2010

Violation lead agency: State

Enforcement action: INITIAL 3008(A) COMPLIANCE

Enforcement action date: 05/10/2010

Enf. disposition status: Not reported

Enf. disp. status date: Not reported

Enforcement lead agency: State

Proposed penalty amount: Not reported

Final penalty amount: Not reported

Paid penalty amount: Not reported

Regulation violated:

Area of violation: TSD IS-Container Use and Management

Date violation determined: 06/03/2009

Date achieved compliance: 11/23/2010

Violation lead agency: State

Enforcement action: INITIAL 3008(A) COMPLIANCE

Enforcement action date: 05/10/2010

Enf. disposition status: Not reported

Enf. disp. status date: Not reported

Enforcement lead agency: State

Proposed penalty amount: Not reported
Final penalty amount: 50000
Paid penalty amount: 50000

Regulation violated:
Area of violation: Used Oil - Generators
Date violation determined: 06/03/2009
Date achieved compliance: 11/23/2010
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 06/03/2009
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated:
Area of violation: Generators - Pre-transport
Date violation determined: 06/03/2009
Date achieved compliance: 11/23/2010
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 06/03/2009
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated:
Area of violation: F - 262.30-34.C
Generators - General
Date violation determined: 08/10/1998
Date achieved compliance: 12/13/1999
Violation lead agency: EPA
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 09/22/1999
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: 82940
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated:
Area of violation: F - 262.30-34.C
Generators - General
Date violation determined: 08/10/1998
Date achieved compliance: 12/13/1999
Violation lead agency: EPA
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 09/22/1999
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: 82940
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated:
Area of violation: F - 262.30-34.C
Generators - General
Date violation determined: 08/10/1998
Date achieved compliance: 12/13/1999
Violation lead agency: EPA
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 09/22/1999
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: 82940
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated:
Area of violation: F - 262.20-23.B
Generators - General
Date violation determined: 08/10/1998
Date achieved compliance: 12/13/1999
Violation lead agency: EPA
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 09/22/1999
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: 82940
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated:
Area of violation: F - 262.20-23.B
Generators - General
Date violation determined: 08/10/1998
Date achieved compliance: 12/13/1999
Violation lead agency: EPA
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 09/22/1999
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: 82940
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated:
Area of violation: F - 262.30-34.C
Generators - General
Date violation determined: 08/10/1998
Date achieved compliance: 12/13/1999
Violation lead agency: EPA
Enforcement action: INITIAL 3008(A) COMPLIANCE ORDER
Enforcement action date: 12/13/1999
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: 61325
Final penalty amount: 61325
Paid penalty amount: 61325

Regulation violated:
Area of violation: F - 262.10-12.A
Generators - General
Date violation determined: 08/10/1998
Date achieved compliance: 12/13/1999
Violation lead agency: EPA
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 09/22/1999
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: 82940
Final penalty amount: Not reported
Paid penalty amount: Not reported

HAWAIIAN ELECTRIC - WAIAU GENERATING STATION (Continued)

HAWAIIAN ELECTRIC - WAIAU GENERATING STATION (Continued)

Regulation violated: FR - 264.140-150.H
 Area of violation: TSD - Financial Requirements
 Date violation determined: 03/31/1986
 Date achieved compliance: 05/08/1986
 Violation lead agency: EPA
 Enforcement action: WRITTEN INFORMAL
 Enforcement action date: 03/31/1986
 Enf. disposition status: Not reported
 Enf. disp. status date: Not reported
 Enforcement lead agency: EPA
 Proposed penalty amount: Not reported
 Final penalty amount: Not reported
 Paid penalty amount: Not reported

Regulation violated: FR - 264.110-120.G
 Area of violation: TSD - Closure/Post-Closure
 Date violation determined: 05/21/1985
 Date achieved compliance: 03/17/1986
 Violation lead agency: State
 Enforcement action: WRITTEN INFORMAL
 Enforcement action date: 12/20/1985
 Enf. disposition status: Not reported
 Enf. disp. status date: Not reported
 Enforcement lead agency: EPA
 Proposed penalty amount: Not reported
 Final penalty amount: Not reported
 Paid penalty amount: Not reported

Regulation violated: FR - 264.110-120.G
 Area of violation: TSD - Closure/Post-Closure
 Date violation determined: 10/18/1984
 Date achieved compliance: 03/17/1986
 Violation lead agency: EPA
 Enforcement action: WRITTEN INFORMAL
 Enforcement action date: 12/20/1985
 Enf. disposition status: Not reported
 Enf. disp. status date: Not reported
 Enforcement lead agency: EPA
 Proposed penalty amount: Not reported
 Final penalty amount: Not reported
 Paid penalty amount: Not reported

Evaluation date: 11/23/2010
 Evaluation: NOT A SIGNIFICANT NON-COMPLIER
 Area of violation: Not reported
 Date achieved compliance: Not reported
 Evaluation lead agency: State

Evaluation date: 09/23/2008
 Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
 Area of violation: Generators - General
 Date achieved compliance: 11/23/2010
 Evaluation lead agency: State

Evaluation date: 09/23/2008
 Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE

Regulation violated: Not reported
 Area of violation: F - 262.20-23 B
 Date violation determined: 08/10/1998
 Date achieved compliance: 12/13/1999
 Violation lead agency: EPA
 Enforcement action: FINAL 3008(A) COMPLIANCE ORDER
 Enforcement action date: 12/13/1999
 Enf. disposition status: Not reported
 Enf. disp. status date: Not reported
 Enforcement lead agency: EPA
 Proposed penalty amount: Not reported
 Final penalty amount: 61325
 Paid penalty amount: 61325

Regulation violated: F - 262.10-12.A
 Area of violation: Generators - General
 Date violation determined: 08/10/1998
 Date achieved compliance: 12/13/1999
 Violation lead agency: EPA
 Enforcement action: FINAL 3008(A) COMPLIANCE ORDER
 Enforcement action date: 12/13/1999
 Enf. disposition status: Not reported
 Enf. disp. status date: Not reported
 Enforcement lead agency: EPA
 Proposed penalty amount: Not reported
 Final penalty amount: 61325
 Paid penalty amount: 61325

Regulation violated: F - 262.10-12.A
 Area of violation: Generators - General
 Date violation determined: 08/10/1998
 Date achieved compliance: 12/13/1999
 Violation lead agency: EPA
 Enforcement action: Not reported
 Enforcement action date: 05/27/1999
 Enf. disposition status: Not reported
 Enf. disp. status date: Not reported
 Enforcement lead agency: EPA
 Proposed penalty amount: Not reported
 Final penalty amount: Not reported
 Paid penalty amount: Not reported

Evaluation date: F - 270
 Evaluation: TSD - General
 Area of violation: 06/27/1989
 Date achieved compliance: 01/01/1990
 Violation lead agency: State
 Enforcement action: Not reported
 Enforcement action date: Not reported
 Enf. disposition status: Not reported
 Enf. disp. status date: Not reported
 Enforcement lead agency: Not reported
 Proposed penalty amount: Not reported
 Final penalty amount: Not reported
 Paid penalty amount: Not reported

HAWAIIAN ELECTRIC - WAIAU GENERATING STATION (Continued) 1000146685

Map ID Direction Distance Elevation	MAP FINDINGS	EDR ID Number EPA ID Number	Database(s)
Site			
Area of violation: Date achieved compliance: Evaluation lead agency:	TSD IS-Container Use and Management 11/23/2010 State		
Evaluation date: Evaluation: Area of violation: Date achieved compliance: Evaluation lead agency:	09/23/2008 COMPLIANCE EVALUATION INSPECTION ON-SITE Generators - Pre-transport 11/23/2010 State		
Evaluation date: Evaluation: Area of violation: Date achieved compliance: Evaluation lead agency:	09/23/2008 COMPLIANCE EVALUATION INSPECTION ON-SITE Permits - General Information 11/23/2010 State		
Evaluation date: Evaluation: Area of violation: Date achieved compliance: Evaluation lead agency:	09/23/2008 COMPLIANCE EVALUATION INSPECTION ON-SITE Used Oil - Generators 11/23/2010 State		
Evaluation date: Evaluation: Area of violation: Date achieved compliance: Evaluation lead agency:	09/23/2008 SIGNIFICANT NON-COMPLIER Not reported Not reported State		
Evaluation date: Evaluation: Area of violation: Date achieved compliance: Evaluation lead agency:	10/08/2003 COMPLIANCE EVALUATION INSPECTION ON-SITE Not reported Not reported State		
Evaluation date: Evaluation: Area of violation: Date achieved compliance: Evaluation lead agency:	12/13/1989 NOT A SIGNIFICANT NON-COMPLIER Not reported Not reported EPA		
Evaluation date: Evaluation: Area of violation: Date achieved compliance: Evaluation lead agency:	08/17/1988 SIGNIFICANT NON-COMPLIER Not reported Not reported EPA		
Evaluation date: Evaluation: Area of violation: Date achieved compliance: Evaluation lead agency:	08/10/1988 COMPLIANCE EVALUATION INSPECTION ON-SITE Generators - General 12/13/1999 EPA		
Evaluation date: Evaluation: Area of violation: Date achieved compliance: Evaluation lead agency:	06/27/1989 COMPLIANCE EVALUATION INSPECTION ON-SITE TSD - General 01/10/1990 State		
Evaluation date: Evaluation: Area of violation: Date achieved compliance: Evaluation lead agency:	09/28/1988 COMPLIANCE EVALUATION INSPECTION ON-SITE Not reported Not reported State		
Evaluation date: Evaluation: Area of violation: Date achieved compliance: Evaluation lead agency:	06/30/1988 FOCUSED COMPLIANCE INSPECTION Not reported Not reported State		
Evaluation date: Evaluation: Area of violation: Date achieved compliance: Evaluation lead agency:	06/24/1987 NON-FINANCIAL RECORD REVIEW Not reported Not reported State		
Evaluation date: Evaluation: Area of violation: Date achieved compliance: Evaluation lead agency:	06/24/1987 COMPLIANCE EVALUATION INSPECTION ON-SITE Not reported Not reported State		
Evaluation date: Evaluation: Area of violation: Date achieved compliance: Evaluation lead agency:	03/13/1987 FINANCIAL RECORD REVIEW Not reported Not reported EPA		
Evaluation date: Evaluation: Area of violation: Date achieved compliance: Evaluation lead agency:	06/16/1986 COMPLIANCE EVALUATION INSPECTION ON-SITE Not reported Not reported EPA		
Evaluation date: Evaluation: Area of violation: Date achieved compliance: Evaluation lead agency:	03/31/1986 FINANCIAL RECORD REVIEW TSD - Financial Requirements 05/08/1986 EPA		
Evaluation date: Evaluation: Area of violation: Date achieved compliance: Evaluation lead agency:	05/21/1985 NON-FINANCIAL RECORD REVIEW TSD - Closure/Post-Closure 03/17/1986 State		
Evaluation date: Evaluation: Area of violation: Date achieved compliance: Evaluation lead agency:	05/21/1985 COMPLIANCE EVALUATION INSPECTION ON-SITE Not reported Not reported State		
Evaluation date: Evaluation: Area of violation: Date achieved compliance: Evaluation lead agency:	10/18/1984 COMPLIANCE EVALUATION INSPECTION ON-SITE TSD - Closure/Post-Closure		

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site Database(s) EDR ID Number EPA ID Number

HAWAIIAN ELECTRIC - WAI'AU GENERATING STATION (Continued)

Date achieved compliance: 03/17/1986
Evaluation lead agency: EPA
RCRA-SQG:
Date form received by agency: 02/29/2016
Facility name: HAWAIIAN ELECTRIC - WAI'AU GENERATING STATION
Facility address: 475 KAMEHAMEHA HIGHWAY
PEARL CITY, HI 96782
EPA ID: HIT000610873
Mailing address: P. O. BOX 2750 (ATTN: CP6-JW)
HONOLULU, HI 96740
Contact: WARREN S HALL
Contact address: P. O. BOX 2750 (CP6-JW)
HONOLULU, HI 96740
Contact country: US
Contact telephone: 808-543-4524
Contact email: WARREN.HALL@HAWAIIANELECTRIC.COM
EPA Region: 09
Land type: Private
Classification: TSDF
Description: Handler is engaged in the treatment, storage or disposal of hazardous waste

Owner/Operator Summary:
Owner/operator name: HAWAIIAN ELECTRIC COMPANY, INC.
Owner/operator address: P. O. BOX 2750 (CP6-JW)
HONOLULU, HI 96740
Owner/operator country: US
Owner/operator telephone: 808-543-4524
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 01/01/1987
Owner/Op end date: Not reported
Owner/operator name: HAWAIIAN ELECTRIC COMPANY, INC.
Owner/operator address: Not reported
Owner/operator country: Not reported
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 01/01/1987
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site Database(s) EDR ID Number EPA ID Number

HAWAIIAN ELECTRIC - WAI'AU GENERATING STATION (Continued)

On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
Used oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No
Historical Generators:
Date form received by agency: 04/08/2014
Site name: HAWAIIAN ELECTRIC - WAI'AU GENERATING STATION
Classification: Small Quantity Generator
Date form received by agency: 02/10/2006
Site name: WAI'AU GENERATING STATION AND BASEYARD
Classification: Conditionally Exempt Small Quantity Generator
Date form received by agency: 02/26/2004
Site name: WAI'AU GENERATING STATION AND BASEYARD
Classification: Small Quantity Generator
Date form received by agency: 03/19/2003
Site name: WAI'AU GENERATING STATION
Classification: Small Quantity Generator
Date form received by agency: 03/19/2003
Site name: WAI'AU GENERATING STATION
Classification: Small Quantity Generator
Date form received by agency: 02/26/2002
Site name: HAWAIIAN ELECTRIC COMPANY, INC. WAI'AU GE
Classification: Small Quantity Generator
Date form received by agency: 02/27/1986
Site name: WAI'AU GENERATING STA
Classification: Large Quantity Generator
Date form received by agency: 12/02/1992
Site name: HAWAIIAN ELECTRIC CO WAI'AU GEN STA
Classification: Large Quantity Generator
Date form received by agency: 09/25/1986
Site name: HAWAIIAN ELECTRIC CO WAI'AU GEN STATION
Classification: Not a generator, verified
Date form received by agency: 08/01/1980
Site name: HAWAIIAN ELECTRIC CO WAI'AU GEN STA
Classification: Large Quantity Generator

Hazardous Waste Summary:
Waste code: D001
Waste name: IGNITABLE WASTE

Map ID Direction Distance Elevation	Site	Database(s)	EDR ID Number EPA ID Number
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Map ID Direction Distance Elevation	Site	Database(s)	EDR ID Number EPA ID Number
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Map ID Direction Distance Elevation	Site	Database(s)	EDR ID Number EPA ID Number
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HAWAIIAN ELECTRIC - WAIALU GENERATING STATION (Continued)

HAWAIIAN ELECTRIC - WAIALU GENERATING STATION (Continued)

HAWAIIAN ELECTRIC - WAIALU GENERATING STATION (Continued)

- . Waste code: D027
- . Waste name: 1,4-DICHLOROBENZENE
- . Waste code: D029
- . Waste name: 1,1-DICHLOROETHYLENE
- . Waste code: D030
- . Waste name: 2,4-DINITROTOLUENE
- . Waste code: D031
- . Waste name: HEPTACHLOR (AND ITS EPOXIDE)
- . Waste code: D032
- . Waste name: HEXACHLOROBENZENE
- . Waste code: D033
- . Waste name: HEXACHLOROBUTADIENE
- . Waste code: D034
- . Waste name: HEXACHLOROETHANE
- . Waste code: D035
- . Waste name: METHYLETHYL KETONE
- . Waste code: D037
- . Waste name: PENTACHLOROPHENOL
- . Waste code: D038
- . Waste name: PYRIDINE
- . Waste code: D040
- . Waste name: TRICHLOROETHYLENE
- . Waste code: D041
- . Waste name: 2,4,5-TRICHLOROPHENOL
- . Waste code: D042
- . Waste name: 2,4,6-TRICHLOROPHENOL
- . Waste code: D043
- . Waste name: VINYL CHLORIDE
- . Waste code: F001
- . Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS USED IN DEGREASING: TETRACHLOROETHYLENE, TRICHLOROETHYLENE, METHYLENE CHLORIDE, 1,1,1-TRICHLOROETHANE, CARBON TETRACHLORIDE AND CHLORINATED FLUOROCARBONS; ALL SPENT SOLVENT MIXTURES/BLEND'S USED IN DEGREASING CONTAINING BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.
- . Waste code: F002
- . Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE, TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2,

- . Waste code: D002
- . Waste name: CORROSIVE WASTE
- . Waste code: D003
- . Waste name: REACTIVE WASTE
- . Waste code: D004
- . Waste name: ARSENIC
- . Waste code: D005
- . Waste name: BARIUM
- . Waste code: D006
- . Waste name: CADMIUM
- . Waste code: D007
- . Waste name: CHROMIUM
- . Waste code: D008
- . Waste name: LEAD
- . Waste code: D009
- . Waste name: MERCURY
- . Waste code: D010
- . Waste name: SELENIUM
- . Waste code: D011
- . Waste name: SILVER
- . Waste code: D014
- . Waste name: METHOXYCHLOR (1,1,1-TRICHLORO-2,2-BIS [P-METHOXYPHENYL]ETHANE)
- . Waste code: D016
- . Waste name: 2,4-D (2,4-DICHLOROPHENOXYACETIC ACID)
- . Waste code: D017
- . Waste name: 2,4,5-TP SILVEX (2,4,5-TRICHLOROPHENOXYPROPIONIC ACID)
- . Waste code: D018
- . Waste name: BENZENE
- . Waste code: D020
- . Waste name: CHLORDANE
- . Waste code: D022
- . Waste name: CHLOROFORM
- . Waste code: D023
- . Waste name: O-CRESOL
- . Waste code: D024
- . Waste name: M-CRESOL
- . Waste code: D025
- . Waste name: P-CRESOL

- . Waste code: D002
- . Waste name: CORROSIVE WASTE
- . Waste code: D003
- . Waste name: REACTIVE WASTE
- . Waste code: D004
- . Waste name: ARSENIC
- . Waste code: D005
- . Waste name: BARIUM
- . Waste code: D006
- . Waste name: CADMIUM
- . Waste code: D007
- . Waste name: CHROMIUM
- . Waste code: D008
- . Waste name: LEAD
- . Waste code: D009
- . Waste name: MERCURY
- . Waste code: D010
- . Waste name: SELENIUM
- . Waste code: D011
- . Waste name: SILVER
- . Waste code: D014
- . Waste name: METHOXYCHLOR (1,1,1-TRICHLORO-2,2-BIS [P-METHOXYPHENYL]ETHANE)
- . Waste code: D016
- . Waste name: 2,4-D (2,4-DICHLOROPHENOXYACETIC ACID)
- . Waste code: D017
- . Waste name: 2,4,5-TP SILVEX (2,4,5-TRICHLOROPHENOXYPROPIONIC ACID)
- . Waste code: D018
- . Waste name: BENZENE
- . Waste code: D020
- . Waste name: CHLORDANE
- . Waste code: D022
- . Waste name: CHLOROFORM
- . Waste code: D023
- . Waste name: O-CRESOL
- . Waste code: D024
- . Waste name: M-CRESOL
- . Waste code: D025
- . Waste name: P-CRESOL

HAWAIIAN ELECTRIC - WAI'AU GENERATING STATION (Continued) 1000146685

ALPHA,ALPHA-DIMETHYLPHENETHYLAMINE (OR) BENZENEETHANAMINE, ALPHA, ALPHA-DIMETHYL-

P048 Waste code: 2,4-DINITROPHENOL (OR) PHENOL, 2,4-DINITRO- Waste name:

P050 Waste code: 6,9-METHANO-2,4,3-BENZODIOXATHIEPIN,6,7,8,9,10,10-HEXACHLORO-1,5,5A,6, 9,9A-HEXAHYDRO-,3-OXIDE (OR) ENDOSULFAN Waste name:

P057 Waste code: ACETAMIDE, 2-FLUORO-, (OR) FLUOROACETAMIDE Waste name:

P066 Waste code: ETHANIMIDOTHIOIC ACID, N-[[[(METHYLAMINO)CARBONYL]OXY]-, METHYL ESTER (OR) METHOMYL Waste name:

P070 Waste code: ALDICARB (OR) PROPANAL, 2-METHYL-2-(METHYLTHIO)-, O-[(METHYLAMINO)CARBONYL]OXIME Waste name:

P071 Waste code: METHYL PARATHION (OR) PHOSPHOROTHIOIC ACID, O,O-DIMETHYL O-(4-NITROPHENYL) ESTER Waste name:

P089 Waste code: PARATHION (OR) PHOSPHOROTHIOIC ACID, O,O-DIETHYL-O-(4-NITROPHENYL) ESTER Waste name:

P094 Waste code: PHORATE (OR) PHOSPHORODITHIOIC ACID, O,O-DIETHYL S-[(ETHYLTHIO)METHYL] ESTER Waste name:

P104 Waste code: SILVER CYANIDE (OR) SILVER CYANIDE AG(CN) Waste name:

P105 Waste code: SODIUM AZIDE Waste name:

P106 Waste code: SODIUM CYANIDE (OR) SODIUM CYANIDE NA(CN) Waste name:

P123 Waste code: TOXAPHENE Waste name:

P127 Waste code: 7-BENZOFURANOL, 2,3-DIHYDRO-2,2-DIMETHYL-, METHYL CARBAMATE (OR) CARBOFURAN Waste name:

P194 Waste code: ETHANIMIDOTHIOIC ACID, 2-DIMETHYLAMINO-N-[[[(METHYLAMINO) CARBONYL]OXY]-2-OXO-, METHYL ESTER (OR) OXAMYL Waste name:

P199 Waste code: METHIOCARB (OR) MEXACARBATE (OR) PHENOL, (3,5-DIMETHYL-4-(METHYLTHIO)-, METHYL CARBAMATE Waste name:

HAWAIIAN ELECTRIC - WAI'AU GENERATING STATION (Continued) 1000146685

TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

F003 THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS; AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

F005 THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

P004 1,4,5,8-DIMETHANONAPHTHALENE, 1,2,3,4,10-HEXA-CHLORO-1,4,4A,5,8A-HEXAHYDRO-, (1ALPHA, 4ALPHA, 4BETA, 5ALPHA, 8ALPHA, 8BETA)A) (OR) ALDRIN Waste code: Waste name:

P008 4-AMINOPYRIDINE (OR) 4-PYRIDINAMINE Waste code: Waste name:

P012 ARSENIC OXIDE AS2O3 (OR) ARSENIC TRIOXIDE Waste code: Waste name:

P018 BRUCINE (OR) STRYCHNIDIN-10-ONE, 2,3-DIMETHOXY- Waste code: Waste name:

P020 DINOSEB (OR) PHENOL, 2-(1-METHYLPROPYL)-4,6-DINITRO- Waste code: Waste name:

P029 COPPER CYANIDE (OR) COPPER CYANIDE CU(CN) Waste code: Waste name:

P037 2,7,3,6-DIMETHANONAPHTH[2,3-B]OXIRENE, 3,4,5,6,9,9-HEXACHLORO-1A,2,2A,3,6,6A,7,7A-OCTAHYDRO-, (1AALPHA, 2BETA, 2AALPHA, 3BETA, 6BETA, 6AALPHA, 7BETA, 7AALPHA)- (OR) DIELDRIN Waste code: Waste name:

P044 DIMETHOATE (OR) PHOSPHORODITHIOIC ACID, O,O-DIMETHYL S-[2-(METHYLAMINO)-2-OXOETHYL] ESTER Waste code: Waste name:

P046 Waste code: Waste name:

HAWAIIAN ELECTRIC - WAIALU GENERATING STATION (Continued) 1000146685

. Waste code:	U105	2,4-DINITROTOLUENE (OR) BENZENE, 1-METHYL-2,4-DINITRO-
. Waste name:		
. Waste code:	U117	ETHANE, 1,1-OXYBIS-() (OR) ETHYL ETHER ()
. Waste name:		
. Waste code:	U127	BENZENE, HEXACHLORO- (OR) HEXACHLOROBENZENE
. Waste name:		
. Waste code:	U128	1,3-BUTADIENE, 1,1,2,3,4-HEXACHLORO- (OR) HEXACHLOROBUTADIENE
. Waste name:		
. Waste code:	U130	1,3-CYCLOPENTADIENE, 1,2,3,4,5-HEXACHLORO- (OR) HEXACHLOROCYCLOPENTADIENE
. Waste name:		
. Waste code:	U132	HEXACHLOROPHENE (OR) PHENOL, 2,2'-METHYLENEBIS(3,4,6-TRICHLORO-
. Waste name:		
. Waste code:	U144	ACETIC ACID, LEAD(2+) SALT (OR) LEAD ACETATE
. Waste name:		
. Waste code:	U151	MERCURY
. Waste name:		
. Waste code:	U154	METHANOL () (OR) METHYL ALCOHOL ()
. Waste name:		
. Waste code:	U159	2-BUTANONE () (OR) METHYL ETHYL KETONE (MEK) () (OR) 2-BUTANONE, PEROXIDE (R,T) (OR) METHYL ETHYL KETONE PEROXIDE (R,T)
. Waste name:		
. Waste code:	U161	4-METHYL-2-PENTANONE () (OR) METHYL ISOBUTYL KETONE () (OR) PENTANOL, 4-METHYL-
. Waste name:		
. Waste code:	U165	NAPHTHALENE
. Waste name:		
. Waste code:	U169	BENZENE, NITRO- (OR) NITROBENZENE () (OR) 1,1,1,2-TETRACHLOROETHANE (OR) ETHANE, 1,1,1,2-TETRACHLORO-
. Waste name:		
. Waste code:	U188	PHENOL
. Waste name:		
. Waste code:	U191	2-PICOLINE (OR) PYRIDINE, 2-METHYL-
. Waste name:		
. Waste code:	U208	1,1,1,2-TETRACHLOROETHANE (OR) ETHANE, 1,1,1,2-TETRACHLORO-
. Waste name:		
. Waste code:	U209	1,1,2,2-TETRACHLOROETHANE (OR) ETHANE, 1,1,2,2-TETRACHLORO-
. Waste name:		
. Waste code:	U211	
. Waste name:		

HAWAIIAN ELECTRIC - WAIALU GENERATING STATION (Continued) 1000146685

. Waste code:	P201	PHENOL, 3-METHYL-5-(1-METHYLETHYL)-, METHYL CARBAMATE (OR) PROMECARB
. Waste name:		
. Waste code:	U002	2-PROPANONE () (OR) ACETONE ()
. Waste name:		
. Waste code:	U003	ACETONITRILE () (OR) ACETONE ()
. Waste name:		
. Waste code:	U021	[1,1'-BIPHENYL]-4,4'-DIAMINE (OR) BENZIDINE
. Waste name:		
. Waste code:	U036	4,7-METHANO-1H-INDENE, 1,2,4,5,6,7,8-OCTACHLORO-2,3,3A,4,7,7A-HEXAHYDRO- (OR) CHLORDANE, ALPHA & GAMMA ISOMERS
. Waste name:		
. Waste code:	U041	EPICHLOROHYDRIN (OR) OXIRANE, (CHLOROMETHYL)-
. Waste name:		
. Waste code:	U048	O-CHLOROPHENOL (OR) PHENOL, 2-CHLORO-
. Waste name:		
. Waste code:	U052	CRESOL (CRESYLIC ACID) (OR) PHENOL, METHYL-
. Waste name:		
. Waste code:	U060	BENZENE, 1,1'-(2,2-DICHLOROETHYLENE)BIS(4-CHLORO- (OR) DDD
. Waste name:		
. Waste code:	U061	BENZENE, 1,1'-(2,2-TRICHLOROETHYLENE)BIS(4-CHLORO- (OR) DDT
. Waste name:		
. Waste code:	U062	CARBAMOTHIOIC ACID, BIS(1-METHYLETHYL)-, S-(2,3-DICHLORO-2-PROPENYL) ESTER (OR) DIALLATE
. Waste name:		
. Waste code:	U066	1,2-DIBROMO-3-CHLOROPROPANE (OR) PROPANE, 1,2-DIBROMO-3-CHLORO-
. Waste name:		
. Waste code:	U068	METHANE, DIBROMO- (OR) METHYLENE BROMIDE
. Waste name:		
. Waste code:	U071	BENZENE, 1,3-DICHLORO- (OR) M-DICHLOROBENZENE
. Waste name:		
. Waste code:	U079	1,2-DICHLOROETHYLENE (OR) ETHENE, 1,2-DICHLORO-(E)-
. Waste name:		
. Waste code:	U080	METHANE, DICHLORO- (OR) METHYLENE CHLORIDE
. Waste name:		
. Waste code:	U081	2,4-DICHLOROPHENOL (OR) PHENOL, 2,4-DICHLORO-
. Waste name:		
. Waste code:	U084	1,3-DICHLOROPROPENE (OR) 1-PROPENE, 1,3-DICHLORO-
. Waste name:		

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EPA ID Number

EPA ID Number

HAWAIIAN ELECTRIC - WAIALU GENERATING STATION (Continued)

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. Waste name: CARBON TETRACHLORIDE (OR) METHANE, TETRACHLORO-

. Waste code: U219

. Waste name: THIOUREA

. Waste code: U220

. Waste name: BENZENE, METHYL- (OR) TOLUENE

. Waste code: U227

. Waste name: 1,1,2-TRICHLOROETHANE (OR) ETHANE, 1,1,2-TRICHLORO-

. Waste code: U228

. Waste name: ETHENE, TRICHLORO- (OR) TRICHLOROETHYLENE

. Waste code: U239

. Waste name: BENZENE, DIMETHYL- (1T) (OR) XYLENE (1)

. Waste code: U247

. Waste name: BENZENE, 1,1'-[2,2,2-TRICHLOROETHYLIDENE]BIS[4-METHOXY-, (OR) METHOXYCHLOR

. Waste code: U271

. Waste name: BENOMYL (OR) CARBAMIC ACID,

[1-(BUTYLAMINO)CARBONYL]-1H-BENZIMIDAZOL-2-YL-, METHYL ESTER

. Waste code: U278

. Waste name: BENDIOCARB (OR) 1,3-BENZODIOXOL-4-OL, 2,2-DIMETHYL-, METHYL CARBAMATE

. Waste code: U373

. Waste name: CARBAMIC ACID, PHENYL-, 1-METHYLETHYL ESTER (OR) PROPHAM

Corrective Action Summary:

Event date:

Event:

Event date:

Event:

Event date:

Event:

Event date:

Event:

Event date:

Event:

Event date:

Event:

Event date:

Event:

Event date:

Event:

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EPA ID Number

EPA ID Number

HAWAIIAN ELECTRIC - WAIALU GENERATING STATION (Continued)

1000146685

Event date: 04/30/2010
Event: HUMAN EXPOSURES CONTROLLED DETERMINATION-YES, APPLICABLE AS OF THIS DATE

Event date: 12/11/2012
Event: RELEASE TO GW CONTROLLED DETERMINATION-YES, APPLICABLE AS OF THIS DATE

Event date: 12/11/2012
Event: REMEDY CONSTRUCTION-REMEDY CONSTRUCTED

Event date: 09/28/2018
Event: CA PERFORMANCE STANDARDS ATTAINED - NO CONTROLS NECESSARY

Facility Has Received Notices of Violations:

Regulation violated: Not reported

Area of violation: Generators - General

Date violation determined: 06/03/2009

Date achieved compliance: 11/23/2010

Violation lead agency: State

Enforcement action: WRITTEN INFORMAL

Enforcement action date: 06/03/2009

Enf. disposition status: Not reported

Enf. disp. status date: Not reported

Enforcement lead agency: State

Proposed penalty amount: Not reported

Final penalty amount: Not reported

Paid penalty amount: Not reported

Regulation violated: Not reported

Area of violation: TSD IS-Container Use and Management

Date violation determined: 06/03/2009

Date achieved compliance: 11/23/2010

Violation lead agency: State

Enforcement action: FINAL 3008(A) COMPLIANCE ORDER

Enforcement action date: 11/03/2010

Enf. disposition status: Action Satisfied (Case Closed)

Enf. disp. status date: 11/03/2010

Enforcement lead agency: State

Proposed penalty amount: Not reported

Final penalty amount: 50000

Paid penalty amount: 50000

Regulation violated: Not reported

Area of violation: TSD IS-Container Use and Management

Date violation determined: 06/03/2009

Date achieved compliance: 11/23/2010

Violation lead agency: State

Enforcement action: WRITTEN INFORMAL

Enforcement action date: 06/03/2009

Enf. disposition status: Not reported

Enf. disp. status date: Not reported

Enforcement lead agency: State

Proposed penalty amount: Not reported

Final penalty amount: Not reported

Paid penalty amount: Not reported

Regulation violated: Not reported

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HAWAIIAN ELECTRIC - WAIU GENERATING STATION (Continued)

Area of violation: Used Oil - Generators
 Date violation determined: 06/03/2009
 Date achieved compliance: 11/23/2010
 Violation lead agency: State
 Enforcement action: FINAL 3008(A) COMPLIANCE ORDER
 Enforcement action date: 11/03/2010
 Enf. disposition status: Action Satisfied (Case Closed)
 Enf. disp. status date: 11/03/2010
 Enforcement lead agency: State
 Proposed penalty amount: Not reported
 Final penalty amount: 50000
 Paid penalty amount: 50000

Regulation violated: Not reported
 Area of violation: TSD IS-Container Use and Management
 Date violation determined: 06/03/2009
 Date achieved compliance: 11/23/2010
 Violation lead agency: State
 Enforcement action: INITIAL 3008(A) COMPLIANCE
 Enforcement action date: 05/10/2010
 Enf. disposition status: Not reported
 Enf. disp. status date: Not reported
 Enforcement lead agency: State
 Proposed penalty amount: 53500
 Final penalty amount: Not reported
 Paid penalty amount: Not reported

Regulation violated: Not reported
 Area of violation: Generators - Pre-transport
 Date violation determined: 06/03/2009
 Date achieved compliance: 11/23/2010
 Violation lead agency: State
 Enforcement action: FINAL 3008(A) COMPLIANCE ORDER
 Enforcement action date: 11/03/2010
 Enf. disposition status: Action Satisfied (Case Closed)
 Enf. disp. status date: 11/03/2010
 Enforcement lead agency: State
 Proposed penalty amount: Not reported
 Final penalty amount: 50000
 Paid penalty amount: 50000

Regulation violated: Not reported
 Area of violation: Used Oil - Generators
 Date violation determined: 06/03/2009
 Date achieved compliance: 11/23/2010
 Violation lead agency: State
 Enforcement action: INITIAL 3008(A) COMPLIANCE
 Enforcement action date: 05/10/2010
 Enf. disposition status: Not reported
 Enf. disp. status date: Not reported
 Enforcement lead agency: State
 Proposed penalty amount: 53500
 Final penalty amount: Not reported
 Paid penalty amount: Not reported

Regulation violated: Not reported
 Area of violation: Permits - General Information
 Date violation determined: 06/03/2009

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HAWAIIAN ELECTRIC - WAIU GENERATING STATION (Continued)

Area of violation: Used Oil - Generators
 Date violation determined: 06/03/2009
 Date achieved compliance: 11/23/2010
 Violation lead agency: State
 Enforcement action: FINAL 3008(A) COMPLIANCE ORDER
 Enforcement action date: 11/03/2010
 Enf. disposition status: Action Satisfied (Case Closed)
 Enf. disp. status date: 11/03/2010
 Enforcement lead agency: State
 Proposed penalty amount: Not reported
 Final penalty amount: 50000
 Paid penalty amount: 50000

Regulation violated: Not reported
 Area of violation: Generators - General
 Date violation determined: 06/03/2009
 Date achieved compliance: 11/23/2010
 Violation lead agency: State
 Enforcement action: INITIAL 3008(A) COMPLIANCE
 Enforcement action date: 05/10/2010
 Enf. disposition status: Not reported
 Enf. disp. status date: Not reported
 Enforcement lead agency: State
 Proposed penalty amount: 53500
 Final penalty amount: Not reported
 Paid penalty amount: Not reported

Regulation violated: Not reported
 Area of violation: Generators - Pre-transport
 Date violation determined: 06/03/2009
 Date achieved compliance: 11/23/2010
 Violation lead agency: State
 Enforcement action: INITIAL 3008(A) COMPLIANCE
 Enforcement action date: 05/10/2010
 Enf. disposition status: Not reported
 Enf. disp. status date: Not reported
 Enforcement lead agency: State
 Proposed penalty amount: 53500
 Final penalty amount: Not reported
 Paid penalty amount: Not reported

Regulation violated: Not reported
 Area of violation: Permits - General Information
 Date violation determined: 06/03/2009
 Date achieved compliance: 11/23/2010
 Violation lead agency: State
 Enforcement action: FINAL 3008(A) COMPLIANCE ORDER
 Enforcement action date: 11/03/2010
 Enf. disposition status: Action Satisfied (Case Closed)
 Enf. disp. status date: 11/03/2010
 Enforcement lead agency: State
 Proposed penalty amount: Not reported
 Final penalty amount: 50000
 Paid penalty amount: 50000

Regulation violated: Not reported
 Area of violation: Permits - General Information

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

HAWAIIAN ELECTRIC - WAIALU GENERATING STATION (Continued)

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Date achieved compliance: 11/23/2010
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enf. disposition date: 06/03/2009
Enf. disp. status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - General
Date violation determined: 06/03/2009
Date achieved compliance: 11/23/2010
Violation lead agency: State
Enforcement action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement action date: 11/03/2010
Enf. disposition status: Action Satisfied (Case Closed)
Enf. disp. status date: 11/03/2010
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: 50000
Paid penalty amount: 50000

Regulation violated: Not reported
Area of violation: Used Oil - Generators
Date violation determined: 06/03/2009
Date achieved compliance: 11/23/2010
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 06/03/2009
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - Pre-transport
Date violation determined: 06/03/2009
Date achieved compliance: 11/23/2010
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 06/03/2009
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: F - 262.30-34 C
Area of violation: Generators - General
Date violation determined: 08/10/1998
Date achieved compliance: 12/13/1999

HAWAIIAN ELECTRIC - WAIALU GENERATING STATION (Continued)

1000146685

Violation lead agency: EPA
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enf. disposition date: 09/22/1999
Enf. disp. status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: 82940
Final penalty amount: Not reported
Paid penalty amount: Not reported

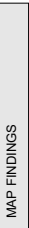
Regulation violated: F - 262.30-34 C
Area of violation: Generators - General
Date violation determined: 08/10/1998
Date achieved compliance: 12/13/1999
Violation lead agency: EPA
Enforcement action: Not reported
Enforcement action date: 05/21/1999
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: F - 262.20-23 B
Area of violation: Generators - General
Date violation determined: 08/10/1998
Date achieved compliance: 12/13/1999
Violation lead agency: EPA
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 09/22/1999
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: 82940
Final penalty amount: Not reported
Paid penalty amount: Not reported

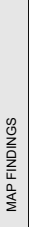
Regulation violated: F - 262.20-23 B
Area of violation: Generators - General
Date violation determined: 08/10/1998
Date achieved compliance: 12/13/1999
Violation lead agency: EPA
Enforcement action: Not reported
Enforcement action date: 05/21/1999
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: F - 262.30-34 C
Area of violation: Generators - General
Date violation determined: 08/10/1998
Date achieved compliance: 12/13/1999
Violation lead agency: EPA

Map ID
Direction
Distance
Elevation



Map ID
Direction
Distance
Elevation



Site

Database(s)

EDR ID Number
EPA ID Number

Site

Database(s)

EDR ID Number
EPA ID Number

HAWAIIAN ELECTRIC - WAIAU GENERATING STATION (Continued)

1000146685

HAWAIIAN ELECTRIC - WAIAU GENERATING STATION (Continued)

1000146685

Enforcement action:
Enforcement action date: 12/13/1999
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: 61325
Paid penalty amount: 61325

Regulation violated:
Area of violation: F - 262.10-12.A
Generators - General
Date violation determined: 08/10/1988
Date achieved compliance: 12/13/1999
Violation lead agency: EPA
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 09/22/1999
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: 82940
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated:
Area of violation: F - 262.20-23.B
Generators - General
Date violation determined: 08/10/1988
Date achieved compliance: 12/13/1999
Violation lead agency: EPA
Enforcement action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement action date: 12/13/1999
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: 61325
Paid penalty amount: 61325

Regulation violated:
Area of violation: F - 262.10-12.A
Generators - General
Date violation determined: 08/10/1988
Date achieved compliance: 12/13/1999
Violation lead agency: EPA
Enforcement action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement action date: 12/13/1999
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: 61325
Paid penalty amount: 61325

Regulation violated:
Area of violation: F - 262.10-12.A
Generators - General
Date violation determined: 08/10/1988
Date achieved compliance: 12/13/1999
Violation lead agency: EPA
Enforcement action: Not reported

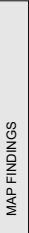
Enforcement action date: 05/21/1999
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated:
Area of violation: F - 270
TSD - General
Date violation determined: 06/27/1989
Date achieved compliance: 01/01/1990
Violation lead agency: State
Enforcement action: Not reported
Enforcement action date: Not reported
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: Not reported
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated:
Area of violation: FR - 264.140-150.H
TSD - Financial Requirements
Date violation determined: 03/31/1986
Date achieved compliance: 05/08/1986
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 03/31/1986
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated:
Area of violation: FR - 264.110-120.G
TSD - Closure/Post-Closure
Date violation determined: 03/21/1985
Date achieved compliance: 03/17/1986
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 12/20/1985
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated:
Area of violation: FR - 264.110-120.G
TSD - Closure/Post-Closure
Date violation determined: 10/18/1984
Date achieved compliance: 03/17/1986
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 12/20/1985



HAWAIIAN ELECTRIC - WAIAU GENERATING STATION (Continued)

1000146685

Enf. disposition status: Not reported
 Enf. disp. status date: Not reported
 Enforcement lead agency: EPA
 Proposed penalty amount: Not reported
 Final penalty amount: Not reported
 Paid penalty amount: Not reported

Evaluation Action Summary:
 Evaluation date: 11/23/2010
 Evaluation: NOT A SIGNIFICANT NON-COMPLIER
 Area of violation: Not reported
 Date achieved compliance: Not reported
 Evaluation lead agency: State

Evaluation date: 09/23/2008
 Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
 Area of violation: Generators - General
 Date achieved compliance: 11/23/2010
 Evaluation lead agency: State

Evaluation date: 09/23/2008
 Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
 Area of violation: TSD IS-Container Use and Management
 Date achieved compliance: 11/23/2010
 Evaluation lead agency: State

Evaluation date: 09/23/2008
 Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
 Area of violation: Generators - Pre-transport
 Date achieved compliance: 11/23/2010
 Evaluation lead agency: State

Evaluation date: 09/23/2008
 Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
 Area of violation: Permits - General Information
 Date achieved compliance: 11/23/2010
 Evaluation lead agency: State

Evaluation date: 09/23/2008
 Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
 Area of violation: Used Oil - Generators
 Date achieved compliance: 11/23/2010
 Evaluation lead agency: State

Evaluation date: 09/23/2008
 Evaluation: SIGNIFICANT NON-COMPLIER
 Area of violation: Not reported
 Date achieved compliance: Not reported
 Evaluation lead agency: State

Evaluation date: 10/08/2003
 Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
 Area of violation: Not reported
 Date achieved compliance: Not reported
 Evaluation lead agency: State

Evaluation date: 12/13/1999

HAWAIIAN ELECTRIC - WAIAU GENERATING STATION (Continued)

1000146685

Evaluation: NOT A SIGNIFICANT NON-COMPLIER
 Area of violation: Not reported
 Date achieved compliance: Not reported
 Evaluation lead agency: EPA

Evaluation date: 08/17/1998
 Evaluation: SIGNIFICANT NON-COMPLIER
 Area of violation: Not reported
 Date achieved compliance: Not reported
 Evaluation lead agency: EPA

Evaluation date: 08/10/1998
 Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
 Area of violation: Generators - General
 Date achieved compliance: 12/13/1999
 Evaluation lead agency: EPA

Evaluation date: 06/27/1989
 Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
 Area of violation: TSD - General
 Date achieved compliance: 01/01/1990
 Evaluation lead agency: State

Evaluation date: 09/28/1988
 Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
 Area of violation: Not reported
 Date achieved compliance: Not reported
 Evaluation lead agency: State

Evaluation date: 06/30/1988
 Evaluation: FOCUSED COMPLIANCE INSPECTION
 Area of violation: Not reported
 Date achieved compliance: Not reported
 Evaluation lead agency: State

Evaluation date: 06/24/1987
 Evaluation: NON-FINANCIAL RECORD REVIEW
 Area of violation: Not reported
 Date achieved compliance: Not reported
 Evaluation lead agency: State

Evaluation date: 06/24/1987
 Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
 Area of violation: Not reported
 Date achieved compliance: Not reported
 Evaluation lead agency: State

Evaluation date: 03/13/1987
 Evaluation: FINANCIAL RECORD REVIEW
 Area of violation: Not reported
 Date achieved compliance: Not reported
 Evaluation lead agency: EPA

Evaluation date: 06/16/1986
 Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
 Area of violation: Not reported
 Date achieved compliance: Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

EDR ID Number
EPA ID Number

Database(s)

Site

HAWAIIAN ELECTRIC - WAIU GENERATING STATION (Continued)

1000146685

Evaluation lead agency: EPA

Evaluation date: 03/31/1986

Evaluation: FINANCIAL RECORD REVIEW

Area of violation: TSD - Financial Requirements

Date achieved compliance: 05/08/1986

Evaluation lead agency: EPA

Evaluation date: 05/21/1985

Evaluation: NON-FINANCIAL RECORD REVIEW

Area of violation: TSD - Closure/Post-Closure

Date achieved compliance: 03/17/1986

Evaluation lead agency: State

Evaluation date: 05/21/1985

Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE

Area of violation: Not reported

Date achieved compliance: Not reported

Evaluation lead agency: State

Evaluation date: 10/18/1984

Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE

Area of violation: TSD - Closure/Post-Closure

Date achieved compliance: 03/17/1986

Evaluation lead agency: EPA

2020 COR ACTION:

EPA ID: HIT000610873

Region: 9

Action: Remedy Construction

City	EDR ID	Site Name	Site Address	Zip	Database(s)
AIEA	S123640162	HONOLULU TRANSIT-ORIENTED DEVELOPM	98-87 KAMEHAMEHA HWY	96701	HI SHWS, HI BROWNFIELDS
AIEA	S118422856	SEARS PEARLRIDGE #1578 ELEVATOR JA	98-180 KAMEHAMEHA HWY	96701	HI SHWS, HI ENG CONTROL, HI INST CONTROL
AIEA	S110061554	HICKAM POL S120, SPILL SITE S120	KAMEHAMEHA HWY & MCGREW LP	96701	HI SHWS
AIEA	S118422856	SEARS PEARLRIDGE #1578 HYDRAULIC H	98-180 KAMEHAMEHA HWY	96701	HI SHWS
AIEA	U004289815	PEARL CITY SHELL	98-135 KAMEHAMEHA HWY	96701	HI LUST, HI UST, HI Financial Assurance
AIEA	S110061542	HICKAM POL S108, SPILL SITE S108	KAMEHAMEHA HWY & RAUFORD DR	96701	HI SHWS
AIEA	S121405754	98-55 KAMEHAMEHA HIGHWAY	98-55 KAMEHAMEHA HWY	96701	HI SHWS
AIEA	S110061545	HICKAM POL S111, SPILL SITE S111	EAST OF KAONOHI ST & KAMEHAMEH	96701	HI SHWS
AIEA	S110061549	HICKAM POL S115, SPILL SITE S115	EAST OF KAMEHAMEHA HWY & HEKAH	96701	HI SHWS
PEARL CITY	S110061550	HICKAM POL S116, SPILL SITE S116	BETWEEN KULEANA RD & ENTRANCE	96701	HI SHWS
PEARL HARBOR	S115488691	CHEVRON'S PIPELINE OIL SPILL AT WA	KAMEHAMEHA HWY	96782	HI SHWS, HI INST CONTROL

ORPHAN SUMMARY

Count: 11 records.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List
National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 04/11/2019
Date Data Arrived at EDR: 04/18/2019
Date Made Active in Reports: 05/14/2019
Number of Days to Update: 26
Source: EPA
Telephone: N/A
Last EDR Contact: 07/02/2019
Next Scheduled EDR Contact: 10/14/2019
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)

Telephone: 202-564-7333

EPA Region 1

Telephone: 617-918-1143

EPA Region 3

Telephone: 215-814-5418

EPA Region 4

Telephone: 404-562-8033

EPA Region 5

Telephone: 312-886-6686

EPA Region 10

Telephone: 206-553-8665

EPA Region 6

Telephone: 214-655-6659

EPA Region 7

Telephone: 913-551-7247

EPA Region 8

Telephone: 303-312-6774

EPA Region 9

Telephone: 415-947-4246

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/01/1994
Number of Days to Update: 56
Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Federal Delisted NPL site list

Delisted NPL: National Priority List Deletions
The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 04/11/2019
Date Data Arrived at EDR: 04/18/2019
Date Made Active in Reports: 05/14/2019
Number of Days to Update: 26
Source: EPA
Telephone: N/A
Last EDR Contact: 07/02/2019
Next Scheduled EDR Contact: 10/14/2019
Data Release Frequency: Quarterly

Federal CERCLIS list

FEDERAL FACILITY: Federal Facility Site Information Listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 04/03/2019
Date Data Arrived at EDR: 04/03/2019
Date Made Active in Reports: 05/14/2019
Number of Days to Update: 39
Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 07/03/2019
Next Scheduled EDR Contact: 10/14/2019
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly known as CERCLIS renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 04/11/2019
Date Data Arrived at EDR: 04/18/2019
Date Made Active in Reports: 05/23/2019
Number of Days to Update: 35
Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 07/02/2019
Next Scheduled EDR Contact: 10/28/2019
Data Release Frequency: Quarterly

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

Proposed NPL: Proposed National Priority List Sites
A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 04/11/2019
Date Data Arrived at EDR: 04/18/2019
Date Made Active in Reports: 05/14/2019
Number of Days to Update: 26
Source: EPA
Telephone: N/A
Last EDR Contact: 07/02/2019
Next Scheduled EDR Contact: 10/14/2019
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, remained to SEMS-ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be potential NPL site.

Source: EPA
Telephone: 800-424-9346
Date Data Arrived at EDR: 04/11/2019
Last EDR Contact: 07/02/2019
Next Scheduled EDR Contact: 10/28/2019
Number of Days to Update: 35
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report
CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.
Source: EPA
Telephone: 800-424-9346
Date of Government Version: 03/25/2019
Date Data Arrived at EDR: 03/27/2019
Last EDR Contact: 06/26/2019
Next Scheduled EDR Contact: 10/07/2019
Number of Days to Update: 21
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal
RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Date Data Arrived at EDR: 03/25/2019
Last EDR Contact: 06/26/2019
Next Scheduled EDR Contact: 10/07/2019
Number of Days to Update: 21
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators
RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Date Data Arrived at EDR: 03/27/2019
Last EDR Contact: 06/26/2019
Next Scheduled EDR Contact: 10/07/2019
Number of Days to Update: 21
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Date Data Arrived at EDR: 03/27/2019
Last EDR Contact: 06/26/2019
Next Scheduled EDR Contact: 10/07/2019
Number of Days to Update: 21
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Date Data Arrived at EDR: 03/27/2019
Last EDR Contact: 06/26/2019
Next Scheduled EDR Contact: 10/07/2019
Number of Days to Update: 21
Data Release Frequency: Quarterly

Federal Institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Source: Department of the Navy
Telephone: 843-820-7326
Date Data Arrived at EDR: 02/22/2019
Last EDR Contact: 05/10/2019
Next Scheduled EDR Contact: 08/26/2019
Number of Days to Update: 41
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Source: Environmental Protection Agency
Telephone: 703-603-0695
Date Data Arrived at EDR: 02/04/2019
Last EDR Contact: 05/29/2019
Next Scheduled EDR Contact: 09/09/2019
Number of Days to Update: 32
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Source: Environmental Protection Agency
Telephone: 703-603-0695
Date Data Arrived at EDR: 02/04/2019
Last EDR Contact: 05/29/2019
Next Scheduled EDR Contact: 09/09/2019
Number of Days to Update: 32
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal ERMS list

ERMS: Emergency Response Notification System
Emergency Response Notification System. ERMS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 03/25/2019
Date Data Arrived at EDR: 03/26/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 36
Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 06/28/2019
Next Scheduled EDR Contact: 10/07/2019
Data Release Frequency: Quarterly

State and tribal - equivalent CERCLIS

SHWS: Sites List
Facilities, sites or areas in which the Office of Hazard Evaluation and Emergency Response has an interest, has investigated or may investigate under HRS 128D (includes CERCLIS sites).

Date of Government Version: 04/17/2019
Date Data Arrived at EDR: 05/21/2019
Date Made Active in Reports: 05/30/2019
Number of Days to Update: 9
Source: Department of Health
Telephone: 808-586-4249
Last EDR Contact: 05/21/2019
Next Scheduled EDR Contact: 09/02/2019
Data Release Frequency: Semi-Annually

State and tribal landfill and/or solid waste disposal site lists

SWP/LF: Permitted Landfills in the State of Hawaii
Solid Waste Facilities/Landfill Sites. SWP/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 09/17/2012
Date Data Arrived at EDR: 04/03/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 37
Source: Department of Health
Telephone: 808-586-4245
Last EDR Contact: 06/28/2019
Next Scheduled EDR Contact: 10/07/2019
Data Release Frequency: Varies

State and tribal leaking storage tank lists

LUST: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 03/01/2019
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55
Source: Department of Health
Telephone: 808-586-4228
Last EDR Contact: 06/19/2019
Next Scheduled EDR Contact: 09/09/2019
Data Release Frequency: Semi-Annually

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 10/17/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55
Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 07/24/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 10/10/2018
Date Data Arrived at EDR: 03/09/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 54
Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 07/24/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, Utah and Wyoming.

Date of Government Version: 10/16/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55
Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 07/24/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 02/19/2019
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 07/24/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 11/01/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55
Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 07/24/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 09/24/2018
Date Data Arrived at EDR: 03/12/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 50
Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 07/23/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank localtons on Indian Land.

Date of Government Version: 10/13/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55
Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 07/24/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

INDIAN LUST RS: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 10/12/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55
Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 07/24/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

State and tribal registered storage tank lists

FEWA UST: Underground Storage Tank Listing
A listing of all FEWA owned underground storage tanks.

Date of Government Version: 05/15/2017
Date Data Arrived at EDR: 05/30/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 136

Source: FEWA
Telephone: 202-646-5797
Last EDR Contact: 07/10/2019
Next Scheduled EDR Contact: 10/21/2019
Data Release Frequency: Varies

UST: Underground Storage Tank Database

Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 03/01/2019
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: Department of Health
Telephone: 808-586-4228
Last EDR Contact: 06/19/2019
Next Scheduled EDR Contact: 09/09/2019
Data Release Frequency: Semi-Annually

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 10/12/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA Region 5
Telephone: 312-886-5136
Last EDR Contact: 07/24/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 09/24/2018
Date Data Arrived at EDR: 03/12/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 50

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 07/23/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 10/03/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 07/24/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 10/17/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 07/24/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 10/10/2018
Date Data Arrived at EDR: 03/08/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 54

Source: EPA Region 9
Telephone: 415-972-3388
Last EDR Contact: 07/24/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 10/16/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 04/26/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 11/07/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 07/24/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 11/01/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 07/24/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

State and tribal institutional control / engineering control registries

ENG CONTROLS: Engineering Control Sites

A listing of sites with engineering controls in place.

Date of Government Version: 04/17/2019
Date Data Arrived at EDR: 05/21/2019
Date Made Active in Reports: 05/30/2019
Number of Days to Update: 9

Source: Department of Health
Telephone: 404-586-4249
Last EDR Contact: 05/21/2019
Next Scheduled EDR Contact: 09/02/2019
Data Release Frequency: Varies

INST CONTROL: Sites with Institutional Controls

Voluntary Remediation Program and Brownfields sites with institutional controls in place.

Date of Government Version: 04/17/2019
Date Data Arrived at EDR: 05/21/2019
Date Made Active in Reports: 05/30/2019
Number of Days to Update: 9

Source: Department of Health
Telephone: 808-586-4249
Last EDR Contact: 05/21/2019
Next Scheduled EDR Contact: 09/02/2019
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

VCP: Voluntary Response Program Sites

Sites participating in the Voluntary Response Program. The purpose of the VRP is to streamline the cleanup process in a way that will encourage prospective developers, lenders, and purchasers to voluntarily cleanup properties.

Date Data Arrived at EDR: 04/17/2019
Source: Department of Health
Telephone: 808-586-4249
Last EDR Contact: 05/21/2019
Date Made Active in Reports: 05/30/2019
Next Scheduled EDR Contact: 09/02/2019
Number of Days to Update: 9
Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date Data Arrived at EDR: 03/20/2008
Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/22/2008
Date Made Active in Reports: 05/19/2008
Next Scheduled EDR Contact: 07/20/2009
Number of Days to Update: 27
Data Release Frequency: Varies

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date Data Arrived at EDR: 07/27/2015
Source: EPA, Region 1
Telephone: 617-916-1102
Last EDR Contact: 06/20/2019
Date Made Active in Reports: 02/18/2016
Next Scheduled EDR Contact: 10/07/2019
Number of Days to Update: 142
Data Release Frequency: Varies

State and tribal Brownfields sites

BROWNFIELDS: Brownfields Sites

With certain legal exclusions and additions, the term 'brownfield site' means real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.

Date Data Arrived at EDR: 04/17/2019
Source: Department of Health
Telephone: 808-586-4249
Last EDR Contact: 05/21/2019
Date Made Active in Reports: 05/30/2019
Next Scheduled EDR Contact: 09/02/2019
Number of Days to Update: 9
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfields sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date Data Arrived at EDR: 12/17/2018
Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 06/04/2019
Date Made Active in Reports: 01/11/2019
Next Scheduled EDR Contact: 09/30/2019
Number of Days to Update: 24
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date Data Arrived at EDR: 12/31/1998
Source: Environmental Protection Agency
Telephone: 703-306-8245
Last EDR Contact: 04/26/2019
Date Made Active in Reports: 01/24/2008
Next Scheduled EDR Contact: 08/12/2019
Number of Days to Update: 52
Data Release Frequency: Varies

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date Data Arrived at EDR: 06/30/1985
Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Date Made Active in Reports: 09/17/2004
Next Scheduled EDR Contact: N/A
Number of Days to Update: 39
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date Data Arrived at EDR: 01/12/2009
Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 07/19/2019
Date Made Active in Reports: 09/21/2009
Next Scheduled EDR Contact: 11/04/2019
Number of Days to Update: 137
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land

A listing of all open dumps located on Indian Land in the United States.

Date Data Arrived at EDR: 04/01/2014
Source: Department of Health & Human Services, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 04/23/2019
Date Made Active in Reports: 01/29/2015
Next Scheduled EDR Contact: 08/12/2019
Number of Days to Update: 176
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date Data Arrived at EDR: 02/24/2019
Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 05/24/2019
Date Made Active in Reports: 04/17/2019
Next Scheduled EDR Contact: 09/09/2019
Number of Days to Update: 50
Data Release Frequency: No Update Planned

CDL: Clandestine Drug Lab Listing

A listing of clandestine drug lab site locations.

Date Data Arrived at EDR: 09/04/2010
Source: Department of Health
Telephone: 808-586-4249
Last EDR Contact: 05/24/2019
Date Made Active in Reports: 10/22/2010
Next Scheduled EDR Contact: 09/09/2019
Number of Days to Update: 42
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

US CDL: clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 02/24/2019
Date Data Arrived at EDR: 02/26/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 50
Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 05/24/2019
Next Scheduled EDR Contact: 09/09/2019
Data Release Frequency: Quarterly

Local Land Records

LIENS 2: CERCLA Lien Information

A. Federal CERCLA ("Superfund") lien can exist by operation of law, at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 04/11/2019
Date Data Arrived at EDR: 04/19/2019
Date Made Active in Reports: 05/23/2019
Number of Days to Update: 35
Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 07/02/2019
Next Scheduled EDR Contact: 10/14/2019
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 03/25/2019
Date Data Arrived at EDR: 03/26/2019
Date Made Active in Reports: 05/14/2019
Number of Days to Update: 49
Source: U.S. Department of Transportation
Telephone: 202-368-4555
Last EDR Contact: 06/26/2019
Next Scheduled EDR Contact: 10/07/2019
Data Release Frequency: Quarterly

SPILLS: Release Notifications

Releases of hazardous substances to the environment reported to the Office of Hazard Evaluation and Emergency Response since 1988.

Date of Government Version: 03/18/2019
Date Data Arrived at EDR: 03/19/2019
Date Made Active in Reports: 05/06/2019
Number of Days to Update: 46
Source: Department of Health
Telephone: 808-586-4249
Last EDR Contact: 03/16/2019
Next Scheduled EDR Contact: 09/02/2019
Data Release Frequency: Varies

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 03/10/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/11/2013
Number of Days to Update: 39
Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

RCRA Non-Gen / NLR: RCRA - Non Generators / No Longer Regulated

RCRA/NRI is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 03/25/2019
Date Data Arrived at EDR: 03/27/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 21
Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 06/26/2019
Next Scheduled EDR Contact: 10/07/2019
Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 03/07/2019
Date Data Arrived at EDR: 04/03/2019
Date Made Active in Reports: 05/23/2019
Number of Days to Update: 50
Source: U.S. Army Corps of Engineers
Telephone: 202-526-4285
Last EDR Contact: 05/21/2019
Next Scheduled EDR Contact: 09/02/2019
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005

Date Data Arrived at EDR: 1/1/02/006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62
Source: USGS
Telephone: 888-276-8747
Last EDR Contact: 07/09/2019
Next Scheduled EDR Contact: 10/21/2019
Data Release Frequency: Semi-Annually

FEDLAND: Federal and Indian Lands

Federally and Indian administered lands of the United States. Lands included are administered by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339
Source: U.S. Geological Survey
Telephones: 888-276-8747
Last EDR Contact: 07/10/2019
Next Scheduled EDR Contact: 10/21/2019
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 01/01/2017
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 63
Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 05/13/2019
Next Scheduled EDR Contact: 08/26/2019
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the cleanup, closure, and post-closure care of their facilities.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 03/25/2019
 Date Data Arrived at EDR: 03/26/2019
 Last EDR Contact: 06/26/2019
 Next Scheduled EDR Contact: 10/07/2019
 Number of Days to Update: 42
 Data Release Frequency: Quarterly

Source: Environmental Protection Agency
 Telephone: 202-566-1917
 Last EDR Contact: 06/26/2019
 Next Scheduled EDR Contact: 10/07/2019
 Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 06/30/2013
 Date Data Arrived at EDR: 03/21/2014
 Last EDR Contact: 05/06/2019
 Next Scheduled EDR Contact: 08/19/2019
 Number of Days to Update: 88
 Data Release Frequency: Quarterly

Source: Environmental Protection Agency
 Telephone: 617-520-3000
 Last EDR Contact: 05/06/2019
 Next Scheduled EDR Contact: 08/19/2019
 Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 09/30/2017
 Date Data Arrived at EDR: 05/08/2018
 Last EDR Contact: 05/10/2019
 Next Scheduled EDR Contact: 08/19/2019
 Number of Days to Update: 73
 Data Release Frequency: Varies

Source: Environmental Protection Agency
 Telephone: 703-308-4044
 Last EDR Contact: 05/10/2019
 Next Scheduled EDR Contact: 08/19/2019
 Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2016
 Date Data Arrived at EDR: 06/21/2017
 Last EDR Contact: 06/18/2019
 Next Scheduled EDR Contact: 09/30/2019
 Number of Days to Update: 188
 Data Release Frequency: Every 4 Years

Source: EPA
 Telephone: 202-260-5521
 Last EDR Contact: 06/18/2019
 Next Scheduled EDR Contact: 09/30/2019
 Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2016
 Date Data Arrived at EDR: 01/10/2018
 Last EDR Contact: 05/24/2019
 Next Scheduled EDR Contact: 09/02/2019
 Number of Days to Update: 2
 Data Release Frequency: Annually

Source: EPA
 Telephone: 202-566-0250
 Last EDR Contact: 05/24/2019
 Next Scheduled EDR Contact: 09/02/2019
 Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/31/2009
 Date Data Arrived at EDR: 12/10/2010
 Last EDR Contact: 04/24/2019
 Next Scheduled EDR Contact: 08/05/2019
 Number of Days to Update: 77
 Data Release Frequency: Annually

Source: EPA
 Telephone: 202-564-4203
 Last EDR Contact: 04/24/2019
 Next Scheduled EDR Contact: 08/05/2019
 Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 04/11/2019
 Date Data Arrived at EDR: 04/18/2019
 Last EDR Contact: 07/01/2019
 Next Scheduled EDR Contact: 09/16/2019
 Number of Days to Update: 35
 Data Release Frequency: Annually

Source: EPA
 Telephone: 703-416-0223
 Last EDR Contact: 07/01/2019
 Next Scheduled EDR Contact: 09/16/2019
 Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for or accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative training measures; and Emergency response program that includes safety precautions and maintenance, monitoring, and employee and procedures for informing the public and response agencies (e.g. the fire department) should an accident occur.

Date of Government Version: 04/25/2019
 Date Data Arrived at EDR: 05/02/2019
 Last EDR Contact: 07/22/2019
 Next Scheduled EDR Contact: 11/04/2019
 Number of Days to Update: 21
 Data Release Frequency: Varies

Source: Environmental Protection Agency
 Telephone: 202-564-8600
 Last EDR Contact: 07/22/2019
 Next Scheduled EDR Contact: 11/04/2019
 Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administrative Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
 Date Data Arrived at EDR: 07/03/1995
 Last EDR Contact: 06/02/2008
 Next Scheduled EDR Contact: 09/01/2008
 Number of Days to Update: 35
 Data Release Frequency: No Update Planned

Source: EPA
 Telephone: 202-564-4104
 Last EDR Contact: 06/02/2008
 Next Scheduled EDR Contact: 09/01/2008
 Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 04/11/2019
 Date Data Arrived at EDR: 04/18/2019
 Last EDR Contact: 07/01/2019
 Next Scheduled EDR Contact: 08/19/2019
 Number of Days to Update: 35
 Data Release Frequency: Quarterly

Source: EPA
 Telephone: 202-564-6023
 Last EDR Contact: 07/01/2019
 Next Scheduled EDR Contact: 08/19/2019
 Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS identifies generators, transporters, commercial storers and/or brokers and disposers of PCBs who are required to notify the EPA of such activities.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 03/20/2019
Date Data Arrived at EDR: 04/10/2019
Date Made Active in Reports: 05/14/2019
Number of Days to Update: 34

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 07/12/2019
Next Scheduled EDR Contact: 10/21/2019
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 07/03/2019
Next Scheduled EDR Contact: 10/21/2019
Data Release Frequency: Quarterly

FTTS: FIFRA/TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

FTTS (NSP): FIFRA/TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 08/30/2016
Date Data Arrived at EDR: 09/02/2016
Date Made Active in Reports: 10/21/2016
Number of Days to Update: 43

Source: Nuclear Regulatory Commission
Telephone: 301-411-6716
Last EDR Contact: 07/22/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Quarterly

COAL ASH DOE: Steam-Electric Plant Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 06/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 06/07/2019
Next Scheduled EDR Contact: 09/16/2019
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 06/07/2019
Next Scheduled EDR Contact: 09/16/2019
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database

The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 05/24/2017
Date Data Arrived at EDR: 11/30/2017
Date Made Active in Reports: 12/15/2017
Number of Days to Update: 15

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 04/26/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Varies

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 04/02/2019
Date Data Arrived at EDR: 04/02/2019
Date Made Active in Reports: 05/14/2019
Number of Days to Update: 42

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 07/01/2019
Next Scheduled EDR Contact: 10/14/2019
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data

Department of Transportation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 12/03/2018
Date Data Arrived at EDR: 01/29/2019
Date Made Active in Reports: 03/21/2019
Number of Days to Update: 51

Source: Department of Transportation, Office of Pipeline Safety
Telephone: 202-366-4695
Last EDR Contact: 04/30/2019
Next Scheduled EDR Contact: 08/12/2019
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CONSENT: Superfund (CERCLA) Consent/Decreases

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 03/31/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 05/23/2019
Number of Days to Update: 30
Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 07/08/2019
Next Scheduled EDR Contact: 10/21/2019
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 09/28/2017
Number of Days to Update: 218
Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 06/26/2019
Next Scheduled EDR Contact: 10/07/2019
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546
Source: USGS
Telephone: 202-206-3710
Last EDR Contact: 07/10/2019
Next Scheduled EDR Contact: 10/21/2019
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 06/08/2017
Date Data Arrived at EDR: 09/11/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 3
Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 05/02/2019
Next Scheduled EDR Contact: 08/19/2019
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 06/23/2017
Date Data Arrived at EDR: 10/11/2017
Date Made Active in Reports: 11/03/2017
Number of Days to Update: 23
Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 05/24/2019
Next Scheduled EDR Contact: 09/02/2019
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 04/11/2019
Date Data Arrived at EDR: 04/18/2019
Date Made Active in Reports: 05/14/2019
Number of Days to Update: 26
Source: Environmental Protection Agency
Telephone: 703-603-9787
Last EDR Contact: 07/01/2019
Next Scheduled EDR Contact: 10/14/2019
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931 and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36
Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100
Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100
Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 11/27/2018
Date Data Arrived at EDR: 02/27/2019
Date Made Active in Reports: 04/01/2019
Number of Days to Update: 33
Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 05/29/2019
Next Scheduled EDR Contact: 09/09/2019
Data Release Frequency: Semi-Annually

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines) and nonferrous (nonferrous metal mines) facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (nonferrous metal mines) are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 12/05/2005
Date Data Arrived at EDR: 02/29/2008
Date Made Active in Reports: 04/19/2008
Number of Days to Update: 49
Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 05/31/2019
Next Scheduled EDR Contact: 09/09/2019
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/09/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97
Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 05/31/2019
Next Scheduled EDR Contact: 09/09/2019
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 03/27/2019
Source: Department of Interior
Date Data Arrived at EDR: 03/28/2019
Telephone: 202-208-2609
Last EDR Contact: 06/19/2019
Date Made Active in Reports: 05/01/2019
Next Scheduled EDR Contact: 09/23/2019
Number of Days to Update: 34
Data Release Frequency: Quarterly

FINDS: Facility Index/System/Facility Registry System

Facility Index System: FINDS contains both facility information and "pointers" to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIFS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 02/15/2019
Source: EPA
Date Data Arrived at EDR: 03/05/2019
Telephone: (415) 947-8000
Last EDR Contact: 06/05/2019
Date Made Active in Reports: 03/15/2019
Next Scheduled EDR Contact: 09/16/2019
Number of Days to Update: 10
Data Release Frequency: Quarterly

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 12/31/2017
Source: Department of Defense
Date Data Arrived at EDR: 01/17/2019
Telephone: 703-704-1564
Last EDR Contact: 07/15/2019
Date Made Active in Reports: 04/01/2019
Next Scheduled EDR Contact: 10/28/2019
Number of Days to Update: 74
Data Release Frequency: Varies

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 05/31/2018
Source: Environmental Protection Agency
Date Data Arrived at EDR: 07/28/2018
Telephone: 202-564-0577
Last EDR Contact: 05/24/2019
Date Made Active in Reports: 10/05/2018
Next Scheduled EDR Contact: 09/09/2019
Number of Days to Update: 71
Data Release Frequency: Varies

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 04/07/2019
Source: Environmental Protection Agency
Date Data Arrived at EDR: 04/09/2019
Telephone: 202-564-2280
Last EDR Contact: 07/09/2019
Date Made Active in Reports: 05/23/2019
Next Scheduled EDR Contact: 10/21/2019
Number of Days to Update: 44
Data Release Frequency: Quarterly

FUELS PROGRAM: EPA Fuels Program Registered Listing

This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 02/19/2019
Source: EPA
Date Data Arrived at EDR: 02/21/2019
Telephone: 800-385-6164
Last EDR Contact: 05/21/2019
Date Made Active in Reports: 04/01/2019
Next Scheduled EDR Contact: 09/02/2019
Number of Days to Update: 39
Data Release Frequency: Quarterly

AIRS: List of Permitted Facilities

A listing of permitted facilities in the state.

Date of Government Version: 03/29/2019
Source: Department of Health
Date Data Arrived at EDR: 04/02/2019
Telephone: 808-586-4200
Last EDR Contact: 06/26/2019
Date Made Active in Reports: 05/01/2019
Next Scheduled EDR Contact: 10/14/2019
Number of Days to Update: 29
Data Release Frequency: Varies

DRYCLEANERS: Permitted Drycleaner Facility Listing

A listing of permitted drycleaner facilities in the state.

Date of Government Version: 03/29/2019
Source: Department of Health
Date Data Arrived at EDR: 04/02/2019
Telephone: 808-586-4200
Last EDR Contact: 06/26/2019
Date Made Active in Reports: 05/01/2019
Next Scheduled EDR Contact: 10/14/2019
Number of Days to Update: 29
Data Release Frequency: Varies

Financial Assurance: Financial Assurance Information Listing

A listing of financial assurance information for underground storage tank facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 04/16/2019
Source: Department of Health
Date Data Arrived at EDR: 04/18/2019
Telephone: 808-586-4226
Last EDR Contact: 07/19/2019
Date Made Active in Reports: 05/01/2019
Next Scheduled EDR Contact: 09/23/2019
Number of Days to Update: 13
Data Release Frequency: Varies

LEAD: Lead Inspection Listing

Lead inspections

Date of Government Version: 03/11/2019
Source: Department of Health
Date Data Arrived at EDR: 03/13/2019
Telephone: 808-586-5800
Last EDR Contact: 06/20/2019
Date Made Active in Reports: 05/01/2019
Next Scheduled EDR Contact: 09/23/2019
Number of Days to Update: 49
Data Release Frequency: Varies

UIC: Underground Injection Wells Listing

A listing of underground injection well locations.

Date of Government Version: 02/07/2013
Source: Department of Health
Date Data Arrived at EDR: 02/12/2013
Telephone: 808-586-4258
Last EDR Contact: 05/24/2019
Date Made Active in Reports: 04/09/2013
Next Scheduled EDR Contact: 09/09/2019
Number of Days to Update: 56
Data Release Frequency: Varies

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whole oil, resin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (only waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA_HWS: Recovered Government Archive State Hazardous Waste Facilities List

The EDR Recovered Government Archive State Hazardous Waste database provides a list of SHWS incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Health in Hawaii.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/09/2014
Number of Days to Update: 191

Source: Department of Health
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA_LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Health in Hawaii.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/17/2014
Number of Days to Update: 200

Source: Department of Health
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

RGA_LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Health in Hawaii.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/03/2014
Number of Days to Update: 188

Source: Department of Health
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

OTHER DATABASES)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

Oil/Gas Pipelines

Source: PennWell Corporation
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Electric Power Transmission Line Data

Source: PennWell Corporation
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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:

Source: American Hospital Association, Inc.
Telephone: 312-280-5591
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.
Medical Centers: Provider of Services Listing

Source: Centers for Medicare & Medicaid Services

Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.
Nursing Homes

Source: National Institutes of Health

Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools

Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools

Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.

Source: FEMA

Telephone: 877-336-2627

Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetlands Inventory

Source: Office of Planning

Telephone: 808-587-2895

Current USGS 7.5 Minute Topographic Map

Sources: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

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GEOCHECK® - PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

98-51 KAMEHAMEHA HWY
98-51 KAMEHAMEHA HWY
AIEA, HI 96701

TARGET PROPERTY COORDINATES

Latitude (North): 21.384281 - 21° 23' 3.41"
Longitude (West): 157.949136 - 157° 56' 56.89"
Universal Transverse Mercator:
Zone 4
UTM X (Meters): 608939.3
UTM Y (Meters): 2364903.2
Elevation: 16 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map: 5841089 WAIPAHLU, HI
Version Date: 2013
South Map: 5841087 PEARL HARBOR, HI
Version Date: 2013

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

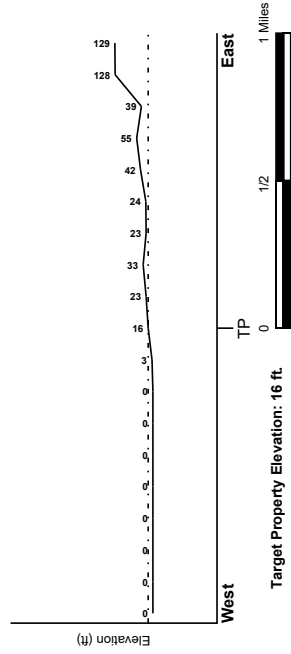
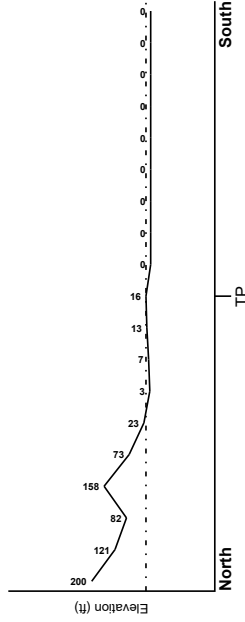
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General West

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property

FEMA Source Type

15003C0243H

FEMA FIRM Flood data

Additional Panels in search area:

FEMA Source Type

15003C0239G

FEMA FIRM Flood data

15003C0331H

FEMA FIRM Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property

NWI Electronic

WAIPAHI

Data Coverage

YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

AQUIFLOW®

Search Radius: 1,000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID: Not Reported
 LOCATION FROM TP: _____
 GENERAL DIRECTION: GROUNDWATER FLOW: _____

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

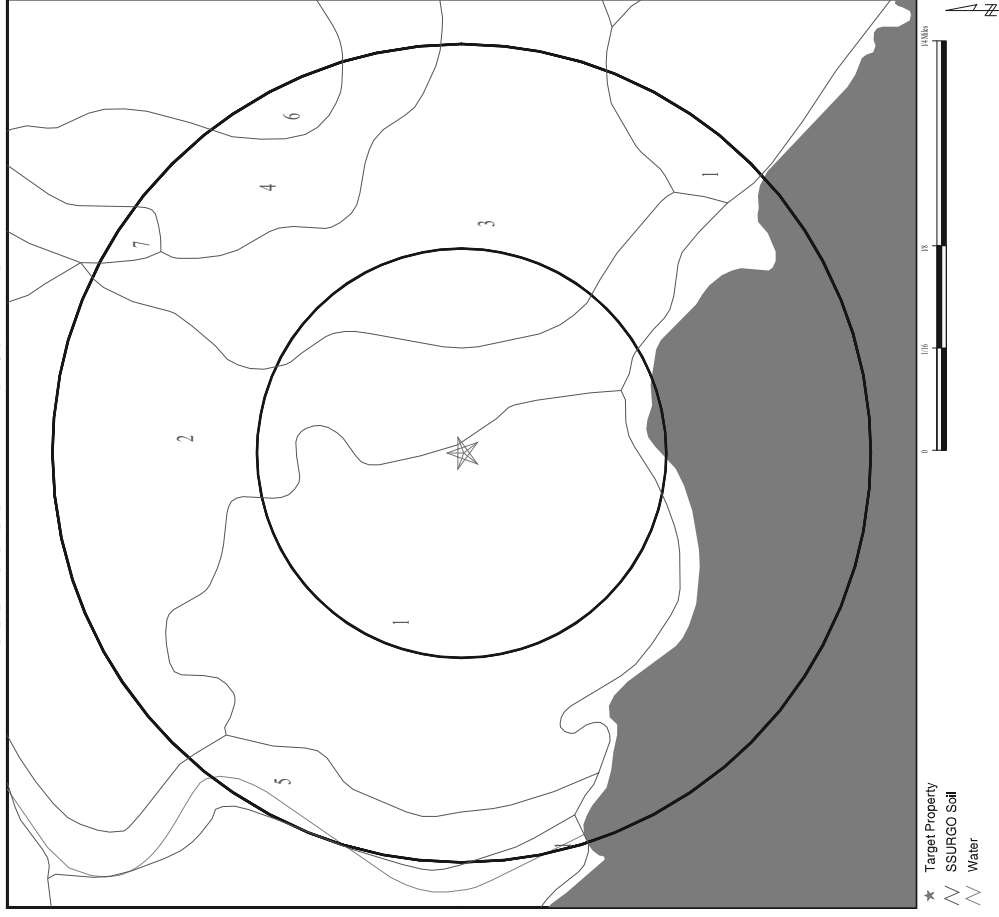
Era: -
 System: -
 Series: -
 Code: N/A (decoded above as Era, System & Series)

GEOLOGIC AGE IDENTIFICATION

Category: -

Geologic Age and Rock Stratigraphic Unit Source: P.G., Schubert, R.E., Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Belkman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 5756722.2s



SITE NAME: 98-51 KAMEHAMEHA HWY
 ADDRESS: 98-51 KAMEHAMEHA HWY
 AIEA HI 96701
 LAT/LONG: 21.364281 / 157.949136

CLIENT: ENPRO, Env. Professionals
 CONTACT: Shawn Champion
 INQUIRY #: 5756722.2s
 DATE: August 16, 2019 7:45 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: Keaau
 Soil Surface Texture: clay
 Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.
 Soil Drainage Class: Poorly drained
 Hydric Status: Partially hydric
 Corrosion Potential - Uncoated Steel: High
 Depth to Bedrock Min: > 0 inches
 Depth to Waterable Min: > 70 inches

Layer	Boundary		Soil Layer Information			Saturated hydraulic conductivity (micro m/sec)	Soil Reaction (pH)
	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	14 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200). Clayey Soils.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand.	Max: 705 Min: 141,14	Max: 8.4 Min: 7.9
2	14 inches	33 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200). Clayey Soils.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand.	Max: 705 Min: 141,14	Max: 8.4 Min: 7.9
3	33 inches	38 inches	cemented material	Silt-Clay Materials (more than 35 pct. passing No. 200). Clayey Soils.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand.	Max: 705 Min: 141,14	Max: 8.4 Min: 7.9

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Layer	Boundary		Soil Layer Information			Saturated hydraulic conductivity (micro m/sec)	Soil Reaction (pH)
	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
4	38 inches	57 inches	sand	Silt-Clay Materials (more than 35 pct. passing No. 200). Clayey Soils.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand.	Max: 705 Min: 141,14	Max: 8.4 Min: 7.9

Soil Map ID: 2

Soil Component Name: Pearl Harbor
 Soil Surface Texture: clay
 Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.
 Soil Drainage Class: Poorly drained
 Hydric Status: Partially hydric
 Corrosion Potential - Uncoated Steel: High
 Depth to Bedrock Min: > 0 inches
 Depth to Waterable Min: > 30 inches

Layer	Boundary		Soil Layer Information			Saturated hydraulic conductivity (micro m/sec)	Soil Reaction (pH)
	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	11 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200). Clayey Soils.	Highly organic soils, Peat.	Max: 0.42 Min: 0.01	Max: 7.8 Min: 7.4
2	11 inches	31 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200). Clayey Soils.	Highly organic soils, Peat.	Max: 0.42 Min: 0.01	Max: 7.8 Min: 7.4

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information						
Layer	Boundary		Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower	Soil Texture Class	AASHTO Group		
3	31 inches	48 inches	muck	Silt-Clay Materials (more than 35 pct. passing No. 200). Clayey Soils.	Highly organic soils, Peat.	Max: 7.8 Min: 7.4

Soil Map ID: 3

Soil Component Name: Honouliuli
 Soil Surface Texture: clay
 Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.
 Soil Drainage Class: Well drained
 Hydric Status: Not hydric
 Corrosion Potential - Uncoated Steel: Moderate
 Depth to Bedrock Min: > 0 inches
 Depth to Waterable Min: > 0 inches

Soil Layer Information						
Layer	Boundary		Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower	Soil Texture Class	AASHTO Group		
1	0 inches	14 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200). Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 7.8 Min: 6.6
2	14 inches	68 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200). Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 7.8 Min: 6.6

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Map ID: 4
 Soil Component Name: Waipahu
 Soil Surface Texture: silty clay
 Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.
 Soil Drainage Class: Well drained
 Hydric Status: Not hydric
 Corrosion Potential - Uncoated Steel: Moderate
 Depth to Bedrock Min: > 0 inches
 Depth to Waterable Min: > 0 inches

Soil Layer Information						
Layer	Boundary		Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower	Soil Texture Class	AASHTO Group		
1	0 inches	11 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200). Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 4.23 Min: 0.42
2	11 inches	70 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200). Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 4.23 Min: 0.42

Soil Map ID: 5

Soil Component Name: Water > 40 acres
 Soil Surface Texture: silty clay
 Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.
 Soil Drainage Class:

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Unknown

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Waterable Min: > 0 inches

No Layer Information available.

Soil Map ID: 6

Soil Component Name: Lahaina

Soil Surface Texture: silty clay

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Waterable Min: > 0 inches

Soil Layer Information						
Layer	Boundary		Soil Texture Class	Classification AASHTO Group	Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower				
1	0 inches	14 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Max: 14 Min: 1.41	Max: 7.3 Min: 5.6
2	14 inches	31 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Max: 14 Min: 1.41	Max: 7.3 Min: 5.6
3	31 inches	59 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Max: 14 Min: 1.41	Max: 7.3 Min: 5.6

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Map ID: 7

Soil Component Name: Rock land

Soil Surface Texture: silty clay

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

Hydric Status: Unknown

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Waterable Min: > 0 inches

Soil Layer Information						
Layer	Boundary		Soil Texture Class	Classification AASHTO Group	Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower				
1	0 inches	3 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Max: 0.42 Min: 0.02	Max: Min:
2	3 inches	7 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Max: 0.42 Min: 0.02	Max: Min:
3	7 inches	20 inches	bedrock	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Max: 0.42 Min: 0.02	Max: Min:

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A2	USGS40000270292	0 - 1/8 Mile ESE
A3	USGS40000270296	0 - 1/8 Mile East
B5	USGS40000270290	1/8 - 1/4 Mile ESE
B8	USGS40000270286	1/8 - 1/4 Mile ESE
C10	USGS40000270280	1/8 - 1/4 Mile SE
C12	USGS40000270275	1/8 - 1/4 Mile SE
C14	USGS40000270273	1/4 - 1/2 Mile SE
C15	USGS40000270274	1/4 - 1/2 Mile SE
C16	USGS40000270300	1/4 - 1/2 Mile East
C18	USGS40000270283	1/4 - 1/2 Mile ESE
20	USGS40000270331	1/4 - 1/2 Mile WNW
22	USGS40000270271	1/4 - 1/2 Mile SE
E23	USGS40000270369	1/4 - 1/2 Mile NNE
F26	USGS40000270276	1/4 - 1/2 Mile ESE
E27	USGS40000270375	1/4 - 1/2 Mile NNE
G29	USGS40000270358	1/4 - 1/2 Mile NE
E31	USGS40000270392	1/4 - 1/2 Mile NNE
E32	USGS40000270391	1/4 - 1/2 Mile NNE
H33	USGS40000270393	1/4 - 1/2 Mile NNE
G37	USGS40000270353	1/4 - 1/2 Mile ENE
G38	USGS40000270354	1/4 - 1/2 Mile ENE
E41	USGS40000270390	1/4 - 1/2 Mile NNE
I42	USGS40000270295	1/4 - 1/2 Mile East
I43	USGS40000270295	1/4 - 1/2 Mile East
J46	USGS40000270416	1/4 - 1/2 Mile North
E47	USGS40000270396	1/4 - 1/2 Mile NNE
K46	USGS40000270407	1/4 - 1/2 Mile NNE
K52	USGS40000270406	1/4 - 1/2 Mile ENE
L53	USGS40000270530	1/4 - 1/2 Mile ESE
M58	USGS40000270270	1/4 - 1/2 Mile ENE
N59	USGS40000270352	1/4 - 1/2 Mile WNW
O61	USGS40000270360	1/2 - 1 Mile WNW
P66	USGS40000270408	1/2 - 1 Mile WNW
O67	USGS40000270381	1/2 - 1 Mile WNW
P69	USGS40000270409	1/2 - 1 Mile NW
P74	USGS40000270410	1/2 - 1 Mile NW
R76	USGS40000270410	1/2 - 1 Mile NW
S77	USGS40000270267	1/2 - 1 Mile ESE
S79	USGS40000270430	1/2 - 1 Mile NNE
S80	USGS40000270441	1/2 - 1 Mile NE
S80	USGS40000270442	1/2 - 1 Mile NNE
S83	USGS40000270439	1/2 - 1 Mile NE

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
S84	USGS40000270440	1/2 - 1 Mile NE
T85	USGS40000270355	1/2 - 1 Mile WNW
U89	USGS40000270258	1/2 - 1 Mile ESE
V90	USGS40000270417	1/2 - 1 Mile NW
W92	USGS40000270279	1/2 - 1 Mile East
X94	USGS40000270366	1/2 - 1 Mile WNW
Y97	USGS40000270225	1/2 - 1 Mile SE
Z101	USGS40000270379	1/2 - 1 Mile WNW
Z102	USGS40000270380	1/2 - 1 Mile WNW
Z103	USGS40000270378	1/2 - 1 Mile WNW
Z104	USGS40000270377	1/2 - 1 Mile WNW
Z105	USGS40000270384	1/2 - 1 Mile WNW
Z106	USGS40000270384	1/2 - 1 Mile WNW
Z107	USGS40000270385	1/2 - 1 Mile WNW
Z108	USGS40000270385	1/2 - 1 Mile WNW
Z109	USGS40000270381	1/2 - 1 Mile WNW
Z110	USGS40000270382	1/2 - 1 Mile WNW
AA119	USGS40000270284	1/2 - 1 Mile ESE
AA120	USGS40000270285	1/2 - 1 Mile ESE
AA121	USGS40000270286	1/2 - 1 Mile ESE

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
G36	HI00000331	1/4 - 1/2 Mile ENE

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A1	HI1100000001621	0 - 1/8 Mile ESE
A4	HI1100000001602	0 - 1/8 Mile East
B6	HI1100000001600	1/8 - 1/4 Mile ESE
B7	HI1100000001533	1/8 - 1/4 Mile ESE
C9	HI1100000001541	1/8 - 1/4 Mile ESE
C11	HI1100000001540	1/8 - 1/4 Mile SE
C13	HI1100000001539	1/4 - 1/2 Mile SE
C17	HI1100000001534	1/4 - 1/2 Mile ESE
D19	HI1100000001575	1/4 - 1/2 Mile East
C21	HI1100000001560	1/4 - 1/2 Mile SE
E24	HI1100000001592	1/4 - 1/2 Mile NNE
F25	HI1100000001535	1/4 - 1/2 Mile ESE
E28	HI1100000001582	1/4 - 1/2 Mile NE
G30	HI1100000001594	1/4 - 1/2 Mile NE
H34	HI1100000001618	1/4 - 1/2 Mile NW
E35	HI1100000001574	1/4 - 1/2 Mile NNE
H39	HI1100000001605	1/4 - 1/2 Mile NNE

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
G40	HI1100000001591	1/4 - 1/2 Mile NE
I44	HI1100000001577	1/4 - 1/2 Mile East
I45	HI1100000001576	1/4 - 1/2 Mile East
J49	HI1100000001619	1/4 - 1/2 Mile North
E50	HI1100000001586	1/4 - 1/2 Mile NNE
E51	HI1100000001589	1/4 - 1/2 Mile NNE
K54	HI1100000001593	1/4 - 1/2 Mile NNE
K55	HI1100000001531	1/4 - 1/2 Mile NNE
L56	HI1100000001581	1/4 - 1/2 Mile ENE
M57	HI1100000001536	1/4 - 1/2 Mile ESE
N60	HI1100000001590	1/4 - 1/2 Mile ENE
O62	HI1100000001606	1/4 - 1/2 Mile NW
P63	HI1100000001622	1/2 - 1 Mile NW
I64	HI1100000001599	1/2 - 1 Mile East
P65	HI1100000001623	1/2 - 1 Mile NW
O68	HI1100000001607	1/2 - 1 Mile WNW
G70	HI1100000001595	1/2 - 1 Mile East
G71	HI1100000001586	1/2 - 1 Mile East
G72	HI1100000001588	1/2 - 1 Mile East
G73	HI1100000001597	1/2 - 1 Mile ESE
R75	HI1100000001537	1/2 - 1 Mile NNE
S78	HI1100000001542	1/2 - 1 Mile NNE
T82	HI1100000001532	1/2 - 1 Mile WNW
S86	HI1100000001620	1/2 - 1 Mile NE
S87	HI1100000001579	1/2 - 1 Mile NE
U88	HI1100000001578	1/2 - 1 Mile ESE
V91	HI1100000001603	1/2 - 1 Mile NW
W93	HI1100000001530	1/2 - 1 Mile East
X95	HI1100000001601	1/2 - 1 Mile SE
Y96	HI1100000001379	1/2 - 1 Mile SE
Z98	HI1100000001611	1/2 - 1 Mile WNW
Z99	HI1100000001610	1/2 - 1 Mile WNW
Z100	HI1100000001608	1/2 - 1 Mile WNW
Z111	HI1100000001613	1/2 - 1 Mile WNW
Z112	HI1100000001614	1/2 - 1 Mile WNW
Z113	HI1100000001604	1/2 - 1 Mile WNW
Z114	HI1100000001612	1/2 - 1 Mile WNW
Z115	HI1100000001617	1/2 - 1 Mile WNW
Z116	HI1100000001616	1/2 - 1 Mile WNW
Z117	HI1100000001615	1/2 - 1 Mile WNW
Z118	HI1100000001609	1/2 - 1 Mile WNW
AA122	HI1100000001572	1/2 - 1 Mile ESE
AA123	HI1100000001573	1/2 - 1 Mile ESE

PHYSICAL SETTING SOURCE MAP - 5756722.2s



SITE NAME: 98-51 KAMEHAMEHA HWY ADDRESS: 98-51 KAMEHAMEHA HWY AIEA HI 96701 LAT/LONG: 21.364281 / 157.949136	CLIENT: ENPRO, Env. Professionals CONTACT: Shawn Champion INQUIRY #: 5756722.2s DATE: August 16, 2019 7:45 pm Copyright © 2019 ENR, Inc. © 2015 Tom Tom Ltd., 2016.
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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation	Database	EDR ID Number
A1 East 0 - 1/8 Mile Higher	HI WELLS	HI1100000001621
Well ID:	3-2357-022	Kalaiaoa
Well Name:	Schitz Brew	Not Reported
Land Owner:	Not Reported	1965
Pump Rate (gpm):	Not Reported	Samson & Zerbe
Original Well Name:	Not Reported	12
Well Construction Type:	Not Reported	200
Ground Elevation (ft):	7	Not Reported
Solid Casing Depth:	137	Not Reported
Major Well Use:	Abandoned-Sealed	Not Reported
Water Level After Drilling:	Not Reported	17.6
Chloride Content (mg/L):	37.1	Not Reported
Test Pump Rate (gpm):	Not Reported	Not Reported
Test Chloride Content (MGL):	C	Not Reported
Temp Unit:	Not Reported	21
Minimum Chloride Level:	Not Reported	Not Reported
Hole Bottom Elevation:	-193	-130
Year Installed:	Not Reported	Not Reported
Pump Intake Depth:	Not Reported	Not Reported
Latest WCR1 Report:	1/1/1965	Not Reported
Transmissivity:	Not Reported	Not Reported

Map ID Direction Distance Elevation	Database	EDR ID Number
A2 East 0 - 1/8 Mile Lower	FED USGS	USGS40000270292
Organization ID:	USGS-HI	USGS Hawaii Water Science Center
Monitor Location:	3-2357-22 W192-1	Well
Description:	Not Reported	20060000
Drainage Area:	Not Reported	Not Reported
Contrib Drainage Area:	Not Reported	Not Reported
Aquifer:	Not Reported	19651101
Aquifer Type:	Not Reported	ft
Well Depth:	200	ft
Well Hole Depth:	200	
Ground water levels Number of Measurements:	1	1965-11-17
Feet below surface:	-13.28	Not Reported
Note:	Not Reported	

Map ID Direction Distance Elevation	Database	EDR ID Number
A3 East 0 - 1/8 Mile Higher	FED USGS	USGS40000270296
Organization ID:	USGS-HI	USGS Hawaii Water Science Center
Monitor Location:	3-2357-03 W192 WAIU	Well
Description:	Not Reported	20060000
Drainage Area:	Not Reported	Not Reported
Contrib Drainage Area:	Not Reported	Not Reported
Aquifer:	Not Reported	16870101
Aquifer Type:	Not Reported	

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation	Database	EDR ID Number
A4 East 0 - 1/8 Mile Higher	HI WELLS	HI1100000001602
Well ID:	3-2357-003	Kalaiaoa
Well Name:	Waimalu Development	Not Reported
Land Owner:	Not Reported	1887
Pump Rate (gpm):	Not Reported	L McCandless
Original Well Name:	Not Reported	10
Well Construction Type:	Not Reported	314
Ground Elevation (ft):	25	Not Reported
Solid Casing Depth:	41	Not Reported
Major Well Use:	Abandoned-Sealed	Not Reported
Water Level After Drilling:	Not Reported	21.5
Chloride Content (mg/L):	590	Not Reported
Test Pump Rate (gpm):	Not Reported	Not Reported
Test Chloride Content (MGL):	Not Reported	Not Reported
Temp Unit:	Not Reported	Not Reported
Minimum Chloride Level:	Not Reported	Not Reported
Hole Bottom Elevation:	-289	Not Reported
Year Installed:	Not Reported	-22
Pump Intake Depth:	Not Reported	Not Reported
Latest WCR1 Report:	07/01/1887	Not Reported
Transmissivity:	Not Reported	Not Reported

Map ID Direction Distance Elevation	Database	EDR ID Number
B5 East 1/8 - 1/4 Mile Higher	FED USGS	USGS40000270290
Organization ID:	USGS-HI	USGS Hawaii Water Science Center
Monitor Location:	3-2357-01 T121 WAIU	Well
Description:	Not Reported	20060000
Drainage Area:	Not Reported	Not Reported
Contrib Drainage Area:	Not Reported	Not Reported
Aquifer:	Not Reported	19721101
Aquifer Type:	Not Reported	ft
Well Depth:	90	Not Reported
Well Hole Depth:	Not Reported	
Ground water levels Number of Measurements:	1	1965-11-17
Feet below surface:	-13.28	Not Reported
Note:	Not Reported	

Map ID Direction Distance Elevation	Database	EDR ID Number
B6 East 1/8 - 1/4 Mile Higher	HI WELLS	HI1100000001600
Well ID:	3-2357-001	Pearl Harbor
Well Name:	Naval Facilities Engineering Command Hawaii, Environmental, NAVFAC Hawaii	Not Reported
Land Owner:	Not Reported	Not Reported
Year Drilled:	Not Reported	Not Reported
Driller:	Curtis Wong (Naval Facilities Engineering Command Hawaii, Asset Management, NAVFAC Hawaii)	Not Reported
Well Construction Type:	Not Reported	Not Reported
Ground Elevation (ft):	8	90
Aquifer:	Not Reported	Not Reported
Aquifer Type:	Not Reported	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Major Well Use: Not Reported
 Water Level After Drilling: Not Reported
 Chloride Content (mg/L): 0
 Test Pump Rate (gpm): Not Reported
 Test Chloride Content (MGL): Not Reported
 Temp Unit: Not Reported
 Minimum Chloride Level: -82
 Hole Bottom Elevation: Not Reported
 Year Installed: Not Reported
 Pump Intake Depth: Not Reported
 Latest WCR1 Report: Not Reported
 Transmissivity: Not Reported

Initial Water Level (ft): Not Reported
 Water Level After Install: Not Reported
 Date Tested: Not Reported
 Test Drawdown Rate (ft): Not Reported
 Test Water Temp: Not Reported
 Max Chloride Level: Not Reported
 Draft Year: Not Reported
 Solid Casing Bottom Elevation: Not Reported
 Pump Capacity (MM gal/day): Not Reported
 Latest Head: Not Reported
 Latest WCR2 Report: Not Reported
 Min to pump 5 volumes: Not Reported

B8 ESE 1/8 - 1/4 Mile Higher

HI WELLS **HI1100000001533**

Well ID: 3-2356-004 Pearl Harbor
 Well Owner: Naval Facilities Engineering Command Hawaii, Environmental, NAVFAC Hawaii
 Land Owner: Kanehameha Schools
 Year Drilled: Not Reported
 Driller: Curtis Wong (Naval Facilities Engineering Command Hawaii, Asset Management, NAVFAC Hawaii)
 Well Construction Type: Not Reported
 Ground Elevation (ft): 18
 Solid Casing Depth: Not Reported
 Major Well Use: Not Reported
 Water Level After Drilling: Not Reported
 Chloride Content (mg/L): 0
 Test Pump Rate (gpm): Not Reported
 Test Chloride Content (MGL): Not Reported
 Temp Unit: Not Reported
 Minimum Chloride Level: -82
 Hole Bottom Elevation: Not Reported
 Year Installed: Not Reported
 Pump Intake Depth: Not Reported
 Latest WCR1 Report: Not Reported
 Transmissivity: Not Reported

Well Name: Pearl Harbor
 Pump Rate (gpm): Not Reported
 Original Well Name: Not Reported
 Casing Diameter (in): Not Reported
 Well Depth (ft): 100
 Perforated Casing Depth: Not Reported
 Initial Water Level (ft): Not Reported
 Water Level After Install: Not Reported
 Date Tested: Not Reported
 Test Drawdown Rate (ft): Not Reported
 Test Water Temp: Not Reported
 Max Chloride Level: Not Reported
 Draft Year: Not Reported
 Solid Casing Bottom Elevation: Not Reported
 Pump Capacity (MM gal/day): Not Reported
 Latest Head: Not Reported
 Latest WCR2 Report: Not Reported
 Min to pump 5 volumes: Not Reported

B8 ESE 1/8 - 1/4 Mile Lower

FED USGS **USGS-40000270286**

Organization ID: USGS-HI
 Monitor Location: 3-2356-04 T122
 Description: HUC: 20060000
 Drainage Area: Not Reported
 Contrib Drainage Area: Not Reported
 Aquifer: Not Reported
 Well Depth: 100
 Well Hole Depth: Not Reported

Organization Name: USGS Hawaii Water Science Center
 Type: Well
 HUC: 20060000
 Drainage Area Units: Not Reported
 Contrib Drainage Area Units: Not Reported
 Formation Type: Not Reported
 Construction Date: 19421101
 Well Depth Units: ft
 Well Hole Depth Units: Not Reported

Map ID: C9
 Direction: ESE
 Distance: 1/8 - 1/4 Mile
 Elevation: Lower

Database: HI WELLS
 EDR ID Number: HI1100000001541

Well ID: 3-2356-012 Pearl Harbor
 Well Name: Naval Facilities Engineering Command Hawaii, Environmental, NAVFAC Hawaii
 Land Owner: Not Reported
 Year Drilled: Not Reported
 Driller: Curtis Wong (Naval Facilities Engineering Command Hawaii, Asset Management, NAVFAC Hawaii)
 Well Construction Type: Not Reported
 Ground Elevation (ft): 8
 Solid Casing Depth: Not Reported
 Major Well Use: Not Reported
 Water Level After Drilling: Not Reported
 Chloride Content (mg/L): 0
 Test Pump Rate (gpm): Not Reported
 Test Chloride Content (MGL): Not Reported
 Temp Unit: Not Reported
 Minimum Chloride Level: -57
 Hole Bottom Elevation: Not Reported
 Year Installed: Not Reported
 Pump Intake Depth: Not Reported
 Latest WCR1 Report: Not Reported
 Transmissivity: Not Reported

Well Name: Pearl Harbor
 Pump Rate (gpm): Not Reported
 Original Well Name: Not Reported
 Casing Diameter (in): Not Reported
 Well Depth (ft): 65
 Perforated Casing Depth: Not Reported
 Initial Water Level (ft): Not Reported
 Water Level After Install: Not Reported
 Date Tested: Not Reported
 Test Drawdown Rate (ft): Not Reported
 Test Water Temp: Not Reported
 Max Chloride Level: Not Reported
 Draft Year: Not Reported
 Solid Casing Bottom Elevation: Not Reported
 Pump Capacity (MM gal/day): Not Reported
 Latest Head: Not Reported
 Latest WCR2 Report: Not Reported
 Min to pump 5 volumes: Not Reported

C10 SE 1/8 - 1/4 Mile Lower

FED USGS **USGS-40000270280**

Organization ID: USGS-HI
 Monitor Location: 3-2356-12 T127-3
 Description: HUC: 20060000
 Drainage Area: Not Reported
 Contrib Drainage Area: Not Reported
 Aquifer: Not Reported
 Well Depth: 65
 Well Hole Depth: Not Reported

Organization Name: USGS Hawaii Water Science Center
 Type: Well
 HUC: 20060000
 Drainage Area Units: Not Reported
 Contrib Drainage Area Units: Not Reported
 Formation Type: Not Reported
 Construction Date: 19421101
 Well Depth Units: ft
 Well Hole Depth Units: Not Reported

C11 SE 1/8 - 1/4 Mile Lower

HI WELLS **HI1100000001540**

Well ID: 3-2356-011 Pearl Harbor
 Well Name: Naval Facilities Engineering Command Hawaii, Environmental, NAVFAC Hawaii
 Land Owner: Kanehameha Schools
 Year Drilled: Not Reported
 Driller: Curtis Wong (Naval Facilities Engineering Command Hawaii, Asset Management, NAVFAC Hawaii)
 Well Construction Type: Not Reported
 Ground Elevation (ft): 6
 Solid Casing Depth: Not Reported
 Major Well Use: Not Reported
 Water Level After Drilling: Not Reported

Well Name: Pearl Harbor
 Pump Rate (gpm): Not Reported
 Original Well Name: Not Reported
 Casing Diameter (in): Not Reported
 Well Depth (ft): 70
 Perforated Casing Depth: Not Reported
 Initial Water Level (ft): Not Reported
 Water Level After Install: Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Chloride Content (mg/L): 0
 Test Pump Rate (gpm): Not Reported
 Test Chloride Content (MG/L): Not Reported
 Temp Unit: Not Reported
 Minimum Chloride Level: Not Reported
 Hole Bottom Elevation: -64
 Year Installed: Not Reported
 Pump Intake Depth: Not Reported
 Latest WCR1 Report: Not Reported
 Transmissivity: Not Reported

C12
SE
1/8 - 1/4 Mile
Lower

Organization ID: USGS-HI
 Monitor Location: 3-2356-11 T127-2
 Description: Not Reported
 Drainage Area: Not Reported
 Contrib Drainage Area: Not Reported
 Aquifer: Not Reported
 Aquifer Type: Not Reported
 Well Depth: 70
 Well Hole Depth: Not Reported

Organization Name: USGS Hawaii Water Science Center
 Type: Well
 HUC: 20060000
 Drainage Area Units: Not Reported
 Contrib Drainage Area Units: Not Reported
 Formation Type: Not Reported
 Construction Date: 19421101
 Well Depth Units: ft
 Well Hole Depth Units: Not Reported

C13
SE
1/8 - 1/2 Mile
Lower

Well ID: 3-2356-010
 Well Owner: Naval Facilities Engineering Command Hawaii, Environmental, NAVFAC Hawaii
 Land Owner: Kamehameha Schools
 Year Drilled: Not Reported
 Driller: Curtis Wong (Naval Facilities Engineering Command Hawaii, Asset Management, NAVFAC Hawaii)
 Well Construction Type: Not Reported
 Ground Elevation (ft): 6
 Solid Casing Depth: Not Reported
 Major Well Use: Not Reported
 Water Level After Drilling: Not Reported
 Chloride Content (mg/L): 0
 Test Pump Rate (gpm): Not Reported
 Temp Unit: Not Reported
 Minimum Chloride Level: Not Reported
 Hole Bottom Elevation: -49
 Year Installed: Not Reported
 Pump Intake Depth: Not Reported
 Latest WCR1 Report: Not Reported
 Transmissivity: Not Reported

Well Name: Pearl Harbor
 Pump Rate (gpm): Not Reported
 Original Well Name: Not Reported
 Casing Diameter (in): Not Reported
 Well Depth (ft): 55
 Perforated Casing Depth: Not Reported
 Initial Water Level (ft): Not Reported
 Water Level After Install: Not Reported
 Date Tested: Not Reported
 Test Drawdown Rate (ft): Not Reported
 Test Water Temp: Not Reported
 Max Chloride Level: Not Reported
 Draft Year: Not Reported
 Solid Casing Bottom Elevation: Not Reported
 Pump Capacity (MM gals/day): Not Reported
 Latest Head: Not Reported
 Latest WCR2 Report: Not Reported
 Min to pump 5 volumes: Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
 Direction
 Distance
 Elevation
 Database
 FED USGS
 USGS40000270273
 FED USGS
 USGS40000270273

C14
SE
1/4 - 1/2 Mile
Lower

Organization ID: USGS-HI
 Monitor Location: 3-2356-10 T012
 Description: Not Reported
 Drainage Area: Not Reported
 Contrib Drainage Area: Not Reported
 Aquifer: Not Reported
 Aquifer Type: Not Reported
 Well Depth: Not Reported
 Well Hole Depth: Not Reported

Organization Name: USGS Hawaii Water Science Center
 Type: Well
 HUC: 20060000
 Drainage Area Units: Not Reported
 Contrib Drainage Area Units: Not Reported
 Formation Type: Not Reported
 Construction Date: Not Reported
 Well Depth Units: Not Reported
 Well Hole Depth Units: Not Reported

C15
SE
1/4 - 1/2 Mile
Lower

Organization ID: USGS-HI
 Monitor Location: 3-2356-10 T127-1
 Description: Not Reported
 Drainage Area: Not Reported
 Contrib Drainage Area: Not Reported
 Aquifer: Not Reported
 Aquifer Type: Not Reported
 Well Depth: 55
 Well Hole Depth: Not Reported

Organization Name: USGS Hawaii Water Science Center
 Type: Well
 HUC: 20060000
 Drainage Area Units: Not Reported
 Contrib Drainage Area Units: Not Reported
 Formation Type: Not Reported
 Construction Date: 19421101
 Well Depth Units: ft
 Well Hole Depth Units: Not Reported

D16
East
1/4 - 1/2 Mile
Higher

Organization ID: USGS-HI
 Monitor Location: 3-2356-46 T60
 Description: Not Reported
 Drainage Area: Not Reported
 Contrib Drainage Area: Not Reported
 Aquifer: Not Reported
 Aquifer Type: Not Reported
 Well Depth: 61
 Well Hole Depth: Not Reported

Organization Name: USGS Hawaii Water Science Center
 Type: Well
 HUC: 20060000
 Drainage Area Units: Not Reported
 Contrib Drainage Area Units: Not Reported
 Formation Type: Not Reported
 Construction Date: 19481109
 Well Depth Units: ft
 Well Hole Depth Units: Not Reported

C17
ESSE
1/4 - 1/2 Mile
Lower

Well ID: 3-2356-005
 Well Owner: Naval Facilities Engineering Command Hawaii, Environmental, NAVFAC Hawaii
 Land Owner: Kamehameha Schools
 Year Drilled: Not Reported

Well Name: Pearl Harbor
 Pump Rate (gpm): Not Reported
 Original Well Name: Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

D19
East
Higher
Well ID:
Well Construction Type:
Ground Elevation (ft):
Solid Casing Depth:
Major Well Use:
Water Level After Drilling:
Chloride Content (mg/L):
Test Pump Rate (gpm):
Test Chloride Content (MGL):
Temp Unit:
Hole Bottom Elevation:
Year Installed:
Pump Intake Depth:
Latest WCR1 Report:
Transmissivity:

Curtis Wong (Naval Facilities Engineering Command Hawaii, Asset Management, NAVFAC Hawaii)
Not Reported
6
Not Reported
Not Reported
Not Reported
0
Not Reported
Not Reported
Not Reported
-56
Not Reported
Not Reported
Not Reported
Not Reported
Not Reported
Not Reported
Not Reported
Not Reported
Min to pump 5 volumes:

C19
SE
1/4 - 1/2 Mile
Lower

FED USGS USGS40000270283

Organization ID:
Monitor Location:
Description:
Drainage Area:
Contrib Drainage Area:
Aquifer:
Well Type:
Well Depth:
Well Hole Depth:

USGS-HI
3-2356-046
Not Reported
Not Reported
Not Reported
Not Reported
62
Not Reported

Organization Name:
Type:
HUC:
Drainage Area Units:
Contrib Drainage Area Units:
Formation Type:
Construction Date:
Well Depth Units:
Well Hole Depth Units:

USGS Hawaii Water Science Center
Well
20060000
Not Reported
Not Reported
19421101
ft
Not Reported

D19
East
Higher
Well ID:
Well Owner:
Land Owner:
Year Drilled:
Driller:
Casing Diameter (in):
Well Depth (ft):
Perforated Casing Depth:
Water Level After Install:
Date Tested:
Test Water Temp:
Max Chloride Level:
Draft Year:
Solid Casing Bottom Elevation:
Pump Capacity (MM gal/day):
Latest WCR1 Report:
Min to pump 5 volumes:

3-2356-046
Naval Facilities Engineering Command Hawaii, Environmental, NAVFAC Hawaii
State of Hawaii
1948
Not Reported
61
Not Reported
14.5
Not Reported
Not Reported
Not Reported
Not Reported
Not Reported
Not Reported
Not Reported
Not Reported
Not Reported
Not Reported
Not Reported
Min to pump 5 volumes:

HI WELLS HI110000001575

Well Name:
Pump Rate (gpm):
Original Well Name:
Well Construction Type:
Ground Elevation (ft):
Solid Casing Depth:
Major Well Use:
Water Level After Drilling:
Chloride Content (mg/L):
Test Pump Rate (gpm):
Temp Unit:
Minimum Chloride Level:
Hole Bottom Elevation:
Year Installed:
Pump Intake Depth:
Latest WCR1 Report:
Transmissivity:

Aiea
Not Reported
Not Reported
Not Reported
33
Not Reported
Not Reported
0
Not Reported
Not Reported
Not Reported
-28
Not Reported
1/1/1948
Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation
Database
EDR ID Number

20
WNW
1/4 - 1/2 Mile
Lower

USGS-HI
3-2357-19 W1972
Not Reported
Not Reported
Not Reported
Not Reported
444
Not Reported

Organization ID:
Monitor Location:
Description:
Drainage Area:
Contrib Drainage Area:
Aquifer:
Well Type:
Well Depth:
Well Hole Depth:

USGS Hawaii Water Science Center
Well
20060000
Not Reported
Not Reported
Not Reported
Not Reported
1950/0101
ft
Not Reported

Organization Name:
Type:
HUC:
Drainage Area Units:
Contrib Drainage Area Units:
Formation Type:
Construction Date:
Well Depth Units:
Well Hole Depth Units:

USGS Hawaii Water Science Center
Well
20060000
Not Reported
Not Reported
Not Reported
Not Reported
1950/0101
ft
Not Reported

C21
SE
1/4 - 1/2 Mile
Lower

HI WELLS HI110000001580

Well ID:
Well Owner:
Land Owner:
Year Drilled:
Driller:
Well Construction Type:
Ground Elevation (ft):
Solid Casing Depth:
Major Well Use:
Water Level After Drilling:
Chloride Content (mg/L):
Test Pump Rate (gpm):
Temp Unit:
Hole Bottom Elevation:
Year Installed:
Pump Intake Depth:
Latest WCR1 Report:
Transmissivity:

3-2356-051
Pacific Islands Water Science Center, U.S. Geological Survey
Not Reported
1958
Goodfellow Construction, Inc. Corporate
Not Reported
5
91
Abandoned-Lost
Not Reported
0
Not Reported
Not Reported
Not Reported
Not Reported
Not Reported
Not Reported
Not Reported
Not Reported
Not Reported
1/1/1958
Not Reported

Well Name:
Pump Rate (gpm):
Original Well Name:
Casing Diameter (in):
Well Depth (ft):
Perforated Casing Depth:
Initial Water Level (ft):
Water Level After Install:
Date Tested:
Test Drawdown Rate (ft):
Test Water Temp:
Max Chloride Level:
Draft Year:
Solid Casing Bottom Elevation:
Pump Capacity (MM gal/day):
Latest WCR2 Report:
Min to pump 5 volumes:

Pearl Harbor
0
Not Reported
6
1308
1.5
Not Reported
Not Reported
Not Reported
Not Reported
Not Reported
Not Reported
Not Reported
Not Reported
-86
Not Reported
Not Reported
Not Reported
Min to pump 5 volumes:

22
SE
1/4 - 1/2 Mile
Lower

FED USGS USGS40000270271

Organization ID:
Monitor Location:
Description:
Drainage Area:
Contrib Drainage Area:
Aquifer:
Well Type:
Well Depth:
Well Hole Depth:

USGS-HI
3-2356-51 T67 AIEA
Not Reported
Not Reported
Not Reported
Not Reported
1306
Not Reported

Organization Name:
Type:
HUC:
Drainage Area Units:
Contrib Drainage Area Units:
Formation Type:
Construction Date:
Well Depth Units:
Well Hole Depth Units:

USGS Hawaii Water Science Center
Well
20060000
Not Reported
Not Reported
Not Reported
Not Reported
1958/0101
ft
Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation Database EDR ID Number
E26 **NNE** **1/4 - 1/2 Mile** **USGS** **USGS40000270369**
Higher

Organization ID: USGS-HI
 Monitor Location: 3-2356-63 WAIMALU II
 Description: Not Reported
 Drainage Area: Not Reported
 Contrib Drainage Area: Not Reported
 Aquifer: Not Reported
 Aquifer Type: Not Reported
 Well Depth: 240
 Well Hole Depth: Not Reported

Organization Name: USGS Hawaii Water Science Center
 Type: Well
 HUC: 20060000
 Drainage Area Units: Not Reported
 Contrib Drainage Area Units: Not Reported
 Formation Type: Not Reported
 Construction Date: 19750801
 Well Depth Units: ft
 Well Hole Depth Units: Not Reported

E24 **NNE** **1/4 - 1/2 Mile** **HI WELLS** **HI1100000001592**
Higher

Well ID: Waimalu II-2
 Land Owner: Honolulu Board of Water Supply, BWS
 Year Drilled: 1975
 Rescoe Moss Hawaii Inc
 Casing Diameter (in): 16
 Well Depth (ft): 240
 Perforated Casing Depth: Not Reported
 Initial Water Level (ft): 15.18
 Water Level After Install: 9/3/1975
 Date Tested: 3.5
 Test Drawdown Rate (ft): 20.4
 Max Chloride Level: Not Reported
 Draft Year: Not Reported
 Solid Casing Bottom Elevation: -74
 Pump Capacity (MM gal/day): 0.72
 Latest WCR1 Report: Not Reported
 Latest WCR2 Report: Not Reported
 Min to pump 5 volumes: Not Reported

Well Name: Waimalu II-2
 Pump Rate (gpm): 500
 Original Well Name: Not Reported
 Well Construction Type: Percussion
 Ground Elevation (ft): 26
 Solid Casing Depth: 100
 Major Well Use: Unused
 Water Level After Drilling: Not Reported
 Chloride Content (mg/L): 0
 Test Pump Rate (gpm): 1200
 Test Chloride Content (MGL): 140
 Temp Unit: C
 Minimum Chloride Level: Not Reported
 Hole Bottom Elevation: -214
 Year Installed: 1978
 Pump Intake Depth: Not Reported
 Latest WCR1 Report: 8/1/1975
 Transmissivity: Not Reported

F25 **ESE** **1/4 - 1/2 Mile** **HI WELLS** **HI1100000001535**
Lower

Well ID: 3-2356-006
 Well Owner: Naval Facilities Engineering Command Hawaii, Environmental, NAVFAC Hawaii
 Land Owner: Kamehameha Schools
 Year Drilled: Not Reported
 Driller: Curtis Wong (Naval Facilities Engineering Command Hawaii, Asset Management, NAVFAC Hawaii)
 Well Construction Type: Not Reported
 Casing Diameter (in): 6
 Well Depth (ft): 65
 Perforated Casing Depth: Not Reported
 Initial Water Level (ft): Not Reported
 Water Level After Install: Not Reported

Well Name: Pearl Harbor
 Pump Rate (gpm): Not Reported
 Original Well Name: Not Reported
 Construction Date: Not Reported
 Well Depth Units: Not Reported
 Well Hole Depth Units: Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Chloride Content (mg/L): 0
 Test Pump Rate (gpm): Not Reported
 Test Chloride Content (MGL): Not Reported
 Temp Unit: Not Reported
 Minimum Chloride Level: Not Reported
 Hole Bottom Elevation: -59
 Year Installed: Not Reported
 Pump Intake Depth: Not Reported
 Latest WCR1 Report: Not Reported
 Transmissivity: Not Reported

Date Tested: Not Reported
 Test Drawdown Rate (ft): Not Reported
 Test Water Temp: Not Reported
 Max Chloride Level: Not Reported
 Draft Year: Not Reported
 Solid Casing Bottom Elevation: Not Reported
 Pump Capacity (MM gal/day): Not Reported
 Latest Head: Not Reported
 Latest WCR2 Report: Not Reported
 Min to pump 5 volumes: Not Reported

E26 **NNE** **1/4 - 1/2 Mile** **FED USGS** **USGS40000270276**
Lower

Organization ID: USGS-HI
 Monitor Location: 3-2356-06 T124
 Description: Not Reported
 Drainage Area: Not Reported
 Contrib Drainage Area: Not Reported
 Aquifer: Not Reported
 Aquifer Type: Not Reported
 Well Depth: 65
 Well Hole Depth: Not Reported

Organization Name: USGS Hawaii Water Science Center
 Type: Well
 HUC: 20060000
 Drainage Area Units: Not Reported
 Contrib Drainage Area Units: Not Reported
 Formation Type: Not Reported
 Construction Date: 19421101
 Well Depth Units: ft
 Well Hole Depth Units: Not Reported

E27 **NNE** **1/4 - 1/2 Mile** **FED USGS** **USGS40000270375**
Higher

Organization ID: USGS-HI
 Monitor Location: 3-2356-53 T75 A1EA
 Description: Not Reported
 Drainage Area: Not Reported
 Contrib Drainage Area: Not Reported
 Aquifer: Not Reported
 Aquifer Type: Not Reported
 Well Depth: 250
 Well Hole Depth: Not Reported

Organization Name: USGS Hawaii Water Science Center
 Type: Well
 HUC: 20060000
 Drainage Area Units: Not Reported
 Contrib Drainage Area Units: Not Reported
 Formation Type: Not Reported
 Construction Date: 19690101
 Well Depth Units: ft
 Well Hole Depth Units: Not Reported

E28 **NNE** **1/4 - 1/2 Mile** **HI WELLS** **HI1100000001562**
Higher

Well ID: 3-2356-053
 Well Owner: Honolulu Board of Water Supply, BWS
 Land Owner: Not Reported
 Year Drilled: 1969
 Driller: Goodfellow Construction, Inc. Corpora
 Well Construction Type: Not Reported
 Casing Diameter (in): 6
 Well Depth (ft): 250
 Perforated Casing Depth: Not Reported
 Initial Water Level (ft): 17.3
 Water Level After Install: Not Reported

Well Name: Aiea T-75
 Pump Rate (gpm): 0
 Original Well Name: Not Reported
 Construction Date: Not Reported
 Well Depth Units: Not Reported
 Well Hole Depth Units: Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Chloride Content (mg/L): 97
 Test Pump Rate (gpm): Not Reported
 Test Chloride Content (MG/L): Not Reported
 Temp Unit: Not Reported
 Minimum Chloride Level: Not Reported
 Hole Bottom Elevation: -224
 Year Installed: Not Reported
 Pump Intake Depth: Not Reported
 Latest WCR1 Report: 1/11/1959
 Transmissivity: Not Reported

G30 NE 1/4 - 1/2 Mile Higher FED USGS USGS40000270358

USGS-HI 3-2356-065 KAONOHII II USGS Hawaii Water Science Center
 Organization ID: Not Reported
 Monitor Location: Well
 Description: HUC: 20060000
 Drainage Area: Not Reported
 Contrib Drainage Area: Not Reported
 Aquifer: Not Reported
 Aquifer Type: Not Reported
 Well Depth: 335
 Well Hole Depth: Not Reported

G30 NE 1/4 - 1/2 Mile Higher HI WELLS HI1100000011594

Well ID: 3-2356-065
 Well Owner: Honolulu Board of Water Supply, BMS
 Land Owner: Not Reported
 Year Drilled: 1975
 Driller: Water Resources International, Inc.
 Well Construction Type: Rotary
 Ground Elevation (ft): 112
 Solid Casing Depth: 195
 Major Well Use: Unused
 Water Level After Drilling: Not Reported
 Chloride Content (mg/L): 0
 Test Pump Rate (gpm): 1200
 Test Chloride Content (MG/L): Not Reported
 Temp Unit: Not Reported
 Minimum Chloride Level: Not Reported
 Hole Bottom Elevation: -223
 Year Installed: 1978
 Pump Intake Depth: Not Reported
 Latest WCR1 Report: 1/11/1975
 Transmissivity: Not Reported

Date Tested: Not Reported
 Test Drawdown Rate (ft): Not Reported
 Test Water Temp: Not Reported
 Max Chloride Level: Not Reported
 Draft Year: Not Reported
 Solid Casing Bottom Elevation: -49
 Pump Capacity (MM gal/day): Not Reported
 Latest Head: Not Reported
 Latest WCR2 Report: Not Reported
 Min to pump 5 volumes: Not Reported

E32 NW 1/4 - 1/2 Mile Higher FED USGS USGS40000270391

USGS-HI 3-2356-45 T25 USGS Hawaii Water Science Center
 Organization ID: Not Reported
 Monitor Location: Well
 Description: HUC: 20060000
 Drainage Area: Not Reported
 Contrib Drainage Area: Not Reported
 Aquifer: Not Reported
 Aquifer Type: Not Reported
 Well Depth: 177
 Well Hole Depth: Not Reported

E32 NW 1/4 - 1/2 Mile Higher FED USGS USGS40000270393

USGS-HI 3-2357-06 W197-1 WAI USGS Hawaii Water Science Center
 Organization ID: Not Reported
 Monitor Location: Well
 Description: HUC: 20060000
 Drainage Area: Not Reported
 Contrib Drainage Area: Not Reported
 Aquifer: Not Reported
 Aquifer Type: Not Reported
 Well Depth: 239
 Well Hole Depth: Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID: E31
 Direction: Not Reported
 Distance: Not Reported
 Elevation: Not Reported

Database: FED USGS USGS40000270392

USGS-HI 3-2356-45 T25 USGS Hawaii Water Science Center
 Organization ID: Not Reported
 Monitor Location: Well
 Description: HUC: 20060000
 Drainage Area: Not Reported
 Contrib Drainage Area: Not Reported
 Aquifer: Not Reported
 Aquifer Type: Not Reported
 Well Depth: 177
 Well Hole Depth: Not Reported

E32 NW 1/4 - 1/2 Mile Higher FED USGS USGS40000270393

USGS-HI 3-2357-06 W197-1 WAI USGS Hawaii Water Science Center
 Organization ID: Not Reported
 Monitor Location: Well
 Description: HUC: 20060000
 Drainage Area: Not Reported
 Contrib Drainage Area: Not Reported
 Aquifer: Not Reported
 Aquifer Type: Not Reported
 Well Depth: 239
 Well Hole Depth: Not Reported

Ground water levels Number of Measurements: 1
 Feet below surface: 30.49
 Note: Not Reported

H33 NW 1/4 - 1/2 Mile Higher FED USGS USGS40000270393

USGS-HI 3-2357-06 W197-1 WAI USGS Hawaii Water Science Center
 Organization ID: Not Reported
 Monitor Location: Well
 Description: HUC: 20060000
 Drainage Area: Not Reported
 Contrib Drainage Area: Not Reported
 Aquifer: Not Reported
 Aquifer Type: Not Reported
 Well Depth: 239
 Well Hole Depth: Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

H34
NW
1/4 - 1/2 Mile
Higher

Database

HI WELLS

HI1100000001618

EDR ID Number

Well ID: 3-2357-019
Well Owner: J. Inafuku
Pump Rate (gpm): Not Reported
Original Well Name: Not Reported
Well Construction Type: Not Reported
Ground Elevation (ft): 9
Solid Casing Depth: 96
Major Well Use: Abandoned-Sealed
Water Level After Drilling: Not Reported
Chloride Content (mg/L): 54
Test Pump Rate (gpm): Not Reported
Temp Unit: Not Reported
Minimum Chloride Level: Not Reported
Hole Bottom Elevation: -435
Year Installed: Not Reported
Pump Intake Depth: Not Reported
Latest WCR1 Report: 1/1/1950
Transmissivity: Not Reported

Well Name: Weiau
Land Owner: Not Reported
Year Drilled: 1950
Driller: W. Mullin
Casing Diameter (in): 6
Well Depth (ft): 444
Perforated Casing Depth: Not Reported
Initial Water Level (ft): 20
Water Level After Install: Not Reported
Test Drawdown Rate (ft): Not Reported
Test Water Temp: Not Reported
Max Chloride Level: Not Reported
Drift Year: Not Reported
Solid Casing Bottom Elevation: -37
Pump Capacity (MG gal/day): Not Reported
Latest Head: Not Reported
Latest WCR2 Report: Not Reported
Min to pump 5 volumes: Not Reported

E35
WNE
1/4 - 1/2 Mile
Higher

Well ID: 3-2356-045
Well Owner: Honolulu Board of Water Supply, BWS
Land Owner: City & County of Honolulu, C&CH
Pump Rate (gpm): Not Reported
Original Well Name: Not Reported
Well Construction Type: Not Reported
Ground Elevation (ft): 25
Solid Casing Depth: 42
Major Well Use: Abandoned-Sealed
Water Level After Drilling: Not Reported
Chloride Content (mg/L): 59
Test Pump Rate (gpm): Not Reported
Temp Unit: Not Reported
Minimum Chloride Level: Not Reported
Hole Bottom Elevation: -152
Year Installed: Not Reported
Pump Intake Depth: Not Reported
Latest WCR1 Report: 1/1/1945
Transmissivity: Not Reported

Well Name: Aiea
Year Drilled: 1945
Driller: W. Mullin
Casing Diameter (in): 12
Well Depth (ft): 177
Perforated Casing Depth: Not Reported
Initial Water Level (ft): 15.8
Water Level After Install: Not Reported
Date Tested: Not Reported
Test Drawdown Rate (ft): Not Reported
Test Water Temp: Not Reported
Max Chloride Level: Not Reported
Drift Year: Not Reported
Solid Casing Bottom Elevation: -17
Pump Capacity (MG gal/day): Not Reported
Latest Head: Not Reported
Latest WCR2 Report: Not Reported
Min to pump 5 volumes: Not Reported

HI WELLS

HI1100000001574

EDR ID Number

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

G36
ENE
1/4 - 1/2 Mile
Higher

Database

FRDS PWS

HI0000331

EDR ID Number

Epa region: 09
Pswid: HI0000331
Facname: HONOLULU-WINDWARD-PEARLHARBOR
City/served: Not Reported
Zip/served: W. Mullin
Status: Active
Pswid: 104070
Pswtype: CWS
Contact: KAWATA, ERWIN
Contactaddress: 808.748-5080
Contactaddress2: 630 S. Beretania St., Rm. 308
Pswactivitycode: HI

State: HI
Pswname: HNL-WINDWARD-PEARL HARBOR
State/served: HI
Fipscounty: 665735
Rtrpsrvd: Groundwater
Resource longname: Local Govt
Owner: KAWATA, ERWIN
Contactorgname: Honolulu Board of Water Supply
Contactaddress1: HONOLULU
Contactcity: 96843

Facid: 1185
Facname: Treatment_plant
Facactivitycode: organics removal
Facprocess: TP

Facid: 1194
Facname: Treatment_plant
Facactivitycode: organics removal
Facprocess: TP

Facid: 1195
Facname: Treatment_plant
Facactivitycode: organics removal
Facprocess: TP

Facid: 1196
Facname: Treatment_plant
Facactivitycode: organics removal
Facprocess: TP

Facid: 1197
Facname: Treatment_plant
Facactivitycode: organics removal
Facprocess: TP

Facid: 1198
Facname: Treatment_plant
Facactivitycode: organics removal
Facprocess: TP

Facid: 1199
Facname: Treatment_plant
Facactivitycode: organics removal
Facprocess: TP

Facid: 1200
Facname: Treatment_plant
Facactivitycode: organics removal
Facprocess: TP

Facid: 1201
Facname: Treatment_plant
Facactivitycode: organics removal
Facprocess: TP

Facid: HI0000331
Facname: PUNALUU II P4
Facactivitycode: gaseous chlorination, pre
Facprocess: TP

Facid: HI0000331
Facname: BERETANIA PUMPING STATION CHLORINATOR
Facactivitycode: organics removal
Facprocess: TP

Facid: HI0000331
Facname: BERETANIA TP 4
Facactivitycode: gaseous chlorination, pre
Facprocess: TP

Facid: HI0000331
Facname: BERETANIA TP 5
Facactivitycode: gaseous chlorination, pre
Facprocess: TP

Facid: HI0000331
Facname: BERETANIA TP 6
Facactivitycode: gaseous chlorination, pre
Facprocess: TP

Facid: HI0000331
Facname: BERETANIA TP 7
Facactivitycode: gaseous chlorination, pre
Facprocess: TP

Facid: HI0000331
Facname: BERETANIA TP 8
Facactivitycode: gaseous chlorination, pre
Facprocess: TP

Facid: HI0000331
Facname: BERETANIA TP 9
Facactivitycode: gaseous chlorination, pre
Facprocess: TP

Facid: HI0000331
Facname: BERETANIA TP 10
Facactivitycode: gaseous chlorination, pre
Facprocess: TP

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Faename: BERETANIA TP 2
 Faactivitycode: A
 Ttrprocess: gaseous chlorination, pre
 Facitype: Treatment_plant
 Ttrprocess: organics removal
 Facitypecode: TP
 Pvsid: HI0000331
 Faename: BERETANIA TP 3
 Faactivitycode: A
 Ttrprocess: gaseous chlorination, pre
 Facitype: Treatment_plant
 Ttrprocess: organics removal
 Facitypecode: TP
 Pvsid: HI0000331
 Faename: KAHALUU TUNNEL & WELL CHLORINATOR
 Faactivitycode: A
 Ttrprocess: gaseous chlorination, pre
 Facitype: Treatment_plant
 Ttrprocess: organics removal
 Facitypecode: TP
 Pvsid: HI0000331
 Faename: KAHALUU WELL
 Faactivitycode: A
 Ttrprocess: gaseous chlorination, pre
 Facitype: Treatment_plant
 Ttrprocess: organics removal
 Facitypecode: TP
 Pvsid: HI0000331
 Faename: KAHANA PUMP 2
 Faactivitycode: I
 Ttrprocess: gaseous chlorination, pre
 Facitype: Treatment_plant
 Ttrprocess: organics removal
 Facitypecode: TP
 Pvsid: HI0000331
 Faename: KALIHI AERATOR WELL
 Faactivitycode: I
 Ttrprocess: gaseous chlorination, pre
 Facitype: Treatment_plant
 Ttrprocess: organics removal
 Facitypecode: TP
 Pvsid: HI0000331
 Faename: KALIHI TP 2
 Faactivitycode: I
 Ttrprocess: gaseous chlorination, post
 Facitype: Treatment_plant
 Ttrprocess: disinfection
 Facitypecode: TP
 Pvsid: HI0000331
 Faename: KALIHI TP 4
 Faactivitycode: I
 Ttrprocess: gaseous chlorination, pre
 Facitype: Treatment_plant
 Ttrprocess: organics removal
 Facitypecode: TP
 Pvsid: HI0000331
 Faename: KALIHI TP 5
 Faactivitycode: I
 Ttrprocess: gaseous chlorination, pre
 Facitype: Treatment_plant
 Ttrprocess: organics removal
 Facitypecode: TP
 Pvsid: HI0000331
 Faename: LULUKU
 Faactivitycode: A
 Ttrprocess: gaseous chlorination, pre
 Facitype: Treatment_plant
 Ttrprocess: organics removal
 Facitypecode: TP
 Pvsid: HI0000331
 Faename: LULUKU TUNNEL AND WELL CHLORINATOR
 Faactivitycode: A
 Ttrprocess: gaseous chlorination, pre
 Facitype: Treatment_plant
 Ttrprocess: organics removal
 Facitypecode: TP
 Pvsid: HI0000331
 Faename: MAKIKI SPRING A
 Faactivitycode: I
 Ttrprocess: gaseous chlorination, pre
 Facitype: Treatment_plant
 Ttrprocess: organics removal
 Facitypecode: TP
 Pvsid: HI0000331
 Faename: MAKIKI SPRING B
 Faactivitycode: I
 Ttrprocess: gaseous chlorination, pre
 Facitype: Treatment_plant
 Ttrprocess: organics removal
 Facitypecode: TP

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Ttrprocess: gaseous chlorination, pre
 Facitypecode: TP
 Pvsid: HI0000331
 Faename: NIUANU AERATOR UPPER A
 Faactivitycode: I
 Ttrprocess: gaseous chlorination, pre
 Facitype: Treatment_plant
 Ttrprocess: organics removal
 Facitypecode: TP
 Pvsid: HI0000331
 Faename: NIUANU AERATOR LOWER B
 Faactivitycode: I
 Ttrprocess: gaseous chlorination, pre
 Facitype: Treatment_plant
 Ttrprocess: organics removal
 Facitypecode: TP
 Pvsid: HI0000331
 Faename: NIUANU AERATOR UPPER B
 Faactivitycode: I
 Ttrprocess: gaseous chlorination, pre
 Facitype: Treatment_plant
 Ttrprocess: organics removal
 Facitypecode: TP
 Pvsid: HI0000331
 Faename: NIUANU AERATOR LOWER A
 Faactivitycode: I
 Ttrprocess: gaseous chlorination, pre
 Facitype: Treatment_plant
 Ttrprocess: organics removal
 Facitypecode: TP
 Pvsid: HI0000331
 Faename: PEARL CITY SHAFT CHLORINATOR
 Faactivitycode: A
 Ttrprocess: gaseous chlorination, pre
 Facitype: Treatment_plant
 Ttrprocess: organics removal
 Facitypecode: TP
 Pvsid: HI0000331
 Faename: PEARL CITY I PUMP 1
 Faactivitycode: A
 Ttrprocess: gaseous chlorination, pre
 Facitype: Treatment_plant
 Ttrprocess: organics removal
 Facitypecode: TP
 Pvsid: HI0000331
 Faename: WAIMANALO TUNNEL III
 Faactivitycode: I
 Ttrprocess: gaseous chlorination, pre
 Facitype: Treatment_plant
 Ttrprocess: organics removal
 Facitypecode: TP
 Pvsid: HI0000331
 Faename: WAIMANALO TUNNEL II
 Faactivitycode: I
 Ttrprocess: gaseous chlorination, pre
 Facitype: Treatment_plant
 Ttrprocess: organics removal
 Facitypecode: TP
 Pvsid: HI0000331
 Faename: WAIMANALO TUNNEL H/V CHLORINATOR
 Faactivitycode: A
 Ttrprocess: gaseous chlorination, pre
 Facitype: Treatment_plant
 Ttrprocess: organics removal
 Facitypecode: TP
 Pvsid: HI0000331
 Faename: WAIMANALO TUNNEL IV
 Faactivitycode: I
 Ttrprocess: gaseous chlorination, pre
 Facitype: Treatment_plant
 Ttrprocess: organics removal
 Facitypecode: TP
 Pvsid: HI0000331
 Faename: AIEA WELLS PUMP 1 & 2 (260) CHLORINATOR
 Faactivitycode: I
 Ttrprocess: Treatment_plant
 Ttrprocess: disinfection
 Facitypecode: TP
 Pvsid: HI0000331
 Faename: HALAWA WELLS CHLORINATOR
 Faactivitycode: A
 Ttrprocess: chlorination (frs-1-5)
 Facitype: Treatment_plant
 Ttrprocess: disinfection
 Facitypecode: TP

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pwsid: Facname: Facactivitycode: Ttrprocess:	HI0000331 HAUJUA WELL CHLORINATOR A chlorination (frds-1.5)	Facid: Facype: Triobjective: Facypecode:	1584 Treatment_plant disinfection TP
Pwsid: Facname: Facactivitycode: Ttrprocess:	HI0000331 HECO WAIJU WELLS CHLORINATOR A chlorination (frds-1.5)	Facid: Facype: Triobjective: Facypecode:	1585 Treatment_plant disinfection TP
Pwsid: Facname: Facactivitycode: Ttrprocess:	HI0000331 KAAHUMANU WELLS CHLORINATOR A chlorination (frds-1.5)	Facid: Facype: Triobjective: Facypecode:	1587 Treatment_plant disinfection TP
Pwsid: Facname: Facactivitycode: Ttrprocess:	HI0000331 KAAMLO WELLS CHLORINATOR I chlorination (frds-1.5)	Facid: Facype: Triobjective: Facypecode:	1588 Treatment_plant disinfection TP
Pwsid: Facname: Facactivitycode: Ttrprocess:	HI0000331 KAPALAMA WELLS CHLORINATOR A chlorination (frds-1.5)	Facid: Facype: Triobjective: Facypecode:	1591 Treatment_plant disinfection TP
Pwsid: Facname: Facactivitycode: Ttrprocess:	HI0000331 KULIOUJU WELL CHLORINATOR I chlorination (frds-1.5)	Facid: Facype: Triobjective: Facypecode:	1592 Treatment_plant disinfection TP
Pwsid: Facname: Facactivitycode: Ttrprocess:	HI0000331 KUUU WELLS I CHLORINATOR I chlorination (frds-1.5)	Facid: Facype: Triobjective: Facypecode:	1593 Treatment_plant disinfection TP
Pwsid: Facname: Facactivitycode: Ttrprocess:	HI0000331 KUUU WELLS II CHLORINATOR A chlorination (frds-1.5)	Facid: Facype: Triobjective: Facypecode:	1594 Treatment_plant disinfection TP
Pwsid: Facname: Facactivitycode: Ttrprocess:	HI0000331 MAAKUA WELL CHLORINATOR A chlorination (frds-1.5)	Facid: Facype: Triobjective: Facypecode:	1596 Treatment_plant disinfection TP
Pwsid: Facname: Facactivitycode: Ttrprocess:	HI0000331 KAIMUKI PUMPING STATION CHLORINATOR A chlorination (frds-1.5)	Facid: Facype: Triobjective: Facypecode:	1597 Treatment_plant disinfection TP
Pwsid: Facname: Facactivitycode: Ttrprocess:	HI0000331 HALAWA SHAFT CHLORINATOR A chlorination (frds-1.5)	Facid: Facype: Triobjective: Facypecode:	1598 Treatment_plant disinfection TP
Pwsid: Facname: Facactivitycode: Ttrprocess:	HI0000331 AINA KOA WELLS 1 CHLORINATOR A chlorination (frds-1.5)	Facid: Facype: Triobjective: Facypecode:	1599 Treatment_plant disinfection TP
Pwsid: Facname: Facactivitycode:	HI0000331 MANOA WELLS II CHLORINATOR	Facid: Facype:	1604 Treatment_plant

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Facactivitycode: Ttrprocess:	A chlorination (frds-1.5)	Triobjective: Facypecode:	disinfection TP
Pwsid: Facname: Facactivitycode: Ttrprocess:	HI0000331 MANANA WELL CHLORINATOR A chlorination (frds-1.5)	Facid: Facype: Triobjective: Facypecode:	1605 Treatment_plant disinfection TP
Pwsid: Facname: Facactivitycode: Ttrprocess:	HI0000331 MOANALUA WELLS CHLORINATOR A chlorination (frds-1.5)	Facid: Facype: Triobjective: Facypecode:	1606 Treatment_plant disinfection TP
Pwsid: Facname: Facactivitycode: Ttrprocess:	HI0000331 NEWTOWN WELLS CHLORINATOR A chlorination (frds-1.5)	Facid: Facype: Triobjective: Facypecode:	1607 Treatment_plant disinfection TP
Pwsid: Facname: Facactivitycode: Ttrprocess:	HI0000331 PEARL CITY WELLS I CHLORINATOR A chlorination (frds-1.5)	Facid: Facype: Triobjective: Facypecode:	1610 Treatment_plant disinfection TP
Pwsid: Facname: Facactivitycode: Ttrprocess:	HI0000331 PEARL CITY WELLS II CHLORINATOR A chlorination (frds-1.5)	Facid: Facype: Triobjective: Facypecode:	1611 Treatment_plant disinfection TP
Pwsid: Facname: Facactivitycode: Ttrprocess:	HI0000331 PUNALUU WELLS I CHLORINATOR I chlorination (frds-1.5)	Facid: Facype: Triobjective: Facypecode:	1612 Treatment_plant disinfection TP
Pwsid: Facname: Facactivitycode: Ttrprocess:	HI0000331 PUNALUU WELLS II CHLORINATOR A chlorination (frds-1.5)	Facid: Facype: Triobjective: Facypecode:	1613 Treatment_plant disinfection TP
Pwsid: Facname: Facactivitycode: Ttrprocess:	HI0000331 WAIJU WELLS CHLORINATOR A chlorination (frds-1.5)	Facid: Facype: Triobjective: Facypecode:	1614 Treatment_plant disinfection TP
Pwsid: Facname: Facactivitycode: Ttrprocess:	HI0000331 WAIHEE TUNN + INCLINED WELLS CHLORINATOR Treatment_plant disinfection TP	Facid: Facype: Triobjective: Facactivitycode: Ttrprocess:	1615 A chlorination (frds-1.5)
Pwsid: Facname: Facactivitycode: Ttrprocess:	HI0000331 WALLIPE WELL CHLORINATOR I chlorination (frds-1.5)	Facid: Facype: Triobjective: Facypecode:	1616 Treatment_plant disinfection TP
Pwsid: Facname: Facactivitycode: Ttrprocess:	HI0000331 WAIMANALO WELLS II CHLORINATOR A chlorination (frds-1.5)	Facid: Facype: Triobjective: Facypecode:	1617 Treatment_plant disinfection TP
Pwsid: Facname: Facactivitycode:	HI0000331 KUUU WELLS III CHLORINATOR A	Facid: Facype: Triobjective:	1630 Treatment_plant disinfection

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Triprocess:	chlorination (frds-1.5)	Factypecode:	TP
Pwsid:	HI0000331	Facid:	1631
Faename:	KALAJAO WELLS CHLORINATOR	Factype:	Treatment_plant
Faactivitycode:	A	Triobjective:	disinfection
Triprocess:	chlorination (frds-1.5)	Factypecode:	TP
Pwsid:	HI0000331	Facid:	214
Faename:	PUNANANI PUMP 1	Factype:	Treatment_plant
Faactivitycode:	I	Triobjective:	organics removal
Triprocess:	gaseous chlorination, pre	Factypecode:	TP
Pwsid:	HI0000331	Facid:	215
Faename:	PUNANANI PUMP 2	Factype:	Treatment_plant
Faactivitycode:	I	Triobjective:	organics removal
Triprocess:	gaseous chlorination, pre	Factypecode:	TP
Pwsid:	HI0000331	Facid:	216
Faename:	PUNANANI PUMP 4	Factype:	Treatment_plant
Faactivitycode:	I	Triobjective:	organics removal
Triprocess:	gaseous chlorination, pre	Factypecode:	TP
Pwsid:	HI0000331	Facid:	217
Faename:	PUNANANI PUMP 3	Factype:	Treatment_plant
Faactivitycode:	I	Triobjective:	organics removal
Triprocess:	gaseous chlorination, pre	Factypecode:	TP
Pwsid:	HI0000331	Facid:	218
Faename:	PUNANANI PUMP 5	Factype:	Treatment_plant
Faactivitycode:	I	Triobjective:	organics removal
Triprocess:	gaseous chlorination, pre	Factypecode:	TP
Pwsid:	HI0000331	Facid:	221
Faename:	PEARL CITY I P2	Factype:	Treatment_plant
Faactivitycode:	A	Triobjective:	organics removal
Triprocess:	gaseous chlorination, pre	Factypecode:	TP
Pwsid:	HI0000331	Facid:	222
Faename:	IOLEKAA WELL CHLORINATOR	Factype:	Treatment_plant
Faactivitycode:	A	Triobjective:	organics removal
Triprocess:	gaseous chlorination, pre	Factypecode:	TP
Pwsid:	HI0000331	Facid:	223
Faename:	PEARL CITY WELLS III CHLORINATOR	Factype:	Treatment_plant
Faactivitycode:	A	Triobjective:	organics removal
Triprocess:	gaseous chlorination, pre	Factypecode:	TP
Pwsid:	HI0000331	Facid:	225
Faename:	WAHEE TUNNEL	Factype:	Treatment_plant
Faactivitycode:	I	Triobjective:	organics removal
Triprocess:	gaseous chlorination, pre	Factypecode:	TP
Pwsid:	HI0000331	Facid:	227
Faename:	WAHEE INCLINED 1	Factype:	Treatment_plant
Faactivitycode:	I	Triobjective:	organics removal
Triprocess:	gaseous chlorination, pre	Factypecode:	TP
Pwsid:	HI0000331	Facid:	228
Faename:	WAHEE INCLINED 2	Factype:	Treatment_plant
Faactivitycode:	I	Triobjective:	organics removal
Triprocess:	gaseous chlorination, pre	Factypecode:	TP

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pwsid:	HI0000331	Facid:	229
Faename:	WAHEE INCLINED 3	Factype:	Treatment_plant
Faactivitycode:	I	Triobjective:	organics removal
Triprocess:	gaseous chlorination, pre	Factypecode:	TP
Pwsid:	HI0000331	Facid:	230
Faename:	WAHEE INCLINED 4	Factype:	Treatment_plant
Faactivitycode:	I	Triobjective:	organics removal
Triprocess:	gaseous chlorination, pre	Factypecode:	TP
Pwsid:	HI0000331	Facid:	231
Faename:	WAHEE PUMP 1	Factype:	Treatment_plant
Faactivitycode:	I	Triobjective:	disinfection
Triprocess:	gaseous chlorination, post	Factypecode:	TP
Pwsid:	HI0000331	Facid:	232
Faename:	WAHEE PUMP 2	Factype:	Treatment_plant
Faactivitycode:	I	Triobjective:	disinfection
Triprocess:	gaseous chlorination, post	Factypecode:	TP
Pwsid:	HI0000331	Facid:	233
Faename:	KAHANA PUMP 1	Factype:	Treatment_plant
Faactivitycode:	I	Triobjective:	organics removal
Triprocess:	gaseous chlorination, pre	Factypecode:	TP
Pwsid:	HI0000331	Facid:	235
Faename:	PUNALUU WELLS III CHLORINATOR	Factype:	Treatment_plant
Faactivitycode:	A	Triobjective:	organics removal
Triprocess:	gaseous chlorination, pre	Factypecode:	TP
Pwsid:	HI0000331	Facid:	236
Faename:	PUNALUU III P2	Factype:	Treatment_plant
Faactivitycode:	I	Triobjective:	organics removal
Triprocess:	gaseous chlorination, pre	Factypecode:	TP
Pwsid:	HI0000331	Facid:	237
Faename:	PUNALUU II P6	Factype:	Treatment_plant
Faactivitycode:	I	Triobjective:	organics removal
Triprocess:	gaseous chlorination, pre	Factypecode:	TP
Pwsid:	HI0000331	Facid:	238
Faename:	PUNALUU II P3	Factype:	Treatment_plant
Faactivitycode:	I	Triobjective:	organics removal
Triprocess:	gaseous chlorination, pre	Factypecode:	TP
Pwsid:	HI0000331	Facid:	239
Faename:	PUNALUU II P2	Factype:	Treatment_plant
Faactivitycode:	I	Triobjective:	organics removal
Triprocess:	gaseous chlorination, pre	Factypecode:	TP
Pwsid:	HI0000331	Facid:	240
Faename:	PUNALUU II P1	Factype:	Treatment_plant
Faactivitycode:	I	Triobjective:	organics removal
Triprocess:	gaseous chlorination, pre	Factypecode:	TP
Pwsid:	HI0000331	Facid:	241
Faename:	PUNALUU II P5	Factype:	Treatment_plant
Faactivitycode:	I	Triobjective:	organics removal
Triprocess:	gaseous chlorination, pre	Factypecode:	TP
Pwsid:	HI0000331	Facid:	242
Faename:	PALOLO WELL CHLORINATOR	Factype:	Treatment_plant

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Facilitycode: Ttprocess:	A gaseous chlorination, pre	Ttobjective: Facilitycode:	organics removal TP
Pwvid: Facname: Facilitycode: Ttprocess:	HI0000331 WILDER 3 I gaseous chlorination, pre	Facid: Facitype: Ttobjective: Facilitycode:	243 Treatment_plant organics removal TP
Pwvid: Facname: Facilitycode: Ttprocess:	HI0000331 WILDER 1 I gaseous chlorination, pre	Facid: Facitype: Ttobjective: Facilitycode:	244 Treatment_plant organics removal TP
Pwvid: Facname: Facilitycode: Ttprocess:	HI0000331 WILDER WELLS CHLORINATOR A gaseous chlorination, pre	Facid: Facitype: Ttobjective: Facilitycode:	245 Treatment_plant organics removal TP
Pwvid: Facname: Facilitycode: Ttprocess:	HI0000331 WILDER 2 I gaseous chlorination, pre	Facid: Facitype: Ttobjective: Facilitycode:	246 Treatment_plant organics removal TP
Pwvid: Facname: Facilitycode: Ttprocess:	HI0000331 KALIH SHAFI CHLORINATOR A gaseous chlorination, pre	Facid: Facitype: Ttobjective: Facilitycode:	247 Treatment_plant organics removal TP
Pwvid: Facname: Facilitycode: Ttprocess:	HI0000331 PALOLO TUNNEL CHLORINATOR A gaseous chlorination, pre	Facid: Facitype: Ttobjective: Facilitycode:	248 Treatment_plant organics removal TP
Pwvid: Facname: Facilitycode: Ttprocess:	HI0000331 MANOA TUNNEL III CHLORINATOR A gaseous chlorination, pre	Facid: Facitype: Ttobjective: Facilitycode:	249 Treatment_plant organics removal TP
Pwvid: Facname: Facilitycode: Ttprocess:	HI0000331 KALIH STATION TP I gaseous chlorination, pre	Facid: Facitype: Ttobjective: Facilitycode:	253 Treatment_plant organics removal TP
Pwvid: Facname: Facilitycode: Ttprocess:	HI0000331 KALIH TP 3 I gaseous chlorination, pre	Facid: Facitype: Ttobjective: Facilitycode:	254 Treatment_plant organics removal TP
Pwvid: Facname: Facilitycode: Ttprocess:	HI0000331 KALIH TP 7 I gaseous chlorination, pre	Facid: Facitype: Ttobjective: Facilitycode:	256 Treatment_plant organics removal TP
Pwvid: Facname: Facilitycode: Ttprocess:	HI0000331 KALIH PUMPING STATION CHLORINATOR A gaseous chlorination, pre	Facid: Facitype: Ttobjective: Facilitycode:	257 Treatment_plant organics removal TP
Pwvid: Facname: Facilitycode: Ttprocess:	HI0000331 HALAWA WELL 2 A gaseous chlorination, pre	Facid: Facitype: Ttobjective: Facilitycode:	270 Treatment_plant organics removal TP

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pwvid: Facname: Facilitycode: Ttprocess:	HI0000331 HALAWA WELL 3 A gaseous chlorination, pre	Facid: Facitype: Ttobjective: Facilitycode:	271 Treatment_plant organics removal TP
Pwvid: Facname: Facilitycode: Ttprocess:	HI0000331 HALAWA WELL 1 A gaseous chlorination, pre	Facid: Facitype: Ttobjective: Facilitycode:	272 Treatment_plant organics removal TP
Pwvid: Facname: Facilitycode: Ttprocess:	HI0000331 AIEA GULCH WELLS PUMP 1 CHLORINATOR A gaseous chlorination, pre	Facid: Facitype: Ttobjective: Facilitycode:	275 Treatment_plant organics removal TP
Pwvid: Facname: Facilitycode: Ttprocess:	HI0000331 AIEA GULCH WELLS PUMP2 CHLORINATOR A gaseous chlorination, pre	Facid: Facitype: Ttobjective: Facilitycode:	276 Treatment_plant organics removal TP
Pwvid: Facname: Facilitycode: Ttprocess:	HI0000331 AIEA PUMP 1 A gaseous chlorination, pre	Facid: Facitype: Ttobjective: Facilitycode:	277 Treatment_plant organics removal TP
Pwvid: Facname: Facilitycode: Ttprocess:	HI0000331 AIEA PUMP 2 A gaseous chlorination, pre	Facid: Facitype: Ttobjective: Facilitycode:	278 Treatment_plant organics removal TP
Pwvid: Facname: Facilitycode: Ttprocess:	HI0000331 KALAUAO PUMP 1 I gaseous chlorination, pre	Facid: Facitype: Ttobjective: Facilitycode:	279 Treatment_plant organics removal TP
Pwvid: Facname: Facilitycode: Ttprocess:	HI0000331 KALAUAO PUMP 2 I gaseous chlorination, pre	Facid: Facitype: Ttobjective: Facilitycode:	280 Treatment_plant organics removal TP
Pwvid: Facname: Facilitycode: Ttprocess:	HI0000331 KALAUAO PUMP 3 I gaseous chlorination, pre	Facid: Facitype: Ttobjective: Facilitycode:	281 Treatment_plant organics removal TP
Pwvid: Facname: Facilitycode: Ttprocess:	HI0000331 KALAUAO PUMP 4 I gaseous chlorination, pre	Facid: Facitype: Ttobjective: Facilitycode:	282 Treatment_plant organics removal TP
Pwvid: Facname: Facilitycode: Ttprocess:	HI0000331 KALAUAO PUMP 5 I gaseous chlorination, pre	Facid: Facitype: Ttobjective: Facilitycode:	284 Treatment_plant organics removal TP
Pwvid: Facname: Facilitycode: Ttprocess:	HI0000331 KALAUAO PUMP 6 I gaseous chlorination, pre	Facid: Facitype: Ttobjective: Facilitycode:	285 Treatment_plant organics removal TP
Pwvid: Facname:	HI0000331 KAONOHI WELLS1 CHLORINATOR	Facid: Facitype:	286 Treatment_plant

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Faactivitycode: Ttprocess:	I gaseous chlorination, pre	Triobjective: Faactivitycode:	organics removal TP
Pwsid: Faename: Faactivitycode: Ttprocess:	H10000331 KAONOHI PUMP 1 A gaseous chlorination, pre	Faaid: Triobjective: Faactivitycode:	287 Treatment_plant organics removal TP
Pwsid: Faename: Faactivitycode: Ttprocess:	H10000331 KAONOHI II P2 I gaseous chlorination, pre	Faaid: Triobjective: Faactivitycode:	288 Treatment_plant organics removal TP
Pwsid: Faename: Faactivitycode: Ttprocess:	H10000331 KAONOHI II P3 A gaseous chlorination, pre	Faaid: Triobjective: Faactivitycode:	289 Treatment_plant organics removal TP
Pwsid: Faename: Faactivitycode: Ttprocess:	H10000331 KAONOHI II P1 A gaseous chlorination, pre	Faaid: Triobjective: Faactivitycode:	290 Treatment_plant organics removal TP
Pwsid: Faename: Triobjective: Faactivitycode: Ttprocess:	H10000331 HAIKU TUNNEL AND WELL CHLORINATOR Treatment_plant organics removal TP	Faaid: Faactivitycode: Triobjective: Ttprocess:	291 gaseous chlorination, pre
Pwsid: Faename: Faactivitycode: Ttprocess:	H10000331 HAIKU WELL A gaseous chlorination, pre	Faaid: Triobjective: Faactivitycode:	292 Treatment_plant organics removal TP
Pwsid: Faename: Faactivitycode: Ttprocess:	H10000331 NEWTOWN PUMP 1 I gaseous chlorination, pre	Faaid: Triobjective: Faactivitycode:	293 Treatment_plant organics removal TP
Pwsid: Faename: Faactivitycode: Ttprocess:	H10000331 NEWTOWN PUMP 2 I gaseous chlorination, pre	Faaid: Triobjective: Faactivitycode:	294 Treatment_plant organics removal TP
Pwsid: Faename: Faactivitycode: Ttprocess:	H10000331 NEWTOWN PUMP 3 I gaseous chlorination, pre	Faaid: Triobjective: Faactivitycode:	295 Treatment_plant organics removal TP
Pwsid: Faename: Faactivitycode: Ttprocess:	H10000331 PEARL CITY II P1 A gaseous chlorination, pre	Faaid: Triobjective: Faactivitycode:	296 Treatment_plant organics removal TP
Pwsid: Faename: Faactivitycode: Ttprocess:	H10000331 PEARL CITY II P2 A gaseous chlorination, pre	Faaid: Triobjective: Faactivitycode:	297 Treatment_plant organics removal TP
Pwsid: Faename: Faactivitycode:	H10000331 PEARL CITY II P3 A	Faaid: Triobjective:	298 Treatment_plant organics removal

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Ttprocess:	gaseous chlorination, pre	Faactivitycode:	TP
Pwsid: Faename: Faactivitycode: Ttprocess:	H10000331 PUNANANI WELLS CHLORINATOR Treatment_plant organics removal TP	Faaid: Triobjective: Faactivitycode: Ttprocess:	299 A gaseous chlorination, pre
Pwsid: Faename: Faactivitycode: Ttprocess:	H10000331 KALHI STATION 6 1952-19 A gaseous chlorination, post TP	Faaid: Triobjective: Faactivitycode: Ttprocess:	40T Treatment_plant disinfection
Pwsid: Faename: Faactivitycode: Ttprocess:	H10000331 MANOA II A gaseous chlorination, pre	Faaid: Triobjective: Faactivitycode: Ttprocess:	894 Treatment_plant organics removal TP
Pws ID: Address: City: Zip: Source code:	H10000331 630 SOUTH BERETANIA HONOLULU, OAHU 96843 Ground water	PWS name: Care of: State: Owner: Population:	HONOLULU-WINDWARD-PEARL HARBOR 630 S BERETANIA STREET HI HONOLULU-WINDWARD-PEARL HARBOR 645741
PWS ID: PWS name: PWS address: PWS city: PWS zip: Source: Process: Population:	H10000331 MR. KAZU HAYASHIDA 630 SOUTH BERETANIA STREET HONOLULU 96843 Ground water GASEOUS CHLORINATION, POST 645741	PWS type: PWS address: PWS state: County: Treatment Objective:	System Owner/Responsible Party BOARD OF WATER SUPPLY HI HONOLULU DISINFECTION
County: Treatment Objective: Population:	HONOLULU DISINFECTION 645741	Source: Process:	Ground water CHLORINATION (FRDS-1.5)
PWS ID: Date system activated: Retail population: System address: System city: System zip:	H10000331 7706 00645741 630 S BERETANIA STREET HONOLULU, OAHU 96843	Activity status: Date system deactivated: System name: System address: System state:	Active Not Reported HONOLULU-WINDWARD-PEARL HARBOR 630 SOUTH BERETANIA HI
County FIPS: County FIPS: County FIPS: County FIPS: County FIPS: County FIPS:	003 003 003 003 Not Reported 003	City served: City served: City served: City served: City served: City served:	AIEA PEARL CITY KANEHOE KAILUA HONO-WINDW-PEAR
Population served:	over 100,000 Persons	Treatment:	Mixed (treated and untreated)
Latitude: Longitude:	211813 211813	Latitude: Longitude:	1574947 1574947

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Latitude:	211831	Longitude:	1575120
Latitude:	211831	Longitude:	1575120
Latitude:	211831	Longitude:	1575143
Latitude:	211831	Longitude:	1575120
Latitude:	211831	Longitude:	1575120
Latitude:	211831	Longitude:	1575120
Latitude:	211831	Longitude:	1575123
Latitude:	211868	Longitude:	1574368
Latitude:	211936	Longitude:	1574627
Latitude:	211959	Longitude:	1574733
Latitude:	211959	Longitude:	1574818
Latitude:	211953	Longitude:	1575227
Latitude:	211953	Longitude:	1575227
Latitude:	211953	Longitude:	1575227
Latitude:	211953	Longitude:	1575227
Latitude:	211953	Longitude:	1575227
Latitude:	211953	Longitude:	1575227
Latitude:	212007	Longitude:	1574444
Latitude:	212012	Longitude:	1574455
Latitude:	212014	Longitude:	1574501
Latitude:	212011	Longitude:	1574512
Latitude:	212002	Longitude:	1575208
Latitude:	212152	Longitude:	1574811
Latitude:	212117	Longitude:	1574840
Latitude:	212116	Longitude:	1574914
Latitude:	212127	Longitude:	1574905
Latitude:	212120	Longitude:	1575355
Latitude:	212120	Longitude:	1575354

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Latitude:	212119	Longitude:	1575354
Latitude:	212235	Longitude:	1574955
Latitude:	212228	Longitude:	1574949
Latitude:	212256	Longitude:	1574935
Latitude:	212258	Longitude:	1574935
Latitude:	212214	Longitude:	1575011
Latitude:	212257	Longitude:	1575514
Latitude:	212257	Longitude:	1575514
Latitude:	212257	Longitude:	1575514
Latitude:	212322	Longitude:	1574852
Latitude:	212305	Longitude:	1574831
Latitude:	213441	Longitude:	1574917
Latitude:	212342	Longitude:	1574909
Latitude:	212305	Longitude:	1575426
Latitude:	212322	Longitude:	1575503
Latitude:	212322	Longitude:	1575503
Latitude:	212313	Longitude:	1575535
Latitude:	212313	Longitude:	1275535
Latitude:	212338	Longitude:	1575555
Latitude:	212339	Longitude:	1575555
Latitude:	212339	Longitude:	1575554
Latitude:	212339	Longitude:	1575553
Latitude:	212338	Longitude:	1575554
Latitude:	212337	Longitude:	1575553
Latitude:	212342	Longitude:	1575647
Latitude:	212348	Longitude:	1575622
Latitude:	212349	Longitude:	1575622
Latitude:	212320	Longitude:	1575603
Latitude:	212320	Longitude:	1575603
Latitude:	212327	Longitude:	1575643
Latitude:	212327	Longitude:	1575647

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Latitude:	212338	Longitude:	1575649
Latitude:	212337	Longitude:	1575725
Latitude:	212337	Longitude:	1575727
Latitude:	212437	Longitude:	1575008
Latitude:	212435	Longitude:	1575002
Latitude:	212412	Longitude:	1575647
Latitude:	212411	Longitude:	1575646
Latitude:	212410	Longitude:	1575645
Latitude:	212439	Longitude:	1575759
Latitude:	212439	Longitude:	1575759
Latitude:	212439	Longitude:	1575759
Latitude:	212414	Longitude:	1575706
Latitude:	212414	Longitude:	1575706
Latitude:	212414	Longitude:	1575706
Latitude:	212414	Longitude:	1575706
Latitude:	212414	Longitude:	1575706
Latitude:	212414	Longitude:	1575706
Latitude:	212414	Longitude:	1575706
Latitude:	212414	Longitude:	1575706
Latitude:	212414	Longitude:	1575706
Latitude:	212413	Longitude:	1585724
Latitude:	212412	Longitude:	1585723
Latitude:	212407	Longitude:	1575825
Latitude:	212413	Longitude:	1575812
Latitude:	212413	Longitude:	1575812
Latitude:	212507	Longitude:	1574941
Latitude:	212553	Longitude:	1575731
Latitude:	212616	Longitude:	1575132
Latitude:	212658	Longitude:	1575140
Latitude:	212616	Longitude:	1575123
Latitude:	213639	Longitude:	1575212
Latitude:	212639	Longitude:	1575212
Latitude:	212639	Longitude:	1575212

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Latitude:	212639	Longitude:	1575212
Latitude:	212703	Longitude:	1575138
Latitude:	212702	Longitude:	1575141
Latitude:	213314	Longitude:	1575308
Latitude:	213315	Longitude:	1575311
Latitude:	213439	Longitude:	1575347
Latitude:	213441	Longitude:	1575344
Latitude:	213527	Longitude:	1575359
Latitude:	213522	Longitude:	1575353
Latitude:	213517	Longitude:	1575349
Latitude:	213517	Longitude:	1575346
Latitude:	213527	Longitude:	1575359
Latitude:	211753	Longitude:	1574519
Latitude:	213450	Longitude:	1575312
Latitude:	212052	Longitude:	1575236
Latitude:	211713	Longitude:	1574653
Latitude:	211707	Longitude:	1574617
Latitude:	211719	Longitude:	1574736
Latitude:	211727	Longitude:	1574858
Latitude:	211727	Longitude:	1574858
Latitude:	211217	Longitude:	1574858
Latitude:	211727	Longitude:	1574858
Latitude:	211727	Longitude:	1574858
Latitude:	211727	Longitude:	1574858
Latitude:	211727	Longitude:	1574858
Latitude:	211727	Longitude:	1574858
Latitude:	211837	Longitude:	1574729
Latitude:	211613	Longitude:	1574947
Latitude:	211813	Longitude:	1574947
State:	HI	Latitude degrees:	21
Latitude minutes:	12	Latitude seconds:	17.0000
Longitude degrees:	157	Longitude minutes:	46
Longitude seconds:	58.0000		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 16 157 47,000	Latitude degrees: Latitude seconds: Longitude minutes:	21 13,000 49
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 17 157 17,000	Latitude degrees: Latitude seconds: Longitude minutes:	21 7,000 46
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 17 157 53,000	Latitude degrees: Latitude seconds: Longitude minutes:	21 13,000 46
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 17 157 36,000	Latitude degrees: Latitude seconds: Longitude minutes:	21 19,000 47
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 17 157 58,000	Latitude degrees: Latitude seconds: Longitude minutes:	21 27,000 48
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 17 157 19,000	Latitude degrees: Latitude seconds: Longitude minutes:	21 53,000 45
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 18 157 47,000	Latitude degrees: Latitude seconds: Longitude minutes:	21 13,000 49
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 18 157 20,000	Latitude degrees: Latitude seconds: Longitude minutes:	21 31,000 51
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 18 157 43,000	Latitude degrees: Latitude seconds: Longitude minutes:	21 31,000 51
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 18 157 23,000	Latitude degrees: Latitude seconds: Longitude minutes:	21 33,000 51
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 18 157 29,000	Latitude degrees: Latitude seconds: Longitude minutes:	21 37,000 47
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 19 157 27,000	Latitude degrees: Latitude seconds: Longitude minutes:	21 56,000 46
State: Latitude minutes:	HI 19	Latitude degrees: Latitude seconds:	21 53,000

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Longitude degrees: Longitude seconds:	157 27,000	Longitude minutes:	52
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 19 157 58,000	Latitude degrees: Latitude seconds: Longitude minutes:	21 58,000 43
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 19 157 33,000	Latitude degrees: Latitude seconds: Longitude minutes:	21 59,000 47
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 19 157 18,000	Latitude degrees: Latitude seconds: Longitude minutes:	21 59,000 46
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 20 157 8,000	Latitude degrees: Latitude seconds: Longitude minutes:	21 2,000 52
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 20 157 44,000	Latitude degrees: Latitude seconds: Longitude minutes:	21 7,000 44
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 20 157 12,000	Latitude degrees: Latitude seconds: Longitude minutes:	21 11,000 45
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 20 157 55,000	Latitude degrees: Latitude seconds: Longitude minutes:	21 12,000 44
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 20 157 1,000	Latitude degrees: Latitude seconds: Longitude minutes:	21 14,000 45
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 20 157 36,000	Latitude degrees: Latitude seconds: Longitude minutes:	21 52,000 52
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 21 157 14,000	Latitude degrees: Latitude seconds: Longitude minutes:	21 16,000 49
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 21 157 40,000	Latitude degrees: Latitude seconds: Longitude minutes:	21 17,000 48
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 21 157 54,000	Latitude degrees: Latitude seconds: Longitude minutes:	21 19,000 53

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 21 157 54.0000	Latitude degrees: Latitude seconds: Longitude minutes:	21 20.0000 53
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 21 157 55.0000	Latitude degrees: Latitude seconds: Longitude minutes:	21 20.0000 53
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 21 157 5.0000	Latitude degrees: Latitude seconds: Longitude minutes:	21 27.0000 49
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 21 157 11.0000	Latitude degrees: Latitude seconds: Longitude minutes:	21 52.0000 48
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 22 157 11.0000	Latitude degrees: Latitude seconds: Longitude minutes:	21 14.0000 50
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 22 157 49.0000	Latitude degrees: Latitude seconds: Longitude minutes:	21 28.0000 49
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 22 157 55.0000	Latitude degrees: Latitude seconds: Longitude minutes:	21 35.0000 49
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 22 157 35.0000	Latitude degrees: Latitude seconds: Longitude minutes:	21 56.0000 49
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 22 157 14.0000	Latitude degrees: Latitude seconds: Longitude minutes:	21 57.0000 55
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 22 157 35.0000	Latitude degrees: Latitude seconds: Longitude minutes:	21 58.0000 49
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 23 157 31.0000	Latitude degrees: Latitude seconds: Longitude minutes:	21 5.0000 48
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 23 157 26.0000	Latitude degrees: Latitude seconds: Longitude minutes:	21 5.0000 54
State: Latitude minutes:	HI 23	Latitude degrees: Latitude seconds:	21 13.0000

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Longitude degrees: Longitude seconds:	127 35.0000	Longitude minutes:	55
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 23 157 35.0000	Latitude degrees: Latitude seconds: Longitude minutes:	21 13.0000 55
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 23 157 3.0000	Latitude degrees: Latitude seconds: Longitude minutes:	21 20.0000 56
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 23 157 52.0000	Latitude degrees: Latitude seconds: Longitude minutes:	21 22.0000 46
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 23 157 3.0000	Latitude degrees: Latitude seconds: Longitude minutes:	21 22.0000 55
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 23 157 43.0000	Latitude degrees: Latitude seconds: Longitude minutes:	21 27.0000 56
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 23 157 47.0000	Latitude degrees: Latitude seconds: Longitude minutes:	21 27.0000 56
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 23 157 53.0000	Latitude degrees: Latitude seconds: Longitude minutes:	21 37.0000 55
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 23 157 25.0000	Latitude degrees: Latitude seconds: Longitude minutes:	21 37.0000 57
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 23 157 27.0000	Latitude degrees: Latitude seconds: Longitude minutes:	21 37.0000 57
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 23 157 54.0000	Latitude degrees: Latitude seconds: Longitude minutes:	21 38.0000 55
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 23 157 55.0000	Latitude degrees: Latitude seconds: Longitude minutes:	21 38.0000 55
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 23 157 49.0000	Latitude degrees: Latitude seconds: Longitude minutes:	21 38.0000 56

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 23 157 53.0000	Latitude degrees: Latitude minutes: Longitude minutes:	21 39.0000 55
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 23 157 54.0000	Latitude degrees: Latitude minutes: Longitude minutes:	21 39.0000 55
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 23 157 55.0000	Latitude degrees: Latitude minutes: Longitude minutes:	21 39.0000 55
State: Latitude degrees: Latitude seconds: Longitude minutes:	HI 42.0000 49	Latitude minutes: Longitude degrees: Longitude seconds:	23 157 9.0000
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 23 157 47.0000	Latitude degrees: Latitude minutes: Longitude minutes:	21 42.0000 56
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 23 157 22.0000	Latitude degrees: Latitude minutes: Longitude minutes:	21 48.0000 56
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 23 157 22.0000	Latitude degrees: Latitude minutes: Longitude minutes:	21 49.0000 56
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 24 157 25.0000	Latitude degrees: Latitude minutes: Longitude minutes:	21 7.0000 58
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 24 157 45.0000	Latitude degrees: Latitude minutes: Longitude minutes:	21 10.0000 56
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 24 157 46.0000	Latitude degrees: Latitude minutes: Longitude minutes:	21 11.0000 56
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 24 157 47.0000	Latitude degrees: Latitude minutes: Longitude minutes:	21 12.0000 56
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 24 158 23.0000	Latitude degrees: Latitude seconds: Longitude minutes:	21 12.0000 57
State: Latitude minutes:	HI 24	Latitude degrees: Longitude seconds:	21 13.0000

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Longitude degrees: Longitude seconds:	157 12.0000	Longitude minutes:	58
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 24 158 24.0000	Latitude degrees: Latitude seconds: Longitude minutes:	21 13.0000 57
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 24 157 6.0000	Latitude degrees: Latitude seconds: Longitude minutes:	21 14.0000 57
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 24 158 25.0000	Latitude degrees: Latitude seconds: Longitude minutes:	21 14.0000 57
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 24 157 2.0000	Latitude degrees: Latitude seconds: Longitude minutes:	21 35.0000 50
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 24 157 8.0000	Latitude degrees: Latitude seconds: Longitude minutes:	21 37.0000 50
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 24 157 59.0000	Latitude degrees: Latitude seconds: Longitude minutes:	21 39.0000 57
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 25 157 41.0000	Latitude degrees: Latitude seconds: Longitude minutes:	21 7.0000 49
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 25 157 31.0000	Latitude degrees: Latitude seconds: Longitude minutes:	21 53.0000 57
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 26 157 23.0000	Latitude degrees: Latitude seconds: Longitude minutes:	21 16.0000 51
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 26 157 32.0000	Latitude degrees: Latitude seconds: Longitude minutes:	21 16.0000 51
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 26 157 12.0000	Latitude degrees: Latitude seconds: Longitude minutes:	21 39.0000 52
State: Latitude minutes: Longitude degrees: Longitude seconds:	HI 26 157 40.0000	Latitude degrees: Latitude seconds: Longitude minutes:	21 58.0000 51

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

HI 27 21 Latitude degrees: 2.0000
 HI 157 51 Latitude seconds: 2.0000
 HI 41.0000 Longitude minutes: 51

 HI 27 21 Latitude degrees: 3.0000
 HI 157 51 Latitude seconds: 3.0000
 HI 38.0000 Longitude minutes: 51

 HI 21 21 Latitude degrees: 14.0000
 HI 33 53 Latitude seconds: 14.0000
 HI 8.0000 Longitude minutes: 53

 HI 21 21 Latitude degrees: 15.0000
 HI 33 53 Latitude seconds: 15.0000
 HI 11.0000 Longitude minutes: 53

 HI 21 21 Latitude degrees: 39.0000
 HI 34 53 Latitude seconds: 39.0000
 HI 47.0000 Longitude minutes: 53

 HI 21 21 Latitude degrees: 41.0000
 HI 34 49 Latitude seconds: 41.0000
 HI 157 17.0000 Longitude minutes: 49

 HI 21 21 Latitude degrees: 41.0000
 HI 34 53 Latitude seconds: 41.0000
 HI 157 44.0000 Longitude minutes: 53

 HI 21 21 Latitude degrees: 50.0000
 HI 34 53 Latitude seconds: 50.0000
 HI 157 12.0000 Longitude minutes: 53

 HI 21 21 Latitude degrees: 17.0000
 HI 35 53 Latitude seconds: 17.0000
 HI 157 46.0000 Longitude minutes: 53

 HI 21 21 Latitude degrees: 17.0000
 HI 35 53 Latitude seconds: 17.0000
 HI 157 49.0000 Longitude minutes: 53

 HI 21 21 Latitude degrees: 22.0000
 HI 35 53 Latitude seconds: 22.0000
 HI 157 53.0000 Longitude minutes: 53

 HI 21 21 Latitude degrees: 27.0000
 HI 35 53 Latitude seconds: 27.0000
 HI 157 59.0000 Longitude minutes: 53

 HI 21 21 Latitude degrees: 39.0000
 HI 36 53 Latitude seconds: 39.0000
 HI 157 39.0000 Longitude minutes: 53

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

157 52 Longitude degrees: 52
 12.0000 Longitude seconds: 12.0000

 8310290 S 2008
 HI Violation Year: 2008
 1005 Contamination Name: Arsenic
 03 Violation Name: Monitoring, Regular
 332 Rule name: Arsenic
 Not Reported Unit of measure:
 Not Reported
 12/31/2010 Cmp bdt: 01/01/2008

 8310291 S 2008
 HI Violation Year: 2008
 1010 Contamination Name: Cadmium
 03 Violation Name: Monitoring, Regular
 333 Rule name: Other IOC
 Not Reported Unit of measure:
 Not Reported
 12/31/2010 Cmp bdt: 01/01/2008

 8310292 S 2008
 HI Violation Year: 2008
 1015 Contamination Name: Cadmium
 03 Violation Name: Monitoring, Regular
 333 Rule name: Other IOC
 Not Reported Unit of measure:
 Not Reported
 12/31/2010 Cmp bdt: 01/01/2008

 8310293 S 2008
 HI Violation Year: 2008
 1020 Contamination Name: Chromium
 03 Violation Name: Monitoring, Regular
 333 Rule name: Other IOC
 Not Reported Unit of measure:
 Not Reported
 12/31/2010 Cmp bdt: 01/01/2008

 8310294 S 2008
 HI Violation Year: 2008
 1035 Contamination Name: Mercury
 03 Violation Name: Monitoring, Regular
 333 Rule name: Other IOC
 Not Reported Unit of measure:
 Not Reported
 12/31/2010 Cmp bdt: 01/01/2008

 8310295 S 2008
 HI Violation Year: 2008
 1036 Contamination Name: Nickel
 03 Violation Name: Monitoring, Regular
 333 Rule name: Other IOC
 Not Reported Unit of measure:
 Not Reported
 12/31/2010 Cmp bdt: 01/01/2008

 8310296 S 2008
 HI Violation Year: 2008
 1074 Contamination Name: Antimony, Total
 03 Violation Name: Monitoring, Regular
 333 Rule name: Other IOC

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Violation measur: Slate mcl: Cmp edt:	Not Reported Not Reported 12/31/2010	Unit of measure: Cmp bdt:	Not Reported 01/01/2008
Violation id: State: Contamination code: Violation code: Rule code: Violation measur: Slate mcl: Cmp edt:	8310297 HI 1075 03 333 Not Reported Not Reported 12/31/2010	Orig code: Violation Year: Contamination Name: Violation name: Rule name: Unit of measure: Cmp bdt:	S 2008 Beryllium, Total Monitoring, Regular Other IOC Not Reported 01/01/2008
Violation id: State: Contamination code: Violation code: Rule code: Violation measur: Slate mcl: Cmp edt:	8310298 HI 1085 03 333 Not Reported Not Reported 12/31/2010	Orig code: Violation Year: Contamination Name: Violation name: Rule name: Unit of measure: Cmp bdt:	S 2008 Thallium, Total Monitoring, Regular Other IOC Not Reported 01/01/2008
Violation id: State: Contamination code: Violation code: Rule code: Violation measur: Slate mcl: Cmp edt:	8310299 HI 1045 03 333 Not Reported Not Reported 12/31/2010	Orig code: Violation Year: Contamination Name: Violation name: Rule name: Unit of measure: Cmp bdt:	S 2008 Selenium Monitoring, Regular Other IOC Not Reported 01/01/2008
Violation id: State: Contamination code: Violation code: Rule code: Violation measur: Slate mcl: Cmp edt:	8310300 HI 1025 03 333 Not Reported Not Reported 12/31/2010	Orig code: Violation Year: Contamination Name: Violation name: Rule name: Unit of measure: Cmp bdt:	S 2008 Fluoride Monitoring, Regular Other IOC Not Reported 01/01/2008
Violation id: State: Contamination code: Violation code: Rule code: Violation measur: Slate mcl: Cmp edt:	8310301 HI 1040 03 331 Not Reported Not Reported 12/31/2010	Orig code: Violation Year: Contamination Name: Violation name: Rule name: Unit of measure: Cmp bdt:	S 2008 Nitrate Monitoring, Regular Nitrates Not Reported 01/01/2008
Violation id: State: Contamination code: Violation code: Rule code: Violation measur: Slate mcl: Cmp edt:	8310302 HI 1041 03 331 Not Reported Not Reported 12/31/2010	Orig code: Violation Year: Contamination Name: Violation name: Rule name: Unit of measure: Cmp bdt:	S 2008 Nitrite Monitoring, Regular Nitrates Not Reported 01/01/2008
Violation id: State: Contamination code: Violation code: Rule code: Violation measur: Slate mcl: Cmp edt:	8310303 HI 2378 03	Orig code: Violation Year: Contamination Name: Violation name: Rule name: Unit of measure: Cmp bdt:	S 2008 1,2,4-Trichlorobenzene Monitoring, Regular

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Rule code: Violation measur: Slate mcl: Cmp edt:	310 Not Reported Not Reported 12/31/2010	Unit of measure: Cmp bdt:	VOC Not Reported 01/01/2008
Violation id: State: Contamination code: Violation code: Rule code: Violation measur: Slate mcl: Cmp edt:	8310304 HI 2380 03 310 Not Reported Not Reported 12/31/2010	Orig code: Violation Year: Contamination Name: Violation name: Rule name: Unit of measure: Cmp bdt:	S 2008 dis-1,2-Dichloroethylene Monitoring, Regular VOC Not Reported 01/01/2008
Violation id: State: Contamination code: Violation code: Rule code: Violation measur: Slate mcl: Cmp edt:	8310305 HI 2965 03 310 Not Reported Not Reported 12/31/2010	Orig code: Violation Year: Contamination Name: Violation name: Rule name: Unit of measure: Cmp bdt:	S 2008 Xylenes, Total Monitoring, Regular VOC Not Reported 01/01/2008
Violation id: State: Contamination code: Violation code: Rule code: Violation measur: Slate mcl: Cmp edt:	8310306 HI 2964 03 310 Not Reported Not Reported 12/31/2010	Orig code: Violation Year: Contamination Name: Violation name: Rule name: Unit of measure: Cmp bdt:	S 2008 DICHLOROMETHANE Monitoring, Regular VOC Not Reported 01/01/2008
Violation id: State: Contamination code: Violation code: Rule code: Violation measur: Slate mcl: Cmp edt:	8310307 HI 2968 03 310 Not Reported Not Reported 12/31/2010	Orig code: Violation Year: Contamination Name: Violation name: Rule name: Unit of measure: Cmp bdt:	S 2008 o-Dichlorobenzene Monitoring, Regular VOC Not Reported 01/01/2008
Violation id: State: Contamination code: Violation code: Rule code: Violation measur: Slate mcl: Cmp edt:	8310308 HI 2969 03 310 Not Reported Not Reported 12/31/2010	Orig code: Violation Year: Contamination Name: Violation name: Rule name: Unit of measure: Cmp bdt:	S 2008 p-Dichlorobenzene Monitoring, Regular VOC Not Reported 01/01/2008
Violation id: State: Contamination code: Violation code: Rule code: Violation measur: Slate mcl: Cmp edt:	8310309 HI 2976 03 310 Not Reported Not Reported 12/31/2010	Orig code: Violation Year: Contamination Name: Violation name: Rule name: Unit of measure: Cmp bdt:	S 2008 Vinyl chloride Monitoring, Regular VOC Not Reported 01/01/2008
Violation id: State: Contamination code: Violation code: Rule code: Violation measur: Slate mcl: Cmp edt:	8310310 HI 2977	Orig code: Violation Year: Contamination Name: Violation name: Rule name: Unit of measure: Cmp bdt:	S 2008 1,1-Dichloroethylene

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Violation code: 03
 Rule name: Monitoring, Regular
 Violation code: 310
 Unit of measure: VOC
 State mcd: Not Reported
 Cmp edt: 01/01/2008
 Violation id: 8310311
 State: S
 Contamination code: 2979
 Violation code: 03
 Rule name: trans-1,2-Dichloroethylene
 Violation code: 310
 Unit of measure: Monitoring, Regular
 State mcd: Not Reported
 Cmp edt: 01/01/2008
 Violation id: 8310312
 State: S
 Contamination code: 2980
 Violation code: 03
 Rule name: 1,2-Dichloroethane
 Violation code: 310
 Unit of measure: Monitoring, Regular
 State mcd: Not Reported
 Cmp edt: 01/01/2008
 Violation id: 8310313
 State: S
 Contamination code: 2981
 Violation code: 03
 Rule name: 1,1,1-Trichloroethane
 Violation code: 310
 Unit of measure: Monitoring, Regular
 State mcd: Not Reported
 Cmp edt: 01/01/2008
 Violation id: 8310314
 State: S
 Contamination code: 2982
 Violation code: 03
 Rule name: Carbon tetrachloride
 Violation code: 310
 Unit of measure: Monitoring, Regular
 State mcd: Not Reported
 Cmp edt: 01/01/2008
 Violation id: 8310315
 State: S
 Contamination code: 2983
 Violation code: 03
 Rule name: 1,2-Dichloropropane
 Violation code: 310
 Unit of measure: Monitoring, Regular
 State mcd: Not Reported
 Cmp edt: 01/01/2008
 Violation id: 8310316
 State: S
 Contamination code: 2984
 Violation code: 03
 Rule name: Trichloroethylene
 Violation code: 310
 Unit of measure: Monitoring, Regular
 State mcd: Not Reported
 Cmp edt: 01/01/2008
 Violation id: 8310317
 State: S

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Contamination code: 2985
 Violation code: 03
 Rule name: 1,1,2-Trichloroethane
 Violation code: 310
 Unit of measure: Monitoring, Regular
 State mcd: Not Reported
 Cmp edt: 01/01/2008
 Violation id: 8310318
 State: S
 Contamination code: 2987
 Violation code: 03
 Rule name: Tetrachloroethylene
 Violation code: 310
 Unit of measure: Monitoring, Regular
 State mcd: Not Reported
 Cmp edt: 01/01/2008
 Violation id: 8310319
 State: S
 Contamination code: 2989
 Violation code: 03
 Rule name: CHLOROBEENZENE
 Violation code: 310
 Unit of measure: Monitoring, Regular
 State mcd: Not Reported
 Cmp edt: 01/01/2008
 Violation id: 8310320
 State: S
 Contamination code: 2990
 Violation code: 03
 Rule name: Benzene
 Violation code: 310
 Unit of measure: Monitoring, Regular
 State mcd: Not Reported
 Cmp edt: 01/01/2008
 Violation id: 8310321
 State: S
 Contamination code: 2991
 Violation code: 03
 Rule name: Toluene
 Violation code: 310
 Unit of measure: Monitoring, Regular
 State mcd: Not Reported
 Cmp edt: 01/01/2008
 Violation id: 8310322
 State: S
 Contamination code: 2992
 Violation code: 03
 Rule name: Ethylbenzene
 Violation code: 310
 Unit of measure: Monitoring, Regular
 State mcd: Not Reported
 Cmp edt: 01/01/2008
 Violation id: 8310323
 State: S
 Contamination code: 2996
 Violation code: 03
 Rule name: Styrene
 Violation code: 310
 Unit of measure: Monitoring, Regular
 State mcd: Not Reported
 Cmp edt: 01/01/2008
 Violation id: 8310324
 State: S

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Enforcement Detail:	Enforcement Category:	Enforcement Action:	Enforcement Category:	Enforcement Action:	Enforcement Category:
Violation ID: 8310326 Enforcement FY: 2013 Enforcement Detail: ST Violation/Reminder Notice	Informal	ST Public Notif received	Informal	ST Public Notif received	Informal
Violation ID: 8310326 Enforcement FY: 2013 Enforcement Detail: ST Compliance achieved	S	ST Compliance achieved	S	ST Compliance achieved	S
Violation ID: 8310327 Enforcement FY: 2013 Enforcement Detail: ST Public Notif received	Informal	ST Public Notif received	Informal	ST Public Notif received	Informal
Violation ID: 8310327 Enforcement FY: 2013 Enforcement Detail: ST Violation/Reminder Notice	Informal	ST Violation/Reminder Notice	Informal	ST Violation/Reminder Notice	Informal
Violation ID: 8310327 Enforcement FY: 2013 Enforcement Detail: ST Compliance achieved	S	ST Compliance achieved	S	ST Compliance achieved	S
Violation ID: 8310328 Enforcement FY: 2013 Enforcement Detail: ST Violation/Reminder Notice	Informal	ST Violation/Reminder Notice	Informal	ST Violation/Reminder Notice	Informal
Violation ID: 8310328 Enforcement FY: 2013 Enforcement Detail: ST Public Notif received	Informal	ST Public Notif received	Informal	ST Public Notif received	Informal
Violation ID: 8310328 Enforcement FY: 2013 Enforcement Detail: ST Compliance achieved	S	ST Compliance achieved	S	ST Compliance achieved	S
Violation ID: 8310329 Enforcement FY: 2013 Enforcement Detail: ST Violation/Reminder Notice	Informal	ST Violation/Reminder Notice	Informal	ST Violation/Reminder Notice	Informal
Violation ID: 8310329 Enforcement FY: 2013 Enforcement Detail: ST Public Notif received	Informal	ST Public Notif received	Informal	ST Public Notif received	Informal
Violation ID: 8310329 Enforcement FY: 2013 Enforcement Detail: ST Compliance achieved	S	ST Compliance achieved	S	ST Compliance achieved	S
Violation ID: 8310330 Enforcement FY: 2014 Enforcement Detail: ST Compliance achieved	S	ST Compliance achieved	S	ST Compliance achieved	S
Violation ID: 8310330 Enforcement FY: 2014 Enforcement Detail: ST Public Notif received	Informal	ST Public Notif received	Informal	ST Public Notif received	Informal
Violation ID: 8310330 Enforcement FY: 2014 Enforcement Detail: ST Violation/Reminder Notice	Informal	ST Violation/Reminder Notice	Informal	ST Violation/Reminder Notice	Informal

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID	Direction	Distance	Elevation	Database	EDR ID Number
G37				FED USGS	USGS40000270353
ENE 1/4 - 1/2 Mile Higher					
Organization ID:	USGS-HI	Organization Name:	USGS Hawaii Water Science Center		
Monitor Location:	3-2356-61.62.65 KAO	Type:	Well: Multiple wells		
Description:	Not Reported	HUC:	20060000		
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported		
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Units:	Not Reported		
Aquifer:	Not Reported	Formation Type:	Not Reported		
Aquifer Type:	Not Reported	Construction Date:	Not Reported		
Well Depth:	Not Reported	Well Depth Units:	Not Reported		
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported		
G38 ENE 1/4 - 1/2 Mile Higher					
Organization ID:	USGS-HI	Organization Name:	USGS Hawaii Water Science Center		
Monitor Location:	3-2356-62 KAONOHII	Type:	Well		
Description:	Not Reported	HUC:	20060000		
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported		
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Units:	Not Reported		
Aquifer:	Not Reported	Formation Type:	Not Reported		
Aquifer Type:	Not Reported	Construction Date:	19751101		
Well Depth:	340	Well Depth Units:	ft		
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported		
H39 NNW 1/4 - 1/2 Mile Higher					
Well ID:	3-2357-006	Well Name:	Waiau		
Land Owner:	Oahu Sugar Co., Ltd., OSCo.	Pump Rate (gpm):	Not Reported		
Year Drilled:	1934	Original Well Name:	Not Reported		
Driller:	Hobart	Well Construction Type:	Not Reported		
Casing Diameter (in):	6	Ground Elevation (ft):	12		
Well Depth (ft):	239	Solid Casing Depth:	92		
Perforated Casing Depth:	Not Reported	Major Well Use:	Abandoned-Sealed		
Initial Water Level (ft):	Not Reported	Water Level After Drilling:	Not Reported		
Water Level After Install:	Not Reported	Chloride Content (mg/L):	0		
Date Tested:	Not Reported	Test Pump Rate (gpm):	Not Reported		
Test Drawdown Rate (ft):	Not Reported	Test Chloride Content (MG/L):	Not Reported		
Test Water Temp:	Not Reported	Temp Unit:	Not Reported		
Max Chloride Level:	Not Reported	Minimum Chloride Level:	Not Reported		
Draft Year:	Not Reported	Hole Bottom Elevation:	-227		
Solid Casing Bottom Elevation:	-80	Year Installed:	Not Reported		
Pump Capacity (MM gal/day):	Not Reported	Pump Intake Depth:	Not Reported		
Latest Head:	Not Reported	Latest WCR1 Report:	1/17/1934		
Min to pump 5 volumes:	Not Reported	Transmissivity:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database EDR ID Number

G40
NE
1/4 - 1/2 Mile
Higher

Well ID: 3-2356-062
Monitor Location: Honolulu Board of Water Supply, BWS
Land Owner: Not Reported
Year Drilled: 1975
Driller: Water Resources International, Inc.
Well Construction Type: Rotary
Ground Elevation (ft): 117
Solid Casing Depth: 200
Major Well Use: Unused
Water Level After Drilling: Not Reported
Chloride Content (mg/L): 7
Test Pump Rate (gpm): 700
Temp Unit: C
Minimum Chloride Level: Not Reported
Hole Bottom Elevation: -223
Year Installed: 1978
Pump Intake Depth: Not Reported
Latest WCR1 Report: 11/20/1975
Transmissivity: Not Reported

Well Name: Kaaoihii II-2
Pump Rate (gpm): 700
Original Well Name: Not Reported
Casing Diameter (in): 16
Well Depth (ft): 340
Perforated Casing Depth: Not Reported
Initial Water Level (ft): 15.34
Water Level After Install: 12/1/1975
Date Tested: 1/2
Test Drawdown Rate (ft): 19.9
Max Chloride Level: Not Reported
Draft Year: Not Reported
Pump Capacity (MM gal/day): -83
Minimum Chloride Level: Not Reported
Hole Bottom Elevation: 1.008
Year Installed: Not Reported
Latest WCR2 Report: Not Reported
Min to pump 5 volumes: Not Reported

E41
WNE
1/4 - 1/2 Mile
Higher

Organization ID: USGS-HI
Monitor Location: 3-2356-60.63,64 KAO
Description: Not Reported
Drainage Area: Not Reported
Contrib Drainage Area: Not Reported
Aquifer: Not Reported
Major Well Use: Not Reported
Water Level After Drilling: Not Reported
Chloride Content (mg/L): Not Reported
Well Depth: Not Reported
Well Hole Depth: Not Reported

Organization Name: USGS Hawaii Water Science Center
Type: Well: Multiple wells
HUC: 20060000
Drainage Area Units: Not Reported
Contrib Drainage Area Units: Not Reported
Formation Type: Not Reported
Construction Date: Not Reported
Well Depth Units: Not Reported
Well Hole Depth Units: Not Reported

I42
East
1/4 - 1/2 Mile
Higher

Organization ID: USGS-HI
Monitor Location: 3-2356-48 T62
Description: Not Reported
Drainage Area: Not Reported
Contrib Drainage Area: Not Reported
Aquifer: Not Reported
Major Well Use: Not Reported
Water Level After Drilling: Not Reported
Chloride Content (mg/L): Not Reported
Well Depth: Not Reported
Well Hole Depth: Not Reported

Organization Name: USGS Hawaii Water Science Center
Type: Well
HUC: 20060000
Drainage Area Units: Not Reported
Contrib Drainage Area Units: Not Reported
Formation Type: Not Reported
Construction Date: 1948/01/01
Well Depth Units: ft
Well Hole Depth Units: Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database EDR ID Number

I43
East
1/4 - 1/2 Mile
Higher

Organization ID: USGS-HI
Monitor Location: 3-2356-47 T61
Description: Not Reported
Drainage Area: Not Reported
Contrib Drainage Area: Not Reported
Aquifer: Not Reported
Major Well Use: Not Reported
Water Level After Drilling: Not Reported
Chloride Content (mg/L): 73
Test Pump Rate (gpm): Not Reported
Temp Unit: Not Reported
Minimum Chloride Level: Not Reported
Hole Bottom Elevation: Not Reported
Year Installed: Not Reported
Latest WCR1 Report: Not Reported
Transmissivity: Not Reported

Organization Name: USGS Hawaii Water Science Center
Type: Well
HUC: 20060000
Drainage Area Units: Not Reported
Contrib Drainage Area Units: Not Reported
Formation Type: Not Reported
Construction Date: 1948/01/01
Well Depth Units: ft
Well Hole Depth Units: Not Reported

I44
East
1/4 - 1/2 Mile
Higher

Organization ID: USGS-HI
Monitor Location: 3-2356-048
Description: Naval Facilities Engineering Command Hawaii, Environmental, NAVFAC Hawaii
Drainage Area: Kamehameha Schools
Contrib Drainage Area: Not Reported
Aquifer: Not Reported
Major Well Use: Not Reported
Water Level After Drilling: Not Reported
Chloride Content (mg/L): 12.5
Test Pump Rate (gpm): Not Reported
Temp Unit: Not Reported
Minimum Chloride Level: Not Reported
Hole Bottom Elevation: Not Reported
Year Installed: Not Reported
Pump Intake Depth: Not Reported
Latest WCR1 Report: Not Reported
Transmissivity: Not Reported

Organization Name: USGS Hawaii Water Science Center
Type: Well
HUC: 20060000
Drainage Area Units: Not Reported
Contrib Drainage Area Units: Not Reported
Formation Type: Not Reported
Construction Date: Not Reported
Well Depth Units: Not Reported
Well Hole Depth Units: Not Reported

I45
East
1/4 - 1/2 Mile
Higher

Organization ID: USGS-HI
Monitor Location: 3-2356-047
Description: Naval Facilities Engineering Command Hawaii, Environmental, NAVFAC Hawaii
Drainage Area: Kamehameha Schools
Contrib Drainage Area: Not Reported
Aquifer: Not Reported
Major Well Use: Not Reported
Water Level After Drilling: Not Reported
Chloride Content (mg/L): 15
Test Pump Rate (gpm): Not Reported
Temp Unit: Not Reported
Minimum Chloride Level: Not Reported
Hole Bottom Elevation: Not Reported
Year Installed: Not Reported
Pump Intake Depth: Not Reported
Latest WCR1 Report: Not Reported
Transmissivity: Not Reported

Organization Name: USGS Hawaii Water Science Center
Type: Well
HUC: 20060000
Drainage Area Units: Not Reported
Contrib Drainage Area Units: Not Reported
Formation Type: Not Reported
Construction Date: 1948/01/01
Well Depth Units: ft
Well Hole Depth Units: Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Date Tested: Not Reported
 Test Drawdown Rate (ft): Not Reported
 Test Water Temp: Not Reported
 Max Chloride Level: Not Reported
 Draft Year: Not Reported
 Solid Casing Bottom Elevation: Not Reported
 Pump Capacity (MM gal/day): Not Reported
 Latest Head: Not Reported
 Latest WCR2 Report: Not Reported
 Min to pump 5 volumes: Not Reported

Test Pump Rate (g/m): Not Reported
 Test Chloride Content (MGL): Not Reported
 Temp Unit: Not Reported
 Minimum Chloride Level: Not Reported
 Hole Bottom Elevation: -31
 Year Installed: Not Reported
 Pump Intake Depth: Not Reported
 Latest WCR1 Report: 1/1/1948
 Transmissivity: Not Reported

FED USGS USGS-40000270416

J46
North
1/4 - 1/2 Mile
Lower

Organization ID: USGS-HI
 Monitor Location: 3-2357-20 W193-1
 Description: Not Reported
 Drainage Area: Not Reported
 Contrib Drainage Area: Not Reported
 Aquifer: Not Reported
 Aquifer Type: Not Reported
 Well Depth: 420
 Well Hole Depth: Not Reported

Organization Name: USGS Hawaii Water Science Center
 Type: Well
 HUC: 20060000
 Drainage Area Units: Not Reported
 Contrib Drainage Area Units: Not Reported
 Formation Type: Not Reported
 Construction Date: 19500101
 Well Depth Units: ft
 Well Hole Depth Units: Not Reported

FED USGS USGS-40000270398

E47
NNE
1/4 - 1/2 Mile
Higher

Organization ID: USGS-HI
 Monitor Location: 3-2356-60 WAIMALU II
 Description: Not Reported
 Drainage Area: Not Reported
 Contrib Drainage Area: Not Reported
 Aquifer: Not Reported
 Aquifer Type: Not Reported
 Well Depth: 240
 Well Hole Depth: 240

Organization Name: USGS Hawaii Water Science Center
 Type: Well
 HUC: 20060000
 Drainage Area Units: Not Reported
 Contrib Drainage Area Units: Not Reported
 Formation Type: Not Reported
 Construction Date: 19750201
 Well Depth Units: ft
 Well Hole Depth Units: ft

Ground water levels, Number of Measurements: 1
 Feet below surface: 4.62
 Note: Not Reported

FED USGS USGS-40000270407

K48
NNE
1/4 - 1/2 Mile
Lower

Organization ID: USGS-HI
 Monitor Location: 3-2356-64 WAIMALU II
 Description: Not Reported
 Drainage Area: Not Reported
 Contrib Drainage Area: Not Reported
 Aquifer: Not Reported

Organization Name: USGS Hawaii Water Science Center
 Type: Well
 HUC: 20060000
 Drainage Area Units: Not Reported
 Contrib Drainage Area Units: Not Reported
 Formation Type: Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Aquifer Type: Not Reported
 Well Depth: 240
 Well Hole Depth: 240
 Construction Date: 19751110
 Well Depth Units: ft
 Well Hole Depth Units: ft

J49
North
1/4 - 1/2 Mile
Lower

HI WELLS HI1100000001619

Well ID: 3-2357-020
 Well Owner: State of Hawaii
 Land Owner: State of Hawaii
 Year Drilled: 1956

Pump Rate (g/m): Not Reported
 Original Well Name: Not Reported
 Driller: Goodfellow Construction, Inc. Corporate

Well Construction Type: Not Reported
 Casing Diameter (in): 5
 Ground Elevation (ft): 14
 Well Depth (ft): 420
 Solid Casing Depth: 80
 Perforated Casing Depth: Not Reported
 Water Level After Drilling: Abandoned-Sealed
 Chloride Content (mg/L): 92
 Test Pump Rate (g/m): Not Reported
 Test Drawdown Rate (ft): Not Reported
 Test Chloride Content (MGL): Not Reported
 Temp Unit: Not Reported
 Minimum Chloride Level: Not Reported
 Hole Bottom Elevation: -406
 Year Installed: Not Reported
 Pump Intake Depth: Not Reported
 Latest WCR1 Report: 1/1/1956
 Transmissivity: Not Reported

Well Name: Waiiau
 State of Hawaii
 1956

Well Depth (ft): 5
 Well Depth (ft): 420
 Perforated Casing Depth: 19.1
 Water Level After Install: Not Reported
 Date Tested: Not Reported
 Test Drawdown Rate (ft): Not Reported
 Test Water Temp: Not Reported
 Max Chloride Level: Not Reported
 Draft Year: Not Reported
 Solid Casing Bottom Elevation: -66
 Pump Capacity (MM gal/day): Not Reported
 Latest Head: Not Reported
 Latest WCR2 Report: Not Reported
 Min to pump 5 volumes: Not Reported

E50
NNE
1/4 - 1/2 Mile
Higher

HI WELLS HI1100000001686

Well ID: 3-2356-057
 Well Owner: Honolulu Board of Water Supply, BWS
 Land Owner: Not Reported
 Year Drilled: 1971
 Driller: Roscoe Moss Hawaii Inc

Well Construction Type: Not Reported
 Ground Elevation (ft): 22
 Casing Diameter (in): 10
 Well Depth (ft): 250
 Perforated Casing Depth: Not Reported
 Initial Water Level (ft): 14.99
 Water Level After Install: Not Reported
 Date Tested: 9/28/1971
 Test Drawdown Rate (ft): 7.9
 Test Chloride Content (MGL): Not Reported
 Temp Unit: Not Reported
 Minimum Chloride Level: Not Reported
 Max Chloride Level: Not Reported
 Year Installed: -55
 Solid Casing Bottom Elevation: Not Reported
 Pump Capacity (MM gal/day): Not Reported
 Latest Head: Not Reported
 Latest WCR1 Report: Not Reported
 Transmissivity: Not Reported

Well Name: Waiumu
 Waiumu
 0
 Not Reported
 Percussion
 22
 77
 Observation
 Not Reported
 0
 1111
 174
 Not Reported
 Not Reported
 -228
 Not Reported
 Not Reported
 9/30/1971
 Not Reported

Pump Rate (g/m): Not Reported
 Original Well Name: Not Reported
 Well Construction Type: Percussion
 Ground Elevation (ft): 22
 Solid Casing Depth: 77
 Major Well Use: Observation
 Water Level After Drilling: Not Reported
 Chloride Content (mg/L): 0
 Test Pump Rate (g/m): 1111
 Test Chloride Content (MGL): 174
 Temp Unit: Not Reported
 Minimum Chloride Level: Not Reported
 Hole Bottom Elevation: -228
 Year Installed: Not Reported
 Pump Intake Depth: Not Reported
 Latest WCR1 Report: 9/30/1971
 Transmissivity: Not Reported

Min to pump 5 volumes: Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database EDR ID Number

E51
NNE
1/4 - 1/2 Mile
Higher

Well ID: 3-2356-060
Well Name: Honolulu Board of Water Supply, BWS
Land Owner: Not Reported
Year Drilled: 1975
Driller: Water Resources International, Inc.
Well Construction Type: Rotary
Ground Elevation (ft): 23
Solid Casing Depth: 100
Major Well Use: Unused
Water Level After Drilling: Not Reported
Chloride Content (mg/L): 0
Test Pump Rate (gpm): 800
Test Chloride Content (MGL): 116
Temp Unit: C
Minimum Chloride Level: Not Reported
Hole Bottom Elevation: -217
Year Installed: 1978
Pump Intake Depth: Not Reported
Latest WCR1 Report: 2/7/1975
Transmissivity: Not Reported

Well Name: Waialua II-1
Pump Rate (gpm): 500
Original Well Name: Not Reported
Casing Diameter (in): 16
Well Depth (ft): 240
Perforated Casing Depth: Not Reported
Initial Water Level (ft): 18.42
Water Level After Install: Not Reported
Date Tested: 2/7/1975
Test Drawdown Rate (ft): 72.8
Test Water Temp: 20.8
Max Chloride Level: Not Reported
Draft Year: Not Reported
Solid Casing Bottom Elevation: -77
Pump Capacity (MM gal/day): 0.72
Latest Head: Not Reported
Latest WCR2 Report: Not Reported
Min to pump 5 volumes: Not Reported

K52
NNE
1/4 - 1/2 Mile
Lower

Organization ID: USGS-HI
Monitor Location: 3-2356-02 W193
Description: Not Reported
Drainage Area: Not Reported
Contrib Drainage Area: Not Reported
Aquifer: Not Reported
Well Depth: 399
Well Hole Depth: Not Reported

Organization Name: USGS Hawaii Water Science Center
Type: Well
HUC: 20060000
Drainage Area Units: Not Reported
Contrib Drainage Area Units: Not Reported
Formation Type: Not Reported
Construction Date: Not Reported
Well Depth Units: ft
Well Hole Depth Units: Not Reported

L53
ENE
1/4 - 1/2 Mile
Higher

Organization ID: USGS-HI
Monitor Location: 3-2356-52 T74 AIEA
Description: Not Reported
Drainage Area: Not Reported
Contrib Drainage Area: Not Reported
Aquifer: Not Reported
Well Depth: 172
Well Hole Depth: Not Reported

Organization Name: USGS Hawaii Water Science Center
Type: Well
HUC: 20060000
Drainage Area Units: Not Reported
Contrib Drainage Area Units: Not Reported
Formation Type: Not Reported
Construction Date: 19590101
Well Depth Units: ft
Well Hole Depth Units: Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database EDR ID Number

K54
NNE
1/4 - 1/2 Mile
Lower

Well ID: 3-2356-064
Well Name: Honolulu Board of Water Supply, BWS
Land Owner: Not Reported
Year Drilled: 1975
Driller: Roscoe Moss Hawaii Inc
Well Construction Type: Percussion
Ground Elevation (ft): 20
Solid Casing Depth: 163
Major Well Use: Unused
Water Level After Drilling: Not Reported
Chloride Content (mg/L): 87
Test Pump Rate (gpm): 700
Test Chloride Content (MGL): 102
Temp Unit: C
Minimum Chloride Level: Not Reported
Hole Bottom Elevation: -220
Year Installed: 1978
Pump Intake Depth: Not Reported
Latest WCR1 Report: 11/7/1975
Transmissivity: Not Reported

Well Name: Waialua II-3
Pump Rate (gpm): 500
Original Well Name: Not Reported
Well Construction Type: Percussion
Ground Elevation (ft): 20
Solid Casing Depth: 163
Major Well Use: Unused
Water Level After Drilling: Not Reported
Chloride Content (mg/L): 87
Test Pump Rate (gpm): 700
Test Chloride Content (MGL): 102
Temp Unit: C
Minimum Chloride Level: Not Reported
Hole Bottom Elevation: -220
Year Installed: 1978
Pump Intake Depth: Not Reported
Latest WCR1 Report: 11/7/1975
Transmissivity: Not Reported

K65
NNE
1/4 - 1/2 Mile
Lower

Well ID: 3-2356-002
Well Name: You & Shimizu
Land Owner: Not Reported
Year Drilled: Not Reported
Driller: Not Reported
Well Construction Type: Not Reported
Ground Elevation (ft): 23
Solid Casing Depth: 69
Major Well Use: Abandoned-Sealed
Water Level After Drilling: Not Reported
Chloride Content (mg/L): 102
Test Pump Rate (gpm): Not Reported
Test Chloride Content (MGL): Not Reported
Temp Unit: Not Reported
Minimum Chloride Level: Not Reported
Hole Bottom Elevation: Not Reported
Year Installed: -376
Pump Intake Depth: Not Reported
Latest WCR1 Report: Not Reported
Transmissivity: Not Reported

Well Name: Aiea
Land Owner: Not Reported
Year Drilled: Not Reported
Driller: Not Reported
Casing Diameter (in): 10
Well Depth (ft): 399
Perforated Casing Depth: 22.8
Initial Water Level (ft): Not Reported
Water Level After Install: Not Reported
Date Tested: Not Reported
Test Drawdown Rate (ft): Not Reported
Test Water Temp: Not Reported
Max Chloride Level: Not Reported
Draft Year: Not Reported
Solid Casing Bottom Elevation: -46
Pump Capacity (MM gal/day): Not Reported
Latest WCR2 Report: Not Reported
Min to pump 5 volumes: Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database EDR ID Number

L66
ENE
1/4 - 1/2 Mile
Lower

Well ID: 3-2356-052
Well Owner: Honolulu Board of Water Supply, BWS
Land Owner: Not Reported
Year Drilled: 1959
Driller: Samson/Smock
Casing Diameter (in): 16
Well Depth (ft): 172
Perforated Casing Depth: 16.2
Initial Water Level (ft): Not Reported
Water Level After Install: Not Reported
Date Tested: Not Reported
Test Drawdown Rate (ft): 2.5
Test Water Temp: Not Reported
Max Chloride Level: Not Reported
Drift Year: Not Reported
Solid Casing Bottom Elevation: -14
Pump Capacity (MM gal/day): Not Reported
Latest Head: Not Reported
Latest WCR2 Report: Not Reported
Min to pump 5 volumes: Not Reported

Organization ID: USGS-HI
Monitor Location: 3-2356-07 T125
Description: Not Reported
Drainage Area: Not Reported
Contrib Drainage Area: Not Reported
Aquifer: Not Reported
Aquifer Type: Not Reported
Well Depth: 73
Well Hole Depth Units: Not Reported

Organization Name: USGS Hawaii Water Science Center
Type: Well
HUC: 20060000
Drainage Area Units: Not Reported
Contrib Drainage Area Units: Not Reported
Formation Type: Not Reported
Construction Date: 1942/101
Well Depth Units: ft
Well Hole Depth Units: Not Reported

M69
ENE
1/4 - 1/2 Mile
Higher

Organization ID: USGS-HI
Monitor Location: 3-2356-61 KAONOHII
Description: Not Reported
Drainage Area: Not Reported
Contrib Drainage Area: Not Reported
Aquifer: Not Reported
Aquifer Type: Not Reported
Well Depth: 334
Well Hole Depth Units: 334

Organization Name: USGS Hawaii Water Science Center
Type: Well
HUC: 20060000
Drainage Area Units: Not Reported
Contrib Drainage Area Units: Not Reported
Formation Type: Not Reported
Construction Date: 1975/0201
Well Depth Units: ft
Well Hole Depth Units: ft

Ground water levels Number of Measurements: 1
Feet below surface: 94.00
Note: Not Reported

Level reading date: 1975-02-28
Feet to sea level: Not Reported

M60
ENE
1/4 - 1/2 Mile
Higher

Well ID: 3-2356-061
Well Owner: Honolulu Board of Water Supply, BWS
Land Owner: Not Reported
Year Drilled: 1975
Driller: Water Resources International, Inc.
Well Construction Type: Rotary
Ground Elevation (ft): 112
Solid Casing Depth: 190
Major Well Use: Unused
Water Level After Drilling: Not Reported
Chloride Content (mg/L): 57
Test Pump Rate (gpm): 1000
Test Drawdown Rate (ft): 60
Test Water Temp: C
Temp Unit: C
Minimum Chloride Level: Not Reported
Hole Bottom Elevation: -218
Year Installed: 1978

Well Name: Kaonohi II-1
Pump Rate (gpm): 700
Original Well Name: Not Reported
Casing Diameter (in): 16
Well Depth (ft): 330
Perforated Casing Depth: Not Reported
Initial Water Level (ft): 18
Water Level After Install: Not Reported
Date Tested: 3/4/1975
Test Drawdown Rate (ft): 2
Test Water Temp: 20
Max Chloride Level: Not Reported
Drift Year: Not Reported
Solid Casing Bottom Elevation: -76
Pump Capacity (MM gal/day): 1.008

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database EDR ID Number

M68
ESE
1/4 - 1/2 Mile
Lower

Organization ID: USGS-HI
Monitor Location: 3-2356-07 T125
Description: Not Reported
Drainage Area: Not Reported
Contrib Drainage Area: Not Reported
Aquifer: Not Reported
Aquifer Type: Not Reported
Well Depth: 73
Well Hole Depth Units: Not Reported

Organization Name: USGS Hawaii Water Science Center
Type: Well
HUC: 20060000
Drainage Area Units: Not Reported
Contrib Drainage Area Units: Not Reported
Formation Type: Not Reported
Construction Date: 1975/0201
Well Depth Units: ft
Well Hole Depth Units: ft

M69
ENE
1/4 - 1/2 Mile
Higher

Organization ID: USGS-HI
Monitor Location: 3-2356-61 KAONOHII
Description: Not Reported
Drainage Area: Not Reported
Contrib Drainage Area: Not Reported
Aquifer: Not Reported
Aquifer Type: Not Reported
Well Depth: 334
Well Hole Depth Units: 334

Organization Name: USGS Hawaii Water Science Center
Type: Well
HUC: 20060000
Drainage Area Units: Not Reported
Contrib Drainage Area Units: Not Reported
Formation Type: Not Reported
Construction Date: 1975/0201
Well Depth Units: ft
Well Hole Depth Units: ft

Ground water levels Number of Measurements: 1
Feet below surface: 94.00
Note: Not Reported

Level reading date: 1975-02-28
Feet to sea level: Not Reported

M60
ENE
1/4 - 1/2 Mile
Higher

Well ID: 3-2356-061
Well Owner: Honolulu Board of Water Supply, BWS
Land Owner: Not Reported
Year Drilled: 1975
Driller: Water Resources International, Inc.
Well Construction Type: Rotary
Ground Elevation (ft): 112
Solid Casing Depth: 190
Major Well Use: Unused
Water Level After Drilling: Not Reported
Chloride Content (mg/L): 57
Test Pump Rate (gpm): 1000
Test Drawdown Rate (ft): 60
Test Water Temp: C
Temp Unit: C
Minimum Chloride Level: Not Reported
Hole Bottom Elevation: -218
Year Installed: 1978

Well Name: Kaonohi II-1
Pump Rate (gpm): 700
Original Well Name: Not Reported
Casing Diameter (in): 16
Well Depth (ft): 330
Perforated Casing Depth: Not Reported
Initial Water Level (ft): 18
Water Level After Install: Not Reported
Date Tested: 3/4/1975
Test Drawdown Rate (ft): 2
Test Water Temp: 20
Max Chloride Level: Not Reported
Drift Year: Not Reported
Solid Casing Bottom Elevation: -76
Pump Capacity (MM gal/day): 1.008

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pump Intake Depth: Not Reported
 Latest WCR1 Report: 3/7/1975
 Transmissivity: Not Reported

Min to pump 5 volumes:
 Latest WCR2 Report: Not Reported

**O61
 NW
 1/4 - 1/2 Mile
 Higher**

FED USGS USGS-40000270360

Organization ID: USGS-HI
 Monitor Location: 3-2357-07 W198-1 WAI
 Description: Not Reported
 Drainage Area: Not Reported
 Contrib Drainage Area: Not Reported
 Aquifer Type: Not Reported
 Well Depth: 212
 Well Hole Depth: Not Reported

Organization Name: USGS Hawaii Water Science Center
 Type: Well
 HUC: 20160000
 Drainage Area Units: Not Reported
 Contrib Drainage Area Units: Not Reported
 Formation Type: Not Reported
 Construction Date: 19360101
 Well Depth Units: ft
 Well Hole Depth Units: Not Reported

**O62
 NW
 1/4 - 1/2 Mile
 Higher**

HI WELLS HI1100000001606

Well ID: 3-2357-007
 Land Owner: Great Peair Land Company, LLC
 Pump Rate (gpm): Not Reported
 Original Well Name: Not Reported
 Well Construction Type: Not Reported
 Ground Elevation (ft): 22
 Solid Casing Depth: 124
 Major Well Use: Irrigation (non-domestic, non-agriculture)
 Initial Water Level (ft): 14.5
 Water Level After Install: Not Reported
 Date Tested: Not Reported
 Test Drawdown Rate (ft): Not Reported
 Test Water Temp: Not Reported
 Max Chloride Level: Not Reported
 Draft Year: Not Reported
 Pump Capacity (MM gal/day): -102
 Latest WCR2 Report: Not Reported
 Min to pump 5 volumes: Not Reported

Well Name: Waiau
 Year Drilled: 1938
 Driller: W. Mullin
 Casing Diameter (in): 6
 Well Depth (ft): 212
 Perforated Casing Depth: Not Reported
 Water Level After Drilling: Not Reported
 Chloride Content (mg/L): 384
 Test Pump Rate (gpm): Not Reported
 Test Chloride Content (MGL): Not Reported
 Temp Unit: Not Reported
 Minimum Chloride Level: Not Reported
 Hole Bottom Elevation: -190
 Year Installed: Not Reported
 Pump Intake Depth: Not Reported
 Latest WCR1 Report: 1/1/1938
 Transmissivity: Not Reported

**O63
 NW
 1/2 - 1 Mile
 Higher**

HI WELLS HI1100000001622

Well ID: 3-2357-023
 Land Owner: Honolulu Board of Water Supply, BWS
 Year Drilled: 1975
 Driller: Water Resources International, Inc.

Well Name: Kaahumanu I-2
 Pump Rate (gpm): 700
 Original Well Name: Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Well Construction Type: Rotary
 Ground Elevation (ft): 49
 Solid Casing Depth: 90
 Major Well Use: County
 Water Level After Drilling: Not Reported
 Chloride Content (mg/L): 0
 Test Pump Rate (gpm): 1020
 Test Chloride Content (MGL): 246
 Temp Unit: C
 Minimum Chloride Level: Not Reported
 Hole Bottom Elevation: -181
 Year Installed: 1978
 Pump Intake Depth: Not Reported
 Latest WCR1 Report: 1/5/1975
 Transmissivity: Not Reported

Min to pump 5 volumes:
 Latest WCR2 Report: Not Reported

Casing Diameter (in): 16
 Well Depth (ft): 230
 Perforated Casing Depth: Not Reported
 Initial Water Level (ft): 17.3
 Water Level After Install: Not Reported
 Date Tested: 1/6/1975
 Test Drawdown Rate (ft): 17.3
 Test Water Temp: 21.7
 Max Chloride Level: Not Reported
 Draft Year: Not Reported
 Solid Casing Bottom Elevation: -41
 Pump Capacity (MM gal/day): 1.008
 Latest Head: Not Reported
 Latest WCR2 Report: Not Reported
 Min to pump 5 volumes: Not Reported

**I64
 NW
 1/2 - 1 Mile
 Higher**

HI WELLS HI1100000001589

Well ID: 3-2356-070
 Land Owner: Lau Taro Farm
 Pump Rate (gpm): 80
 Original Well Name: Not Reported
 Well Construction Type: Percussion
 Ground Elevation (ft): Not Reported
 Solid Casing Depth: 170
 Major Well Use: Agriculture-Crops and Processing
 Initial Water Level (ft): Not Reported
 Water Level After Install: Not Reported
 Date Tested: Not Reported
 Test Drawdown Rate (ft): Not Reported
 Test Water Temp: Not Reported
 Max Chloride Level: Not Reported
 Draft Year: Not Reported
 Pump Capacity (MM gal/day): 0.115
 Latest WCR2 Report: 1/1/1987
 Min to pump 5 volumes: Not Reported

Well Name: Lau Farm
 Land Owner: Kamehameha Schools
 Year Drilled: 1987
 Driller: Roscoe Moss Hawaii Inc
 Casing Diameter (in): 8
 Well Depth (ft): 261
 Perforated Casing Depth: 220
 Water Level After Drilling: Not Reported
 Chloride Content (mg/L): 451
 Test Pump Rate (gpm): Not Reported
 Test Chloride Content (MGL): Not Reported
 Temp Unit: Not Reported
 Minimum Chloride Level: Not Reported
 Hole Bottom Elevation: 1987
 Year Installed: 1/1/1987
 Pump Intake Depth: Not Reported
 Latest WCR1 Report: Not Reported
 Transmissivity: Not Reported

**P65
 NW
 1/2 - 1 Mile
 Higher**

HI WELLS HI1100000001623

Well ID: 3-2357-024
 Land Owner: Honolulu Board of Water Supply, BWS
 Year Drilled: 1975
 Driller: Water Resources International, Inc.

Well Name: Kaahumanu I-1
 Pump Rate (gpm): 700
 Original Well Name: Not Reported
 Water Resources International, Inc.
 Rotary
 Casing Diameter (in): 16
 Well Depth (ft): 265
 Perforated Casing Depth: Not Reported
 Initial Water Level (ft): 14
 Water Level After Install: Not Reported
 Date Tested: Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Test Pump Rate (gpm): 800
 Test Chloride Content (MG/L): 206
 Temp Unit: C
 Minimum Chloride Level: Not Reported
 Hole Bottom Elevation: -220
 Year Installed: 1978
 Pump Intake Depth: Not Reported
 Latest WCR1 Report: 1/1/1975
 Transmissivity: Not Reported

Test Drawdown Rate (ft): 9.8
 Test Water Temp: 21.8
 Max Chloride Level: Not Reported
 Draft Year: Not Reported
 Solid Casing Bottom Elevation: -80
 Pump Capacity (MM gal/day): 1,008
 Latest Head: Not Reported
 Latest WCR2 Report: Not Reported
 Min to pump 5 volumes: Not Reported

P66 NW 1/2 - 1 Mile Higher **FED USGS USGS40000270408**

Organization ID: USGS-HI
 Monitor Location: 3-2357-23, WAIU
 Description: Not Reported
 Drainage Area: Not Reported
 Contrib Drainage Area: Not Reported
 Aquifer: Not Reported
 Aquifer Type: Not Reported
 Well Depth: 230
 Well Hole Depth: 341

Organization Name: USGS Hawaii Water Science Center
 Type: Well
 HUC: 20060000
 Drainage Area Units: Not Reported
 Contrib Drainage Area Units: Not Reported
 Formation Type: Not Reported
 Construction Date: 1974/2/01
 Well Depth Units: ft
 Well Hole Depth Units: ft

Ground water levels, Number of Measurements: 1
 Feet below surface: 31.70
 Note: Not Reported

O67 WNW 1/2 - 1 Mile Higher **FED USGS USGS40000270361**

Organization ID: USGS-HI
 Monitor Location: 3-2357-08 W198-2 WAI
 Description: Not Reported
 Drainage Area: Not Reported
 Contrib Drainage Area: Not Reported
 Aquifer: Not Reported
 Aquifer Type: Not Reported
 Well Depth: 72
 Well Hole Depth: Not Reported

Organization Name: USGS Hawaii Water Science Center
 Type: Well
 HUC: 20060000
 Drainage Area Units: Not Reported
 Contrib Drainage Area Units: Not Reported
 Formation Type: Not Reported
 Construction Date: 1938/01/01
 Well Depth Units: ft
 Well Hole Depth Units: Not Reported

Well ID: 3-2357-008
 Well Owner: R K J Lee Properties
 Pump Rate (gpm): Not Reported
 Original Well Name: Not Reported
 Ground Elevation (ft): 22
 Solid Casing Depth: 20

Well Name: Weiau
 Land Owner: Not Reported
 Year Drilled: 1938
 Driller: W. Mullin
 Casing Diameter (in): 6
 Well Depth (ft): 72
 Perforated Casing Depth: Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Major Well Use: Irrigation (non-domestic, non-agriculture)
 Initial Water Level (ft): Not Reported
 Water Level After Drilling: Water Level After Drilling: Not Reported
 Chloride Content (mg/L): 116
 Test Pump Rate (g/m): Not Reported
 Test Chloride Content (MG/L): Not Reported
 Temp Unit: Not Reported
 Minimum Chloride Level: Not Reported
 Hole Bottom Elevation: -50
 Year Installed: Not Reported
 Pump Intake Depth: Not Reported
 Latest WCR1 Report: 1/1/1938
 Transmissivity: Not Reported

Initial Water Level After Install: Not Reported
 Date Tested: Not Reported
 Test Drawdown Rate (ft): Not Reported
 Test Water Temp: Not Reported
 Max Chloride Level: Not Reported
 Draft Year: Not Reported
 Solid Casing Bottom Elevation: 2
 Pump Capacity (MM gal/day): Not Reported
 Latest Head: Not Reported
 Latest WCR2 Report: Not Reported
 Min to pump 5 volumes: Not Reported

P69 NW 1/2 - 1 Mile Higher **FED USGS USGS40000270409**

Organization ID: USGS-HI
 Monitor Location: 3-2357-23,24 WAIU
 Description: Not Reported
 Drainage Area: Not Reported
 Contrib Drainage Area: Not Reported
 Aquifer: Not Reported
 Aquifer Type: Not Reported
 Well Depth: Not Reported
 Well Hole Depth: Not Reported

Organization Name: USGS Hawaii Water Science Center
 Type: Well
 HUC: Multiple wells
 Drainage Area Units: Not Reported
 Contrib Drainage Area Units: Not Reported
 Formation Type: Not Reported
 Construction Date: Not Reported
 Well Depth Units: Not Reported
 Well Hole Depth Units: Not Reported

Q70 East 1/2 - 1 Mile Higher **HI WELLS HI1100000001695**

Well ID: 3-2356-066
 Well Owner: Ellen Lau
 Pump Rate (gpm): Not Reported
 Original Well Name: Not Reported
 Well Construction Type: Percussion
 Ground Elevation (ft): Not Reported
 Solid Casing Depth: Not Reported
 Major Well Use: Not Reported
 Water Level After Drilling: Not Reported
 Chloride Content (mg/L): 0
 Test Pump Rate (g/m): Not Reported
 Test Chloride Content (MG/L): Not Reported
 Temp Unit: Not Reported
 Minimum Chloride Level: Not Reported
 Hole Bottom Elevation: Not Reported
 Year Installed: Not Reported
 Pump Intake Depth: Not Reported
 Latest WCR1 Report: 1/1/1977
 Transmissivity: Not Reported

Well Name: Pearlridge B
 Land Owner: Not Reported
 Year Drilled: 1977
 Driller: Roscoe Moss Hawaii Inc
 Casing Diameter (in): Not Reported
 Well Depth (ft): 0
 Perforated Casing Depth: Not Reported
 Initial Water Level (ft): Not Reported
 Water Level After Install: Not Reported
 Date Tested: Not Reported
 Test Drawdown Rate (ft): Not Reported
 Test Water Temp: Not Reported
 Max Chloride Level: Not Reported
 Draft Year: Not Reported
 Solid Casing Bottom Elevation: Not Reported
 Pump Capacity (MM gal/day): Not Reported
 Latest Head: Not Reported
 Latest WCR2 Report: Not Reported
 Min to pump 5 volumes: Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database EDR ID Number

Q71
East
1/2 - 1 Mile
Higher

HI WELLS HI1100000001596

Well ID: 3-2356-067
Well Owner: J.C. Penney
Pump Rate (gpm): Not Reported
Original Well Name: Not Reported
Well Construction Type: Percussion
Ground Elevation (ft): Not Reported
Solid Casing Depth: Not Reported
Major Well Use: Abandoned-Sealed
Water Level After Drilling: Not Reported
Chloride Content (mg/L): 0
Test Pump Rate (gpm): Not Reported
Test Chloride Content (MGL): Not Reported
Temp Unit: Not Reported
Minimum Chloride Level: Not Reported
Hole Bottom Elevation: Not Reported
Year Installed: Not Reported
Pump Intake Depth: Not Reported
Latest WCR1 Report: 1/1/1977
Transmissivity: Not Reported

Well Name: Pearlridge J
Land Owner: Not Reported
Year Drilled: 1977
Driller: Roscoe Moss Hawaii Inc
Casing Diameter (in): 8
Well Depth (ft): 0
Perforated Casing Depth: Not Reported
Initial Water Level (ft): Not Reported
Water Level After Install: Not Reported
Date Tested: Not Reported
Test Drawdown Rate (ft): Not Reported
Test Water Temp: Not Reported
Max Chloride Level: Not Reported
Draft Year: Not Reported
Solid Casing Bottom Elevation: Not Reported
Pump Capacity (MM gal/day): Not Reported
Latest Head: Not Reported
Latest WCR2 Report: Not Reported
Min to pump 5 volumes: Not Reported

Q72
East
1/2 - 1 Mile
Higher

HI WELLS HI1100000001598

Well ID: 3-2356-069
Well Owner: Ellen Lau
Pump Rate (gpm): Not Reported
Original Well Name: Not Reported
Well Construction Type: Percussion
Ground Elevation (ft): Not Reported
Solid Casing Depth: Not Reported
Major Well Use: Not Reported
Water Level After Drilling: Not Reported
Chloride Content (mg/L): 0
Test Pump Rate (gpm): Not Reported
Test Chloride Content (MGL): Not Reported
Temp Unit: Not Reported
Minimum Chloride Level: Not Reported
Hole Bottom Elevation: Not Reported
Year Installed: Not Reported
Pump Intake Depth: 1/1/1978
Latest WCR1 Report: Not Reported
Transmissivity: Not Reported

Well Name: Pearlridge K1
Land Owner: Not Reported
Year Drilled: 1978
Driller: Roscoe Moss Hawaii Inc
Casing Diameter (in): 0
Well Depth (ft): Not Reported
Perforated Casing Depth: Not Reported
Initial Water Level (ft): Not Reported
Water Level After Install: Not Reported
Date Tested: Not Reported
Test Drawdown Rate (ft): Not Reported
Test Water Temp: Not Reported
Max Chloride Level: Not Reported
Draft Year: Not Reported
Solid Casing Bottom Elevation: Not Reported
Pump Capacity (MM gal/day): Not Reported
Latest WCR2 Report: Not Reported
Min to pump 5 volumes: Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database EDR ID Number

Q73
East
1/2 - 1 Mile
Higher

HI WELLS HI1100000001597

Well ID: 3-2356-068
Well Owner: J.C. Penney
Pump Rate (gpm): Not Reported
Original Well Name: Not Reported
Well Construction Type: Percussion
Ground Elevation (ft): Not Reported
Solid Casing Depth: Not Reported
Major Well Use: Abandoned-Sealed
Water Level After Drilling: Not Reported
Chloride Content (mg/L): 0
Test Pump Rate (gpm): Not Reported
Test Chloride Content (MGL): Not Reported
Temp Unit: Not Reported
Minimum Chloride Level: Not Reported
Hole Bottom Elevation: Not Reported
Year Installed: Not Reported
Pump Intake Depth: 1/1/1977
Transmissivity: Not Reported

Well Name: Pearlridge K
Land Owner: Not Reported
Year Drilled: 1977
Driller: Roscoe Moss Hawaii Inc
Casing Diameter (in): 8
Well Depth (ft): 0
Perforated Casing Depth: Not Reported
Initial Water Level (ft): Not Reported
Water Level After Install: Not Reported
Date Tested: Not Reported
Test Drawdown Rate (ft): Not Reported
Test Water Temp: Not Reported
Max Chloride Level: Not Reported
Draft Year: Not Reported
Solid Casing Bottom Elevation: Not Reported
Pump Capacity (MM gal/day): Not Reported
Latest Head: Not Reported
Latest WCR2 Report: Not Reported
Min to pump 5 volumes: Not Reported

P74
NW
1/4 - 1 Mile
Higher

FED USGS USGS40000270410

Organization ID: USGS-HI
Monitor Location: 3-2357-24 WAI/OU
Description: Not Reported
Drainage Area: Not Reported
Contrib Drainage Area: Not Reported
Aquifer: Not Reported
Well Depth: 266
Well Hole Depth: Not Reported

Organization Name: USGS Hawaii Water Science Center
Well Type: Well
HUC: 20060000
Drainage Area Units: Not Reported
Contrib Drainage Area Units: Not Reported
Formation Type: Not Reported
Construction Date: 19750901
Well Depth Units: ft
Well Hole Depth Units: Not Reported

Ground water levels Number of Measurements: 1
Feet below surface: 31.60
Note: Not Reported

Level reading date: 1975-09-24
Feet to sea level: Not Reported

R75
ESE
1/2 - 1 Mile
Lower

HI WELLS HI1100000001537

Well ID: 3-2356-008
Well Owner: Naval Facilities Engineering Command Hawaii, Environmental, NAVFAC Hawaii
Land Owner: Kanehanna Schools
Year Drilled: Not Reported
Driller: Curtis Wong (Naval Facilities Engineering Command Hawaii, Asset Management, NAVFAC Hawaii)
Well Construction Type: Not Reported
Casing Diameter (in): 6
Well Depth (ft): 79

Well Name: Pearl Harbor
Pump Rate (gpm): Not Reported
Original Well Name: Not Reported
Casing Diameter (in): 6
Well Depth (ft): 79

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Solid Casing Depth: Not Reported
 Major Well Use: Not Reported
 Water Level After Drilling: Not Reported
 Chloride Content (mg/L): 0
 Test Pump Rate (g/m): Not Reported
 Test Chloride Content (MGL): Not Reported
 Temp Unit: Not Reported
 Minimum Chloride Level: Not Reported
 Hole Bottom Elevation: -73
 Year Installed: Not Reported
 Pump Intake Depth: Not Reported
 Latest WCR1 Report: Not Reported
 Transmissivity: Not Reported

Perforated Casing Depth: Not Reported
 Initial Water Level (ft): Not Reported
 Water Level After Install: Not Reported
 Date Tested: Not Reported
 Test Drawdown Rate (ft): Not Reported
 Test Water Temp: Not Reported
 Max Chloride Level: Not Reported
 Draft Year: Not Reported
 Solid Casing Bottom Elevation: Not Reported
 Pump Capacity (MM gal/day): Not Reported
 Latest Head: Not Reported
 Latest WCR2 Report: Not Reported
 Min to pump 5 volumes: Not Reported

S77
NNE
1/2 - 1 Mile
Lower

FED USGS USGS40000270267

Organization ID: USGS-HI
 Monitor Location: 3-2356-08 T126
 Description: Not Reported
 Drainage Area: Not Reported
 Contrib Drainage Area: Not Reported
 Aquifer: Not Reported
 Formation Type: Not Reported
 Construction Date: 19421101
 Well Depth: 79
 Well Hole Depth: Not Reported

Organization Name: USGS Hawaii Water Science Center
 Type: Well
 HUC: 20060000
 Drainage Area Units: Not Reported
 Contrib Drainage Area Units: Not Reported
 Formation Type: Not Reported
 Construction Date: 19421101
 Well Depth Units: ft
 Well Hole Depth Units: Not Reported

S77
NNE
1/2 - 1 Mile
Higher

FED USGS USGS40000270430

Organization ID: USGS-HI
 Monitor Location: 3-2356-13 W194
 Description: Not Reported
 Drainage Area: Not Reported
 Contrib Drainage Area: Not Reported
 Aquifer: Not Reported
 Formation Type: Not Reported
 Construction Date: 18950101
 Well Depth: 257
 Well Hole Depth: Not Reported

Organization Name: USGS Hawaii Water Science Center
 Type: Well
 HUC: 20060000
 Drainage Area Units: Not Reported
 Contrib Drainage Area Units: Not Reported
 Formation Type: Not Reported
 Construction Date: 18950101
 Well Depth Units: ft
 Well Hole Depth Units: Not Reported

S78
NNE
1/2 - 1 Mile
Higher

HI WELLS HI110000001542

Well ID: 3-2356-013
 Well Owner: You & Shimizu
 Pump Rate (g/m): Not Reported
 Original Well Name: Not Reported
 Well Construction Type: Not Reported
 Ground Elevation (ft): 24
 Solid Casing Depth: 79

Well Name: Aiea
 Land Owner: Not Reported
 Year Drilled: 1985
 Driller: L. McCandless
 Casing Diameter (in): 6
 Well Depth (ft): 257
 Perforated Casing Depth: Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Major Well Use: Abandoned-Sealed
 Water Level After Drilling: Not Reported
 Chloride Content (mg/L): 77
 Test Pump Rate (g/m): Not Reported
 Test Chloride Content (MGL): Not Reported
 Temp Unit: Not Reported
 Minimum Chloride Level: Not Reported
 Hole Bottom Elevation: -233
 Year Installed: Not Reported
 Pump Intake Depth: Not Reported
 Latest WCR1 Report: 01/01/1895
 Transmissivity: Not Reported

Initial Water Level (ft): 21
 Water Level After Install: Not Reported
 Date Tested: Not Reported
 Test Drawdown Rate (ft): Not Reported
 Test Water Temp: Not Reported
 Max Chloride Level: Not Reported
 Draft Year: Not Reported
 Solid Casing Bottom Elevation: -55
 Pump Capacity (MM gal/day): Not Reported
 Latest Head: Not Reported
 Latest WCR2 Report: Not Reported
 Min to pump 5 volumes: Not Reported

S79
NNE
1/2 - 1 Mile
Higher

FED USGS USGS40000270441

Organization ID: USGS-HI
 Monitor Location: 3-2356-50 Waimalu Wells I, no. 2, Oahu, HI
 Description: former W195-1B NAWQA entry ver. 05/15/2002 Hunt C
 Drainage Area: 20060000
 Contrib Drainage Area: Not Reported
 Aquifer: Hawaii volcanic-rock aquifers
 Formation Type: Not Reported
 Construction Date: 19850101
 Well Depth: 327
 Well Hole Depth: 327

Organization Name: USGS Hawaii Water Science Center
 Type: Well
 HUC: 20060000
 Drainage Area Units: Not Reported
 Contrib Drainage Area Units: Not Reported
 Formation Type: Not Reported
 Construction Date: 19850101
 Well Depth Units: ft
 Well Hole Depth Units: ft

S80
NNE
1/2 - 1 Mile
Higher

FED USGS USGS40000270442

Organization ID: USGS-HI
 Monitor Location: 3-2356-03 W195
 Description: Not Reported
 Drainage Area: Not Reported
 Contrib Drainage Area: Not Reported
 Aquifer: Not Reported
 Formation Type: Not Reported
 Construction Date: 356
 Well Depth: 356
 Well Hole Depth: Not Reported

Organization Name: USGS Hawaii Water Science Center
 Type: Well
 HUC: 20060000
 Drainage Area Units: Not Reported
 Contrib Drainage Area Units: Not Reported
 Formation Type: Not Reported
 Construction Date: 356
 Well Depth Units: ft
 Well Hole Depth Units: Not Reported

S81
NNE
1/2 - 1 Mile
Higher

HI WELLS HI110000001532

Well ID: 3-2356-003
 Well Owner: H. Nakata
 Pump Rate (g/m): Not Reported
 Original Well Name: Not Reported
 Well Construction Type: Not Reported
 Ground Elevation (ft): 30

Well Name: Aiea
 Land Owner: Not Reported
 Year Drilled: L. McCandless
 Driller: L. McCandless
 Casing Diameter (in): 1
 Well Depth (ft): 356

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

337	Solid Casing Depth: 17.4	347	Perforated Casing Depth: 17.4
Abandoned-Sealed	Water Level After Drilling: Not Reported	17.4	Initial Water Level (ft): Not Reported
Not Reported	Water Level After Install: Not Reported	Not Reported	Water Level After Install: Not Reported
57	Date Tested: Not Reported	Not Reported	Date Tested: Not Reported
Not Reported	Test Drawdown Rate (ft): Not Reported	Not Reported	Test Drawdown Rate (ft): Not Reported
Not Reported	Test Water Temp: Not Reported	Not Reported	Test Water Temp: Not Reported
Not Reported	Max Chloride Level: Not Reported	Not Reported	Max Chloride Level: Not Reported
Not Reported	Draft Year: -307	Not Reported	Draft Year: -307
Not Reported	Solid Casing Bottom Elevation: Not Reported	Not Reported	Solid Casing Bottom Elevation: Not Reported
-326	Pump Capacity (MM gal/day): Not Reported	Not Reported	Pump Capacity (MM gal/day): Not Reported
Not Reported	Year Installed: Not Reported	Not Reported	Year Installed: Not Reported
Not Reported	Pump Intake Depth: Not Reported	Not Reported	Pump Intake Depth: Not Reported
Not Reported	Latest WCR1 Report: Not Reported	Not Reported	Latest WCR2 Report: Not Reported
Not Reported	Transmissivity: Not Reported	Not Reported	Min to pump 5 volumes: Not Reported

**T82
WAW
1/2 - 1 Mile
Lower** HI WELLS HI110000001620

3-2357-021	Well Name: Waialua	1983	Organization Name: USGS-HI
Honolulu Laundry Company, LTD	Year Drilled: 1983	8	Monitor Location: 3-2356-49 W195-1A
Honolulu Laundry Company, LTD	Casing Diameter (in): 8	167	Description: Not Reported
Not Reported	Well Depth (ft): 167	17.3	Drainage Area: Not Reported
Not Reported	Perforated Casing Depth: 17.3	Not Reported	Contrib Drainage Area: Not Reported
Goodfellow Construction, Inc. Corporate	Initial Water Level (ft): Not Reported	Not Reported	Formation Type: Hawaii volcanic-rock aquifers
Not Reported	Water Level After Install: Not Reported	Not Reported	Construction Date: Not Reported
11	Date Tested: Not Reported	21	Well Depth Units: ft
67	Test Drawdown Rate (ft): Not Reported	Not Reported	Well Hole Depth Units: Not Reported
Abandoned-Lost	Test Water Temp: Not Reported	Not Reported	
Not Reported	Max Chloride Level: Not Reported	Not Reported	
229	Draft Year: -56	Not Reported	
Not Reported	Solid Casing Bottom Elevation: Not Reported	Not Reported	
Not Reported	Pump Capacity (MM gal/day): Not Reported	Not Reported	
Not Reported	Year Installed: Not Reported	Not Reported	
1/1/1963	Latest WCR1 Report: Not Reported	Not Reported	
Not Reported	Latest WCR2 Report: Not Reported	Not Reported	
Not Reported	Transmissivity: Not Reported	Not Reported	

**S83
NE
1/2 - 1 Mile
Higher** FED USGS USGS40000270439

USGS-HI	Organization Name: USGS Hawaii Water Science Center
3-2356-49 50	Well: Multiple wells
Not Reported	HUC: 20060000
Not Reported	Drainage Area Units: Not Reported
Not Reported	Contrib Drainage Area Units: Not Reported
Not Reported	Formation Type: Not Reported
Not Reported	Construction Date: Not Reported
Not Reported	Well Depth Units: Not Reported
Not Reported	Well Hole Depth Units: Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID	Database	EDR ID Number
Direction	FED USGS	USGS40000270440
Distance		
Elevation		
S84		
NE		
1/2 - 1 Mile		
Higher		
USGS-HI	Organization Name: USGS Hawaii Water Science Center	
3-2356-49 W195-1A	Well: 20060000	
Not Reported	HUC: Not Reported	
Not Reported	Drainage Area Units: Not Reported	
Not Reported	Contrib Drainage Area Units: Not Reported	
Not Reported	Formation Type: Not Reported	
Not Reported	Construction Date: 1954/0101	
327	Well Depth Units: ft	
Not Reported	Well Hole Depth Units: Not Reported	

**T86
WAW
1/2 - 1 Mile
Lower** FED USGS USGS40000270355

USGS-HI	Organization Name: USGS Hawaii Water Science Center
3-2357-21 W198-3	Well: 20060000
Not Reported	HUC: Not Reported
Not Reported	Drainage Area Units: Not Reported
Not Reported	Contrib Drainage Area Units: Not Reported
Hawaii volcanic-rock aquifers	Aquifer Type: Not Reported
Not Reported	Construction Date: Not Reported
19630-001	Well Depth Units: ft
Not Reported	Well Hole Depth Units: Not Reported

**S86
NE
1/2 - 1 Mile
Higher** HI WELLS HI110000001579

3-2356-050	Well Name: Waimalu I-2
Honolulu Board of Water Supply, BWS	Pump Rate (gpm): 325
Not Reported	Original Well Name: Not Reported
1955	Well Construction Type: Not Reported
Samsom/Smock	Ground Elevation (ft): 102
12	Solid Casing Depth: 127
327	Major Well Use: County
Not Reported	Water Level After Drilling: Not Reported
Not Reported	Chloride Content (mg/L): 61
Not Reported	Test Chloride Content (MG/L): 1200
10.6	Test Pump Rate (gpm): Not Reported
Not Reported	Temp Unit: Not Reported
Not Reported	Minimum Chloride Level: Not Reported
Not Reported	Year Installed: -225
-25	Hole Bottom Elevation: 1977
0-468	Pump Intake Depth: Not Reported
Not Reported	Latest WCR1 Report: Not Reported
Not Reported	Transmissivity: Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database EDR ID Number

S87
NE
1/2 - 1 Mile
Higher

Well ID: 3-2356-049
Well Owner: Honolulu Board of Water Supply, BWS
Land Owner: Not Reported
Year Drilled: 1954
Driller: Samson/Smock
Casing Diameter (in): 12
Well Depth (ft): 327
Perforated Casing Depth: Not Reported
Initial Water Level (ft): Not Reported
Water Level After Install: Not Reported
Date Tested: Not Reported
Test Drawdown Rate (ft): 0.8
Test Pump Rate (gpm): Not Reported
Temp Unit: Not Reported
Minimum Chloride Level: Not Reported
Max Chloride Level: Not Reported
Solid Casing Bottom Elevation: -27
Pump Capacity (MM gal/day): 0.48
Latest Head: Not Reported
Latest WCR2 Report: Not Reported
Min to pump 5 volumes: Not Reported

Organization ID: U88
Monitor Location: Waimalu I-1
Description: 325
Drainage Area: Not Reported
Contrib Drainage Area: Not Reported
Aquifer: 102
Aquifer Type: Solid Casing Depth: 129
Well ID Depth: Unused
Well Hole Depth: Not Reported
Well Hole Depth Units: Not Reported

Organization Name: USGS Hawaii Water Science Center
Well: Well
HUC: 20060000
Drainage Area Units: Not Reported
Contrib Drainage Area Units: Not Reported
Formation Type: Not Reported
Construction Date: 1942.1101
ft
Well ID Depth Units: Not Reported
Well Hole Depth Units: Not Reported

U89
ESE
1/2 - 1 Mile
Lower

Organization ID: U89
Monitor Location: 3-2356-09 T127
Description: Not Reported
Drainage Area: Not Reported
Contrib Drainage Area: Not Reported
Aquifer: Not Reported
Aquifer Type: Not Reported
Well ID Depth: 75
Well Hole Depth: Not Reported
Well Hole Depth Units: Not Reported

U90
NW
1/2 - 1 Mile
Higher

Organization ID: U90
Monitor Location: 3-2357-04 W198 WAAU
Description: Not Reported
Drainage Area: Not Reported
Contrib Drainage Area: Not Reported
Aquifer: Not Reported
Aquifer Type: Not Reported
Well ID Depth: 425
Well Hole Depth: Not Reported
Well Hole Depth Units: Not Reported

Organization Name: USGS Hawaii Water Science Center
Well: Well
HUC: 20060000
Drainage Area Units: Not Reported
Contrib Drainage Area Units: Not Reported
Formation Type: Not Reported
Construction Date: 19000101
ft
Well ID Depth Units: Not Reported
Well Hole Depth Units: Not Reported

V89
NW
1/2 - 1 Mile
Higher

Well ID: 3-2357-004
Well Owner: Yoshiko Okuda
Land Owner: Not Reported
Year Drilled: Not Reported
Driller: L, McCandless
Original Well Name: Not Reported
Well Construction Type: Not Reported
Casing Diameter (in): 10
Ground Elevation (ft): 425
Solid Casing Depth: Not Reported
Major Well Use: Irrigation (non-domestic, non-agriculture)
Initial Water Level (ft): 20.3
Water Level After Install: Not Reported
Date Tested: Not Reported
Test Drawdown Rate (ft): 0.3
Test Water Temp: Not Reported
Max Chloride Level: Not Reported
Draft Year: Not Reported
Solid Casing Bottom Elevation: Not Reported
Pump Capacity (MM gal/day): Not Reported
Latest Head: Not Reported
Latest WCR2 Report: Not Reported
Min to pump 5 volumes: Not Reported

Organization Name: USGS Hawaii Water Science Center
Well: Well
HUC: 20060000
Drainage Area Units: Not Reported
Contrib Drainage Area Units: Not Reported
Formation Type: Not Reported
Construction Date: 19000101
ft
Well ID Depth Units: Not Reported
Well Hole Depth Units: Not Reported

V91
NW
1/2 - 1 Mile
Higher

Well ID: 3-2357-004
Well Owner: Yoshiko Okuda
Land Owner: Not Reported
Year Drilled: Not Reported
Driller: L, McCandless
Original Well Name: Not Reported
Well Construction Type: Not Reported
Casing Diameter (in): 10
Ground Elevation (ft): 425
Solid Casing Depth: Not Reported
Major Well Use: Irrigation (non-domestic, non-agriculture)
Initial Water Level (ft): 20.3
Water Level After Install: Not Reported
Date Tested: Not Reported
Test Drawdown Rate (ft): 0.3
Test Water Temp: Not Reported
Max Chloride Level: Not Reported
Draft Year: Not Reported
Solid Casing Bottom Elevation: Not Reported
Pump Capacity (MM gal/day): Not Reported
Latest Head: Not Reported
Latest WCR2 Report: Not Reported
Min to pump 5 volumes: Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database EDR ID Number

U89
ESE
1/2 - 1 Mile
Lower

Organization ID: U89
Monitor Location: 3-2356-09 T127
Description: Not Reported
Drainage Area: Not Reported
Contrib Drainage Area: Not Reported
Aquifer: Not Reported
Aquifer Type: Not Reported
Well ID Depth: 75
Well Hole Depth: Not Reported
Well Hole Depth Units: Not Reported

Organization Name: USGS Hawaii Water Science Center
Well: Well
HUC: 20060000
Drainage Area Units: Not Reported
Contrib Drainage Area Units: Not Reported
Formation Type: Not Reported
Construction Date: 1942.1101
ft
Well ID Depth Units: Not Reported
Well Hole Depth Units: Not Reported

U90
NW
1/2 - 1 Mile
Higher

Organization ID: U90
Monitor Location: 3-2357-04 W198 WAAU
Description: Not Reported
Drainage Area: Not Reported
Contrib Drainage Area: Not Reported
Aquifer: Not Reported
Aquifer Type: Not Reported
Well ID Depth: 425
Well Hole Depth: Not Reported
Well Hole Depth Units: Not Reported

V91
NW
1/2 - 1 Mile
Higher

Well ID: 3-2357-004
Well Owner: Yoshiko Okuda
Land Owner: Not Reported
Year Drilled: Not Reported
Driller: L, McCandless
Original Well Name: Not Reported
Well Construction Type: Not Reported
Casing Diameter (in): 10
Ground Elevation (ft): 425
Solid Casing Depth: Not Reported
Major Well Use: Irrigation (non-domestic, non-agriculture)
Initial Water Level (ft): 20.3
Water Level After Install: Not Reported
Date Tested: Not Reported
Test Drawdown Rate (ft): 0.3
Test Water Temp: Not Reported
Max Chloride Level: Not Reported
Draft Year: Not Reported
Solid Casing Bottom Elevation: Not Reported
Pump Capacity (MM gal/day): Not Reported
Latest Head: Not Reported
Latest WCR2 Report: Not Reported
Min to pump 5 volumes: Not Reported

Organization Name: USGS Hawaii Water Science Center
Well: Well
HUC: 20060000
Drainage Area Units: Not Reported
Contrib Drainage Area Units: Not Reported
Formation Type: Not Reported
Construction Date: 19000101
ft
Well ID Depth Units: Not Reported
Well Hole Depth Units: Not Reported

V91
NW
1/2 - 1 Mile
Higher

Well ID: 3-2357-004
Well Owner: Yoshiko Okuda
Land Owner: Not Reported
Year Drilled: Not Reported
Driller: L, McCandless
Original Well Name: Not Reported
Well Construction Type: Not Reported
Casing Diameter (in): 10
Ground Elevation (ft): 425
Solid Casing Depth: Not Reported
Major Well Use: Irrigation (non-domestic, non-agriculture)
Initial Water Level (ft): 20.3
Water Level After Install: Not Reported
Date Tested: Not Reported
Test Drawdown Rate (ft): 0.3
Test Water Temp: Not Reported
Max Chloride Level: Not Reported
Draft Year: Not Reported
Solid Casing Bottom Elevation: Not Reported
Pump Capacity (MM gal/day): Not Reported
Latest Head: Not Reported
Latest WCR2 Report: Not Reported
Min to pump 5 volumes: Not Reported

Organization Name: USGS Hawaii Water Science Center
Well: Well
HUC: 20060000
Drainage Area Units: Not Reported
Contrib Drainage Area Units: Not Reported
Formation Type: Not Reported
Construction Date: 19000101
ft
Well ID Depth Units: Not Reported
Well Hole Depth Units: Not Reported

V91
NW
1/2 - 1 Mile
Higher

Well ID: 3-2357-004
Well Owner: Yoshiko Okuda
Land Owner: Not Reported
Year Drilled: Not Reported
Driller: L, McCandless
Original Well Name: Not Reported
Well Construction Type: Not Reported
Casing Diameter (in): 10
Ground Elevation (ft): 425
Solid Casing Depth: Not Reported
Major Well Use: Irrigation (non-domestic, non-agriculture)
Initial Water Level (ft): 20.3
Water Level After Install: Not Reported
Date Tested: Not Reported
Test Drawdown Rate (ft): 0.3
Test Water Temp: Not Reported
Max Chloride Level: Not Reported
Draft Year: Not Reported
Solid Casing Bottom Elevation: Not Reported
Pump Capacity (MM gal/day): Not Reported
Latest Head: Not Reported
Latest WCR2 Report: Not Reported
Min to pump 5 volumes: Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database EDR ID Number

W92
WNV
1/2 - 1 Mile
Higher

FED USGS **USGS-40000270279**

Organization ID: USGS-HI
Monitor Location: 3-2356-01 W191
Description: Not Reported
Drainage Area: Not Reported
Contrib Drainage Area: Not Reported
Aquifer Type: Not Reported
Well Depth: Not Reported
Well Hole Depth: Not Reported

Organization Name: USGS Hawaii Water Science Center
Type: Well
HUC: 20160000
Drainage Area Units: Not Reported
Contrib Drainage Area Units: Not Reported
Formation Type: Not Reported
Construction Date: Not Reported
Well Depth Units: Not Reported
Well Hole Depth Units: Not Reported

W93
WNV
1/2 - 1 Mile
Higher

HI WELLS **HI1100000001530**

Well ID: 3-2356-001
Land Owner: BRE & Pearinridge LLC
Pump Rate (gpm): Not Reported
Original Well Name: Not Reported
Well Construction Type: Not Reported
Ground Elevation (ft): Not Reported
Solid Casing Depth: Not Reported
Major Well Use: Abandoned-Lost
Water Level After Drilling: Not Reported
Chloride Content (mg/L): 0
Test Pump Rate (gpm): Not Reported
Temp Unit: Not Reported
Minimum Chloride Level: Not Reported
Hole Bottom Elevation: Not Reported
Year Installed: Not Reported
Pump Intake Depth: Not Reported
Latest WCR1 Report: Not Reported
Transmissivity: Not Reported

Well Name: Aiea
Land Owner: BRE & Pearinridge LLC
Year Drilled: Not Reported
Driller: Not Reported
Well Depth (ft): 0
Casing Diameter (in): Not Reported
Perforated Casing Depth: Not Reported
Initial Water Level (ft): Not Reported
Water Level After Install: Not Reported
Date Tested: Not Reported
Test Water Temp: Not Reported
Max Chloride Level: Not Reported
Draft Year: Not Reported
Solid Casing Bottom Elevation: Not Reported
Pump Capacity (MM gal/day): Not Reported
Latest WCR2 Report: Not Reported
Min to pump 5 volumes: Not Reported

X94
WNV
1/2 - 1 Mile
Lower

FED USGS **USGS-40000270366**

Organization ID: USGS-HI
Monitor Location: 3-2357-02 W199 WAIU
Description: Not Reported
Drainage Area: Not Reported
Contrib Drainage Area: Not Reported
Aquifer Type: Not Reported
Well Depth: 194
Well Hole Depth: Not Reported

Organization Name: USGS Hawaii Water Science Center
Type: Well
HUC: 20160000
Drainage Area Units: Not Reported
Contrib Drainage Area Units: Not Reported
Formation Type: Not Reported
Construction Date: Not Reported
Well Depth Units: ft
Well Hole Depth Units: Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database EDR ID Number

X95
WNV
1/2 - 1 Mile
Lower

HI WELLS **HI1100000001601**

Well ID: 3-2357-002
Land Owner: Hawaiian Electric Company, Inc., HECO
Year Drilled: Not Reported
Driller: Not Reported
Casing Diameter (in): 8
Well Depth (ft): 194
Perforated Casing Depth: Not Reported
Initial Water Level (ft): Not Reported
Water Level After Drilling: Not Reported
Chloride Content (mg/L): Not Reported
Test Pump Rate (gpm): Not Reported
Temp Unit: Not Reported
Minimum Chloride Level: Not Reported
Hole Bottom Elevation: -174
Year Installed: Not Reported
Pump Intake Depth: Not Reported
Latest WCR1 Report: Not Reported
Transmissivity: Not Reported

Well Name: Waiau
Pump Rate (gpm): Not Reported
Original Well Name: Not Reported
Well Construction Type: Not Reported
Ground Elevation (ft): 20
Solid Casing Depth: 54
Major Well Use: Abandoned-Sealed
Water Level After Drilling: Not Reported
Chloride Content (mg/L): 128
Test Pump Rate (gpm): Not Reported
Temp Unit: Not Reported
Minimum Chloride Level: -174
Year Installed: Not Reported
Pump Intake Depth: Not Reported
Latest WCR1 Report: Not Reported
Transmissivity: Not Reported

Y96
SE
1/2 - 1 Mile
Higher

HI WELLS **HI1100000001379**

Well ID: 3-2256-004
Land Owner: Naval Facilities Engineering Command Hawaii, Environmental, NAVFAC Hawaii
Year Drilled: 1889
Driller: Not Reported
Casing Diameter (in): 6
Well Depth (ft): 290
Perforated Casing Depth: Not Reported
Initial Water Level (ft): 24
Water Level After Install: Not Reported
Date Tested: Not Reported
Test Drawdown Rate (ft): Not Reported
Test Water Temp: Not Reported
Max Chloride Level: Not Reported
Draft Year: Not Reported
Solid Casing Bottom Elevation: -177
Pump Capacity (MM gal/day): Not Reported
Pump Intake Depth: Not Reported
Latest WCR2 Report: Not Reported
Transmissivity: Min to pump 5 volumes: Not Reported

Well Name: Pearl Harbor
Pump Rate (gpm): Not Reported
Original Well Name: Department of the Navy, Navy Region Hawaii
Year Drilled: 1889
Driller: Not Reported
Casing Diameter (in): 6
Well Depth (ft): 290
Perforated Casing Depth: Not Reported
Initial Water Level (ft): 24
Water Level After Install: Not Reported
Date Tested: Not Reported
Test Drawdown Rate (ft): Not Reported
Test Water Temp: Not Reported
Max Chloride Level: Not Reported
Draft Year: Not Reported
Solid Casing Bottom Elevation: -177
Pump Capacity (MM gal/day): Not Reported
Pump Intake Depth: Not Reported
Latest WCR2 Report: Not Reported
Transmissivity: Min to pump 5 volumes: Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation Database EDR ID Number
Y97 **SE** **FED USGS** **USGS40000270225**
 Organization ID: USGS-HI
 Monitor Location: 3-2256-04 W190
 Description: Not Reported
 Drainage Area: Not Reported
 Contrib Drainage Area: Not Reported
 Aquifer: Not Reported
 Well Depth: 290
 Well Hole Depth: Not Reported
 Organization Name: USGS Hawaii Water Science Center
 Type: Well
 HUC: 20060000
 Drainage Area Units: Not Reported
 Contrib Drainage Area Units: Not Reported
 Formation Type: Not Reported
 Construction Date: 18680101
 Well Depth Units: ft
 Well Hole Depth Units: Not Reported

Z99
WNW
1/2 - 1 Mile
Higher
HI WELLS **HI1100000001611**

Well ID: 3-2357-012
 Well Name: Honolulu Board of Water Supply, BWS
 Land Owner: Hawaiian Electric Company, Inc., HECO
 Pump Rate (gpm): Not Reported
 Original Well Name: Not Reported
 Well Construction Type: Not Reported
 Ground Elevation (ft): 36
 Solid Casing Depth: 48
 County: Not Reported
 Major Well Use: Not Reported
 Water Level After Drilling: Not Reported
 Chloride Content (mg/L): 0
 Test Pump Rate (gpm): Not Reported
 Test Chloride Content (mg/L): Not Reported
 Temp Unit: Not Reported
 Hole Bottom Elevation: Not Reported
 Year Installed: -47
 Pump Intake Depth: Not Reported
 Latest WCR1 Report: 1/1/1938
 Transmissivity: Not Reported

Z99
WNW
1/2 - 1 Mile
Higher
HI WELLS **HI1100000001610**

Well ID: 3-2357-011
 Well Name: Honolulu Board of Water Supply, BWS
 Land Owner: Hawaiian Electric Company, Inc., HECO
 Pump Rate (gpm): Not Reported
 Original Well Name: Not Reported
 Well Construction Type: Not Reported
 Ground Elevation (ft): 32.9
 Solid Casing Depth: 48
 County: Not Reported
 Water Level After Drilling: Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Chloride Content (mg/L): 110
 Test Pump Rate (gpm): Not Reported
 Test Chloride Content (mg/L): Not Reported
 Temp Unit: Not Reported
 Minimum Chloride Level: Not Reported
 Hole Bottom Elevation: -74.5
 Year Installed: Not Reported
 Pump Intake Depth: Not Reported
 Latest WCR1 Report: 11/26/1938
 Transmissivity: Not Reported

Z100
WNW
1/2 - 1 Mile
Higher
HI WELLS **HI1100000001608**

Well ID: 3-2357-009
 Well Name: Hawaiian Electric Company, Inc., HECO
 Land Owner: Hawaiian Electric Company, Inc., HECO
 Pump Rate (gpm): Not Reported
 Original Well Name: Not Reported
 Driller: Not Reported
 Well Construction Type: Not Reported
 Ground Elevation (ft): 10.5
 Solid Casing Depth: 26
 Major Well Use: Abandoned
 Water Level After Drilling: Not Reported
 Chloride Content (mg/L): 128
 Test Pump Rate (gpm): Not Reported
 Test Chloride Content (mg/L): Not Reported
 Temp Unit: Not Reported
 Hole Bottom Elevation: Not Reported
 Year Installed: -49.5
 Pump Intake Depth: Not Reported
 Latest WCR1 Report: 1/1/1938
 Transmissivity: Not Reported

Z101
WNW
1/2 - 1 Mile
Higher
FED USGS **USGS40000270379**

Organization ID: USGS-HI
 Monitor Location: 3-2357-09 W199-1A WA
 Description: Not Reported
 Drainage Area: Not Reported
 Contrib Drainage Area: Not Reported
 Aquifer: Not Reported
 Well Depth: 61
 Well Hole Depth: Not Reported
 Organization Name: USGS Hawaii Water Science Center
 Type: Well
 HUC: 20060000
 Drainage Area Units: Not Reported
 Contrib Drainage Area Units: Not Reported
 Formation Type: Not Reported
 Construction Date: 19380324
 Well Depth Units: ft
 Well Hole Depth Units: Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation Database EDR ID Number
Z102 WNW 12.1 Mile Higher **FED USGS USGS40000270380**

Organization ID: USGS-HI 3-2357-10 W199-1B USGS Hawaii Water Science Center
 Monitor Location: Type: Well
 Description: HUC: 20060000
 Drainage Area: Not Reported
 Contrib Drainage Area: Drainage Area Units: Not Reported
 Aquifer: Not Reported
 Formation Type: Not Reported
 Construction Date: 19381203
 Well Depth: 101 ft
 Well Hole Depth: Not Reported

Z103 WNW 12.1 Mile Higher **FED USGS USGS40000270378**

Organization ID: USGS-HI 3-2357-05 W199-1A USGS Hawaii Water Science Center
 Monitor Location: Type: Well
 Description: HUC: 20060000
 Drainage Area: Not Reported
 Contrib Drainage Area: Drainage Area Units: Not Reported
 Aquifer: Not Reported
 Formation Type: Not Reported
 Construction Date: 19320101
 Well Depth: 65 ft
 Well Hole Depth: Not Reported

Z104 WNW 12.1 Mile Higher **FED USGS USGS40000270376**

Organization ID: USGS-HI 3-2357-17 W199-1H USGS Hawaii Water Science Center
 Monitor Location: Type: Well
 Description: HUC: 20060000
 Drainage Area: Not Reported
 Contrib Drainage Area: Drainage Area Units: Not Reported
 Aquifer: Not Reported
 Formation Type: Not Reported
 Construction Date: 19401101
 Well Depth: 111 ft
 Well Hole Depth: Not Reported

Z105 WNW 12.1 Mile Higher **FED USGS USGS40000270377**

Organization ID: USGS-HI 3-2357-18 W199-1J USGS Hawaii Water Science Center
 Monitor Location: Type: Well
 Description: HUC: 20060000
 Drainage Area: Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Contrib Drainage Area: Not Reported
 Aquifer: Not Reported
 Formation Type: Not Reported
 Construction Date: 19400101
 Well Depth: 108 ft
 Well Hole Depth: Not Reported

Z106 WNW 12.1 Mile Higher **FED USGS USGS40000270384**

Organization ID: USGS-HI 3-2357-15 W199-1F USGS Hawaii Water Science Center
 Monitor Location: Type: Well
 Description: HUC: 20060000
 Drainage Area: Not Reported
 Contrib Drainage Area: Drainage Area Units: Not Reported
 Aquifer: Not Reported
 Formation Type: Not Reported
 Construction Date: 19400101
 Well Depth: 50 ft
 Well Hole Depth: Not Reported

Z107 WNW 12.1 Mile Higher **FED USGS USGS40000270385**

Organization ID: USGS-HI 3-2357-16 W199-1G USGS Hawaii Water Science Center
 Monitor Location: Type: Well
 Description: HUC: 20060000
 Drainage Area: Not Reported
 Contrib Drainage Area: Drainage Area Units: Not Reported
 Aquifer: Not Reported
 Formation Type: Not Reported
 Construction Date: 19400101
 Well Depth: 198 ft
 Well Hole Depth: Not Reported

Z108 WNW 12.1 Mile Higher **FED USGS USGS40000270383**

Organization ID: USGS-HI 3-2357-14 W199-1E USGS Hawaii Water Science Center
 Monitor Location: Type: Well
 Description: HUC: 20060000
 Drainage Area: Not Reported
 Contrib Drainage Area: Drainage Area Units: Not Reported
 Aquifer: Not Reported
 Formation Type: Not Reported
 Construction Date: 19400117
 Well Depth: 90 ft
 Well Hole Depth: Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database EDR ID Number

Z109
WNW
1/2 - 1 Mile
Higher

FED USGS USGS40000270381

Organization ID: USGS-HI
Monitor Location: 3-2357-11 Waialu 2, Oahu, HI
Type: Well
HUC: 20060000
Drainage Area Units: Not Reported
Contrib Drainage Area Units: Not Reported
Formation Type: Not Reported
Construction Date: 19381126
Well Depth Units: ft
Well Hole Depth Units: Not Reported

Organization Name: USGS Hawaii Water Science Center
Description: former name W199-1C
Drainage Area: Not Reported
Contrib Drainage Area: Not Reported
Aquifer: Not Reported
Well Depth: 107
Well Hole Depth: Not Reported

Z110
WNW
1/2 - 1 Mile
Higher

FED USGS USGS40000270382

Organization ID: USGS-HI
Monitor Location: 3-2357-12 W199-4D
Description: Not Reported
Drainage Area: Not Reported
Contrib Drainage Area: Not Reported
Formation Type: Not Reported
Construction Date: 19381210
Well Depth: 83
Well Hole Depth: Not Reported

Organization Name: USGS Hawaii Water Science Center
Type: Well
HUC: 20060000
Drainage Area Units: Not Reported
Contrib Drainage Area Units: Not Reported
Formation Type: Not Reported
Construction Date: 19381210
Well Depth Units: ft
Well Hole Depth Units: Not Reported

Z111
WNW
1/2 - 1 Mile
Higher

HI WELLS HI1100000001613

Well ID: 3-2357-014
Well Owner: Hawaiian Electric Company, Inc., HECO
Land Owner: Not Reported
Year Drilled: 1940
Driller: W. Mullin
Casing Diameter (in): 8
Well Depth (ft): 95
Perforated Casing Depth: Not Reported
Initial Water Level (ft): 13.9
Water Level After Install: Not Reported
Date Tested: Not Reported
Test Pump Rate (gpm): Not Reported
Test Drawdown Rate (ft): Not Reported
Test Water Temp: Not Reported
Max Chloride Level: Not Reported
Draft Year: Not Reported
Solid Casing Bottom Elevation: -50
Pump Capacity (MM gal/day): Not Reported
Latest Head: Not Reported
Latest WCR2 Report: Not Reported
Transmissivity: Not Reported

Well Name: Waialu 5
Pump Rate (gpm): Not Reported
Original Well Name: Not Reported
Well Construction Type: Not Reported
Ground Elevation (ft): 6
Solid Casing Depth: 56
Major Well Use: Abandoned-Sealed
Water Level After Drilling: Not Reported
Chloride Content (mg/L): 546
Test Pump Rate (gpm): Not Reported
Test Chloride Content (MG/L): Not Reported
Temp Unit: Not Reported
Minimum Chloride Level: Not Reported
Hole Bottom Elevation: -80
Year Installed: Not Reported
Pump Intake Depth: Not Reported
Latest WCR1 Report: 1/1/1940
Transmissivity: Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database EDR ID Number

Z112
WNW
1/2 - 1 Mile
Higher

HI WELLS HI1100000001614

Well ID: 3-2357-015
Well Owner: Hawaiian Electric Company, Inc., HECO
Land Owner: Not Reported
Year Drilled: 1940
Driller: W. Mullin
Casing Diameter (in): 6
Well Depth (ft): 50
Perforated Casing Depth: Not Reported
Initial Water Level (ft): Not Reported
Water Level After Install: Not Reported
Date Tested: Not Reported
Test Pump Rate (gpm): Not Reported
Test Drawdown Rate (ft): Not Reported
Test Water Temp: Not Reported
Max Chloride Level: Not Reported
Draft Year: Not Reported
Solid Casing Bottom Elevation: -3
Pump Capacity (MM gal/day): Not Reported
Latest Head: Not Reported
Latest WCR2 Report: Not Reported
Transmissivity: Not Reported

Well Name: Waialu 5
Pump Rate (gpm): Not Reported
Original Well Name: Not Reported
Well Construction Type: Not Reported
Ground Elevation (ft): 6
Solid Casing Depth: 9
Major Well Use: Abandoned-Sealed
Water Level After Drilling: Not Reported
Chloride Content (mg/L): 0
Test Pump Rate (gpm): Not Reported
Test Chloride Content (MG/L): Not Reported
Temp Unit: Not Reported
Minimum Chloride Level: -44
Hole Bottom Elevation: Not Reported
Year Installed: Not Reported
Pump Intake Depth: Not Reported
Latest WCR1 Report: 1/1/1940
Transmissivity: Not Reported

Z113
WNW
1/2 - 1 Mile
Higher

HI WELLS HI1100000001604

Well ID: 3-2357-005
Well Owner: Hawaiian Electric Company, Inc., HECO
Land Owner: Not Reported
Year Drilled: 1932
Driller: Matsutani
Casing Diameter (in): 2
Well Depth (ft): 65
Perforated Casing Depth: Not Reported
Initial Water Level (ft): Not Reported
Water Level After Install: Not Reported
Date Tested: Not Reported
Test Drawdown Rate (ft): Not Reported
Test Water Temp: Not Reported
Max Chloride Level: Not Reported
Draft Year: Not Reported
Solid Casing Bottom Elevation: -8
Pump Capacity (MM gal/day): Not Reported
Latest Head: Not Reported
Latest WCR2 Report: Not Reported
Transmissivity: Not Reported

Well Name: Waialu
Pump Rate (gpm): Not Reported
Original Well Name: Not Reported
Well Construction Type: Not Reported
Ground Elevation (ft): 7
Solid Casing Depth: 15
Major Well Use: Abandoned-Sealed
Water Level After Drilling: Not Reported
Chloride Content (mg/L): 0
Test Pump Rate (gpm): Not Reported
Test Chloride Content (MG/L): Not Reported
Temp Unit: Not Reported
Minimum Chloride Level: Not Reported
Hole Bottom Elevation: -58
Year Installed: Not Reported
Pump Intake Depth: Not Reported
Latest WCR1 Report: 1/1/1932
Transmissivity: Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database EDR ID Number

Z114
WNW
1/2 - 1 Mile
Higher

HI WELLS HI1100000001612

Well ID:	3-2357-013	Well Name:	Waiau
Well Owner:	Hawaiian Electric Company, Inc., HECO	Pump Rate (gpm):	Not Reported
Land Owner:	Not Reported	Original Well Name:	Not Reported
Year Drilled:	1939	Well Construction Type:	Tunnel
Driller:	Not Reported	Ground Elevation (ft):	3
Casing Diameter (in):	Not Reported	Solid Casing Depth:	Not Reported
Perforated Casing Depth:	96	Major Well Use:	Abandoned/Lost
Initial Water Level (ft):	Not Reported	Water Level After Drilling:	Not Reported
Water Level After Install:	Not Reported	Chloride Content (mg/L):	192
Date Tested:	Not Reported	Test Pump Rate (gpm):	Not Reported
Test Drawdown Rate (ft):	Not Reported	Temp Unit:	Not Reported
Test Water Temp:	20.2	Test Chloride Content (MG/L):	C
Max Chloride Level:	Not Reported	Minimum Chloride Level:	Not Reported
Drift Year:	Not Reported	Hole Bottom Elevation:	-93
Solid Casing Bottom Elevation:	Not Reported	Year Installed:	Not Reported
Pump Capacity (MM gal/day):	Not Reported	Pump Intake Depth:	17/1939
Latest Head:	Not Reported	Latest WCR1 Report:	Not Reported
Latest WCR2 Report:	Not Reported	Transmissivity:	Not Reported
Min to pump 5 volumes:	Not Reported		

Z115
WNW
1/2 - 1 Mile
Higher

HI WELLS HI1100000001617

Well ID:	3-2357-018	Well Name:	Waiau 8
Well Owner:	Hawaiian Electric Company, Inc., HECO	Pump Rate (gpm):	Not Reported
Land Owner:	Not Reported	Original Well Name:	Not Reported
Year Drilled:	1940	Well Construction Type:	Not Reported
Driller:	W. Mullin	Ground Elevation (ft):	24
Casing Diameter (in):	20	Solid Casing Depth:	72
Perforated Casing Depth:	103	Major Well Use:	Abandoned-Sealed
Initial Water Level (ft):	16.8	Water Level After Drilling:	Not Reported
Water Level After Install:	Not Reported	Chloride Content (mg/L):	137
Date Tested:	Not Reported	Test Pump Rate (gpm):	Not Reported
Test Drawdown Rate (ft):	Not Reported	Temp Unit:	Not Reported
Test Water Temp:	Not Reported	Minimum Chloride Level:	Not Reported
Max Chloride Level:	Not Reported	Hole Bottom Elevation:	-79
Drift Year:	Not Reported	Year Installed:	Not Reported
Solid Casing Bottom Elevation:	-48	Pump Intake Depth:	Not Reported
Pump Capacity (MM gal/day):	Not Reported	Latest WCR1 Report:	11/1940
Latest Head:	Not Reported	Transmissivity:	Not Reported
Latest WCR2 Report:	Not Reported		
Min to pump 5 volumes:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database EDR ID Number

Z116
WNW
1/2 - 1 Mile
Higher

HI WELLS HI1100000001616

Well ID:	3-2357-017	Well Name:	Waiau 7
Well Owner:	Hawaiian Electric Company, Inc., HECO	Pump Rate (gpm):	Not Reported
Land Owner:	Not Reported	Original Well Name:	Not Reported
Year Drilled:	1940	Well Construction Type:	Not Reported
Driller:	W. Mullin	Ground Elevation (ft):	23
Casing Diameter (in):	20	Solid Casing Depth:	60
Perforated Casing Depth:	115	Major Well Use:	Abandoned/Sealed
Initial Water Level (ft):	Not Reported	Water Level After Drilling:	Not Reported
Water Level After Install:	17.1	Chloride Content (mg/L):	146
Date Tested:	Not Reported	Test Pump Rate (gpm):	Not Reported
Test Drawdown Rate (ft):	Not Reported	Temp Unit:	Not Reported
Test Water Temp:	Not Reported	Test Chloride Content (MG/L):	Not Reported
Max Chloride Level:	Not Reported	Minimum Chloride Level:	Not Reported
Drift Year:	Not Reported	Hole Bottom Elevation:	-92
Solid Casing Bottom Elevation:	-37	Year Installed:	Not Reported
Pump Capacity (MM gal/day):	Not Reported	Pump Intake Depth:	Not Reported
Latest Head:	Not Reported	Latest WCR1 Report:	11/1940
Latest WCR2 Report:	Not Reported	Transmissivity:	Not Reported
Min to pump 5 volumes:	Not Reported		

Z117
WNW
1/2 - 1 Mile
Higher

HI WELLS HI1100000001615

Well ID:	3-2357-016	Well Name:	Waiau 6
Well Owner:	Hawaiian Electric Company, Inc., HECO	Pump Rate (gpm):	Not Reported
Land Owner:	Not Reported	Original Well Name:	Not Reported
Year Drilled:	1940	Well Construction Type:	Not Reported
Driller:	W. Mullin	Ground Elevation (ft):	24
Casing Diameter (in):	16	Solid Casing Depth:	95
Perforated Casing Depth:	197	Major Well Use:	Abandoned-Sealed
Initial Water Level (ft):	Not Reported	Water Level After Drilling:	Not Reported
Water Level After Install:	15.6	Chloride Content (mg/L):	1320
Date Tested:	Not Reported	Test Pump Rate (gpm):	Not Reported
Test Drawdown Rate (ft):	Not Reported	Temp Unit:	Not Reported
Test Water Temp:	Not Reported	Minimum Chloride Level:	Not Reported
Max Chloride Level:	Not Reported	Hole Bottom Elevation:	-173
Drift Year:	Not Reported	Year Installed:	Not Reported
Solid Casing Bottom Elevation:	-71	Pump Intake Depth:	Not Reported
Pump Capacity (MM gal/day):	Not Reported	Latest WCR1 Report:	11/1940
Latest Head:	Not Reported	Transmissivity:	Not Reported
Latest WCR2 Report:	Not Reported		
Min to pump 5 volumes:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database EDR ID Number

Z118
ESE
1/2 - 1 Mile
Higher
HI WELLS HI110000001609

Well ID: 3-2357-010
Well Name: Honolulu Board of Water Supply, BWS
Land Owner: Hawaiian Electric Company, Inc., HECO
Pump Rate (gpm): 7000
Original Well Name: Not Reported
Contrib Drainage Area: Not Reported
Ground Elevation (ft): 15
Solid Casing Depth: 44
Major Well Use: County
Water Level After Drilling: Not Reported
Chloride Content (mg/L): 248
Test Pump Rate (gpm): Not Reported
Test Chloride Content (MGL): Not Reported
Temp Unit: Not Reported
Hole Bottom Elevation: -73
Year Installed: Not Reported
Pump Intake Depth: 1237/1938
Latest WCR1 Report: Not Reported
Transmissivity: Not Reported

Well ID: 1938
Well Name: W. Mullin
Year Drilled: 20
Driller: 68
Casing Diameter (in): Not Reported
Well Depth (ft): 18.15
Perforated Casing Depth: Not Reported
Initial Water Level (ft): Not Reported
Water Level After Install: Not Reported
Date Tested: Not Reported
Test Drawdown Rate (ft): Not Reported
Max Chloride Level: Not Reported
Draft Year: Not Reported
Solid Casing Bottom Elevation: -29
Pump Capacity (MM gal/day): 10.08
Latest Head: Not Reported
Latest WCR2 Report: Not Reported
Min to pump 5 volumes: Not Reported

AA119
ESE
1/2 - 1 Mile
Higher
FED USGS USGS40000270264

Organization ID: USGS-HI
Monitor Location: 3-2356-43, W190-1A
Description: Not Reported
Drainage Area: Not Reported
Contrib Drainage Area: Not Reported
Aquifer: Not Reported
Major Well Use: Not Reported
Water Level After Drilling: Not Reported
Chloride Content (mg/L): Not Reported
Test Pump Rate (gpm): Not Reported
Test Chloride Content (MGL): Not Reported
Temp Unit: Not Reported
Hole Bottom Elevation: Not Reported
Year Installed: Not Reported
Pump Intake Depth: Not Reported
Latest WCR1 Report: Not Reported
Transmissivity: Not Reported

Organization Name: USGS Hawaii Water Science Center
Type: Well: Multiple wells
HUC: 20060000
Drainage Area Units: Not Reported
Contrib Drainage Area: Not Reported
Formation Type: Not Reported
Construction Date: Not Reported
Well Depth Units: Not Reported
Well Hole Depth Units: Not Reported

AA120
ESE
1/2 - 1 Mile
Higher
FED USGS USGS40000270265

Organization ID: USGS-HI
Monitor Location: 3-2356-43, W190-1A
Description: Not Reported
Drainage Area: Not Reported
Contrib Drainage Area: Not Reported
Aquifer: Not Reported
Major Well Use: Not Reported
Water Level After Drilling: Not Reported
Chloride Content (mg/L): Not Reported
Test Pump Rate (gpm): Not Reported

Organization Name: USGS Hawaii Water Science Center
Type: Well
HUC: 20060000
Drainage Area Units: Not Reported
Contrib Drainage Area: Not Reported
Formation Type: Not Reported
Construction Date: 1941/01/01
Well Depth Units: ft
Well Hole Depth Units: Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database EDR ID Number

AA121
ESE
1/2 - 1 Mile
Higher
FED USGS USGS40000270266

Organization ID: USGS-HI
Monitor Location: 3-2356-44, W190-1B
Description: HUC:
Drainage Area: Not Reported
Contrib Drainage Area: Not Reported
Aquifer: Not Reported
Major Well Use: Not Reported
Water Level After Drilling: Not Reported
Chloride Content (mg/L): 100
Test Pump Rate (gpm): Not Reported
Test Chloride Content (MGL): Not Reported
Temp Unit: Not Reported
Hole Bottom Elevation: Not Reported
Year Installed: Not Reported
Pump Intake Depth: Not Reported
Latest WCR1 Report: Not Reported
Transmissivity: Not Reported

Organization Name: USGS Hawaii Water Science Center
Type: Well
HUC: 20060000
Drainage Area Units: Not Reported
Contrib Drainage Area: Not Reported
Formation Type: Not Reported
Construction Date: 1941/01/01
Well Depth Units: ft
Well Hole Depth Units: Not Reported

AA122
ESE
1/2 - 1 Mile
Higher
HI WELLS HI110000001572

Well ID: 3-2356-043
Well Name: W. Ridley
Land Owner: Not Reported
Pump Rate (gpm): Not Reported
Original Well Name: Not Reported
Contrib Drainage Area: Not Reported
Ground Elevation (ft): 81
Solid Casing Depth: Not Reported
Major Well Use: Abandoned-Sealed
Water Level After Drilling: Not Reported
Chloride Content (mg/L): 139
Test Pump Rate (gpm): Not Reported
Test Chloride Content (MGL): Not Reported
Temp Unit: Not Reported
Hole Bottom Elevation: -19
Year Installed: Not Reported
Pump Intake Depth: Not Reported
Latest WCR1 Report: 1/1/1941
Transmissivity: Not Reported

Well ID: 3-2356-044
Well Name: W. Mullin
Land Owner: Not Reported
Pump Rate (gpm): Not Reported
Original Well Name: Not Reported
Contrib Drainage Area: Not Reported
Ground Elevation (ft): 81
Solid Casing Depth: 34
Major Well Use: Abandoned-Sealed
Water Level After Drilling: Not Reported
Chloride Content (mg/L): 160
Test Pump Rate (gpm): Not Reported

AA123
ESE
1/2 - 1 Mile
Higher
HI WELLS HI110000001573

Organization ID: USGS-HI
Monitor Location: 3-2356-044
Description: Not Reported
Drainage Area: Not Reported
Contrib Drainage Area: Not Reported
Aquifer: Not Reported
Major Well Use: Not Reported
Water Level After Drilling: Not Reported
Chloride Content (mg/L): Not Reported
Test Pump Rate (gpm): Not Reported

Organization Name: USGS Hawaii Water Science Center
Type: Well
HUC: 20060000
Drainage Area Units: Not Reported
Contrib Drainage Area: Not Reported
Formation Type: Not Reported
Construction Date: 1941/01/01
Well Depth Units: ft
Well Hole Depth Units: Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

AREA RADON INFORMATION

Federal EPA Radon Zone for HONOLULU County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
 : Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
 : Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 96701

Number of sites tested: 13

Area	Average Activity	% <= 4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	-0.015 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	0.600 pCi/L	100%	0%	0%

Test Chloride Content (MG/L): Not Reported
 Temp Unit: Not Reported
 Minimum Chloride Level: Not Reported
 Hole Bottom Elevation: -19
 Year Installed: Not Reported
 Pump Intake Depth: Not Reported
 Latest WCR1 Report: 1/1/94
 Transmissivity: Not Reported

Test Water Temp: Not Reported
 Max Chloride Level: Not Reported
 Draft Year: Not Reported
 Solid Casing Bottom Elevation: 47
 Pump Capacity (MM gal/day): Not Reported
 Latest Head: Not Reported
 Latest WCR2 Report: Not Reported
 Min to pump 5 volumes: Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5 Minute Topographic Map

Source: U.S. Geological Survey

USGS 7.5 Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5 Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map

Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.

Source: FEMA

Telephone: 877-336-2627

Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetlands Inventory

Source: Office of Planning

Telephone: 808-587-2895

HYDROGEOLOGIC INFORMATION

AQUIFLOWR Information System

Source: EDR proprietary database of groundwater flow information

EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit

Source: P.G. Schruben, R.E. Arndt and W.J. Bowiec. Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beklman Map. USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)

The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)

Telephone: 800-672-5559

SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1985. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)

This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Well Index Database

Source: Commission on Water Resource Management

Telephone: 808-587-0214

CWRM maintains a Well Index Database to track specific information pertaining to the construction and installation of production wells in Hawaii.

OTHER STATE DATABASE INFORMATION

RADON

Area Radon Information

Source: USGS

Telephone: 703-356-4020

The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones

Source: EPA

Telephone: 703-356-4020

Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities

Source: Federal Aviation Administration, 800-457-4656

Epcenters: World earthquake epicenters, Richter 5 or greater

Source: Department of Commerce, National Oceanic and Atmospheric Administration

Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary faultlines, prepared in 1975 by the United States Geological Survey

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STREET AND ADDRESS INFORMATION

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Building Permit (pre 1999)

[Permitting](#) [Searching](#) [DPP Home](#) [Sign In](#)

Building Permit
178865
Application Number: A1983-12-1036
Description: ASSOC.STEEL WORKERS - NB
Issued Date: Apr. 26, 1983
Status: Completed
Job Location: 98-085 KAM HWY
Created Date: Apr. 26, 1983
Completed Date: Oct 13, 1983
Relocation Suffix:



Tax Map Key

Display Format
TMK 9-8-009-005 [88165 sq ft.] 2,024 sq. P.O.D = 73860 98-85 KAM HWY Aiea 96701 01/01/1800 to Current TKA PIN = 73860

Details

Project Name: ASSOC.STEEL WORKERS
Owner Name: ASSOCIATED STEEL WORKERS
Plan Maker: RICHARD CHUN
Contractor: WAIMALU WELDING COMPANY
Plumbing Contractor:
Electrical Contractor:
Accepted Value: 23800
Occupancy Group Category: B-4 METAL SH
Occupancy Group: 07 - Industrial
Structure Code: 24 - FRFRROOF, 1 STORY FACTORY OR WAREHOUSE
Construction Type Actual: II N
Construction Type Min: II N
Number Of Stories: 1
Total Floor Area: 602

Ownership Type: Private

Residential Units / Hotel Rooms (Code: A=Add; D=Delete)

Hotel Room Code:

Number of Rooms:

Residential Units Code:

Number of Units:

Inspections (K=Received; C=Completed; NA=Not Applicable)

Code Date

Building Code Inspection: CP Oct 13, 1983

Electrical Code Inspection: NA Oct 13, 1983

Plumbing Code Inspection: NA Oct 13, 1983

Type of Work

New Building

Repair

Plumbing Work

Foundation Only

Demolition

Other Work

Shell Only

Retaining Wall

Electrical Work

Alteration

Curb

Driveway

Cancel

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Permitting Searching DPF Home Sign In

Building Permit (pre 1999)

Building Permit

Application Number:

021587(HST)

Relocation Suffix:

Description:

HAWAII BREWING CO - NB

Issued Date:

Dec 10, 1973

Created Date:

Dec 10, 1973

Status:

Converted

Job Location:

98 051 KAM HWY

Tax Map Key

Warning

Display Format

TMK 9-8-009011 [142789 sq ft] 3.278 ac. POID=72830 98-51 KAM HWY Aloc 96701 01/01/1800 to Current TAXPIN = 72830

Project Name:

HAWAII BREWING CO

Plan Maker:

AUSTIN SMITH & ASSOC

Contractor:

LATER

Electrical Contractor:

Plumbing Contractor:

Accepted Value:

65000

Occupancy Group Category: B3 ASSEMBLY

Occupancy Group: 05 - Amusement, recreation

Structure Code: 06 - AMININGS, CANOPIES, BUS STOP SHEDS

Construction Type Actual: VN

Construction Type Min: VN

Number Of Stores: 1

Total Floor Area: 0

Ownership Type: Private

Residential Units / Hotel Rooms (Code: A=Add; D=Delete)

Hotel Room Code: Number of Rooms:

Residential Units Code: Number of Units:

Inspections (K=Received; C=Completed; NA=Not Applicable)

Building Code Inspection: Dec 5, 1979

Electrical Code Inspection: Sep 1, 1979

Plumbing Code Inspection: Sep 1, 1979

Type of Work

New Building Repair Plumbing Work

Foundation Only Demolition Other Work

Shell Only Fence

Addition Retaining Wall

Alteration Electrical Work

Sidewalk Curb Driveway

Cancel

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Building Permit (pre 1999)

Permitting Searching DPF Home Sign In

Building Permit

Application Number: A1985-11-0903

Description: JIM SLEMONS IMPORTS - AL-EL-PL-OT

Issued Date: Feb 21, 1986

Status: Completed

Job Location: 98-057 KAM HWY

Relocation Suffix:

Created Date: Feb 21, 1986

Completed Date: Jul 29, 1988

Tax Map Key



Display Format
 TMK 9-8-009011 [142789 sq ft] 3.278 ac. POID= 72830 98-51 KAM HWY Aloc 96701 01/01/1800 to Current TAXPIN = 72830

Details

Project Name: JIM SLEMONS IMPORTS

Plan Maker: ANDERSON ASSOCIATES

Contractor: PACIFIC FABRICATIONS

Electrical Contractor: AIKANE ELECTRIC (25639)

Plumbing Contractor: KOREA MECHANICAL (25397)

Accepted Value: 427000

Occupancy Group Category: B2/B1 AUTO

Occupancy Group: 10 - Service Station

Structure Code: 86 - AUTO REPAIR SHOP

Construction Type Actual: II N/VN

Construction Type Mfr: UNK

Number Of Stores: 2

Total Floor Area: 29978

Ownership Type: Private

Residential Units / Hotel Rooms (Code: A=Add; D=Delete)

Hotel Room Code:

Number of Rooms:

Residential Units Code:

Number of Units:

Inspections (K=Received; R=Completed; NA=Not Applicable)

Code Date

Building Code Inspection: CP May 16, 1988

Electrical Code Inspection: CP Jul 29, 1988

Pumbing Code Inspection: CP Apr 22, 1986

Type of Work

New Building

Repair

Plumbing Work

Demolition

Foundation Only

Shell Only

Rerighting Wall

Fence

Alteration

Electrical Work

Curb

Sidewalk

Driveway

Cancel

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Permitting Searching DPF Home Sign In

Building Permit (pre 1999)

Building Permit

Application Number:

101420(HIST)

Relocation Suffix:

Description:

JIM S LEMONS IMPORTS - 1NB, EL, PL

Issued Date:

May 19, 1978

Status:

Converted

Job Location:

98 075 KAM HWY

Completed Date:

May 19, 1978

Created Date:

Sep 1, 1979

Tax Map Key

Warning

Display Format

TMK: 9-8-009-015 [12000 sq ft] 0.275 ac. PCID= 73674 98-73 KAM HWY Area 96701 01/01/1800 to Current TAXPIN = 73674

Details

Project Name:

JIM S LEMONS IMPORTS

Plan Maker:

KWAN DOO PARK

Contractor:

HALE NALU BUILDERS

Electrical Contractor:

BHLING INC

Plumbing Contractor:

BHLING INC

Accepted Value:

105000

Occupancy Group Category:

B2 MAINT SHP

Occupancy Group:

10 - Service Station

Structure Code:

22 - NOT FIREPROOF, 1-2 STY FACTORY OR WHSE

Construction Type Actual:

VN

Construction Type Min:

VN

Number Of Stores:

2

Total Floor Area:

3713

Ownership Type: Private

Hotel Room Code: A=Add; D=Delete

Number of Rooms: 0

Residential Units Code: 0

Number of Units: 0

Inspections (K=Received; C=Completed; NA=Not Applicable)

Building Code Inspection: Nov 30, 1979

Electrical Code Inspection: Dec 14, 1979

Pumbing Code Inspection: Dec 14, 1979

Type of Work

- New Building
- Repair
- Plumbing Work
- Demolition
- Foundation Work
- Shell Only
- Fence
- Retaining Wall
- Addition
- Alteration
- Electrical Work
- Curb
- Driveway

Cancel

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98 85 KAM HWY

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show route

Nearest Park: Neal S Blaisdell Park

General Information

TMK: 98009005:0000

Building Value: \$0.00

Building Exemption: \$0.00

Land Value: \$5,259,600.00

Land Exempt: \$5,259,600.00

Acres: 2

Square Feet: 0

Property Tax Class: Industrial

City: Alaia

Zip Code: 96701

Realtor Neighborhood: Waimalu

Nearest Park: Neal S Blaisdell Park

Tax Bill Owner Information

Name: CITY AND COUNTY OF HONOLULU

Type: Fee Owner

Address: 650 S KING DEPARTMENT OF DESIGN & CONSTRUCTION ST

City State Zip

2010 Census Information

Tract Number: 007808

Block Number: 1010

Population (block): 456

Neighborhood Board: AIEA

School and Transit Information

Elementary School: Waimalu

High School: AIEA

Near Transit Route: Yes

Near Bus Routes: 71, 40, 42, 53, 62, 88A, A

more public safety info >

Zoning and Flood Information

Zoning (LLO) Designation: Ineligible

Chana Zoning Designation: 1-2

FEMA Flood Designation: X

Tsunami Evacuation Zone: No

Voting Information

City Council Member: Brandon Elerate

Polling Place: Waimalu Elem Sch

Address: 98-825 Moanalua Rd

Neighborhood Board: AIEA

98 51 KAM HWY

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 Department of Planning & Permitting
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 98@hawaii.gov
 Directly: 808.539.6540

2010 Assessed Values as of October 1, 2009.

Nearest Park: [show route](#)

Realtor Neighborhood: Waimalu
 ZIP Code: 96701
 City: Aiea
 Property Tax Class: Industrial
 Square Feet: 10,001
 Acres: 0
 Land Exempt: \$816,100.00
 Land Value: \$916,100.00
 Building Exemption: \$2,600.00
 Building Value: \$2,600.00
 TMK: 98009014:0000

General Information

Name: HEALANI LAND COMPANY INC
 Type: Fee Owner
 Address: P O BOX 17658
 City State Zip: HONOLULU HI 96817

2010 Census Information

Tract Number: 007808
 City Council Member: Brandon Elerate
 Block Number: 1010
 Polling Place: Waimalu Elem Sch
 Population (block): 456
 Address: 98-825 Moanalua Rd
 Neighborhood Board: AIEA

Voting Information

School and Transit Information

Elementary School: Waimalu [show route](#)
 High School: AIEA [show route](#)
 Near Transit Route: Yes
 Near Bus Routes: 71, 40, 42, 53, 62, 88A, A
 FEMA Flood Designation: Yes
 Tsunami Evacuation Zone: AE / AE / X / X
 Ineligible

Zoning and Flood Information

Zoning (LLD) Designation: MX-1
 Ohana Zoning Designation: Ineligible
 Neighborhood Board: AIEA

[more public safety info >>](#)

Nearest Park: Neal S Blaisdell Park [show route](#)

Tax Bill Owner Information

Name: HEALANI LAND COMPANY INC
 Type: Fee Owner
 Address: P O BOX 17658
 City State Zip: HONOLULU HI 96817

2010 Census Information

Tract Number: 007808
 City Council Member: Brandon Elerate
 Block Number: 1010
 Polling Place: Waimalu Elem Sch
 Population (block): 456
 Address: 98-825 Moanalua Rd
 Neighborhood Board: AIEA

Voting Information

School and Transit Information

Elementary School: Waimalu [show route](#)
 High School: AIEA [show route](#)
 Near Transit Route: Yes
 Near Bus Routes: 71, 40, 42, 53, 62, 88A, A
 FEMA Flood Designation: Yes
 Tsunami Evacuation Zone: AE / AE / X / X
 Ineligible

Zoning and Flood Information

Zoning (LLD) Designation: MX-1
 Ohana Zoning Designation: Ineligible
 Neighborhood Board: AIEA

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98 69 KAM HWY

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2010 Assessed Values as of October 1, 2009.

Nearest Park: [show route](#)

Realtor Neighborhood: Waimalu
 ZIP Code: 96701
 City: Aiea
 Property Tax Class: Industrial
 Square Feet: 10,001
 Acres: 0
 Land Exempt: \$816,100.00
 Land Value: \$916,100.00
 Building Exemption: \$2,600.00
 Building Value: \$2,600.00
 TMK: 98009014:0000

General Information

Name: CITY AND COUNTY OF HONOLULU
 Type: Fee Owner
 Address: 650 S KING DEPARTMENT OF DESIGN & CONSTRUCTION
 City State Zip: HONOLULU HI 96813

2010 Census Information

Tract Number: 007808
 City Council Member: Brandon Elerate
 Block Number: 1010
 Polling Place: Waimalu Elem Sch
 Population (block): 456
 Address: 98-825 Moanalua Rd
 Neighborhood Board: AIEA

Voting Information

School and Transit Information

Elementary School: Waimalu [show route](#)
 High School: AIEA [show route](#)
 Near Transit Route: Yes
 Near Bus Routes: 71, 40, 42, 53, 62, 88A, A
 FEMA Flood Designation: Yes
 Tsunami Evacuation Zone: Ineligible
 Ineligible

Zoning and Flood Information

Zoning (LLD) Designation: MX-1
 Ohana Zoning Designation: Ineligible
 Neighborhood Board: AIEA

[more public safety info >>](#)

Nearest Park: Neal S Blaisdell Park [show route](#)

Tax Bill Owner Information

Name: CITY AND COUNTY OF HONOLULU
 Type: Fee Owner
 Address: 650 S KING DEPARTMENT OF DESIGN & CONSTRUCTION
 City State Zip: HONOLULU HI 96813

2010 Census Information

Tract Number: 007808
 City Council Member: Brandon Elerate
 Block Number: 1010
 Polling Place: Waimalu Elem Sch
 Population (block): 456
 Address: 98-825 Moanalua Rd
 Neighborhood Board: AIEA

Voting Information

School and Transit Information

Elementary School: Waimalu [show route](#)
 High School: AIEA [show route](#)
 Near Transit Route: Yes
 Near Bus Routes: 71, 40, 42, 53, 62, 88A, A
 FEMA Flood Designation: Yes
 Tsunami Evacuation Zone: Ineligible
 Ineligible

Zoning and Flood Information

Zoning (LLD) Designation: MX-1
 Ohana Zoning Designation: Ineligible
 Neighborhood Board: AIEA

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98 75 KAM HWY

City & County of Honolulu
 Department of Planning & Permitting (DPP)
 Property Information

Nearest Park: Neal S Blaisdell Park
 show route

General Information

TMK: 98009015:0000
 Building Value: \$653,000.00
 Building Exemption: \$653,000.00
 Land Value: \$958,800.00
 Land Exempt: \$958,800.00
 Acres: 0
 Square Feet: 12,000
 Property Tax Class: Industrial
 City: Aiea
 ZIP Code: 96704
 Realtor Neighborhood: Waimalu

Tax Bill Owner Information

Name: Fee Owner
 Address: 650 S KING DEPARTMENT OF DESIGN & CONSTRUCTION ST
 Address 2: City State Zip

2010 Census Information

Tract Number: 007808
 Block Number: 1010
 Population (block): 456
 City Council Member: Brandon Elerane
 Polling Place: Waimalu Elem Sch
 Address: 98-825 Moanalua Rd
 Neighborhood Board: AIEA

Voting Information

School and Transit Information

Elementary School: Waimalu show route
 High School: AIEA show route
 Near Transit Route: Yes
 Near Bus Routes: 71, 40, 42, 53, 62, 88A, A
 FEMA Flood Designation: Ineligible
 Chana Zoning Designation: 1-2
 Zoning (LLD) Designation: Ineligible
 Tsunami Evacuation Zone: No
 more public safety info >>

Zoning and Flood Information

Neighborhood Board: AIEA

Nearest Park: Neal S Blaisdell Park
 show route



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98 73 KAM HWY

City & County of Honolulu
 Department of Planning & Permitting (DPP)
 Property Information

Nearest Park: Neal S Blaisdell Park
 show route

General Information

TMK: 98009015:0000
 Building Value: \$5,400.00
 Building Exemption: \$5,400.00
 Land Value: \$918,000.00
 Land Exempt: \$918,000.00
 Acres: 0
 Square Feet: 12,000
 Property Tax Class: Industrial
 City: Aiea
 ZIP Code: 96704
 Realtor Neighborhood: Waimalu

Tax Bill Owner Information

Name: Fee Owner
 Address: 650 S KING DEPARTMENT OF DESIGN & CONSTRUCTION ST
 Address 2: City State Zip

2010 Census Information

Tract Number: 007808
 Block Number: 1010
 Population (block): 456
 City Council Member: Brandon Elerane
 Polling Place: Waimalu Elem Sch
 Address: 98-825 Moanalua Rd
 Neighborhood Board: AIEA

Voting Information


School and Transit Information

Elementary School: Waimalu show route
 High School: AIEA show route
 Near Transit Route: Yes
 Near Bus Routes: 71, 40, 42, 53, 62, 88A, A
 FEMA Flood Designation: Ineligible
 Chana Zoning Designation: 1-2
 Zoning (LLD) Designation: Ineligible
 Tsunami Evacuation Zone: No
 more public safety info >>

Zoning and Flood Information

Neighborhood Board: AIEA

Nearest Park: Neal S Blaisdell Park
 show route





RECORDS OF
COMMUNICATION/INTERVIEW

REQUEST TO ACCESS A GOVERNMENT RECORD

DATE: August 22, 2019
TO: Honolulu Fire Prevention Bureau (Fax: 808-723-7179)
FROM: Shawn Chamption ENPRO Environmental
Name or Alias
151 Hekili Street, Suite 210 (808) 748-2116 phone
Contact information Kailua, Hawaii 96734 (808) 262-4449 fax

Although you are not required to provide any personal information, you should provide enough information to allow the agency to locate the record. If you are unable to provide this information, please provide as much information as you can. Therefore, please provide any information that will allow the agency to contact you (name or alias, telephone or fax number, mailing address, e-mail address, etc.).

I WOULD LIKE THE FOLLOWING GOVERNMENT RECORD:

Describe the government record as specifically as possible so that it can be located. Try to provide a record name, subject or other information that will help the agency to locate the record. A complete and accurate description of the government record you request will prevent delays in locating the record. Attach a second page if needed.

Aloha,

I am currently working on an Environmental Site Assessment for the following properties located on Oahu on: Kamehameha Highway in Aiea, Hawaii 96701.
TMK Numbers: (1) 9-8-009:005, 011, 014, 015, 016.

I would like to review regulatory records for the following properties:

- 98-51 Kamehameha Highway, Aiea, Hawaii (project site)
[TMK: (1) 9-8-009:011]
- 98-85 Kamehameha Highway, Aiea, Hawaii (project site)
[TMK: (1) 9-8-009:005]
- 98-69 Kamehameha Highway, Aiea, Hawaii (project site)
[TMK: (1) 9-8-009:014]
- 98-73 Kamehameha Highway, Aiea, Hawaii (project site)
[TMK: (1) 9-8-009:015]
- 98-75 Kamehameha Highway, Aiea, Hawaii (project site)
[TMK: (1) 9-8-009:016]
- 98-77 Kamehameha Highway, Aiea, Hawaii
[TMK: (1) 9-8-009:017]
- 98-055 Kamehameha Highway, Aiea, Hawaii
[TMK: (1) 9-8-009:007]
- 98-135 Kamehameha Highway, Aiea, Hawaii
[TMK: (1) 9-8-014:019]
- 98-068 Kamehameha Highway, Aiea, Hawaii
[TMK: (1) 9-8-010:009]
- 98-87 Kamehameha Highway, Aiea, Hawaii
[TMK: (1) 9-8-009:008]

- 98-104 Kamaku Street, Aiea, Hawaii
[TMK: (1) 9-8-022:080]

I wanted to know if your office had any information regarding any fires, complaints, permits, violations involving hazardous materials use, USTs or ASTs on record for the subject properties and/or adjoining properties.

My report is due September 3, 2019. In light of my timeline, I would greatly appreciate any assistance you can provide in expediting access to the files. Mahalo

I WOULD LIKE: (please check one or more of the options below)

- To inspect the government record.
- A copy of the government record. (Please check one of the options below.) See the back of this page for information about fees that you may be required to pay for electronic services to process your record request. Note: Copying and transmission charges may also apply to certain options.
 - Mail
 - Pick up at agency (date and time): _____
 - Fax (toll free and only if available)
 - Other, if available (please specify): _____
- If the agency maintains the records in a form other than paper, please advise in which format you would prefer to have the record.
 - Electronic
 - Audio
 - Other (please specify): _____
- Check this box if you are attaching a request for waiver of fees in the public interest (see waiver information on back).

SEE BACK FOR IMPORTANT INFORMATION

OFFICIAL USE ONLY: _____

Office Manager: _____ Date: _____ OIP (rev. 07/29/99)



TSC 2.5.1 (Hawaiian Electric)
Due Diligence Inquiries

September 3, 2019

Shawn Champion
Enpro Environmental
151 Hekili Street, Suite 210
Kailua, HI 96734
Transmitted via email: schampion@enproenvironmental.com

Dear Mr. Champion:

Subject: Transformer Information
98-073 Kamehameha Highway
Aiea, Oahu, Hawaii

In response to your request for information regarding Hawaiian Electric transformers near the above referenced location, we are providing the following information:

Vault (V) / Pole (P) Number	Transformer Number	Type	Address	Date Purchased	PCB Status
V7886	68607	Pad-Mount	98-075 Kamehameha Highway	03/12/1998	Non-PCB
P20	54918	Pole-Mount	98-107 OR&L RW	01/01/1990	Non-PCB
	54923			01/01/1990	
	81017			03/03/2008	
P1/20	62804	Pole-Mount	98-075 Kamehameha Highway	09/06/1994	Non-PCB
	62806				
	66289				
P17	66290	Pole-Mount	97-051 Kamehameha Highway	10/26/2018	Non-PCB
	66296				

If you have any other questions, please contact me at TransformerInfo@hawaiianelectric.com.

Sincerely,

Carly Hiromoto
Environmental Scientist

Hawaiian Electric

PO BOX 2750 / HONOLULU, HI 96840-0001



TSC 2.5.1 (Hawaiian Electric)
Due Diligence Inquiries

September 9, 2019

Shawn Champion
Enpro Environmental
151 Hekili Street, Suite 210
Kailua, HI 96734
Transmitted via email: schampion@enproenvironmental.com

Dear Mr. Champion:

Subject: Transformer Information
98-073 Kamehameha Highway
Aiea, Oahu, Hawaii

In response to your request for information regarding Hawaiian Electric transformers near the above referenced location, we are providing the following information:

Vault Number	Transformer Number	Type	Address	Date Purchased	PCB Status
8935	78084	Pad-Mount	98-051 Kamehameha Highway	03/16/2005	Non-PCB

If you have any other questions, please contact me at TransformerInfo@hawaiianelectric.com.

Sincerely,

Carly Hiromoto
Environmental Scientist

Hawaiian Electric

PO BOX 2750 / HONOLULU, HI 96840-0001

NOTICE TO REQUESTER

TO: Shawn Champion
(Requester's name)

FROM: Dept. of Health/Hazard Evaluation & Emergency Response Office / (808)586-4249
(Agency, and agency contact person's name, telephone number, & email address)

DATE THAT THE RECORD REQUEST WAS RECEIVED BY AGENCY: August 23, 2019

DATE OF THIS NOTICE: August 28, 2019

GOVERNMENT RECORDS YOU REQUESTED (attach copy of request or provide brief description below):

- 1. (Attached)
 - 2.
 - 3.
 - 4.
- THIS NOTICE IS TO INFORM YOU THAT YOUR RECORD REQUEST:**
- Will be granted in its entirety.
 - Cannot be granted. Agency is unable to disclose the requested records for the following reason:**
 Agency does not maintain the records. (HRS § 92F-3)
 Other agency that is believed to maintain records:
Agency needs further clarification or description of the records requested. Please contact the agency and provide the following information:
 Request requires agency to create a summary or compilation from records, but requested information is not readily retrievable. (HRS § 92F-11(c))

Will be granted in part and denied in part, OR **Is denied in its entirety**
Although the agency maintains the requested records, it is not disclosing all or part of them based on the exemptions provided in HRS § 92F-13 and/or § 92F-22 or other laws cited below.
(Describe the portions of records that the agency will not disclose.)

RECORDS OR INFORMATION WITHHELD APPLICABLE STATUTES AGENCY JUSTIFICATION

REQUESTER'S RESPONSIBILITIES:
You are required to (1) pay any lawful fees and costs assessed; (2) make any necessary arrangements with the agency to inspect, copy or receive copies as instructed below; and (3) provide the agency any additional information requested. If you do not comply with the requirements set forth in this notice within 20 business days after the postmark date of this notice or the date the agency makes the records available, you will be presumed to have abandoned your request and the agency shall have no further duty to process your request. Once the agency begins to process your request, you may be liable for any fees and costs incurred. If you wish to cancel or modify your request, you must advise the agency upon receipt of this notice.

METHOD & TIMING OF DISCLOSURE:

REQUEST TO ACCESS A GOVERNMENT RECORD

DATE: August 21, 2019 2019 AUG 23 P 12:12

TO: Hazard Evaluation & Emergency Response Office (Fax: 586-7537)

FROM: SHAWN CHAMPION ENPRO Environmental
Name or title: 151 Hekili Street, Suite 210 (808) 748-2113 phone
Contact information: Kailua, Hawaii 96734 (808) 262-4449 fax

Although you are not required to provide any personal information, you should provide enough information to allow the agency to contact you about this request. The processing of this request may be stopped if the agency is unable to contact you. Provide the following information that will allow the agency to contact you (name or title, telephone or fax number, mailing address, e-mail address, etc.).

I WOULD LIKE THE FOLLOWING GOVERNMENT RECORD:
Describe the government record as specifically as possible so that it can be located. Try to provide a record name, subject matter, date, location, purpose, or names of persons to whom the record refers, or other information that could help the agency identify the record. A complete and accurate description of the government record you request will prevent delays in locating the record. Attach a second page if needed.

Aloha,
I am currently working on an Environmental Site Assessment for the following properties located on Oahu on: Kamehameha Highway in Aiea, Hawaii 96701.
TMK Numbers: (1) 9-8-009: 005, 011, 014, 015, 016.

I would like to review regulatory records for the following properties:

- 98-95 Kamehameha Highway, Aiea, Hawaii (project site)

My report is due September 3, 2019. In light of my timeline, I would greatly appreciate any assistance you can provide in expediting access to the files. Mahalo for your time and assistance.
****No record found on the Site/Facility/TMK or address request.****

Shawn Champion R.I - 8/26/19

- I WOULD LIKE:** (please check one or more of the options below)
- To inspect the government record.
 - A copy of the government record. (Please check one of the options below.) See the back of this page for information about fees that you may be required to pay, for agency services to process your request. **Note:** Copying and transmission charges may also apply to certain options.
 - Pick up at agency (date and time): _____
 - Mail (cost fee and only if available)
 - Other, if available (please specify): _____
 - If the agency maintains the records in a form other than paper, please advise in which format you would prefer to have the record.
 - Electronic
 - Audio
 - Other (please specify): _____
 - Check this box if you are attaching a request for waiver of fees in the public interest (see waiver information on back).

OFFICIAL USE ONLY: **SEE BACK FOR IMPORTANT INFORMATION** 8/26/19
Office Manager: _____ Date: _____ OIP (rev. 07/29/99)

REQUEST TO ACCESS A GOVERNMENT RECORD

DATE: August 21, 2019 2019 AUG 23 P 12:12

TO: Hazard Evaluation & Emergency Response Office (Fax: 586-7537)

FROM: SHAWN CHAMPION ENPRO Environmental
Name or Alias: 151 Hekili Street, Suite 210 (808) 748-2113 phone
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Aloha,

I am currently working on an Environmental Site Assessment for the following properties located on Oahu on: Kamehameha Highway in Aiea, Hawaii 96701.

TMK Numbers: (1) 9-8-009: 005, 011, 014, 015, 016.

I would like to review regulatory records for the following properties:

- 98-69 Kamehameha Highway, Aiea, Hawaii (project site)

My report is due September 3, 2019. In light of my timeline, I would greatly appreciate any assistance you can provide in expediting access to the files. Mahalo for your time and assistance.

****No record found on the Site/Facility/TMK or address request.****

Shawn Champion

R.I - 8/26/19

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OFFICIAL USE ONLY: **SEE BACK FOR IMPORTANT INFORMATION**

Date: 8/26/19 OIR (rev. 07/29/99)

Office Manager:

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Aloha,

I am currently working on an Environmental Site Assessment for the following properties located on Oahu on: Kamehameha Highway in Aiea, Hawaii 96701.

TMK Numbers: (1) 9-8-009: 005, 011, 014, 015, 016.

I would like to review regulatory records for the following properties:

- 98-73 Kamehameha Highway, Aiea, Hawaii (project site)

My report is due September 3, 2019. In light of my timeline, I would greatly appreciate any assistance you can provide in expediting access to the files. Mahalo for your time and assistance.

****No record found on the Site/Facility/TMK or address request.****

Shawn Champion

R.I - 8/26/2019

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Date: 8/26/19 OIR (rev. 07/29/99)

Office Manager:

REQUEST TO ACCESS A GOVERNMENT RECORD

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TO: Hazard Evaluation & Emergency Response Office (Fax: 586-7537)
FROM: SHAWN CHAMPION ENPRO Environmental
Name or Alias: 151 Hekili Street, Suite 210 (808) 748-2113 phone
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Aloha,

I am currently working on an Environmental Site Assessment for the following properties located on Oahu on: Kamehameha Highway in Aiea, Hawaii 96701.
TMK Numbers: (1) 9-8-009: 005, 011, 014, 015, 016.

I would like to review regulatory records for the following properties:

- 98-75 Kamehameha Highway, Aiea, Hawaii (project site)

My report is due September 3, 2019. In light of my timeline, I would greatly appreciate any assistance you can provide in expediting access to the files. Mahalo for your time and assistance,

****No record found on the Site/Facility/TMK or address request.****

Shawn Champion

R.I - 8/26/2019

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- A copy of the government record. (Please check one of the options below.) See the back of this page for information about fees that you may be required to pay for agency services to process your record request. Note: Copying and transmission charges may also apply to certain options.
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- Fax (full fee and only if available)
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- Electronic Audio Other (please specify):
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OFFICIAL USE ONLY: **SEE BACK FOR IMPORTANT INFORMATION** 8/26/19

Office Manager: _____

Date: _____ OIR (rev. 07/29/99)

REQUEST TO ACCESS A GOVERNMENT RECORD

DATE: August 21, 2019
TO: Hazard Evaluation & Emergency Response Office (Fax: 586-7537)
FROM: SHAWN CHAMPION ENPRO Environmental
Name or Alias: 151 Hekili Street, Suite 210 (808) 748-2113 phone
Contact Information: Kailua, Hawaii 96734 (808) 262-4449 fax

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Describe the government record as specifically as possible so that it can be located. Try to provide a record name, subject or title, date, location, and other identifying information. A complete and accurate description of the government record you request will prevent delays in locating the record. Attach a second page if needed.

Aloha,

I am currently working on an Environmental Site Assessment for the following properties located on Oahu on: Kamehameha Highway in Aiea, Hawaii 96701.
TMK Numbers: (1) 9-8-009: 005, 011, 014, 015, 016.

I would like to review regulatory records for the following properties:

- CONTINENTAL INVESTMENT, 98-069 Kamehameha Highway, Aiea, Hawaii

My report is due September 3, 2019. In light of my time line, I would greatly appreciate any assistance you can provide in expediting access to the files. Mahalo for your time and assistance,

****No record found on the Site/Facility/TMK or address request.****

Shawn Champion

R.I - 8/26/19

I WOULD LIKE: (please check one or more of the options below)

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- A copy of the government record. (Please check one of the options below.) See the back of this page for information about fees that you may be required to pay for agency services to process your record request. Note: Copying and transmission charges may also apply to certain options.
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- Fax (full fee and only if available)
- Other, if available (please specify):
- If the agency maintains the records in a form other than paper, please advise in which format you would prefer to have the record.
- Electronic Audio Other (please specify):
- Check this box if you are attaching a request for waiver of fees in the public interest (see waiver information on back).

OFFICIAL USE ONLY: **SEE BACK FOR IMPORTANT INFORMATION** 8/26/19

Office Manager: _____

Date: _____ OIR (rev. 07/29/99)

REQUEST TO ACCESS A GOVERNMENT RECORD

2019 AUG 23 P 12:12

DATE: August 21, 2019
TO: Hazard Evaluation & Emergency Response Office (Fax: 586-7537)
FROM: SHAWN CHAMPION ENPRO Environmental
Name or Alias: 151 Hekili Street, Suite 210 (808) 748-2113 phone
Contact Information: Kailua, Hawaii 96734 (808) 262-4449 fax

Although you are not required to provide any personal information, you should provide enough information to allow the agency to contact you about this request. The processing of this request may be stopped if the agency is unable to contact you. Therefore, please provide any information that will allow the agency to contact you (name or alias, telephone or fax number, mailing address, e-mail address, etc).

I WOULD LIKE THE FOLLOWING GOVERNMENT RECORD:

Describe the government record as specifically as possible so that it can be located. Try to provide a record name, subject or file number, location, purpose, or name of person to whom the record refers, or other information that could help the agency identify the record. Attach a brief description of the government record you request will prevent delays in locating the record. Attach a second page if needed.

Aloha,

I am currently working on an Environmental Site Assessment for the following properties located on Oahu on: Kamehameha Highway in Aiea, Hawaii 96701. TMK Numbers: (1) 9-8-009: 005, 011, 014, 015, 016.

I would like to review regulatory records for the following properties:

- VOLVO HAWAII, 98-075 Kamehameha Highway, Aiea, Hawaii (LUST)(UST) Facility ID: 9-200359

My report is due September 3, 2019. In light of my timeline, I would greatly appreciate any assistance you can provide in expediting access to the files. Mahalo for your time and assistance.

****No record found on the Site/Facility/TMK or address request.****

Shawn Champion R.I - 8/26/19

I WOULD LIKE: (please check one or more of the options below)

- To inspect the government record.
- A copy of the government record. (Please check one of the options below). See the back of this page for information on how to request a copy of the record. Copying and transmission charges may also apply to certain options. Note: Copying and transmission charges may also apply to certain options.

Pick up at agency (date and time): _____

Fax (tell free and only if available) _____

Other, if available (please specify): _____

If the agency maintains the records in a form other than paper, please advise in which format you would prefer to have the record.

Electronic Audio Other (please specify): _____

Check this box if you are attaching a request for waiver of fees in the public interest (see waiver information on back).

OFFICIAL USE ONLY: SEE BACK FOR IMPORTANT INFORMATION 8/26/19

Date: _____ Office Manager: _____ OIF (rev. 07/29/99)

REQUEST TO ACCESS A GOVERNMENT RECORD

2019 AUG 23 P 12:12

DATE: August 21, 2019
TO: Hazard Evaluation & Emergency Response Office (Fax: 586-7537)
FROM: SHAWN CHAMPION ENPRO Environmental
Name or Alias: 151 Hekili Street, Suite 210 (808) 748-2113 phone
Contact Information: Kailua, Hawaii 96734 (808) 262-4449 fax

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Describe the government record as specifically as possible so that it can be located. Try to provide a record name, subject or file number, location, purpose, or name of person to whom the record refers, or other information that could help the agency identify the record. Attach a brief description of the government record you request will prevent delays in locating the record. Attach a second page if needed.

Aloha,

I am currently working on an Environmental Site Assessment for the following properties located on Oahu on: Kamehameha Highway in Aiea, Hawaii 96701. TMK Numbers: (1) 9-8-009: 005, 011, 014, 015, 016.

I would like to review regulatory records for the following properties:

- Energy Corridor Pipeline, TMK: (1) 9-8-009: 003 /

My report is due September 3, 2019. In light of my time line, I would greatly appreciate any assistance you can provide in expediting access to the files. Mahalo for your time and assistance.

****No record found on the Site/Facility/TMK or address request.****

Shawn Champion R.I - 8/26/19

I WOULD LIKE: (please check one or more of the options below)

- To inspect the government record.
- A copy of the government record. (Please check one of the options below). See the back of this page for information on how to request a copy of the record. Copying and transmission charges may also apply to certain options. Note: Copying and transmission charges may also apply to certain options.

Pick up at agency (date and time): _____

Fax (tell free and only if available) _____

Other, if available (please specify): _____

If the agency maintains the records in a form other than paper, please advise in which format you would prefer to have the record.

Electronic Audio Other (please specify): _____

Check this box if you are attaching a request for waiver of fees in the public interest (see waiver information on back).

OFFICIAL USE ONLY: SEE BACK FOR IMPORTANT INFORMATION 8/26/19

Date: _____ Office Manager: _____ OIF (rev. 07/29/99)

REQUEST TO ACCESS A GOVERNMENT RECORD

DATE: August 21, 2019 2019 AUG 23 P 12:12

TO: Hazard Evaluation & Emergency Response Office (Fax: 586-7537)

FROM: SHAWN CHAMPION ENPRO Environmental

Items or Area: 151 Hekili Street, Suite 210 (808) 748-2113 phone

Contact Information: Kailua, Hawaii 96734 (808) 262-4449 fax

Although you are not required to provide any personal information, you should provide enough information to allow the agency to contact you about this request. The processing of this request may be stopped if the agency is unable to contact you, mailing address, e-mail address, etc.)

I WOULD LIKE THE FOLLOWING GOVERNMENT RECORD:

Describe the government record as specifically as possible so that it can be located. Try to provide a record name, subject or other information that will help identify the record. A complete and accurate description of the government record you request will prevent delays in locating the record. Attach a second page if needed.

Aloha,

I am currently working on an Environmental Site Assessment for the following properties located on Oahu on: Kamehameha Highway in Aiea, Hawaii 96701.

TMK Numbers: (1) 9-8-009: 005, 011, 014, 015, 016.

I would like to review regulatory records for the following properties:

- 98-77 Kamehameha Highway, Aiea, Hawaii

My report is due September 3, 2019. In light of my timeline, I would greatly appreciate any assistance you can provide in expediting access to the files. Mahalo for your time and assistance.

****No record found on the Site/Facility/TMK or address request.****

Shawn Champion

R.I. - 8/26/19

I WOULD LIKE: (please check one or more of the options below)

- To inspect the government record.
- A copy of the government record. (Please check one of the options below.) See the back of this page for information about fees that you may be required to pay for expedited services to process your record request. Note: Copying and transmission charges may also apply to certain options.

Pick up at agency (date and time):

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Other, if available (please specify):

If the agency maintains the records in a form other than paper, please advise in which format you would prefer to have the record.

Electronic Audio Other (please specify):

Check this box if you are attaching a request for waiver of fees in the public interest. (see waiver information on back).

OFFICIAL USE ONLY: **SEE BACK FOR IMPORTANT INFORMATION**

Office Manager: *[Signature]* Date: 8/26/19 OIP (rev. 07/29/99)

REQUEST TO ACCESS A GOVERNMENT RECORD

DATE: August 21, 2019 2019 AUG 23 P 12:12

TO: Hazard Evaluation & Emergency Response Office (Fax: 586-7537)

FROM: SHAWN CHAMPION ENPRO Environmental

Items or Area: 151 Hekili Street, Suite 210 (808) 748-2113 phone

Contact Information: Kailua, Hawaii 96734 (808) 262-4449 fax

Although you are not required to provide any personal information, you should provide enough information to allow the agency to contact you about this request. The processing of this request may be stopped if the agency is unable to contact you, mailing address, e-mail address, etc.)

I WOULD LIKE THE FOLLOWING GOVERNMENT RECORD:

Describe the government record as specifically as possible so that it can be located. Try to provide a record name, subject or other information that will help identify the record. A complete and accurate description of the government record you request will prevent delays in locating the record. Attach a second page if needed.

Aloha,

I am currently working on an Environmental Site Assessment for the following properties located on Oahu on: Kamehameha Highway in Aiea, Hawaii 96701.

TMK Numbers: (1) 9-8-009: 005, 011, 014, 015, 016.

I would like to review regulatory records for the following properties:

- ASSOCIATED STEEL WORKS, 98-085 Kamehameha Highway, Aiea, Hawaii

(LUST) Facility ID: 9-202700 My report is due September 3, 2019. In light of my timeline, I would greatly appreciate any assistance you can provide in expediting access to the files. Mahalo for your time and assistance.

****No record found on the Site/Facility/TMK or address request.** R.I. - 8/26/19**

I WOULD LIKE: (please check one or more of the options below)

- To inspect the government record.
- A copy of the government record. (Please check one of the options below.) See the back of this page for information about fees that you may be required to pay for expedited services to process your record request. Note: Copying and transmission charges may also apply to certain options.

Pick up at agency (date and time):

Fax (tell fee and only if available)

Other, if available (please specify):

If the agency maintains the records in a form other than paper, please advise in which format you would prefer to have the record.

Electronic Audio Other (please specify):

Check this box if you are attaching a request for waiver of fees in the public interest. (see waiver information on back).

OFFICIAL USE ONLY: **SEE BACK FOR IMPORTANT INFORMATION**

Office Manager: *[Signature]* Date: 8/26/19 OIP (rev. 07/29/99)

REQUEST TO ACCESS A GOVERNMENT RECORD

2019 AUG 23 P 12:12

DATE: August 21, 2019
TO: Hazard Evaluation & Emergency Response Office (Fax: 586-7537)
FROM: SHAWN CHAMPION ENPRO Environmental
Items or Area: 151 Hekili Street, Suite 210 (808) 748-2113 phone
Contact Information: Kailua, Hawaii 96734 (808) 262-4449 fax

Although you are not required to provide any personal information, you should provide enough information to allow the agency to contact you about this request. The processing of this request may be stopped if the agency is unable to contact you. Therefore, please provide any information that will allow the agency to contact you (name or alias, telephone or fax number, mailing address, e-mail address, etc.).

I WOULD LIKE THE FOLLOWING GOVERNMENT RECORD:

Describe the government record as specifically as possible so that it can be located. Try to provide a record name, subject information, copy number, volume, number, or names of persons to whom the record refers, or other information that could help the agency identify the record. A complete and accurate description of the government record you request will prevent delays in locating the record. Attach a second page if needed.

Aloha,

I am currently working on an Environmental Site Assessment for the following properties located on Oahu on: Kamehameha Highway in Aiea, Hawaii 96701. TMK Numbers: (1) 9-8-009: 005, 011, 014, 015, 016.

I would like to review regulatory records for the following properties:

- WAIMALU CHEVRON SERVICE, 98-104 KANUKU ST, Aiea, Hawaii (UST) Facility ID: 9-201270

My report is due September 3, 2019. In light of my timeline, I would greatly appreciate any assistance you can provide in expediting access to the files. Mahalo for your time and assistance.

****No record found on the Site/Facility/TMK or address request.****

R.1 - 8/26/19

I WOULD LIKE: (Please check one or more of the options below)

- To inspect the government record.
- To copy the government record. (Please check one of the options below.) See the back of this page for information on how to best use the record. (Please check one of the options below.) See the back of this page for information on how to best use the record. Copying and transmission charges may also apply to certain options.

- Pick up at agency (date and time):
- Fax (not free and only if available)
- Other: (if available (please specify):

- If the agency maintains the records in a form other than paper, please advise in which format you would prefer to have the record.
- Electronic Audio Other (please specify):

- Check this box if you are attaching a request for waiver of fees in the public interest (see waiver information on back).

OFFICIAL USE ONLY: **SEE BACK FOR IMPORTANT INFORMATION**

Office Manager: SAK Date: 8/26/19 OIP (rev. 07/29/99)

REQUEST TO ACCESS A GOVERNMENT RECORD

2019 AUG 23 P 12:12

DATE: August 21, 2019
TO: Hazard Evaluation & Emergency Response Office (Fax: 586-7537)
FROM: SHAWN CHAMPION ENPRO Environmental
Items or Area: 151 Hekili Street, Suite 210 (808) 748-2113 phone
Contact Information: Kailua, Hawaii 96734 (808) 262-4449 fax

Although you are not required to provide any personal information, you should provide enough information to allow the agency to contact you about this request. The processing of this request may be stopped if the agency is unable to contact you. Therefore, please provide any information that will allow the agency to contact you (name or alias, telephone or fax number, mailing address, e-mail address, etc.).

I WOULD LIKE THE FOLLOWING GOVERNMENT RECORD:

Describe the government record as specifically as possible so that it can be located. Try to provide a record name, subject information, copy number, volume, number, or names of persons to whom the record refers, or other information that could help the agency identify the record. A complete and accurate description of the government record you request will prevent delays in locating the record. Attach a second page if needed.

Aloha,

I am currently working on an Environmental Site Assessment for the following properties located on Oahu on: Kamehameha Highway in Aiea, Hawaii 96701. TMK Numbers: (1) 9-8-009: 005, 011, 014, 015, 016.

I would like to review regulatory records for the following properties:

- 98-51 Kamehameha Highway, Aiea, Hawaii (project site)

My report is due September 3, 2019. In light of my timeline, I would greatly appreciate any assistance you can provide in expediting access to the files. Mahalo for your time and assistance. ****No record found on the Site/Facility/TMK or address request.****

Shawn Champion

R.1 - 8/26/19

I WOULD LIKE: (Please check one or more of the options below)

- To inspect the government record.
- To copy the government record. (Please check one of the options below.) See the back of this page for information on how to best use the record. (Please check one of the options below.) See the back of this page for information on how to best use the record. Copying and transmission charges may also apply to certain options.

- Pick up at agency (date and time):
- Fax (not free and only if available)
- Other: (if available (please specify):

- If the agency maintains the records in a form other than paper, please advise in which format you would prefer to have the record.
- Electronic Audio Other (please specify):

- Check this box if you are attaching a request for waiver of fees in the public interest (see waiver information on back).

OFFICIAL USE ONLY: **SEE BACK FOR IMPORTANT INFORMATION**

Office Manager: SAK Date: 8/26/19 OIP (rev. 07/29/99)

AUG 21 2019

NOTICE TO REQUESTER

TO: Shawn Champion, ENPRO / Fax No. 262-4449 UST Section
(Requester's name)

FROM: Hawaii Dept. of Health, Solid and Hazardous Waste Branch, Amy Liana, (808) 586-4226, amy.liana@doh.hawaii.gov
(Agency, and agency contact person's name, telephone number, & email address)

DATE THAT THE RECORD REQUEST WAS RECEIVED BY AGENCY: 8/21/19

DATE OF THIS NOTICE: 9/14/19

GOVERNMENT RECORDS YOU REQUESTED (attach copy of request or provide brief description below):

- 1.
2.
3.
4.

THIS NOTICE IS TO INFORM YOU THAT YOUR RECORD REQUEST: Will be granted in its entirety.

- Cannot be granted. Agency is unable to disclose the requested records for the following reason:
[X] Agency does not maintain the records. (HRS § 92F-3)
[] Other agency that is believed to maintain records.
[] Agency needs further clarification or description of the records requested. Please contact the agency and provide the following information:
[] Request requires agency to create a summary or compilation from records, but requested information is not readily retrievable. (HRS § 92F-11(c))

Will be granted in part and denied in part, OR Is denied in its entirety
Although the agency maintains the requested records, it is not disclosing all or part of them based on the exemptions provided in HRS § 92F-13 and/or § 92F-22 or other laws cited below. (Describe the portions of records that the agency will not disclose.)

RECORDS OR INFORMATION WITHHELD: APPLICABLE STATUTES: AGENCY JUSTIFICATION:

REQUESTER'S RESPONSIBILITIES:
You are required to (1) pay any lawful fees and costs assessed; (2) make any necessary arrangements with the agency to inspect, copy or receive copies as instructed below; and (3) provide the agency any additional information requested. If you do not comply with the requirements set forth in this notice within 20 business days after the postmark date of this notice or the date the agency makes the records available, you will be presumed to have abandoned your request and the agency shall have no further duty to process your request. Once the agency begins to process your request, you may be liable for any fees and costs incurred. If you wish to cancel or modify your request, you must advise the agency upon receipt of this notice.

REQUEST TO ACCESS A GOVERNMENT RECORD

DATE: August 21, 2019
TO: DOH/EMD/Solid & Hazardous Waste Branch (Fax: 808-586-7509)
FROM: SHAWN CHAMPION ENPRO Environmental
Name or Alias: 151 Hekeili Street, Suite 210 (808) 748-2116 phone
Contact information: Kailua, Hawaii 96734 (808) 262-4449 fax

Although you are not required to provide any personal information, you should provide enough information to allow the agency to contact you about this request. The processing of this request may be stopped if the agency is unable to contact you. Please provide any information that will allow the agency to contact you (name or alias, telephone or fax number, mailing address, e-mail address, etc).

I WOULD LIKE THE FOLLOWING GOVERNMENT RECORD:

Describe the government record as specifically as possible so that it can be located. Try to provide a record name, subject matter, date, location, purpose, or names of persons to whom the record relates, or other information that could help the agency locate the record. Attach a second page if needed.

Aloha,
FOCID 9-201475 File on disk

I am currently working on an Environmental Site Assessment for the following properties located on Oahu on: Kamehameha Highway in Aiea, Hawaii 96701.
TMK Numbers: (1) 9-8-009: 005, 011, 014, 015, 016.

I would like to review regulatory records for the following properties:

- 98-51 Kamehameha Highway, Aiea, Hawaii (project site)
98-95 Kamehameha Highway, Aiea, Hawaii (project site)
98-69 Kamehameha Highway, Aiea, Hawaii (project site) 98-009 KOM Hwy. 9-200707
98-73 Kamehameha Highway, Aiea, Hawaii (project site)
98-75 Kamehameha Highway, Aiea, Hawaii (project site) 98-075 KOM Hwy. 9-200359
VOLVO HAWAII, 98-075 Kamehameha Highway, Aiea, Hawaii (LUST) Facility ID: 9-200359
PACIFIC OLDSMOBILE, 98-055 Kamehameha Highway, Aiea, Hawaii (Tony Honda Pen Bridge) (LUST) Facility ID: 9-201475 (LUST) Facility ID: 9-202918 (Island Landscaping)
CONTINENTAL INVESTMENT, 98-069 Kamehameha Highway, Aiea, Hawaii
ALOHA PETROLEUM, 98-135 Kamehameha Highway, Aiea, Hawaii 9-200311
SHELL SERVICE STATION, 98-080 Kamehameha Highway, Aiea, Hawaii (LUST) Facility ID: 9-201889
TONY HONDA PEARLRIDGE, 98-051 Kamehameha Highway, Aiea, Hawaii
ASSOCIATED STEEL WORKS, 98-085 Kamehameha Highway, Aiea, Hawaii (LUST) Facility ID: 9-202700
AIEA CUE, 98-064 Kamehameha Highway, Aiea, Hawaii (LUST) Facility ID: 9-200293
FARM PROPERTY, 98-87 Kamehameha Highway, Aiea, Hawaii

8/23

AUG 21 2019



WAIMALU CHEVRON SERVICE, 98-104 KANUKU ST, Aiea, Hawaii
(UST) Facility ID: 9-201270.

HEALANILAND COMPANY, 98-55 Kamehameha Highway, Aiea, Hawaii

My report is due September 3, 2019. In light of my timeline, I would greatly appreciate any assistance you can provide in expediting access to the files. Mahalo for your time and assistance.

Shawn Champion

I WOULD LIKE: (please check one or more of the options below)

- To inspect the government record. (Please check one of the options below.) See the back of this page for information about fees that you may be required to pay for agency services to process your record request. Note: Copying and transmission charges may also apply to certain options.
- Pick up at agency (date and time): _____
- Fax (full fee and only if available)
- Other, if available (please specify): _____
- If the agency maintains the records in a form other than paper, please advise in which format you would prefer to have the record.
- Electronic Audio Other (please specify): _____
- Check this box if you are attaching a request for waiver of fees in the public interest (see waiver information on back).

OFFICIAL USE ONLY: SEE BACK FOR IMPORTANT INFORMATION

Office Manager: _____ Date: _____ OIP (rev. 07/29/99)

NOTICE TO REQUESTER

TO: Shawn Champion, ENPRO / Fax No. 262-4449 SW Section
(Requester's name)

FROM: Hawaii Dept. of Health, Solid and Hazardous Waste Branch, Amy Liama, (808) 586-4226, amy.liama@doh.hawaii.gov
(Agency, and agency contact person's name, telephone number, & email address)

DATE THAT THE RECORD REQUEST WAS RECEIVED BY AGENCY: 8/23/19

DATE OF THIS NOTICE: 8/21/19

GOVERNMENT RECORDS YOU REQUESTED (attach copy of request or provide brief description below):

- 1.
- 2.
- 3.
- 4.

THIS NOTICE IS TO INFORM YOU THAT YOUR RECORD REQUEST:

- Will be granted in its entirety.
- Cannot be granted. Agency is unable to disclose the requested records for the following reason:
 Agency does not maintain the records. (HRS § 92F-.3)
 Other agency that is believed to maintain records:
 Agency needs further clarification or description of the records requested. Please contact the agency and provide the following information:
 Request requires agency to create a summary or compilation from records, but requested information is not readily retrievable. (HRS § 92F-11(c))
- Will be granted in part and denied in part, OR Is denied in its entirety
 Although the agency maintains the requested records, it is not disclosing all or part of them based on the exemptions provided in HRS § 92F-18 and/or § 92F-22 or other laws cited below.
 (Describe the portions of records that the agency will not disclose.)

RECORDS OR INFORMATION WITHHELD: APPLICABLE STATUTES: AGENCY JUSTIFICATION

REQUESTER'S RESPONSIBILITIES:

You are required to (1) pay any lawful fees and costs assessed; (2) make any necessary arrangements with the agency to inspect, copy or receive copies as instructed below; and (3) provide the agency any additional information requested. If you do not comply with the requirements set forth in this notice within 20 business days after the postmark date of this notice or the date the agency makes the records available, you will be presumed to have abandoned your request and the agency shall have no further duty to process your request. Once the agency begins to process your request, you may be liable for any fees and costs incurred. If you wish to cancel or modify your request, you must advise the agency upon receipt of this notice.

AUG 25 2019

REQUEST TO ACCESS A GOVERNMENT RECORD

DATE: August 23, 2019
 TO: DOH/EMD/Solid & Hazardous Waste Branch (Fax: 808-586-7509)
 FROM: SHAWN CHAMPION ENPRO Environmental
 Name or Alias: SHAWN CHAMPION
 Contact Information: 151 Hekili Street, Suite 210 (808) 748-2116 phone
 Kailua, Hawaii 96734 (808) 262-4449 fax

Although you are not required to provide any personal information, you should provide enough information to allow the agency to contact you about the request. The processing of this request may be stopped if the agency is unable to contact you. To allow processing, please provide the information that will allow the agency to contact you (name or alias, telephone or fax number, mailing address, e-mail address, etc.).

I WOULD LIKE THE FOLLOWING GOVERNMENT RECORD

Describe the government record as specifically as possible so that it can be located. Try to provide a record name, subject or other identifying information. A complete and accurate description of the government record you request will prevent delays in locating the record. Attach a second page if needed.

Aloha,

I am currently working on an Environmental Site Assessment for the following properties located on Oahu on: Kamehameha Highway in Aiea, Hawaii 96701.
 TMK Numbers: (1) 9-8-009: 005, 011, 014, 015, 016.

I would like to review regulatory records for the following properties:

- 98-77 Kamehameha Highway, Aiea, Hawaii
 Energy Corridor Pipeline, TMK (1) 9-8-009: 003
 Hickam POL ST15, Spill Site ST15, East of Kamehameha Highway & Hekaha Street, Aiea, Hawaii

My report is due September 3, 2019. In light of my timeline, I would greatly appreciate any assistance you can provide in expediting access to the files. Mahalo for your time and assistance.

Shawn Champion

I WOULD LIKE: (please check one or more of the options below)

- To inspect the government record. (Please check one of the options below.) See the back of this page for information about fees that you may be required to pay for agency services to process your record request. Note: Copying and transmission charges may also apply to certain options.
- A copy of the government record. (Please check one of the options below.) See the back of this page for information about fees that you may be required to pay for agency services to process your record request. Note: Copying and transmission charges may also apply to certain options.
- Pick up at agency (date and time): _____
- Mail (to be used only if available)
- Fax (to be used only if available)
- Other (please specify): _____
- If this option is chosen, please provide a form other than paper; please advise in which format you would prefer to have the record.
- Electronic Audio Other (please specify): _____
- Check this box if you are attaching a request for waiver of fees in the public interest (see waiver information on back).

SEE BACK FOR IMPORTANT INFORMATION

from previous requests, including abandoned requests, the agency may require prepayment of 100% of the unpaid balance from prior requests before it begins any search or review for the records you are now seeking.

The following is an itemization of what you must pay, based on the estimated fees and costs that the agency will charge you and the applicable waiver amount that will be deducted:

For public record requests only:

Fees: Search: 15 MINS @ \$2.50 per page, pursuant to HRS § 92-21) \$ 37.50
 Review & segregation: 30 MINS @ \$2.50 per page, pursuant to HRS § 92-21) \$ 75.00
 Fees waived: 10 MINS @ \$2.50 per page, pursuant to HRS § 92-21) \$ 25.00
 Other: 30 MINS @ \$2.50 per page, pursuant to HRS § 92-21) \$ 75.00
 Total Estimated Fees: \$ 212.50

For public or personal record requests:

Costs: Copying: Estimate of # of pages to be copied: _____
 (@ \$ _____ per page, pursuant to HRS § 92-21) \$ _____
 Delivery: Postage: ODC \$ 1.00 \$ 1.00
 Other: _____ \$ _____
 Total Estimated Costs: \$ 1.00

TOTAL ESTIMATED FEES AND COSTS from above:

\$ 212.50
 Additional fees and costs, and no further fee waivers, will apply to future incremental disclosures.
 PREPAYMENT IS REQUIRED (50% of fees + 100% of costs, as estimated above) \$ _____
 UNPAID BALANCE FROM PRIOR REQUESTS (100% must be paid before work begins) \$ 1.00

TOTAL AMOUNT DUE AT THIS TIME

Payment may be made by: cash
 personal check payable to _____
 other _____

For questions about this notice or the records being sought, please contact the agency person named at the beginning of this form. Please note that the Office of Information Practices (OIP) does not maintain the records of other agencies, and a requester must seek records directly from the agency it believes maintains the records. If the agency denies or fails to respond to your written request for records or if you have other questions regarding compliance with the UIPA, then you may contact OIP at (808) 586-1400, oip@hawaii.gov, or 250 South Hotel Street, Suite 107, Honolulu, Hawaii 96813.

SKP

AUG 21 2019 16

AUG 23 2019

REQUEST TO ACCESS A GOVERNMENT RECORD

DATE: August 21, 2019
 TO: DOH/EMD/Solid & Hazardous Waste Branch (Fax: 808-586-7509)
 FROM: SHAWN CHAMPION ENPRO Environmental
 Name or Alias: 151 Hekili Street, Suite 210 (808) 748-2116 phone
 Contact Information: Kailua, Hawaii 96734 (808) 262-4449 fax

HT
 HW
 SN
 TN

Although you are not required to provide any personal information, you should provide enough information to allow the agency to contact you about this request. The processing of this request may be stopped if the agency is unable to contact you. Therefore, please provide any information that will allow the agency to contact you (name or alias, telephone or fax number, mailing address, e-mail address, etc.).

I WOULD LIKE THE FOLLOWING GOVERNMENT RECORD

Describe the government record as specifically as possible so that it can be located. Try to provide a record name, subject matter, date, location, purpose, or names of persons to whom the record refers, or other information that could help the agency identify the record. A complete and accurate description of the government record you request will prevent delays in locating the record. Attach a second page if needed.

Aloha,

I am currently working on an Environmental Site Assessment for the following properties located on Oahu on: Kamehameha Highway in Aiea, Hawaii 96701.
 TMK Numbers: (1) 9-8-009: 005, 011, 014, 015, 016.

I would like to review regulatory records for the following properties:

- 498-51 Kamehameha Highway, Aiea, Hawaii (project site)
- 498-95 Kamehameha Highway, Aiea, Hawaii (project site)
- 498-69 Kamehameha Highway, Aiea, Hawaii (project site)
- 498-73 Kamehameha Highway, Aiea, Hawaii (project site)
- 498-75 Kamehameha Highway, Aiea, Hawaii (project site)
- 4VOLVO HAWAII, 98-075 Kamehameha Highway, Aiea, Hawaii (LUST)(UST) Facility ID: 9-200359
- xPACIFIC OLDSMOBILE, 98-055 Kamehameha Highway, Aiea, Hawaii (LUST) Facility ID: 9-201475 (UST) Facility ID: 9-202918
- xCONTINENTAL INVESTMENT, 98-069 Kamehameha Highway, Aiea, Hawaii
- xALOHA PETROLEUM, 98-135 Kamehameha Highway, Aiea, Hawaii
- xSHELL SERVICE STATION, 98-080 Kamehameha Highway, Aiea, Hawaii (LUST)(UST) Facility ID: 9-201889
- xTONY HONDA PEARLRIDGE, 98-051 Kamehameha Highway, Aiea, Hawaii
- xASSOCIATED STEEL WORKS, 98-085 Kamehameha Highway, Aiea, Hawaii (LUST)(UST) Facility ID: 9-202700
- LAIEA CUE, 98-064 Kamehameha Highway, Aiea, Hawaii (LUST)(UST) Facility ID: 9-200293
- FARM PROPERTY, 98-87 Kamehameha Highway, Aiea, Hawaii

CA PACIFIC OCEAN TRADING

8/23

- WAMALU CHEVRON SERVICE, 98-104 KANUKU ST, Aiea, Hawaii (UST) Facility ID: 9-201270
- HEALANI LAND COMPANY, 98-55 Kamehameha Highway, Aiea, Hawaii

My report is due September 3, 2019. In light of my timeline, I would greatly appreciate any assistance you can provide in expediting access to the files. Mahalo for your time and assistance,

Shawn Champion

I WOULD LIKE: (please check one or more of the options below)

- To inspect the government record.
- To receive a copy of the government record. (Please check one of the options below.) See the back of this page for information on copying and transmission charges. Copying and transmission charges may also apply to certain options.
 - Pick-up at agency (date and time): _____
 - Mail _____
 - Fax (add fee and only if available) _____
 - Other, if available (please specify): _____
- If the agency maintains the records in a form other than paper, please advise in which format you would prefer to have the record.
 - Electronic Audio Other (please specify): _____
- Check this box if you are attaching a request for waiver of fees in the public interest (see waiver information on back).

OFFICIAL USE ONLY: SEE BACK FOR IMPORTANT INFORMATION

Office Manager: _____ Date: _____ OIP (rev. 07/29/99)

AUG 21 2019

Handwritten initials and signatures at the top of the page.

NOTICE TO REQUESTER

TO: Shawn Champion, ENPRO / Fax No. 262-4449 HW Section
(Requester's name)

FROM: Hawaii Dept. of Health, Solid and Hazardous Waste Branch, Amy Liana, (808) 566-4226, amy.liana@doh.hawaii.gov
(Agency, and agency contact person's name, telephone number, & email address)

DATE THAT THE RECORD REQUEST WAS RECEIVED BY AGENCY: 8/21/19

DATE OF THIS NOTICE: 8/26/19

GOVERNMENT RECORDS YOU REQUESTED (attach copy of request or provide brief description below):

- 1.
- 2.
- 3.
- 4.

THIS NOTICE IS TO INFORM YOU THAT YOUR RECORD REQUEST:

Will be granted in its entirety.

Cannot be granted. Agency is unable to disclose the requested records for the following reason:

- Agency does not maintain the records. (HRS § 92F-3)
- Other agency that is believed to maintain records:
- Agency needs further clarification or description of the records requested. Please contact the agency and provide the following information:
- Request requires agency to create a summary or compilation from records, but requested information is not readily retrievable. (HRS § 92F-11(c))

Will be granted in part and denied in part, OR Is denied in its entirety

Although the agency maintains the requested records, it is not disclosing all or part of them based on the exemptions provided in HRS § 92F-13 and/or § 92F-22 or other laws cited below.
(Describe the portions of records that the agency will not disclose.)

RECORDS OR INFORMATION WITHHELD	APPLICABLE STATUTES	AGENCY JUSTIFICATION

REQUESTER'S RESPONSIBILITIES:

You are required to (1) pay any lawful fees and costs assessed; (2) make any necessary arrangements with the agency to inspect, copy or receive copies as instructed below; and (3) provide the agency any additional information requested. If you do not comply with the requirements set forth in this notice within 20 business days after the postmark date of this notice or the date the agency makes the records available, you will be presumed to have abandoned your request and the agency shall have no further duty to process your request. Once the agency begins to process your request, you may be liable for any fees and costs incurred. If you wish to cancel or modify your request, you must advise the agency upon receipt of this notice.

OIP (rev. 12/1/2015)

REQUEST TO ACCESS A GOVERNMENT RECORD

DATE: August 21, 2019

TO: DOH/EMD/Solid & Hazardous Waste Branch (Fax: 808-586-7509)

FROM: SHAWN CHAMPION ENPRO Environmental
Name or Alias: 151 Hekili Street, Suite 210 (808) 748-2116 phone
Contact Information: Kailua, Hawaii 96734 (808) 262-4449 fax

Although you are not required to provide any personal information, you should provide enough information to allow the agency to contact you about this request. The processing of this request may be stopped if the agency is unable to contact you. Therefore, please provide any information that will allow the agency to contact you (name or alias, telephone or fax number, mailing address, e-mail address, etc.).

I WOULD LIKE THE FOLLOWING GOVERNMENT RECORD:

Describe the government record as specifically as possible so that it can be located. Try to provide a record name, subject matter, date, location, purpose, or names of persons to whom the record refers, or other information that could help the agency find the record. A complete and accurate description of the government record you request will prevent delays in locating the record. Attach a second page if needed.

Aloha,

I am currently working on an Environmental Site Assessment located on Oahu on: Kamehameha Highway in Aiea, Hawaii TMK Numbers: (1) 9-8-009: 005, 011, 014, 015, 016.

I would like to review regulatory records for the following p

Handwritten note: "on edge of table" with a scribble.

- 98-51 Kamehameha Highway, Aiea, Hawaii (project site)
- 98-95 Kamehameha Highway, Aiea, Hawaii (project site)
- 98-69 Kamehameha Highway, Aiea, Hawaii (project site)
- 98-73 Kamehameha Highway, Aiea, Hawaii (project site)
- 98-75 Kamehameha Highway, Aiea, Hawaii (project site)
- VOLVO HAWAII, 98-075 Kamehameha Highway, Aiea, Hawaii
- (LUST)(UST) Facility ID: 9-200359
- PACIFIC OLDSMOBILE, 98-055 Kamehameha Highway, Aiea, Hawaii
- (LUST) Facility ID: 9-201475 (UST) Facility ID: 9-202918 HW-1755
- CONTINENTAL INVESTMENT, 98-069 Kamehameha Highway, Aiea, Hawaii
- ALOHA PETROLEUM, 98-135 Kamehameha Highway, Aiea, Hawaii
- SHELL SERVICE STATION, 98-080 Kamehameha Highway, Aiea, Hawaii
- (LUST)(UST) Facility ID: 9-201889
- TONY HONDA PEARLRIDGE, 98-051 Kamehameha Highway, Aiea, Hawaii HW-2012
- ASSOCIATED STEEL WORKS, 98-085 Kamehameha Highway, Aiea, Hawaii
- (LUST)(UST) Facility ID: 9-202700
- AIEA CUE, 98-064 Kamehameha Highway, Aiea, Hawaii
- (LUST)(UST) Facility ID: 9-200293
- FARM PROPERTY, 98-87 Kamehameha Highway, Aiea, Hawaii

Handwritten initials "S/ab" at the bottom right.

AUG 21 2019

- WAIMALU CHEVRON SERVICE, 98-104 KANUKU ST, Aiea, Hawaii
(UST) Facility ID: 9-201270
- HEALANI LAND COMPANY, 98-55 Kamehameha Highway, Aiea, Hawaii

My report is due September 3, 2019. In light of my timeline, I would greatly appreciate any assistance you can provide in expediting access to the files. Mahalo for you time and assistance,

Shawn Champion

I WOULD LIKE: (please check one or more of the options below)

- To inspect the government record.
- A copy of the record. (Please check one of the options below.) See the back of this page for information about fees that you may be required to pay for agency services to process your record request. Note: Copying and transmission charges may also apply to certain options.
 - Pick up at agency (date and time): _____
 - Mail
 - Fax (toll free and only if available)
 - Other, if available (please specify): _____
- If the agency maintains the records in a form other than paper, please advise in which format you would prefer to have the records.
 - Electronic Audio Other (please specify): _____
- Check this box if you are attaching a request for waiver of fees in the public interest (see waiver information on back).

OFFICIAL USE ONLY: **SEE BACK FOR IMPORTANT INFORMATION**

Office Manager: _____ Date: _____ OP (rev. 07/29/99)

NOTICE TO REQUESTER

TO: Shawn Champion, ENPRO / Fax No. 262-4449 HW Section
(Requester's name)

FROM: Hawaii Dept. of Health, Solid and Hazardous Waste Branch, Amy Liama, (808) 586-4226, amy.liama@doh.hawaii.gov
(Agency, and agency contact person's name, telephone number, & email address)

DATE THAT THE RECORD REQUEST WAS RECEIVED BY AGENCY: 8/23/19

DATE OF THIS NOTICE: 8/20/19

GOVERNMENT RECORDS YOU REQUESTED (attach copy of request or provide brief description below):

1. _____
2. _____
3. _____
4. _____

THIS NOTICE IS TO INFORM YOU THAT YOUR RECORD REQUEST: No HW records.

- Will be granted in its entirety.
- Cannot be granted. Agency is unable to disclose the requested records for the following reason:
 Agency does not maintain the records. (HRS § 92F-3)
 Other agency that is believed to maintain records: _____
 Agency needs further clarification or description of the records requested. Please contact the agency and provide the following information: _____
 Request requires agency to create a summary or compilation from records, but requested information is not readily retrievable. (HRS § 92F-11(c))
- Will be granted in part and denied in part, OR Is denied in its entirety
 Although the agency maintains the requested records, it is not disclosing all or part of them based on the exemptions provided in HRS § 92F-18 and/or § 92F-29 or other laws cited below.
 (Describe the portions of records that the agency will not disclose.)

RECORDS OR INFORMATION WITHHELD: _____ APPLICABLE STATUTES: _____ AGENCY JUSTIFICATION: _____

REQUESTER'S RESPONSIBILITIES:

You are required to (1) pay any lawful fees and costs assessed; (2) make any necessary arrangements with the agency to inspect, copy or receive copies as instructed below; and (3) provide the agency any additional information requested. If you do not comply with the requirements set forth in this notice within 20 business days after the postmark date of this notice or the date the agency makes the records available, you will be presumed to have abandoned your request and the agency shall have no further duty to process your request. Once the agency begins to process your request, you may be liable for any fees and costs incurred. If you wish to cancel or modify your request, you must advise the agency upon receipt of this notice.

AUG 25 2019

[Handwritten initials]

REQUEST TO ACCESS A GOVERNMENT RECORD

DATE: August 23, 2019
TO: DOH/EMD/Solid & Hazardous Waste Branch (Fax: 808-586-7509)
FROM: SHAWN CHAMPION ENPRO Environmental
Name or Alias: SHAWN CHAMPION
Contact Information: 151 Hekili Street, Suite 210 (808) 748-2116 phone
Kailua, Hawaii 96734 (808) 262-4449 fax

Although you are not required to provide any personal information, you should provide enough information to allow the agency to contact you about this request. The processing of this request may be stopped if the agency is unable to contact you. Provide information that will allow the agency to contact you (name or alias, telephone or fax number, mailing address, e-mail address, etc).

I WOULD LIKE THE FOLLOWING GOVERNMENT RECORD

Describe the government record as specifically as possible so that it can be located. Try to provide a record name, subject or other information that will allow the record retriever, or other information that could help the agency identify the record. A complete and accurate description of the government record you request will prevent delays in locating the record. Attach a second page if needed.

Aloha,

I am currently working on an Environmental Site Assessment for the following properties located on Oahu on: Kamehameha Highway in Aiea, Hawaii 96701.
TMK Numbers: (1) 9-8-009: 005, 011, 014, 015, 016.

I would like to review regulatory records for the following properties:

- 98-77 Kamehameha Highway, Aiea, Hawaii
- Energy Corridor Pipeline, TMK (1) 9-8-009: 003
- Hickam POL ST15, Spill Site ST15, East of Kamehameha Highway & Hekaha Street, Aiea, Hawaii

No files found

My report is due September 3, 2019. In light of my timeline, I would greatly appreciate any assistance you can provide in expediting access to the files. Mahalo for your time and assistance,

Shawn Champion

I WOULD LIKE: (please check one or more of the options below)

- To inspect the government record.
- A copy of the government record. (Please check one of the options below.) See the back of this page for information about fees that you may be required to pay for agency services to process your record request. Note: Copying and transmission charges may also apply to certain options.

Copy and transmission charges may also apply to certain options.
 Pick up at agency (date and time): _____
 Fax (not free and only if available)
 Other, if available (please specify): _____
If the agency maintains the records in a form other than paper, please advise in which format you would prefer to have the record.

- Electronic Audio Other (please specify): _____
- Check this box if you are attaching a request for waiver of fees in the public interest (see waiver information on back).

SEE BACK FOR IMPORTANT INFORMATION

[Handwritten initials]

Shawn Champion

From: Eugene Malvar <emalvar@nanhawaii.com>
Monday, September 09, 2019 3:54 PM
To: Shawn Champion
Subject: RE: HART KHSG PRS Contaminated Soil Location
Attachments: (1).pdf
Pearlridge Drilled Shaft Spoils Stockpile Sampling Report 5.2.18.pdf; Pearlridge Aerial View 04172018 (1).pdf

Shawn,

Yes, ERA did have scope of work which involved onsite monitoring during a previous spill that occurred before Nan Inc occupied the site. However, that spill was on the TMK: 9-8-009:017.

The TMK 9-8-009:005 was only to be used for staging and stockpiling only. There were contaminated stockpiles being stored at this TMK, however that soil was generated from TMK 9-8-009:017. Attached is an aerial view of the site at the time the contaminated stockpile was stored there. Also attached is the soil sampling report for reference. There were no other ground disturbance work in this TMK except for sewer line installation work located along the east perimeter of the site.

Thanks,
Eugene Carl Malvar
Project Engineer

Nan Inc
636 Laumaka St., Honolulu, HI 96819
Tel: 808.842.4929 ext. 769 | Mobile: 808.346.2558
Web: www.nanhawaii.com

From: Shawn Champion [mailto:schampion@enproenvironmental.com]
Sent: Monday, September 09, 2019 3:31 PM
To: Eugene Malvar <emalvar@nanhawaii.com>
Subject: RE: HART KHSG PRS Contaminated Soil Location

Eugene,

I was wondering, perhaps Mr. Langham was thinking of another previous spill / area on site that ERA has monitored.

When I contacted ERA they did indeed confirm they did some work there (over or about a year ago) for NAN Inc.

If you have any info or environmental reports from this TMK that I could look at, please send them my way.

Thank you,

Shawn Champion
Environmental Technician
schampion@enproenvironmental.com
Office: 808-748-2116

636 Laumaka St., Honolulu, HI 96819
Tel: 808.842.4929 ext. 769 | Mobile: 808.346.2558
Web: www.nanhawaii.com

From: Shawn Champion [mailto:schampion@enproenvironmental.com]

Sent: Thursday, September 05, 2019 5:50 PM

To: Eugene Malvar <emalvar@nanhawaii.com>

Subject: RE: HART KHSG PRS Contaminated Soil Location

Eugene,

The stained soil was in front of the storage shed on the southwest corner of TMK 9-8-009:005. Any information would be great. Again, this is just for due diligence on my Phase I ESA report. I'm hoping to turn the report in Tuesday the 10th, so any info you could provide before then would be helpful.

The stained soil is not an oil spill. Typically we have our concrete washout pit setup here, and as you can see from the water hose, after we clean up the site we spray the area with water. Furthermore the loose connections from the hose may also be contributing to the "stain" as well. I have touched and smelled the soil myself and can confirm that there were no suspected petroleum.

Additionally:

Stephen Langham told us that NAN Inc owned that storage shed (he told us it was empty), and also the four 55-gallon drums stored next to it.

I noticed one of the drums seemed to not be empty, and was also not labeled.

Can you please confirm that NAN Inc does indeed own those, that the shed is empty (or not), and perhaps any information on those drums? Yes, we own the shed and the drums, in which the shed is in fact empty and one of the drums are filled with water only as this has been onsite for awhile, thus rainwater has gone into the drum as it was not completely sealed.

Thank you again for your assistance, I really appreciate your time. Please let me know if there is anything else you need assistance with, I am willing to help.

Shawn Champion
Environmental Technician
schampion@enproenvironmental.com
Office: 808-748-2116

From: Eugene Malvar <emalvar@nanhawaii.com>

Sent: Thursday, September 05, 2019 5:37 PM

To: Shawn Champion <schampion@enproenvironmental.com>

Subject: HART KHSG PRS Contaminated Soil Location

Sean,

Per our conversation I would like to know where exactly the impacted soil location is. If you could cloud an approximate location on the attached that would be great. I will visit the site tomorrow to verify tomorrow morning

Thanks,

3



Phase I Environmental Site Assessment Property Questionnaire

Circle all that apply: User Owner Key Site Manager

Please complete ALL sections of this questionnaire and return a signed and dated copy to ENPRO Environmental via FAX at 808-262-4449 or e-mail at info@enproenvironmental.com as soon as possible.

Communication with: Name: Jeffrey H. Ovetton

Company: Group 70 International, Inc.

Phone Number: 808 441-2104

Date: _____

Amount of Time _____

Familiar With Site: _____

Relationship to Site: Land Planner for City DTS

PROJECT NO.: 1908-00384-PH1

PROJECT NAME/ADDRESS: TMKs: (1) 9-8-009: 5, 11, 14, 15 and 16

Prior to answering the questions supplied in the table below, please provide ENPRO with the following information:

- A. What is your purpose/reason for requesting a Phase I Environmental Site Assessment of the above referenced property? City DTS plans to construct Bus Transfer Station on the site.
- B. Can you supply a floor plan diagram and list of tenants for the structures at the property? If so, please attach copies with your questionnaire responses or send separately prior to the site visit

DIRECTIONS: Please answer all questions to the best of your knowledge and in good faith. Mark the appropriate response with an "X". (Note: UNR indicates "Unknown" or "No Response"). If you not know the answer, please check the UNR box rather than the No box.

Please also elaborate on ALL Yes responses in the Comment box (for example, if the response to "Is the adjoining property used for an industrial use?" is Yes, please explain, e.g., "The building next door is used for canning tomatoes"). You may also provide additional information to UNR and No responses as necessary. If you have any questions while completing the questionnaire, please contact us.

Question	Response		Comment
	Yes	No / UNR	
1. Are you aware of any pending, threatened, or past litigation relevant to hazardous substances or petroleum products in, on, or from the property?		X	
2. Are you aware of any pending, threatened, or past administrative proceedings relevant to hazardous substances or petroleum products in, on, or from the property?		X	
3. Are you aware of any notices from any governmental entity regarding any possible violation(s) of environmental laws or possible liability relating to hazardous substances or petroleum products in, on, or from the property?		X	

Phase I ESA Questionnaire

151 Hekili Street • Suite 210 • Kailua, HI 96734

Telephone 808.262.0909 • Fax 808.262.4449 • www.enproenvironmental.com

Page 1 of 7



PROJECT NO.: 1908-00364-PH1
PROJECT NAME/ADDRESS: TMKs; (1) 9-8-009: 5, 11, 14, 15 and 16

Question	Response			Comment
	Yes	No	U/ NR	
4. Are you aware of any environmental cleanup liens against the property that are filed or recorded under federal, tribal, state, or local law?			X	
5. Are you aware of any Activity and Use Limitations (AULs) including engineering controls, land use restrictions, or institutional controls that are in place at the property and/or have been filed or recorded in a registry under federal, tribal, state, or local law?			X	
6. Do you have any specialized knowledge or experience related to possible environmental concerns at the property or nearby properties? (For example, are you involved in the same line of business as the current or former occupants at the property or adjacent/nearby properties such that you would have specialized knowledge of the chemical and processes used by the type of business?)	X			Aware that prior uses of neighboring land have involved hazardous materials studies and clean up
7. Does the purchase price being paid for this property reasonably reflect the fair market value of the property? If you conclude that there is a difference, have you considered whether the devalued purchase price is because contamination is known or believed to be present at the property? (Please reply in Comment section)			X	
8. Are you aware of commonly known or reasonably ascertainable information about the property or nearby properties that would help ENPRO's identify conditions indicative of releases or threatened releases? (For example, neighboring property is known to have once been a vehicle junk yard)	X			Neighboring lands have involved hazardous materials studies and clean up
9. Do you know any past uses of the property which may have contributed to potential contaminant releases?	X			Automobile Service
10. Do you know of any specific chemicals that are present or once were present at the property?			X	
11. Do you know of any spills or other chemical releases that have taken place at the property?			X	
12. Do you know of any environmental cleanups that have taken place at the property?			X	
13. Based on your knowledge and experience related to the property, are there any obvious indicators that point to the presence or likely presence of contamination at the property?			X	
14. a.) Is the property used for an industrial use?	X			Construction Yard/Office
b.) Are any adjacent properties used for an industrial use?			X	
15. a.) Has the property been used for an industrial use in the past?	X			Automobile Service
b.) Have any of the adjacent properties been used for an industrial use in the past?	X			Automobile Fuel Station

Phase I ESA Questionnaire 151 Hekili Street • Suite 210 • Kailua, HI 96734
Telephone 808.262.0909 • Fax 808.262.4449 • www.enproenvironmental.com Page 2 of 7



PROJECT NO.: 1908-00364-PH1
PROJECT NAME/ADDRESS: TMKs; (1) 9-8-009: 5, 11, 14, 15 and 16

Question	Response			Comment
	Yes	No	U/ NR	
16. a.) Is the property used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility? b.) Are any of the adjacent properties used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility?			X	
17. a.) Has the property been used in the past as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility? b.) Have any of the adjacent properties been used in the past as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility?	X			Automobile Service
18. a.) Are there currently any automotive or industrial batteries damaged or discarded, or pesticides, paints, or other chemicals in individual containers of greater than five gallons in volume or fifty gallons in the aggregate, stored on, or used at the property or at the facility? b.) Have there been previously any automotive or industrial batteries damaged or discarded, or pesticides, paints, or other chemicals in individual containers of greater than five gallons in volume or fifty gallons in the aggregate, stored on, or used at the property or at the facility?			X	Automobile Fuel Station
19. a.) Are there currently any industrial drums (typically 55-gallon) or sacks of chemical located on the property? b.) Have there been previously any industrial drums (typically 55-gallon) or sacks of chemical located on the property?			X	
20. a.) Are there currently any ground water monitoring wells or other ground water wells (e.g., drinking water wells) located on the property? b.) Have there been previously any ground water monitoring wells or other ground water wells (e.g., drinking water wells) located on the property?			X	
21. a.) Are there currently any ground water monitoring wells or other ground water wells (e.g., drinking water wells) located on any of the adjacent properties? b.) Have there been previously any ground water monitoring wells or other ground water wells (e.g., drinking water wells) located on any of the adjacent properties?			X	Prior Investigation

Phase I ESA Questionnaire 151 Hekili Street • Suite 210 • Kailua, HI 96734
Telephone 808.262.0909 • Fax 808.262.4449 • www.enproenvironmental.com Page 3 of 7



PROJECT NO.: 1908-00364-PH1
PROJECT NAME/ADDRESS: TMKs; (1) 9-8-009: 5, 11, 14, 15 and 16

Question	Response		Comment
	Yes	U/ NR	
22. a.) Has fill dirt been brought onto the property which originated from a contaminated site? b.) Has fill dirt been brought onto the property which is of unknown origin?		X	
23. a.) Are there currently any pits, ponds or lagoons on the property in connection with waste treatment or waste disposal? b.) Have there been previously any pits, ponds or lagoons on the property in connection with waste treatment or waste disposal?		X	
24. a.) Is there currently any stained soil on the property? b.) Has there been previously any stained soil on the property?		X	
25. a.) Are there currently any registered or unregistered storage tanks (above ground or underground) located on the property? b.) Have there been previously any registered or unregistered storage tanks (above ground or underground) located on the property?		X	
26. a.) Are there currently any vent pipes, fill pipes, or access ways indicating a fill pipe protruding from the ground on the property or adjacent to any structures on the property? b.) Have there been previously any vent pipes, fill pipes, or access ways indicating a fill pipe protruding from the ground on the property or adjacent to any structures on the property?		X	Automobile Service
27. a.) Are there currently any flooring, drains, or walls located within the structure(s) on the property that are stained by substances other than water or are emitting foul odors? b.) Have there been previously any flooring, drains or walls located within the structure(s) on the property that are stained by substances other than water or are emitting foul odors?		X	
28. a.) If the property is served by a private well or non-public water system, have contaminants been identified in the well or system that exceed guidelines applicable to the water system? b.) If the property is served by a private well or non-public water system, has the well been designated as contaminated by any government environmental/health agency?		X	
29. a.) Are there any environmental liens or government notifications relating to current violations of environmental laws with respect to the property or any facility located on the property? b.) Are you aware of any environmental violations of environmental laws with respect to the property or any facility located on the property?		X	



PROJECT NO.: 1908-00364-PH1
PROJECT NAME/ADDRESS: TMKs; (1) 9-8-009: 5, 11, 14, 15 and 16

Question	Response		Comment
	Yes	U/ NR	
30. a.) Have you been informed of the existence of any hazardous substances or petroleum products which are currently used or stored on the property? b.) Have you been informed of the past existence of any hazardous substances or petroleum products used or stored on the property?	X		Automobile Service
31. a.) Are you aware of any previous Environmental Site Assessments of the property or facility which indicated the presence of hazardous materials or petroleum products? b.) Are you aware of any previous Environmental Site Assessments which indicated the contamination of the property or facility?		X	
32. a.) Are you aware of any pending, threatened, or past litigation relevant to hazardous substances or petroleum products involving the property? b.) Are you aware of any pending, threatened, or past administrative proceedings relevant to hazardous substances or petroleum products involving the property?		X	
33. a.) Does the property discharge waste water on or adjacent to the property, other than storm water, into a storm water sewer system? b.) Does the property discharge waste water on or adjacent to the property, other than storm water, into a sanitary sewer system?		X	
34. Have any hazardous substances or petroleum products, unidentified waste materials, tires, automotive or industrial batteries, or any other waste materials been dumped above grade, buried, and/or burned on the property?		X	
35. Is there any transformer, capacitor, or any hydraulic equipment on the property for which there are any records of the presence of PCBs?		X	
36. a.) Is there now, or have there ever been any asbestos-containing materials (ACM) in any application on the property? b.) Has there ever been any testing for ACM conducted on the property?		X	



PROJECT NO.: 1908-00364-PH1
 PROJECT NAME/ADDRESS: TMKs; (1) 9-8-009: 5, 11, 14, 15 and 16

Question	Response		Comment
	Yes	No	
36. c.) Is there an asbestos Operations and Maintenance (O & M) program in place at the property?		X	
37. a.) Is there now, or have there ever been any Lead-Based Paint (LBP) in any application on the property?		X	
b.) Has there ever been any testing for LBP conducted on the property?		X	
c.) Is there a LBP O & M program in place at the property?		X	
38. Has the water at the property ever been tested for lead?		X	
39. Has radon testing ever been conducted at the property?		X	
40. Is the property, or any portion of the property, located or involved in any Ecologically Sensitive Areas (i.e., wetlands, coastal barrier resource areas, coastal barrier improvement act areas, flood plain, endangered species, etc.)?	X		County Special Management Area (SMA)
41. a.) Is the property, or any property within 1.0 mile of the property, listed on the Federal National Priorities List (NPL)?		X	
b.) Is the property, or any property within 0.5 miles of the property, listed on the Federal CERCLIS List?		X	
c.) Is the property, or any property within 1.0 mile of the property, listed by the Federal government as a RCRA TSD Facility?		X	
42. a.) Is the property, or any property within 1.0 mile of the property, listed by the State government as a Hazardous Waste site?		X	
b.) Is the property, or any property within 0.5 miles of the property, listed by the State government as a CERCLIS-equivalent site?		X	
c.) Is the property, or any property within 0.5 miles of the property, listed by the State as a Leaking Underground Storage Tank (LUST) site?		X	
c.) Is the property, or any property within 0.5 miles of the property, listed by the State as a Solid Waste/Landfill facility?		X	



PROJECT NO.: 1908-00364-PH1
 PROJECT NAME/ADDRESS: TMKs; (1) 9-8-009: 5, 11, 14, 15 and 16

Respondent Affirmation:

Respondent represents that to the best of the respondent's knowledge the above statements and facts are true and correct and to the best of the respondent's actual knowledge, no material facts have been suppressed or misstated.

Signature [Signature] Date 9/3/19
 (For oral communications, the word "Affirmed" appears on the signature line) or

Answers to this questionnaire have been orally communicated to a representative of Environmental Professionals, completed by:

Name [Signature] Signature [Signature] Date _____



*QUALIFICATIONS OF ENVIRONMENTAL
PROFESSIONALS*



Kenton Beal
Executive Vice President

CAREER HISTORY

More than twenty-five years of professional environmental project development and management. Strong emphasis on risk evaluation, risk ranking and environmental hazard assessment. Experienced in portfolio-wide environmental management and prioritizing resource allocation to address environmental liabilities in a cost effective manner. Has developed thousands of project budgets for planning and implementation purposes. Performed numerous RCRA hazardous waste characterization investigations, Phase I and II environmental investigations, remediation of soil and groundwater and environmental management of large construction projects. Projects have included urban renewal, remediation management at petroleum refineries, best management practices, storm water management, solid waste management, construction-related permitting, indoor air quality evaluations, closure of RCRA Treatment Storage and Disposal (TSD) facilities, remediation management for fungal contamination, evaluation of environmental issues related to lease disputes and commercial property transactions. Has performed and managed thousands of mold and moisture investigations ranging from single-family residential properties to high-rise commercial and resort properties.

PROFESSIONAL AFFILIATIONS

Registered Environmental Assessor (California)
Past President, Hawaii Chapter of the Institute of Hazardous Materials Managers
Registered Geologist (California)
Certified Professional Geologist (American Institute of Professional Geologists)
American Indoor Air Quality Council (Board of Directors, Hawaii Chapter)
Certified Indoor Environmentalist (Indoor Air Quality Association)
Certified in Mold Loss Prevention (Indoor Air Quality Association)
American Industrial Hygiene Association

EDUCATION

MBA, Hawaii Pacific University, 2001
M.S., Geology and Geophysics, University of Hawaii, 1987
B.A., Geology, University of California at Santa Barbara, 1984

GEOGRAPHIC EXPERIENCE

Successfully completed projects throughout the major Hawaiian Islands, Guam, Saipan, CNMI, Puerto Rico, Japan, and throughout the United States

ENVIRONMENTAL INVESTIGATION/ REMEDIATION EXPERIENCE

Projects have included wood treatment facilities, petroleum refineries, underground storage tank (UST) sites, agricultural facilities, urban renewal projects, petroleum bulk storage terminals impacted with free floating petroleum hydrocarbons, dry cleaners, and a variety of commercial/industrial facilities. Received No Further Action status at multiple sites from the State of Hawaii Department of Health. Successful experience with investigation and remediation projects for real property transfers and redevelopment. Design of corrective measures for indoor air quality complaints. Mold and moisture training, prevention and response planning.



Kenton Beal
Executive Vice President

SPECIALIZED TRAINING

Mold Loss Prevention, Indoor Air Quality Association
Groundwater Flow through Porous and Fractured Media, University of Wisconsin-Madison
Corrective Action for Containing and Controlling Ground Water Contamination, National Water Well Association
Basic Ground Water Modeling, National Water Well Association
Project Management, University of Hawaii
Clean Air Act Amendment 112 @. U.S. EPA
Management & Supervision of Hazardous Waste Operations, United Environmental Consultants
AHERA Asbestos Management Planner
AHERA Asbestos Inspector
HVAC and the Indoor Environment, American Indoor Air Quality Council
IICRC S520 Mold Remediation Guideline, American Indoor Air Quality Council
Case Studies in Environmental Mold, American Industrial Hygiene Association
Health Effects of Mold, American Indoor Air Quality Council
40-hour Hazwoper Training and Refreshers, Various
Understanding Environmental Sampling and Data Analysis
Managing Uncertainty with Systematic Planning

PROFESSIONAL PRESENTATIONS

Building Operator Certification, Indoor Environmental Quality, University of Hawaii
Environmental Game Changers, Honolulu, Hawaii
Indoor Air Quality in Commercial Buildings, American Society of Heating and Refrigeration Engineers
Environmental Solutions for Real Estate Transactions, Honolulu Board of Realtors
Storm Water Monitoring, Law Seminars International, Honolulu
Mold Remediation Boot Camp, Las Vegas
Mold University™, Honolulu and Houston
Indoor Air Quality for Property Managers, San Francisco, Honolulu, Las Vegas, Los Angeles
Mold Report™, San Francisco, Honolulu, Las Vegas, Los Angeles
Mold Awareness, International Executive Housekeepers Association
Advanced Conference on Real Estate, Law Seminars International
Hot Topics in the Mold Industry, American Indoor Air Quality Council, Hawaii
Mold Investigation Training, Pensacola, Fort Lauderdale, Orlando, Tampa, Florida
Environmental Investigation for Emergency Services, Burbank and Long Beach California
Multi-Family Residential Development, Lohman Education Services, Honolulu
Environmental Law Seminar A to Z, NBI, Inc., Honolulu
Real Estate Development From Beginning to End, Lorman Educations Services, Honolulu



Roberta Bitzer

Senior Environmental Professional

CAREER HISTORY

Over a decade of professional environmental project development, monitoring and management; regulatory compliance inspections, assessments and oversight of multiple abatement projects, including lead based paint, asbestos, mold, particulates and other regulated substances.

Hawaii Department of Health (HDOH) and Environmental Protection Agency (EPA) Certified LBP Risk Assessor experience conducting Housing and Urban Development (HUD) guided LBP inspection utilizing X-Ray Fluorescence (XRF) analysis for large scale multi-family housing developments, preparation of lead abatement and lead disturbance specifications, lead disturbance and abatement work plans, and compliance plans, HUD lead risk assessments, OSHA training, as well as monitoring and clearance of LBP abatement projects.

HDOH and EPA Certified Asbestos Inspector, Project Monitor, Management Planner, and Project Designer experienced in conducting inspections for demolition and renovation projects, monitoring and clearance of abatement projects, preparation of asbestos abatement specification and asbestos abatement work plans, as well as Operations and Maintenance (O&M) Plans.

ACAC Certified Indoor Environmental Consultant (CIEC) experienced in the evaluation of indoor environments and microbiological laboratory data to assess the extent of fungal contamination and/or the efficacy of mold remediation projects (post remediation verification, PRV). Experienced in remediation management and remediation planning/design, as well as IAQ assessment, remediation, and design for non-fungal indoor air contaminants such as volatile organic compounds (VOCs), particulates, and combustion products.

Experienced in conducting ASTM Standard Phase I Environmental Site Assessments (ESAs), Phase II Soil, Soil Vapor, and Groundwater Sampling, and Phase III Remediation Activities. ESA sampling activities have included the collection of multi-increment surface and sub-surface soil samples in accordance with HDOH Hazard Evaluation and Emergency Response (HEER) Office Technical Guidance Manual (TGM) guidelines, composite and discrete soil sampling in accordance with TGM guidelines, groundwater sampling in accordance with TGM guidelines, and soil vapor sampling in accordance with TGM guidelines. Remediation activities have included UST removal and oversight of excavation, transport, management and disposal of contaminated soil.

Development of Spill Prevention Control and Countermeasure (SPCC) Plans and Facility Response Plans for multiple installations throughout Hawaii.

Served as project manager for risk evaluation for a large trust estate (>300 properties). Evaluation involved ranking sites by relative risk and establishing recommendations for further investigation and/or remediation. Risk evaluation and site assessment work addressed PCBs, petroleum-related contaminants, pesticides, asbestos, lead and other metals, USTs, and non-point source contaminants. Review of federal, state and county databases and regulatory files pertaining to environmental issues as well as Environmental Impact Statements.

Research experience includes writing, research, and fieldwork in support of the preparation of a dissertation and a thesis; and investigation of the larvicidal activity of plant extracts against mosquito larvae of *Aedes aegypti* and *Culex quinquefasciatus*.

Experience working with public and private special interest groups.



Roberta Bitzer

Senior Environmental Professional

EDUCATION

B.S. Biology, 2002. Universidade Estadual do Norte Fluminense do Norte Fluminense – Rio de Janeiro, Brazil.

M.S. Exchange Program, 2004: The Environment, Economic Development and Quality of Life Nexus, US-Brazil Higher Education Consortia, Fairfield University – Connecticut, USA.

M.S. Environmental Sciences, 2006. Universidade Estadual do Norte Fluminense do Norte Fluminense – Rio de Janeiro, Brazil.

PUBLICATIONS

Roberta P. De Souza. *Organic Matter, Specific Surface Area, and Heavy Metal Interactions in Guanabara Bay Sediments*. Undergraduate Dissertation, Universidade Estadual do Norte Fluminense do Norte Fluminense – Rio de Janeiro, Brazil. Speciality: Environmental Sciences, 83p. 2002.

Roberta P. De Souza. *Heavy Metal Pollution in Guanabara Bay sediments*. Master's Thesis, Universidade Estadual do Norte Fluminense do Norte Fluminense – Rio de Janeiro, Brazil. Speciality: Environmental Sciences, 90p. 2006.

PRESENTATIONS

Roberta P. de Souza, Carlos E. Rezende, Luiz R. Gaezler and Eliane R. Goncalves. "Heavy Metal Pollution in Sediments of Guanabara Bay, Rio de Janeiro, Brazil," *XIII International Conference on Heavy Metals in the Environment* – ICHMET held in Rio de Janeiro, Brazil, June 5 - 9, 2005.

Training in Environmental Management System Auditing, March 21 and 27, 2005.

SPECIALIZED TRAINING

Training in EPA All Appropriate Inquiries by the HDOH and USEPA; June 14, 2007

Training in Asbestos and Lead Paint Regulations; September 2007

Training in Managing Multiple Priorities; September 2007

Training in Building Science and Understanding Building Failures; May 2008

Hawaii Brownfields Redevelopment Forum #3 by HDOH; October 2007

Hawaii Brownfields Redevelopment Forum #4 by HDOH; October 2008

HVAC & Mold Remediation Webinar; November 2008

Workshop to Review and Discuss Updates to the Environmental Hazard Evaluation (EHE) Guidance and Associated Environmental Action Levels (EALs) by HDOH; December 2008

Environmental Compliance for Hawaii Design Professionals by HatfMoon LLC; January 2009

Vapor Intrusion Workshop by HDOH; April 2009



Roberta Bitzer

Senior Environmental Professional



Shawn Champion

Environmental Professional

CERTIFICATIONS

HDOH Certified Asbestos Inspector, Project Monitor, Project Designer and Management Planner

HDOH Lead Based Paint Risk Assessor

EPA Certified Lead Renovator

ACAC Certified Indoor Environmental Consultant

HAZWOPER-40 Hours

American Red Cross, Adult and Pediatric First Aid/CPR/AED

Portuguese and Spanish

LANGUAGE SKILLS

FIPSE/CAPIES Scholarship, 2004

CNPq Scholarship; 2003/2004

Research Institute for Marine Ecosystems Almirante Paulo Moreira Scholarship; 2002

FAPERJ Scholarship; 2001

AWARDS

CAREER HISTORY

Experienced in environmental research and report preparation.
Experienced in conducting fungal inspection surveys for moisture intrusion, visible suspect mold and indoor air quality investigations.

Experienced in conducting post remediation verification (PRV) for mold and moisture intrusion remediation and hygienic indoor surfaces.

Experienced in biological monitoring equipment (YSI Pro Multiparameter Water Meter, Peristaltic Pump, Garmin GPS, Garmin Action Cam, Marsh McBirney Flow Meter)

Experienced in biological fieldwork and laboratory sample preparation

EDUCATION B.S. Environmental Systems Engineering – 2014 The Pennsylvania State University

SKILLS / SOFTWARE Microsoft Office Suite (Access, Excel, PowerPoint, Publisher, & Word)

Adobe Suite (Photoshop)

Programming Language (Python)



Toll Free Phone 866.262.0909 • Toll Free Fax 866.262.4440
www.enproenvironmental.com

Appendix H

Draft Environmental Assessment Comment Letters

DAVID Y. IGE
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810-0119

CURT T. OTAGUIRO
COMPTROLLER
AUDREY HIDANO
DEPUTY COMPTROLLER

(P) 20.179

NOV - 5 2020



Ms. Vi Verawudh, Associate, Senior Planner
Group 70 International, Inc., dba G70
111 South King Street, Suite 170
Honolulu, Hawaii 96813

Dear Ms. Verawudh:

Subject: Chapter 343, Hawaii Revised Statutes (HRS) Draft Environmental Assessment (EA)
City and County of Honolulu Department of Transportation Services
Pearlridge Bus Transit Center
TMK: (1) 9-8-009-005, 014, 015, 016 and easement over (1) 9-8-009-011 (portion)
Aiea, Oahu, Hawaii

Thank you for the opportunity to provide comments for the subject project. We have no comments to offer at this time, as the subject project does not appear to directly impact any of the Department of Accounting and General Services' managed facilities or properties.

If you should have any questions, please call Mr. Dennis Chen of the Planning Branch at 586-0491.

Sincerely,

CHRISTINE L. KINIMAKA
Public Works Administrator

DYCK:mno

Noelle Besa Wright

From: Cab General <Cab.General@doh.hawaii.gov>
Sent: Monday, November 9, 2020 11:17 AM
To: G70 - Pearlridge Transit; virginia.sosh@honolulu.gov
Subject: DOH Clean Air Branch Comments on Draft EA for Pearlridge Bus Transit Center

Follow Up Flag: Follow up
Flag Status: Flagged

Aloha,

Thank you for the opportunity to provide comments on the subject project. Please see our standard comments at:

<https://health.hawaii.gov/cab/files/2019/08/Standard-Comments-Clean-Air-Branch-2019.pdf>

Please let me know if you have any questions.

Lisa M.M. Wallace
EHS QA Officer
Clean Air Branch
Environmental Health Office
Hilo, Hawaii 96720
(808)933-0403



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 631
HONOLULU, HAWAII 96809

December 08, 2020

LD 1117

**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.

Includes construction or demolition activities that involve asbestos

You must contact the Asbestos Abatement Office in the Indoor and Radiological Health Branch.

Has the potential to generate fugitive dust

You must control the generation of all airborne, visible fugitive dust. Note that construction activities that occur near to existing residences, business, 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 should 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:

- a) 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;
- b) Providing an adequate water source at the site prior to start-up of construction activities;
- c) Landscaping and providing rapid covering of bare areas, including slopes, starting from the initial grading phase;
- d) Minimizing airborne, visible fugitive dust from shoulders and access roads;
- e) Providing reasonable dust control measures during weekends, after hours, and prior to daily start-up of construction activities; and
- f) 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

Clean Air Branch (808) 586-4200 cab@doh.hawaii.gov	Indoor Radiological Health Branch (808) 586-4700
--	---

Vi Verawudh, Associate, Senior Planner
Group 70 International, Inc.
111 South King Street, Suite 170
Honolulu, HI 96813

Via email: pearlridgetransit@g70.design

Dear Sirs:

SUBJECT: **Pearlridge Bus Transit Center Draft Environmental Assessment**

City & County of Honolulu Department of Transportation Services
TMK: (1) 9-8-009:005, 014, 015, 016 and easement over 9-8-009:011 (por.)
Aiea, Island of Oahu, Hawaii

Thank you for the opportunity to review and comment on the subject project. The Land Division of the Department of Land and Natural Resources (DLNR) distributed copies of your request to DLNR's various divisions for their review and comment.

Enclosed are responses for your consideration received from our (a) Engineering Division, (b) Land Division – Oahu District. Should you have any questions about the attached responses, please feel free to contact Barbara Lee via email at barbara.j.lee@hawaii.gov. Thank you.

Sincerely,
Russell Y. Tsuji

Russell Y. Tsuji
Land Administrator

Enclosure(s)
cc: Central Files

April 1, 2019



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

November 19, 2020

MEMORANDUM

FROM: TO:

DLNR Agencies:

- Div. of Aquatic Resources
- Div. of Boating & Ocean Recreation
- Engineering Division (via email: DLNR.Engr@hawaii.gov)
- Div. of Forestry & Wildlife (via email: Rubyrosa.T.Terrago@hawaii.gov)
- Div. of State Parks
- Commission on Water Resource Management (via email: DLNR.CWRM@hawaii.gov)
- Office of Conservation & Coastal Lands
- Land Division – Oahu District (via email: DLNR.Land@hawaii.gov)
- Historic Preservation (via email: DLNR.Hist.HSPD@hawaii.gov)

TO:

~~FROM:~~ Russell Y. Tsuji, Land Administrator *Russell Tsuji*
SUBJECT: Pearlridge Bus Transit Center, Draft Environmental Assessment (DEA)
LOCATION: Aiea, Island of Oahu, Hawaii; TMK: (1) 9-8-009: 005, 014, 015, 016 and easement over (1) 9-8-009: 011 (portion)
APPLICANT: **G70 on behalf of the City and County of Honolulu Department of Transportation Services**

Transmitted for your review and comment is information on the above-referenced DEA, which can be accessed via the October 23, 2020 issue of The Environmental Notice at the following URL: http://oecq2.doh.hawaii.gov/The_Environmental_Notice/2020-10-23-EN.pdf

Please submit any comments via email to the Land Division at DLNR.Land@hawaii.gov, copied to barbara.lee@hawaii.gov by the extended due date of **December 02, 2020** for consideration according to the requestor's instructions. 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 Barbara Lee directly at barbara.j.lee@hawaii.gov. Thank you.

- We have no objections.
- We have no comments.
- Comments are attached.

Signed: *CS*
 Print Name: Carty S. Chang, Chief Engineer
 Division: Engineering Division
 Date: Nov 23, 2020

Attachments
Cc: Central Files

LD 1117

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/Russell Y. Tsuji
Ref: Pearlridge Bus Transit Center, Draft Environmental Assessment (DEA)
Location: Aiea, Island of Oahu, Hawaii
TMK(s): (1) 9-8-009: 005, 014, 015, 016 and easement over (1) 9-8-009: 011 (portion)
Applicant: **G70 on behalf of the City and County of Honolulu Department of Transportation Services**

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.hawaii.nfip.org/FHAT>).

If there are questions regarding the local flood ordinances, please contact the applicable County NFIP coordinating agency below:

- o Oahu: City and County of Honolulu, Department of Planning and Permitting (808) 768-8098.
- o Hawaii Island: County of Hawaii, Department of Public Works (808) 961-8327.
- o Maui/Molokai/Lanai County of Maui, Department of Planning (808) 270-7253.
- o Kauai: County of Kauai, Department of Public Works (808) 241-4896.

Signed: *CS*
 CARTY S. CHANG, CHIEF ENGINEER
 Date: Nov 23, 2020



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

November 19, 2020

LD 1117

MEMORANDUM

TO:

DLNR Agencies:

- Div. of Aquatic Resources
- Div. of Boating & Ocean Recreation
- Engineering Division (via email: DLNR.Engr@hawaii.gov)
- Div. of Forestry & Wildlife (via email: Rubyrosa.T.Terrago@hawaii.gov)
- Div. of State Parks
- Commission on Water Resource Management (via email: DLNR.CWRM@hawaii.gov)
- Office of Conservation & Coastal Lands
- Land Division – Oahu District (via email: DLNR.Land@hawaii.gov)
- Historic Preservation (via email: DLNR.Intake.SHPD@hawaii.gov)

FROM:

Russell Y. Tsuji, Land Administrator *Russell Tsuji*

SUBJECT:

Pearlridge Bus Transit Center, Draft Environmental Assessment (DEA)

LOCATION:

Aiea, Island of Oahu, Hawaii; TMK: (1) 9-8-009: 005, 014, 015, 016 and easement over (1) 9-8-009: 011 (portion)


APPLICANT:

G70 on behalf of the City and County of Honolulu Department of Transportation Services

Transmitted for your review and comment is information on the above-referenced DEA, which can be accessed via the October 23, 2020 issue of The Environmental Notice at the following URL: http://oeqc2.doh.hawaii.gov/The_Environmental_Notice/2020-10-23-TEN.pdf

Please submit any comments via email to the Land Division at DLNR.Land@hawaii.gov, copied to barbara.j.lee@hawaii.gov by the extended due date of **December 02, 2020** for consideration according to the requestor's instructions. 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 Barbara Lee directly at barbara.j.lee@hawaii.gov. Thank you.

We have no objections.
 We have no comments.
 Comments are attached.

 *PM*
 Signed: Patti Miyashiro
 Print Name: Patti Miyashiro
 Division: DLNR-LD-ODLO
 Date: Dec 1, 2020

Attachments
Cc: Central Files



111 S. King Street
Suite 170
Honolulu, HI 96813
808.523.5866
www.g70.design

10 1117

RECEIVED
LAND DIVISION

2020 OCT 26 AM 10:28

DEPT. OF LAND &
NATURAL RESOURCES
STATE OF HAWAII

Subject: Chapter 343, Hawaii's Revised Statutes (HRS) Draft Environmental Assessment (EA)

City and County of Honolulu Department of Transportation Services
Pearlridge Bus Transit Center

TMK: (1) 9-8-009: 005, 014, 015, 016 and easement over (1) 9-8-009: 011
(portion)
(Aiea, O'ahu, Hawaii')

Dear Participant:

On behalf of the City and County of Honolulu Department of Transportation Services, the Draft EA for the Pearlridge Bus Transit Center is available for review. The Draft EA was prepared pursuant to Chapter 343, HRS and in accordance with Chapter 11-200-1, Hawaii Administrative Rules.

You may download a PDF copy of the Draft EA on the State of Hawaii's Department of Health, Office of Environmental Quality Control website at this URL:

http://oeqc2.doh.hawaii.gov/Doc_Library/2020-10-23-0A-DEA-Pearlridge-Bus-Transit-Center.pdf. If you have difficulty downloading the Draft EA, please contact us to remedy the situation.

Please provide comments via telephone, email, fax, or U.S. Mail. The 30-day comment period begins on October 24, 2020 and ends on November 22, 2020. Comments received subsequent to this deadline will still be considered. Please submit your comments to:

Group 70 International, Inc. dba G70
111 S King Street, Suite 170
Honolulu, HI 96813
Attn: Vi Verawudh, Associate, Senior Planner
Fax: (808) 523-5866
Email: pearlridge@transit@g70.design

Thank you for your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC., dba G70

Jeff Overton, AICP, LEED AP
Principal

ARCHITECTURE // CIVIL ENGINEERING // INTERIOR DESIGN // PLANNING & ENVIRONMENT

DAVID Y. IGE
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

JADE T. BUTAY
DIRECTOR

Deputy Director
LYNN A.S. ABRAHAM-REGAN
DEREK J. CHOW
ROSS M. HIGASHI
EDWIN H. SNIPFEN

IN REPLY REFER TO:
HWY-2767
HWY-PS 2.4467

November 25, 2020

Mr. Jeff Overton
Principal
Group 70 International, Inc. dba G70
111 South King Street, Suite 170
Honolulu, Hawaii 96813

Dear Mr. Overton:

Subject: Draft Environmental Assessment (DEA)
Pearlridge Bus Transit Center
City and County of Honolulu Department of Transportation Services
Aiea, Oahu, Hawaii
Tax Map Key Nos.: (1) 9-8-009: 005, 014, 015, 016, and easement over
(1) 9-8-009: 011 (portion)

Thank you for your letter dated October 23, 2020, requesting our comment on the subject project. The City and County of Honolulu (CCH), Department of Transportation Services proposes to construct and operate a bus transit center in Aiea. The approximately 3.7 acres site is adjacent to and west of the currently under construction Honolulu Authority of Rapid Transit (HART) Kalanooa Pearlridge Station No. 8 near the Pearlridge Shopping Center. The adjoining locations of the planned Pearlridge Bus Transit Center and Kalanooa Pearlridge Station will facilitate multimodal transportation connectivity.

The site is currently used as a HART construction staging area. Kamehameha Highway (State Route 99), an urbanized principal arterial, is aligned along the northern boundary of the site. Buses will be provided with exclusive access to the bus center via three proposed driveways: one full access driveway on Kanuku Street that would require an access easement on the eastern edge of the adjacent Tax Map Parcel: (1) 9-8-009-011, one right-turn inbound-only driveway from Kamehameha Highway, and one right-turn outbound-only driveway to Kamehameha Highway. A proposed driveway east of the rail station will provide access for a proposed cul-de-sac street for Kiss & Ride and Handi-Van use for both the bus center and rail station. No public parking is proposed to be provided for the bus center and rail

The Hawaii Department of Transportation (HDOT) reviewed the DEA and the appended Mobility Analysis Report (MAR) dated October 13, 2020 and has the following comments relative to State highways:

1. The MAR should include additional traffic safety analysis for the proposed driveways on Kamehameha Highway and Kanuku Street. The analysis should include sight distance requirements, various design vehicle turning movements, and potential conflicts with nearby intersections or driveways. Provide justification for length of throat for all in-bound driveways. HDOT recommends that a deceleration lane be provided for the in-bound driveways because the right-turn inbound-only driveway may cause vehicles to backup into Kamehameha Highway.
2. The MAR should have for each scenario and at all study intersection, figures that show laneage and volumes, and a table with delay and Level of Service (LOS) for each movement and overall LOS if applicable.
3. The MAR should include all future planned developments in the area including (but not limited to) the development at Tax Map Key: (1) 9-8-013; 013, 015, "Live, Work, Play Aiea" (the former Kamehameha Drive-In property) with the Future (2025) traffic estimates. Analysis of existing conditions should reflect the conditions prior to HART construction. Congestion on Kamehameha Highway was heavy before HART construction, the use of 2010/2011 data as a base before applying annual growth rate needs additional justification. Provide a comparison to the highest peak and daily volumes before HART construction. Kamehameha Highway speed limit will remain at 35 mph after HART construction.
4. The MAR should provide recommended mitigation measures for direct impacts to State facilities due to the project in order to maintain the operating LOS and delay level conditions at the "without project condition" for all horizon years. This should include a commitment to complete the mitigation measures and a proposed implementation schedule.
5. The MAR should provide recommended mitigation and analysis for the Kamehameha Highway and Kaonohi Street intersection. The intersection LOS decreased from C to D with an additional average delay of 11.6 seconds, the eastbound left-turn has a LOS of F with additional delay of 30 seconds, and other movements having LOS of F or E, which are significant impacts to the State facilities.

6. The MAR should provide recommended mitigation and analysis for Kamehameha Highway and Kanuku Street intersection. The PM eastbound left turn movement has a LOS of F and other movements have LOS E. The MAR should note that HART eliminated one of the westbound left-turn lanes at this intersection.
7. The MAR Table 6 and Table 10 should include queue analysis for the Kamehameha Highway and Pali Momi Street intersection's westbound left-turn. This intersection signal timing should already be coordinated with the other two signals along Kamehameha Highway, verify the need to modify the signal timing as a potential improvement.
8. The MAR should provide additional mitigation and analysis for project related pedestrian impacts. The report indicates increased pedestrian demands from the project and the rail station to the intersections of Kamehameha Highway and Kaonohi Street and Kamehameha Highway and Kanuku Street. Pedestrian impacts should be mitigated in conjunction with the traffic impacts at these intersections. Recommend mitigation to be done to provide a safe accessible route between Pearlridge Shopping Center and the bus transit center. This should include improving the asphalt path segment adjacent to the Sumida watercross farm. Improvements to sidewalks, refuge and median islands, crosswalks, driveways and curb ramps should be considered for safety, accessibility, and traffic impacts. Use of figures should be used to show specific locations of improvements.
9. The MAR 3.1.4 Existing Pedestrian Activity states, "Anecdotal evidence indicates that the existing raised pedestrian median or island on the mauka side of the highway and ewa side of Kaonohi Street is too small to accommodate the pedestrian volume...". Please expand and clarify this observation and if it has been field verified. Identify the bus stop locations and time periods this occurs. Provide figures showing the crosswalk and island layout.
10. The MAR includes scenarios for modifying signal timing at the Kamehameha Highway and Kaonohi Street intersection to provide a leading pedestrian interval or a pedestrian-only phase. Provide additional data and analysis showing the significant impact of pedestrians from the development of the project and rail station that is driving the need for these modifications. For pedestrian safety the MAR should not be limited to modifying the signal timing, it should also check the existing conditions of the entire route (sidewalks, waiting areas, crosswalks, curb ramps, etc.).
11. The MAR should address the connectivity to the CCH roadways.

Mr. Jeff Overton
November 25, 2020
Page 4

HWY-PS 2.4467

12. Mitigation for direct impacts to State facilities will be provided at no cost to the State. The CCH shall dedicate right-of-way (ROW) for the recommended transportation mitigation improvements to the State, as required and approved by HDOT. Regional improvements will be provided on a pro-rated basis. These improvements shall be constructed on a schedule acceptable to HDOT.
13. A permit to perform work upon state highways shall be required for any work within the highway ROW. Construction plans prepared by a Hawaii licensed engineer shall be submitted for review and approval prior to applying for a permit to perform work.
14. No additional stormwater runoff will be permitted in the HDOT ROW, including culverts. All additional stormwater runoff from the project site shall be managed and mitigated onsite.

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 2020-047.

Sincerely,



JADE T. BUTAY
Director of Transportation

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96813
www.boardofwatersupply.com



January 20, 2021

RICK BLANGIARDI, MAYOR
SIVAN P. ANSARY, CHAIR
KAPUA SPROAT, Vice Chair
RAY C. SOON
MAX J. SWORD
JADE T. BUTAY, Ex-Officio
ROGER BARCOCK, Ex-Officio
ERNEST Y. W. LAU, P.E.
Manager and Chief Engineer
ELLEN E. KITAMURA, P.E.
Deputy Manager and Chief Engineer



Mr. Ryan M. K. Char
Group 70 International, Inc.
111 South King Street, Suite 170
Honolulu, Hawaii 96813

Dear Mr. Char:

Subject: Your Letter Dated December 22, 2020 Requesting Comments on the Draft Environmental Assessment for the City and County of Honolulu Department of Transportation Services Pearlridge Bus Transit Center
Tax Map Key: 9-8-009: 005, 011, 014, 015, and 016

Thank you for your letter regarding the proposed bus transit center project.

Due to the proposed irrigation demands, the Board of Water Supply (BWS) agrees to not require the extension of the pipeline and connection to the Kalaauo Spring nonpotable water system.

The BWS recommends the developer design the on-site nonpotable water system with an irrigation system point of connection fronting the street near the potable water meter to facilitate the transfer to the Kalaauo Spring nonpotable water system when it becomes available.

If you have any questions, please contact Robert Chun, Project Review Branch of our Water Resources Division at 748-5443.

Very truly yours,



ERNEST Y. W. LAU, P.E.
Manager and Chief Engineer

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843
www.boardofwatersupply.com



November 12, 2020

KIRK CALDWELL, MAYOR
BRYAN P. ANDAYA, Chair
KAPUA SPROAT, Vice Chair
MAY C. SOON
JAN J. SHORD

ROSS S. SASAMUFA, Ex-Officio
JADE T. BUTAY, Ex-Officio
ERNEST Y. W. LAU, P.E.
Manager and Chief Engineer
ELLEN E. KITAHARA, P.E.
Deputy Manager and Chief Engineer

Mr. Jeff Overton
Group 70 International, Inc.
111 South King Street, Suite 170
Honolulu, Hawaii 96813



Dear Mr. Overton:

Subject: Your Letter Dated October 23, 2020 Requesting Comments on the Draft Environmental Assessment for the City and County of Honolulu Department of Transportation Services Pearlfridge Bus Transit Center, Located Along Kamehameha Highway
Tax Map Key: 9-8-009: 005, 011 (por.), 014, 015, and 016

Thank you for the opportunity to comment on the proposed bus transit center.

The existing water system is adequate to accommodate the proposed development. However, please be advised that this information is based upon current data, and therefore, the Board of Water Supply (BWS) reserves the right to change any position or information stated herein up until the final approval of the building permit application. The final decision on the availability of water will be confirmed when the building permit application is submitted for approval.

When water is made available, the applicant will be required to pay our Water System Facilities Charges for resource development, transmission and daily storage.

Water conservation measures are required for all proposed developments. These measures include utilization of nonpotable water for irrigation using rain catchment, drought tolerant plants, xeriscape landscaping, efficient irrigation systems, such as a drip system and moisture sensors, and the use of Water Sense labeled ultra-low flow water fixtures and toilets.

BWS Rules and Regulations require the use of nonpotable water for irrigation of large landscape areas to reduce the use of potable water. BWS Kalaou Spring nonpotable water system is in the vicinity of the Pearlfridge Transit Oriented Development (TOD) area and this project. Therefore, the proposed bus transit center is required to connect to the nonpotable water system. Pipeline extensions along Kamehameha Highway from the Kalaou Spring pump station to the Pearlfridge TOD area should be coordinated with BWS.

Mr. Jeff Overton
November 12, 2020
Page 2

The proposed project is subject to BWS Cross-Connection Control and Backflow Prevention requirements prior to the issuance of the Building Permit Applications.

The on-site fire protection requirements should be coordinated with the Fire Prevention Bureau of the Honolulu Fire Department.

If you have any questions, please contact Robert Chun, Project Review Branch of our Water Resources Division at 748-5443.

Very truly yours,

ERNEST Y. W. LAU, P.E.
Manager and Chief Engineer

DEPARTMENT OF FACILITY MAINTENANCE
CITY AND COUNTY OF HONOLULU
1000 Ulu, Oha Street, Suite 215, Kapiolani, Hawaii 96707
Phone: (808) 525-3333 • Fax: (808) 768-3381
Website: www.honolulu.gov



KIRK CALDWELL
MAYOR

ROSS S. SASAMURA, P.E.
DIRECTOR AND CHIEF ENGINEER
EDUARDO P. MANGALLAN
DEPUTY DIRECTOR

IN REPLY REFER TO:
DPM 20-561

November 6, 2020



Ms. Vi Verawudh, Associate, Senior Planner
G70
111 S. King Street, Suite 170
Honolulu, Hawaii 96813

Dear Ms. Verawudh:

Subject: Chapter 343, HRS and DEA
City and County of Honolulu, Department of Transportation Services,
Pearlridge Bus Transit Center
TMK: (1) 9-8-009:005, 014, 015, 016 and Easement Over
TMK: (1) 9-8-009:011 (portion), Alea

Thank you for the opportunity to review and comment on the subject project.

Our comments are as follows:

- Please note that the City maintains the Pearl Harbor Bike Path (TMK: 9-8-009:003).
- Kamehameha Highway is under the jurisdiction of the Honolulu Authority for Rapid Transportation.

If you have any questions, please call Mr. Kyle Oyasato of the Division of Road Maintenance at 768-3697.

Sincerely,

Ross S. Sasamura, P.E.
Director and Chief Engineer

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
850 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
PHONE: (808) 768-8000 • FAX: (808) 768-0041
DEPT. WEB SITE: www.honolulu.gov • CITY WEB SITE: www.honolulu.gov



KIRK CALDWELL
MAYOR

KATHY Y. SOKUGAWA
ACTING DIRECTOR
TIMOTHY F. T. HIU
DEPUTY DIRECTOR
EUGENE H. TAKAHASHI
DEPUTY DIRECTOR

2020/ELOG-2103

December 1, 2020

G70
Ms. Vi Verawudh, Associate, Senior Planner
111 South King Street, Suite 170
Honolulu, Hawaii 96813

Dear Ms. Verawudh:

SUBJECT: Draft Environmental Assessment (DEA)
Pearlridge Bus Transit Center
Tax Map Key (TMK): 9-8-009: 005, 011 (por.), and 014-016

In response to your letter dated October 23, 2020, requesting comments on the DEA for the Pearlridge Bus Transit Center (the Project), the Department of Planning and Permitting (DPP) offers the following comments, supplementing our April 15, 2020, comments.

1. **Climate Change:** The project site is immediately adjacent to the projected six-foot sea level rise (SLR) inundation area as depicted by the National Oceanic and Atmospheric Administration Sea Level Rise Viewer. While the DEA assesses the project site and interim development as outside of this area, the adjacent Pearl Harbor Historic Trail (PHHT) is impacted. Therefore, the Project should consider future interaction with the PHHT, in case it is elevated, through development of best practices consistent with the Mayor's Directive 18-2 and the Honolulu Climate Change Commission's Sea Level Rise Guidance (June 5, 2018). An estimated timeframe for the interim/short-term use would also be helpful for these preparations.

2. **Urban Design:** A physical and visual connection extending from the terminus of Kaonohi Street property, along the diamond head side of the project site and adjacent Kamehameha Schools' property (Home World) to the PHHT and waterfront, is identified in the Alea-Pearl City Neighborhood Transit-Oriented Development Plan (TOD Plan). This connection will serve as an important pedestrian access point and is also envisioned as a public plaza space that should be incorporated into the Project's short- and long-term uses. We ask that TheHandi-Van and Kiss-N-Ride area be designed in coordination with adjacent Kamehameha Schools redevelopment plans to create a pedestrian-prioritized, mixed-use shared street or "woonerf" to support this vision.

The Project should adhere to the urban design principles described in the TOD Plan, and it will be subject to the TOD Special District regulations once adopted by the

Honolulu City Council. Creating a walkable environment along Kamehameha Highway is important because it is envisioned to be an active street for transit riders to walk to and from the transit stations in all directions. At a minimum, street trees, such as Rainbow Shower, Queens Hospital White Shower, or Monkey Pod to maintain consistency with nearby trees, should be provided along Kamehameha Highway, between the road and the sidewalk (assuming no conflicts), to provide shade and a sense of protection from fast moving vehicles. Our observations of sidewalks in high pedestrian traffic areas (i.e., TOD neighborhoods) has also found that at least eight to 10 feet is necessary to comfortably pass side-by-side and accommodate users. Therefore, we recommend the minimum width of the sidewalk be eight to 10 feet, especially because of its close proximity to the rail and bus transit stations that will generate a lot of pedestrian traffic.

In areas where riders are waiting for buses, taxis, or TheHandi-Vans, we recommend planting more canopy trees, rather than palm trees, to provide more shade and solar protection. Where possible, locate trees between the curb and the sidewalk so pedestrians feel protected from passing vehicles. Combined with hedges or other landscaping, the design layout could use this as a natural railing or fence that guides pedestrians to use proper crosswalks and deter them from jay-walking between the bus station islands.

The Project description briefly mentions fencing to be installed along the perimeter of the site, with the exception of the Kamehameha Highway side. In addition, gates are also to be installed, including at the PHHT access point, and locked when the facility is closed. The impact of the fencing and gates is difficult to gauge because they were not included in any project renderings. Impacts should be minimized through good fence design (e.g., wrought iron fence or another see-through design to provide public safety and awareness through visual connections) and safeguards to ensure that gate closures do not limit users from traversing between the PHHT and Kamehameha Highway.

3. **Access and Circulation:** The Hawaii Department of Transportation (HDOT) has jurisdiction on Kamehameha Highway so we defer comments regarding intersections of the Project and the highway to HDOT.

The previously approved Live, Work, Play Aiea (LWPA) project should be included in the report. The timing of LWPA and the improvements to Kaonohi Street as part of LWPA should be evaluated, as it will have a direct impact to Kaonohi Street, the surrounding streets, and intersections.

4. Due to existing traffic conditions, impacts to the following intersections should be included in the report: Kamehameha Highway and Hekaha Street; Kaonohi Street and Moanalua Loop, and Moanalua Road and Kaonohi Street.

Subdivision: A subdivision application is required for access easements over Parcel 11, and for the consolidation of the other lots if a Conditional Use Permit for Joint Development is not obtained.

5. **Wastewater:** We note that a sewer connection application (2020/SCA-0869) was approved on June 30, 2020.

6. **Water Quality:** The Project's compliance with the City's Rules Relating to Water Quality will be verified at the time that the grading plans are submitted to the DPP for review.

Should you have any questions, please contact Andrew Tang, of our staff, at 768-8123 or andrew.tang@honolulu.gov.

Very truly yours,


Kathy K. Sokugawa
Acting Director

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
850 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
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KIRK CALDWELL
MAYOR

KATHY K. SOKUGAWA
ACTING DIRECTOR
TIMOTHY F. T. HIU
DEPUTY DIRECTOR
EUGENE H. TAKAHASHI
DEPUTY DIRECTOR

2020/ELOG-2103

December 1, 2020

G70
Ms. Vi Verawudh, Associate, Senior Planner
111 South King Street, Suite 170
Honolulu, Hawaii 96813

Dear Ms. Verawudh:

SUBJECT: Draft Environmental Assessment (DEA)
Pearlridge Bus Transit Center
Tax Map Key (TMK): 9-8-009: 005, 011 (por.), and 014-016

In response to your letter dated October 23, 2020, requesting comments on the DEA for the Pearlridge Bus Transit Center (the Project), the Department of Planning and Permitting (DPP) offers the following comments, supplementing our April 15, 2020, comments.

1. **Climate Change:** The project site is immediately adjacent to the projected six-foot sea level rise (SLR) inundation area as depicted by the National Oceanic and Atmospheric Administration Sea Level Rise Viewer. While the DEA assesses the project site and interim development as outside of this area, the adjacent Pearl Harbor Historic Trail (PHHT) is impacted. Therefore, the Project should consider future interaction with the PHHT, in case it is elevated, through development of best practices consistent with the Mayor's Directive 18-2 and the Honolulu Climate Change Commission's Sea Level Rise Guidance (June 5, 2018). An estimated timeframe for the interim/short-term use would also be helpful for these preparations.

2. **Urban Design:** A physical and visual connection extending from the terminus of Kaonohi Street property, along the diamond head side of the project site and adjacent Kamehameha Schools' property (Home World) to the PHHT and waterfront, is identified in the Aiea-Pearl City Neighborhood Transit-Oriented Development Plan (TOD Plan). This connection will serve as an important pedestrian access point and is also envisioned as a public plaza space that should be incorporated into the Project's short- and long-term uses. We ask that TheHandi-Van and Kiss-N-Ride area be designed in coordination with adjacent Kamehameha Schools redevelopment plans to create a pedestrian-prioritized, mixed-use shared street or "woonerf" to support this vision.

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Ms. Vi Verawudh
December 1, 2020
Page 2

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In areas where riders are waiting for buses, taxis, or TheHandi-Vans, we recommend planting more canopy trees, rather than palm trees, to provide more shade and solar protection. Where possible, locate trees between the curb and the sidewalk so pedestrians feel protected from passing vehicles. Combined with hedges or other landscaping, the design layout could use this as a natural railing or fence that guides pedestrians to use proper crosswalks and deter them from jay-walking between the bus station islands.

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Ms. Vi Verawudh
December 1, 2020
Page 3

5. **Wastewater:** We note that a sewer connection application (2020/SCA-0869) was approved on June 30, 2020.
6. **Water Quality:** The Project's compliance with the City's Rules Relating to Water Quality will be verified at the time that the grading plans are submitted to the DPP for review.
Should you have any questions, please contact Andrew Tang, of our staff, at 768-8123 or andrew.tang@honolulu.gov.

Very truly yours,


Kathy K. Sokugawa
Acting Director

DEPARTMENT OF PARKS & RECREATION
CITY AND COUNTY OF HONOLULU
1000 Uluohia Street, Suite 309, Kapiolani, Hawaii 96707
Phone: (808) 768-3003 • Fax: (808) 768-3053
Website: www.honolulu.gov



KIRK CALDWELL
MAYOR

MICHELE K. NEKOTA
DIRECTOR
JEANNE C. ISHIKAWA
DEPUTY DIRECTOR

October 30, 2020



Mr. Jeff Overton, AICP, LEED AP
Group 70 International, Inc. dba G70
111 S King Street, Suite 170
Honolulu, Hawaii 96813

Dear Mr. Overton:

SUBJECT: Draft Environmental Assessment Pearbridge Bus Transit Center
TMK (1) 9-8-009:005, 014, 015, 016 and
Easement over (1) 9-8-009:011

Thank you for the opportunity to review and comment on the subject Draft Environmental Impact Statement.

The Department of Parks and Recreation has no comment. As the proposed improvements will not impact any program or facility of the Department you are invited to delete us from the balance of the EIS process.

Should you have any questions, please contact Mr. John Reid, Planner, at 768-3017.

Sincerely,



Michele K. Nekota
Director

MKN:jf
(830820)

HONOLULU FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU

638 South Street
Honolulu, Hawaii 96813-5007
Phone: 808-723-7139 Fax: 808-723-7111 Internet: www.honolulu.gov/hfd



KIRK CALDWELL
MAYOR

MANUEL P. NEVES
FIRE CHIEF
LIONEL CAMARA, JR.
DEPUTY FIRE CHIEF

November 3, 2020



Ms. Vi Verawudh, Associate
Senior Planner
G70
111 South King Street, Suite 170
Honolulu, Hawaii 96813

Dear Ms. Verawudh:

Subject: Draft Environmental Assessment
Pearlridge Bus Transit Center
Alea, Hawaii 96701
Tax Map Keys: 9-8-009: 005, 011 (Portion), 014, 015, and 016

In response to your letter dated October 23, 2020, regarding the abovementioned subject, the Honolulu Fire Department reviewed the submitted information, and has no additional comments at this time. Please refer to our previous letter dated April 1, 2020. A copy is enclosed for your convenience.

Should you have questions, please contact Battalion Chief Wayne Masuda of our Fire Prevention Bureau at 723-7151 or wmasuda@honolulu.gov.

Sincerely,

JASON SAMALA
Assistant Chief

Enclosure

JS/WM/bh

cc: Jeffrey Overton, G70

HONOLULU FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU

638 South Street
Honolulu, Hawaii 96813-5007
Phone: 808-723-7139 Fax: 808-723-7111 Internet: www.honolulu.gov/hfd



KIRK CALDWELL
MAYOR

MANUEL P. NEVES
FIRE CHIEF
LIONEL CAMARA, JR.
DEPUTY FIRE CHIEF

April 1, 2020

Mr. Jeffrey Overton, AICP, LEED AP
Group 70 International, Inc.
111 South King Street, Suite 170
Honolulu, Hawaii 96813

Dear Mr. Overton:

Subject: Draft Environmental Assessment
Pearlridge Bus Transit Center
Alea, Hawaii 96701
Tax Map Keys: 9-8-009: 005, 011 (Portion), 014, 015, and 016

In response to your letter dated March 5, 2020, regarding the abovementioned subject, the Honolulu Fire Department (HFD) reviewed the submitted information and requires that the following be complied with:

1. 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 feet (46 meters) from fire department access roads as measured by an approved route around the exterior of the building or facility. (National Fire Protection Association [NFPA] 1; 2012 Edition, Sections 18.2.3.2.2 and 18.2.3.2.2.1.)

A fire department access road shall extend to within 50 feet (15 meters) of at least one exterior door that can be opened from the outside and that provides access to the interior of the building. (NFPA 1; 2012 Edition, Section 18.2.3.2.1.)

2. 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

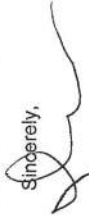
Mr. Jeffrey Overton, AICP, LEED AP
Page 2
April 1, 2020

constructed, or moved into or within the county. When any portion of the facility or building is in excess of 150 feet (45,720 millimeters) 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 [Authority Having Jurisdiction]. (NFPA 1; 2012 Edition, Section 18.3.1, as amended.)

3. The unobstructed width and unobstructed vertical clearance of a fire apparatus access road shall meet county requirements. (NFPA 1; 2012 Edition, Sections 18.2.3.4.1.1 and 18.2.3.4.1.2, as amended.)
4. Submit civil drawings to the HFD for review and approval.

Should you have questions, please contact Battalion Chief Wayne Masuda of our Fire Prevention Bureau at 723-7151 or wmasuda@honolulu.gov.

Sincerely,



JASON SAMALA
Assistant Chief

JS/TC:bh

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU
801 SOUTH BERETANIA STREET - HONOLULU, HAWAII 96813
TELEPHONE: (808) 528-3111 • INTERNET: www.honolulu.gov



KIRK CALDWELL
MAYOR

SUSAN BALLARD
CHIEF
JOHN D. MCCARTHY
CLAYTON
DEPUTY CHIEF

OUR REFERENCE EO-DK

November 5, 2020



Ms. Vi Verawudh
Associate, Senior Planner
Group 70 International, Inc., dba G70
111 South King Street, Suite 170
Honolulu, Hawaii 96813

Dear Ms. Verawudh:

This is in response to your agency's request for input on the Draft Environmental Assessment for the proposed Pearlfridge Bus Transit Center project located in Alea.

The Honolulu Police Department (HPD) anticipates short-term impacts to vehicular traffic around the project area. The HPD recommends that all necessary signs, lights, barricades, and other safety equipment be installed and maintained by the contractor during the construction phase of the project.


Additionally, the HPD would like to address public safety as it relates to emergency and law enforcement response for the proposed bus transit center and the future mixed-use development of the surrounding area(s). This includes potential security issues due to the increase in pedestrian and vehicular traffic around the proposed development.

Therefore, the HPD would like to be included when these sections are planned or discussed with the stakeholders in the area, as there may be a need for additional police services at that time.

If there are any questions, please call Acting Major Thomas Taflinger of District 3 (Pearl City, Alea) at 723-8802.

Thank you for the opportunity to review this project.

Sincerely,



RABE K. VANIC
Assistant Chief of Police
Support Services Bureau

Serving and Protecting With Aloha

LOCAL #1 HI, IUBAC



International Union of Bricklayers and Allied Craftworkers Local #1 of Hawaii
2251 North School Street, Honolulu, HI 96819
Phone: (808) 841-8822 • Fax: (808) 777-3456

October 23, 2020

Attn: Virginia Sosh, Project Manager
Department of Transportation Services
City and County of Honolulu
650 South King Street, Third Floor
Honolulu, Hawaii 96813

Via Email
pearlridgetransit@g70.design

RE: Comments on Draft Environmental Assessment, Pearlridge Bus Transit Center

Dear Ms. Sosh,

The International Union of Bricklayers and Allied Craftworkers writes in support of the Draft Environmental Assessment ("DEA") for the Pearlridge Bus Transit Center.

At a time of great economic uncertainty, we appreciate that the project would generate positive economic effects and create construction jobs in our local economy. Specifically, the DEA estimates that

"In the short-term, the Project will create economic benefits as a result of design and construction employment. Total construction cost is estimated at approximately \$9.5 million. Local material suppliers and retail businesses can also expect to benefit through a multiplier effect from the increased construction activities." (Page 3-25)

We also note that construction wages this project will be subject to HRS Chapter 104 as a result of the utilization of City & County funds. The prevailing wages required by HRS Chapter 104 are key to supporting an economically vibrant middle class here in the islands. At a time when there is so much economic uncertainty, a project like the Pearlridge Bus Transit Center will help to buoy our local construction industry.

Furthermore, we appreciate that the Pearlridge Bus Transit Center will interface with the rail project to provide transportation alternatives for people throughout Aiea, Pearl City, and Central Oahu. Our union has been a strong supporter of the rail project since the beginning, and we are proud of our members' work on various phases of the project, including doing block work on the stations, finishing cement on the columns and elevated guideway, and finalizing the column pedestals upon which the guideway sits.

Thank you for the opportunity to provide these comments on the DEA for the Pearlridge Bus Transit Center.

Mahalo,

Melvin P. Silva, Jr.
Business Manager