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SEP 8 2016
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County of Hawai'i
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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<http://www.hawaiicounty.gov/environmental-management/>

August 22, 2016

Mr. Scott Glenn, Director
Office of Environmental Quality Control
State of Hawai'i Department of Health
235 South Beretania Street, Room 702
Honolulu, HI 96813

RE: DRAFT ENVIRONMENTAL ASSESSMENT AND ANTICIPATED FINDING OF NO SIGNIFICANT IMPACT FOR THE PROPOSED EAST HAWAI'I ORGANICS FACILITY, WAIĀKEA HOMESTEADS, WAIĀKEA, SOUTH HILO, HAWAI'I, TMK (3) 2-1-013: 142, 160, 161 & 163

Dear Mr. Glenn,

With this letter, the County of Hawai'i Department of Environmental Management (DEM) hereby transmits the Draft Environmental Assessment and Anticipated Finding of No Significant Impact (DEA-AFONSI) for the proposed East Hawai'i Organics Facility situated on TMK parcels (3) 2-1-013: 142, 160, 161, and 163, on the Island of Hawai'i, for publication in the next available edition of the Environmental Notice.

Enclosed is a completed OEQC Publication Form, one (1) copy of the Draft EA and AFONSI, an Adobe Acrobat PDF file of the same and an electronic copy of the publication form in MS Word. Simultaneous with this letter, we have submitted the summary of the action in a text file by electronic mail to your office.

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OFFICE OF ENVIRONMENTAL QUALITY CONTROL

Should you have any questions, please contact Gregory Goodale, SWD Chief at (808) 961-8515 or Gregory.Goodale@hawaiicounty.gov, or our authorized agent of this project, Roy Takemoto, of PBR Hawaii at (808) 521-5631.



BJ Leithead Todd, DIRECTOR

cc: Roy Takemoto, PBR Hawaii
Greg Goodale SWD Chief
Gene Quiamas, Environmental Compliance Specialist

AGENCY
PUBLICATION FORM **SEP 8 2016**

Project Name:	County of Hawai'i – East Hawai'i Organics Facility
Project Short Name:	East Hawai'i Organics Facility
HRS §343-5 Trigger(s):	Use of State or County lands or funds
Island(s):	Hawai'i
Judicial District(s):	South Hilo
TMK(s):	(3) 2-1-013: 142, 160, 161, 163
Permit(s)/Approval(s):	DWS Water Commitment approval (DWS); Fire Response Plan approval (Fire Department); Plan Approval (Planning Department); Consolidation/Resubdivision (Planning Department); National Pollutant Discharge Elimination System (NPDES) Permit (DOH); Individual Wastewater System Permit (DOH); Grading/Building Permits (DPW); Noise Permit (DOH); Solid Waste Management Permit (DOH)
Proposing/Determining Agency:	County of Hawai'i Department of Environmental Management, Solid Waste Division
Contact Name, Email, Telephone, Address	ATTN: Gregory Goodale, Solid Waste Division Chief County of Hawai'i Department of Environmental Management, Solid Waste Division 345 Kekuanaoa Street Hilo, Hawai'i 96720 Phone: (808) 961-8515 Fax: (808) 961-8553 Email: Gregory.Goodale@hawaiicounty.gov
Accepting Authority:	(for EIS submittals only)
Contact Name, Email, Telephone, Address	
Consultant:	PBR HAWAII & Associates, Inc.
Contact Name, Email, Telephone, Address	ATTN: Mr. Vincent Shigekuni PBR HAWAII & Associates, Inc. 1001 Bishop Street, Suite 650 Honolulu, Hawai'i 96813 Phone: (808) 521-5631 Fax: (808) 523-1402 Email: vshigekuni@pbrhawaii.com

Status (select one) DEA-AFNSI**Submittal Requirements**

Submit 1) the proposing agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the DEA, and 4) a searchable PDF of the DEA; a 30-day comment period follows from the date of publication in the Notice.

 FEA-FONSI

Submit 1) the proposing agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEA, and 4) a searchable PDF of the FEA; no comment period follows from publication in the Notice.

 FEA-EISPN

Submit 1) the proposing agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEA, and 4) a searchable PDF of the FEA; a 30-day comment period follows from the date of publication in the Notice.

 Act 172-12 EISPN
("Direct to EIS")

Submit 1) the proposing agency notice of determination letter on agency letterhead and 2) this completed OEQC publication form as a Word file; no EA is required and a 30-day comment period follows from the date of publication in the Notice.

 DEIS

Submit 1) a transmittal letter to the OEQC and to the accepting authority, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the DEIS, 4) a searchable PDF of the DEIS, and 5) a searchable PDF of the distribution list; a 45-day comment period follows from the date of publication

in the Notice.

- FEIS Submit 1) a transmittal letter to the OEQC and to the accepting authority, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEIS, 4) a searchable PDF of the FEIS, and 5) a searchable PDF of the distribution list; no comment period follows from publication in the Notice.
- FEIS Acceptance Determination The accepting authority simultaneously transmits to both the OEQC and the proposing agency a letter of its determination of acceptance or nonacceptance (pursuant to Section 11-200-23, HAR) of the FEIS; no comment period ensues upon publication in the Notice.
- FEIS Statutory Acceptance Timely statutory acceptance of the FEIS under Section 343-5(c), HRS, is not applicable to agency actions.
- Supplemental EIS Determination The accepting authority simultaneously transmits its notice to both the proposing agency and the OEQC that it has reviewed (pursuant to Section 11-200-27, HAR) the previously accepted FEIS and determines that a supplemental EIS is or is not required; no EA is required and no comment period ensues upon publication in the Notice.
- Withdrawal Identify the specific document(s) to withdraw and explain in the project summary section.
- Other Contact the OEQC if your action is not one of the above items.

Project Summary

Provide a description of the proposed action and purpose and need in 200 words or less.

The proposed action is construction of an organics composting facility in Waiākea, South Hilo. The purpose and need for the Project is to divert organics from disposal in the County landfills, in order to extend the life of the landfills and create compost and mulch to support agriculture. Designed, constructed, and operated by a private contractor under contract to the County, this County facility will feature an in-vessel (covered) compost operation that will allow for acceptance of organic materials such as food, paper, and compostable plastics. In-vessel composting will minimize the environmental impacts regarding odor, pests, dust and it will decrease the time required to make compost. Greenwaste and untreated wood pallets will be ground and chipped into mulch before mixing with the other organics. A portion of the mulch to be made available to the public will be treated for invasive species (e.g., fire ants). All incoming food waste, food soiled paper fiber, and green waste comingled with food waste/food soiled paper fiber, will be received indoors in a state of the art receiving (tipping) building. Leachate generated from the tipping building and active composting heaps will be collected in a storage tank and recycled for feedstock moisture adjustment.

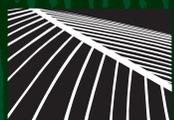
County of Hawai'i East Hawai'i Organics Facility

Draft Environmental Assessment –
Anticipated Finding of No Significant Impacts

Prepared for

County of Hawai'i
Department of Environmental Management

Prepared by



PBR HAWAII
& ASSOCIATES, INC.

August 2016

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COUNTY OF HAWAI'I
EAST HAWAI'I ORGANICS FACILITY

*Draft Environmental Assessment –
Anticipated Finding of No Significant Impacts
(HRS 343)*

Prepared for:

County of Hawai'i Department of Environmental Management

Prepared by:



August 2016

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COUNTY OF HAWAII – EAST HAWAII ORGANICS FACILITY

Draft Environmental Assessment/Anticipated Finding of No Significant Impact

SUMMARY

Project Name:	County of Hawai'i East Hawai'i Organics Facility
Location:	Waiākea, South Hilo, Island and County of Hawai'i (Figure 1)
Judicial District:	South Hilo
Tax Map Key (TMK):	(3) 2-1-013: 142, 160, 161, 163 (Figure 2)
Land Area:	Parcel 142: 40 acres Parcel 160: 13.333 acres Parcel 161: 13.333 acres Parcel 163: 13.333 acres TOTAL: 80 acres
Proposing Agency:	County of Hawai'i Department of Environmental Management, Solid Waste Division
Landowner:	Control and management of State land by the County of Hawai'i under existing Executive Order (E.O.) 3975 for parcel 142; E.O. pending for parcels 160, 161, and 163.
Existing Use:	Vacant land formerly used as quarries
Proposed Action:	The purpose and need for the Project is to divert organics from disposal in the County landfills. Organics comprise 54% of the waste stream. Besides extending the life of the landfills, the compost and mulch are soil amendment assets to support agriculture. Designed, constructed, and operated by a private contractor under contract with the County, this County facility will feature an in-vessel (covered) compost operation that will allow for acceptance of organic materials such as food, paper, and compostable plastics. In-vessel composting will minimize the environmental impacts regarding odor, pests, dust and it will decrease the time required to make compost. Greenwaste and untreated wood pallets will be ground and chipped into mulch before mixing with the other organics. A portion of the mulch will be treated for invasive species (e.g., little fire ants) and made

COUNTY OF HAWAII – EAST HAWAII ORGANICS FACILITY

Draft Environmental Assessment/Anticipated Finding of No Significant Impact

available for distribution to the public. All receiving, temporary storage and pre-processing of incoming food waste, food soiled paper fiber, and green waste comingled with food waste/food soiled paper fiber, will be completed indoors in a state of the art receiving (tipping) building. Leachate generated from the tipping building and active composting heaps will be collected in a storage tank and recycled for feedstock moisture adjustment. Stormwater will flow into surface swales towards a stormwater retention pond.

Current

Land Use Designations:

State Land Use: Agriculture (Figure 5)

County General Plan LUPAG: Important Agricultural Lands (Figure 6)

County Zoning: Agriculture (A-20a) (Figure 7)

Special Management Area (SMA): Not in SMA (Figure 8)

Alternatives Considered: Besides the proposed action, four alternatives were considered:

- No action
- One other alternative site
- Alternative composting methods
- Alternative site plans

Potential Impacts and Mitigation Measures:

The Project will have beneficial impacts by diverting organics from the landfill, thereby extending the life of the landfill, and by providing mulch and compost to support agricultural operations.

Any potential adverse impacts would be mitigated as follows:

- Design measures:
 - To mitigate operational *noise* affecting existing or future residences to the west of the Project Site, the building will be enclosed and any noise emitted from openings in the building will be directed to the north.
 - To mitigate *stormwater* impacts, on-site drainage design will incorporate low impact development practices such as vegetated buffer/filter strips, open vegetated channels, and infiltration.
 - To mitigate *erosion and sedimentation* impacts during construction, the grading plans will specify some or all of the following best management practices:
 - Early construction of drainage control

COUNTY OF HAWAI'I – EAST HAWAI'I ORGANICS FACILITY

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Potential Impacts and Mitigation Measures (cont.):

- features;
 - Construction of temporary sediment basins to trap silt;
 - Use of temporary berms and cut-off ditches where needed; and
 - Use of temporary silt fences or straw bale barriers to trap silt.
- To mitigate potential impact to *seabirds*, the design will specify shielded outdoor lights in conformance with County Code outdoor lighting requirements (Chapter 14, Article 9, HCC).
- To protect low-flying, foraging *bats*, barbed wire not be used for fencing.
- The Project will not include any *reflective surfaces*, including photovoltaic panels, which could impair pilots' vision unless coordinated with the Airports Division.
- The *Individual Wastewater System* permit approved by DOH will ensure the septic tank and leach field system has adequate capacity.
- Review of retention pond design by Airports Division and USFW to minimize attracting wildlife.
- Coordination with the Department of Water Supply and HELCO will ensure that the improvements serving the Mass Transit Baseyard will be able to accommodate the Project.
- Construction measures:
 - To mitigate construction *noise and dust*, the construction contract will include standard measures such as ensuring mufflers are in proper operating condition, limiting construction hours, and wetting down exposed surfaces.
 - To mitigate potential impact to the native *hawk*, the construction contract will include a requirement to retain a biologist to check for nests if grubbing trees during March through September.
 - If construction will occur during the *Hawaiian hoary bat* breeding season (June 1 to September 15), construction documents will specify that woody plants greater than 15 feet tall should not be removed or trimmed.
 - The construction documents will include a provision that should *historic sites* such as walls, platforms,

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Draft Environmental Assessment/Anticipated Finding of No Significant Impact

pavements and mounds, or remains such as artifacts, burials, concentrations of shell or charcoal or artifacts be inadvertently encountered during construction activities, work will cease immediately in the immediate vicinity of the find and the find will be protected. The contractor will immediately contact State Historic Preservation Division, which will assess the significance of the find and recommend appropriate mitigation measures, if necessary.

- Operational measures
 - Coordinate with Civil Defense on potential use of the Site for post-event debris management.
 - Have Fire Department approve the fire response plan.

Permits & Approvals

DWS Water Commitment approval (DWS); Fire Response Plan approval (Fire Department); Plan Approval (Planning Department); Consolidation/Resubdivision (Planning Department); National Pollutant Discharge Elimination System (NPDES) Permit (DOH); Individual Wastewater System Permit (DOH); Grading/Building Permits (DPW); Noise Permit (DOH); Solid Waste Management Permit (DOH)

Determination:

Anticipated Finding of No Significant Impact (AFNSI)

COUNTY OF HAWAI'I – EAST HAWAI'I ORGANICS FACILITY

Draft Environmental Assessment/Anticipated Finding of No Significant Impact

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ACRONYMS

AA	Archaeological Assessment
AC	Advisory Circular (FAA)
ALISH	Agricultural Lands of Importance to the State of Hawai'i
AOA	Air Operations Area
BLNR	Board of Land and Natural Resources
BMP	Best Management Practices
CZM	Coastal Zone Management
DBEDT	Department of Business, Economic Development, and Tourism, State of Hawai'i
DHHL	Department of Hawaiian Home Lands, State of Hawai'i
DLNR	Department of Land and Natural Resources, State of Hawai'i
DOE	Department of Education, State of Hawai'i
DOH	Department of Health, State of Hawai'i
DWS	Department of Water Supply, County of Hawai'i
EA	Environmental Assessment
EHOE	East Hawai'i Organics Facility
EPA	Environmental Protection Agency
EO	Executive Order
FAA	Federal Aviation Administration
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
gpd	Gallons per day
HAR	Hawai'i Administrative Rules
HCC	Hawai'i County Code
HDOA	State of Hawai'i Department of Agriculture
HDOTA	State of Hawai'i Department of Transportation, Airports Division
HELCO	Hawai'i Electric Light Company, Inc.
HMC	Hilo Medical Center
HRS	Hawai'i Revised Statutes
IBC	International Building Code
ITO	Hilo International Airport
LID	Low Impact Development
LSB	Land Study Bureau, University of Hawai'i
LUC	State of Hawai'i Land Use Commission
LUPAG	County of Hawai'i General Plan Land Use Pattern Allocation Guide
MGD	Million gallons per day
MTA	County of Hawai'i Mass Transit Agency
mph	Miles per hour
NASA	National Aeronautics and Space Administration
NFIP	National Flood Insurance Program
NFPA	National Fire Protection Association
NGPC	Notice of General Permit Coverage
NPDES	National Pollutant Discharge Elimination Systems

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NRCS	Natural Resources Conservation Service, USDA
ROD	Rapid 'Ōhi'a Death
SHPD	State of Hawai'i Historic Preservation Division
SHSL	South Hilo Sanitary Landfill
SMA	Special Management Area
TIAR	Transportation Impact Analysis Report
TMK	Tax map key
TSS	Total suspended solids
UIC	Underground Injection Control
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WHOF	West Hawai'i Organics Facility
WHSL	West Hawai'i Sanitary Landfill

1 INTRODUCTION

The County of Hawai'i Department of Environmental Management (DEM) has selected an experienced private firm to design, construct, and operate the East Hawai'i Organics Facility (hereafter referred to as the "Composting Facility" or "Project") to divert greenwaste and designated organic materials from the County landfills. The Project will be located next to the South Hilo Sanitary Landfill. The use of State or County land or funds triggers the requirement to assess the environmental impacts of the proposed action pursuant to HRS Chapter 343.

1.1 LANDOWNER

The County of Hawai'i is in the process of obtaining an Executive Order to use the State land for solid waste disposal purposes (E.O. 3975 for parcel 142; E.O. in process for parcels 160, 161, and 163).

1.2 PROPOSING/DETERMINING AGENCY

The County of Hawai'i Department of Environmental Management, Solid Waste Division is the proposing agency and will determine the significance of impacts pursuant to HRS 343-5(b).

Contact: County of Hawai'i
Department of Environmental Management, Solid Waste Division
ATTN: Gregory Goodale, Solid Waste Division Chief
345 Kekuanaoa Street
Hilo, Hawai'i 96720
Phone: (808) 961-8515
Fax: (808) 961-8553

1.3 ENVIRONMENTAL CONSULTANT

PBR HAWAI'I is the environmental planning consultant.

Contact: PBR HAWAII & Associates, Inc.
ATTN: Vincent Shigekuni
1001 Bishop Street, Suite 650
Honolulu, Hawai'i 96813
Telephone: (808) 521-5631
Fax: (808) 523-1402

1.4 COMPLIANCE WITH STATE OF HAWAI'I ENVIRONMENTAL LAWS

Preparation of an Environmental Assessment (EA) is being undertaken to meet the applicable requirements of Chapter 343, Hawai'i Revised Statutes (HRS) and Title 11, Chapter 200, Hawai'i Administrative Rules (HAR). Section 343-5, HRS establishes nine "triggers" that require the

COUNTY OF HAWAII – EAST HAWAII ORGANICS FACILITY

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completion of an EA. Because the Composting Facility involves the use of State or county lands and/or funds as one of the triggers listed under §343-5(a)(1), an EA to consider the impacts of the proposed action on the human and natural environment is being prepared.

1.5 STUDIES CONTRIBUTING TO THIS EA

The information contained in this report has been developed from site visits, generally available information regarding the characteristics of the proposed Composting Facility site and surrounding areas, and technical studies. Technical studies are provided as appendices to this EA. These studies include:

- Archaeological Assessment
- Cultural Impact Assessment
- Flora and Fauna Survey
- Transportation Impact Analysis Report.

2 PROJECT DESCRIPTION

2.1 BACKGROUND INFORMATION

2.1.1 Location and Property Description

The Composting Facility is proposed to be located on Ho‘olaulima Road (a.k.a. Pana‘ewa Drag Strip Road) in Waiākea Homesteads, Waiākea *ahupua‘a*, South Hilo District, Island and County of Hawai‘i (Figure 1), on four tax map key (TMK) parcels: (3) 2-1-013: 142, 160, 161, 163 (“the Project Site”) (Figure 2). The total area of the Project Site is 80 acres (Parcel 142 is 40 acres, and Parcels 160, 161, and 163 are each approximately 13.333 acres).

Governor’s Executive Order (E.O.) 3975 sets aside TMK (3) 2-1-013:142, consisting of 40 acres, for use as part of a County of Hawai‘i landfill. In 2015, the County of Hawai‘i requested an Executive Order for parcels 160, 161, and 163 as part of a request to consolidate and resubdivide a number of the lots in this vicinity, including parcel 142’s Executive Order, to update the purposes and boundaries of various State land in the vicinity related to the County’s solid waste operations.

The Project Site had been previously used for quarrying. Currently, the Project Site is vacant. Access to the Project Site is over Ho‘olaulima Road, a 50-foot wide road that the County of Hawai‘i maintains. In addition to providing access to the Project Site, the road is also used to access other County of Hawai‘i properties and facilities, including a quarry, borrow pits, landfill, drag strip, sort station, and future Mass Transit Agency baseyard.

2.1.2 Existing Land Use Designations

Current land use designations for the Project Site are:

- *State Land Use*: Agriculture (Figure 5);
- *County General Plan LUPAG*: Important Agricultural Lands(Figure 6);
- *County Zoning*: Agriculture (A-20a) (Figure 7);
- *Special Management Area (SMA)*: Not in SMA (Figure 8).

2.1.3 Surrounding Land Uses

The land uses surrounding the Project Site include:

North. The Hilo Landfill (South Hilo Sanitary Landfill) is located directly north of the Project Site. Beyond the landfill to the north is the National Guard’s Keaukaha Military Reservation. The Hilo International Airport is located approximately 1.2 miles due north of the Project Site.

East. Immediately to the east of the Project Site is unencumbered vacant State land.

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South. Pana‘ewa Drag Strip Road runs along the west and south boundaries of the Project Site. Directly across Pana‘ewa Drag Strip Road to the south of the Project Site is the future site of the County of Hawai‘i Mass Transit Agency (MTA) Base Yard and Maintenance Facility. To the southeast is the Hilo Drag Strip, which is a drag racing facility.

West. West of the Project Site is a large linear piece of undeveloped land owned by the Department of Hawaiian Home Lands (DHHL) designated in their island plan for future Subsistence Agricultural homestead leases. Beyond this parcel to the west is DHHL’s Pana‘ewa agricultural homestead lots, with the closest lot approximately 650’ from the Project Site boundary.

2.2 PURPOSE AND NEED

Diversion and Zero Waste. In 2003, the County passed a resolution with a goal to divert 50% of the solid waste from landfills by 2008 and 80% by 2013 (Council Resolution No. 28-03). In 2007, the County passed a resolution to adopt Zero Waste goals (Council Resolution No. 356-07). In 2008, the County passed a resolution to develop an ordinance and implement a plan to prohibit food, paper and compostable organics from Hawai‘i County Landfills by 2012 (Council Resolution No. 826-08). The 2009 Integrated Resource and Solid Waste Management Plan identified 54% of the waste disposed at the landfills were organic (CH2MHill, December 2009). To help achieve the diversion goals, the purpose of this Project is to efficiently and economically divert greenwaste, and other organic or biodegradable waste from the County landfills.

Support for Agriculture. Besides the benefits of extending the life of the landfill through diversion, another benefit of this Project is the resulting mulch and compost. Mulch and compost are valued soil amendments to support subsistence and commercial agriculture.

2.3 PROJECT DESCRIPTION

Service Area. This Project is intended to divert greenwaste and designated organic materials from the South Hilo Sanitary Landfill (SHSL) and the West Hawai‘i Sanitary Landfill (WHSL) by establishing Hawai‘i County’s first municipal composting operation at the East Hawai‘i Organics Facility (EHOF). This composting facility will accept waste from residents, commercial businesses, and government agencies.

Operator. The East Hawai‘i Organics Facility (EHOF) will be designed, constructed, and operated by a private contractor under contract with the County. Mulch and compost will be hauled by the contractor to various locations island-wide for sale, and a minimum volume of mulch will be made available for free to residents of Hawai‘i County.

Accepted Waste (Feedstock). The EHOF will feature an in-vessel (covered) compost operation that will allow for acceptance of organic materials such as food, paper, and compostable

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plastics. In-vessel composting will minimize the environmental impacts regarding odor, pests, dust and it will decrease the time required to make compost. Greenwaste and untreated wood pallets will be ground and chipped into mulch before mixing with the other organics. A portion of the mulch will be treated for invasive species (e.g., little fire ants) and made available for distribution to the public.

Phased Start-Up. In the first year of operation, the program at the EHOFF will include diversion of greenwaste and untreated wood pallets, which will be processed (by grinding or chipping) into mulch. In year two, the goal is to expand the EHOFF operation to accept a full range of organic materials (e.g, food, paper, compostable plastics), and process into compost. Organic materials received at the West Hawai'i Organics Facility (WHOF) will be transported across the island to the EHOFF for further processing and composting, since the WHOF is currently unsuitable for composting due to its dry climate and lack of water resources.

Volume. Projected composting volumes will begin at 28,000 tons per year (77 tons per day, 2,320 tons per month) and ramp up to 35,000 tons per year by year 10 (96 tons per day, 2,900 tons per month). The projected volumes include feedstocks transferred from the WHOF to be composted at the EHOFF, estimated to consist of up to 18,000 tons of feedstocks from WHOF to EHOFF each year.

Site Plan. The conceptual site plan consists of the following components (see Figure 9):

- 1) *Entry.* The entry will consist of the office and scale. The scale will measure the organics load being delivered or the mulch/compost being picked up.
- 2) *Sorting.* The food waste will be delivered to an enclosed tipping building, and greenwaste and pallets delivered to a mulch grinding area.
 - a) *Tipping Building.* All receiving, temporary storage and pre-processing of incoming food waste, food soiled paper fiber, and green waste comingled with food waste/food soiled paper fiber, will be completed indoors in a state of the art receiving building. This 5,000 square foot building will include a bio-filter to ensure the treatment of process air. The floor slab will be comprised of an impermeable surface with drains to ensure that all leachate generated inside the building will be collected, and then combined with leachate generated from the rest of the compost operations. The tipping floor material will be mixed with mulch (see component #4) then placed into a compost heap under construction (see component #5 below).
 - b) *Mulch Grinding.* Greenwaste and untreated pallets will be received in an outside area to be ground into mulch.
- 3) *Mulching.* A powerful grinder designed for high production operations will reduce the greenwaste and pallets into mulch.
- 4) *Mixing.* Once ground, these feedstocks can be transferred into the tipping building as needed and mixed with food waste, food soiled paper fibers, and with “overs” from the screening plant to attain a target Carbon to Nitrogen ratio of 30:1 for each heap. As needed, leachate will be added from the leachate storage tanks until the optimal moisture

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content is reached. Once this material is fully prepared, it will be transported out of the tipping building and immediately placed in an in-vessel compost heap.

5) *In-Vessel Compost Heaps.* Active composting will be performed within an in-vessel (covered) positive aeration system. The technology selected is the GORE™ Cover System, an EPA approved “in-vessel” composting system. The GORE™ Cover System utilizes heap composting with forced aeration coupled with a semi-permeable membrane cover.

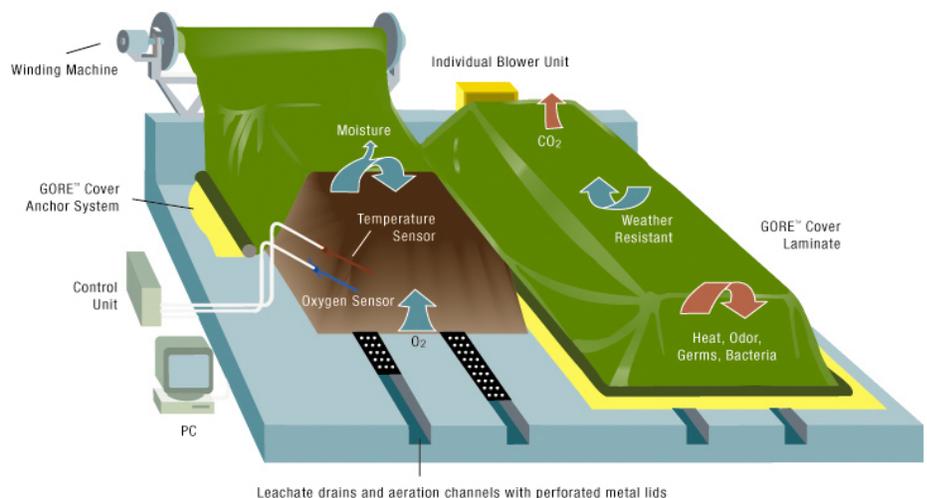
a) *Cover Membrane.* The cover membrane has a pore structure sized to selectively influence the composting process. The system allows carbon dioxide to pass through the membrane but prevents odor from escaping. The membrane does not allow rain water to pass through. The GORE™ Cover System is also a barrier against dust, bacteria and odor.

b) *Oxygen, Temperature, and Moisture Control.* Once the cover is installed and secured in place, temperature and oxygen probes are inserted through the cover into the composting material. The blowers are controlled by a programmable logic controller to optimize the composting process using readings from oxygen sensors placed into the feedstock material.

c) *Heap Design.* Each windrow or heap is 26 feet wide at the base, 164 feet long and 12 feet in height, and contains approximately 1,000 cubic yards of composting material. The number of heaps is determined based on the total capacity of the project. Each heap has a concrete head wall to retain the material in each heap on the compost pad. Two aeration trenches are under each heap. These trenches serve as ducts to provide air to the heap and also to collect leachate. Each heap has a blower to provide air to the composting



THE GORE™ COVER SYSTEM - 3D ILLUSTRATION



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- material via the aeration trenches. The trenches are cast in concrete to provide a solid impervious surface. The entire compost pad consists of a concrete slab which allows for the separate collection of stormwater and leachate.
- d) *Composting Process.* The composting process involves three phases: Phase I, high rate composting; Phase II, maturation; and Phase III, finishing. The mixed feedstocks from the tipping building are loaded into a Phase 1 heap. After 21-28 days, the feedstocks are removed from Phase I using a Caterpillar 950-K wheel loader, or equivalent, and placed into the Phase II heap. Another 14 days, and the feedstocks are moved from Phase II to Phase III using a wheel loader. The heaps in Phase III are not covered. The material will have been covered and composted for a minimum of five to six (5-6) weeks prior to entering Phase III. By the time the material will be moved to Phase III, the requirements for PFRP and vector attraction reduction have been achieved. Upon final curing of the feedstocks in Phase III for another 14 days, the composted material is carried to the screening area using a wheel loader.
- 6) *Treatment.* Before mulch is made available to the public, the mulch will be treated. Under the guidance of the Hawai'i Ant Lab (HAL), the operator will perform the prescribed heat treatment referred to as Processes to Further Reduce Pathogens (PFRP) to mitigate the presence of invasive insect species, such as, the Little Fire Ant (LFA), and pathogens, such as fecal coliform and salmonella. During the initial period when only mulching will be performed and composting operations have not started, the mulch generated from processing of greenwaste and untreated pallets will be placed in open windrows to compost the material for a minimum of 15 days at internal temperatures of a minimum of 131 degrees Fahrenheit. The material will be turned inside and out a minimum of 5 times during the 15 day treatment period to maintain aerobic conditions within the pile and control internal temperatures. When the in-vessel composting system is in place, the PRFP will be conducted in the in-vessel heaps where the same results can be obtained within a 72-hour period instead of 15 days.
- 7) *Screening.* The screening equipment separates the fines (7/16" and smaller particle size) from the larger materials referred to as "overs". These overs will consist of larger pieces of wood and will also contain contaminants such as film plastic, rocks, hard plastics, and metal. A standalone wind sifter removes any film plastic contamination comingled within the organic compostable feedstocks. The wind sifter is also equipped with a magnet to remove ferrous metals, and a rock belt to remove stones and hard plastics from the overs. The overs portion of the screening process is reused as bulking agent in the composting process as it is typically high in carbon. Contamination such as plastics, glass, and metals, that are separated during screening are removed from the site and recycled or disposed of at the landfill.
- 8) *Testing and Public Distribution.* As the finished product is resting, it is sampled and sent to a third party US Composting Council STA Certified laboratory. The finished compost is tested using the US Composting Councils STA testing standards and must pass all testing parameters prior to release to the general public. Once the material has passed the STA standards, it is then made available for distribution and sale to the general public. The finished compost will be marketed to farmers, landscapers, retail nurseries, HDOT, local

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schools, and community gardens as a soil and garden amendment, rich in plant nutrition and soil life. Many customers will come to the facility to pick up the finished products. Larger commercial users will have the product delivered to a specific job site.

Environmental Controls. The design includes measures to control drainage (leachate and stormwater), odor, vectors, and fire.

- **Leachate.** Leachate will be generated from organic waste in the tipping building, and from active composting heaps. Leachate will be collected in a storage tank and will be recycled for feedstock moisture adjustment. The tipping building floor will be sloped to collect any liquids leaching out of incoming waste streams into a floor drain. The leachate will flow through this floor drain and into the leachate storage tank. Water which comes out of the composting material under the GORE™ Cover System is treated as leachate. This water will be collected in the trench drain embedded in the concrete pad. The heaps slope at two percent (2%) along the length of the heap to a one percent (1%) direct runoff to the storm drain system. The trench will drain to a sump under each heap. Each sump in turn will drain to a leachate piping system, which will then drain to the storage tank.
- **Stormwater.** The facility will cover Phase I and Phase II of the GORE™ process as earlier described. The GORE™ Cover System prevents rainfall from coming into contact with the composting material. Any rain which falls on the covers is directed to the stormwater system. Stormwater will flow through the use of site grading into surface swales towards a stormwater retention pond. Stormwater will pass through a sedimentation weir to remove any suspended solids prior to being stored in the ponds. This water may be recycled for on-site activity, including make-up process water, bio-filter re-hydration, dust control, landscape irrigation, and tipping building wash-down.
- **Odor Control.** Properly managed aerobic composting should not generate odorous compounds. The odor mitigation measures to avoid anaerobic conditions forming within piles include: 1) prevention through prompt handling; 2) collection into enclosed areas; and 3) aeration. The prevention strategy involves immediately sorting and blending the feedstocks upon delivery prior to shredding. The collection strategy involves moving as much of this activity into the tipping building as possible. The tipping building air is biofiltered. The aeration measure is the proper use of the GORE™ Cover System and its associated automated control system for aeration, which optimizes the aerobic decomposition of the feedstocks and prevents anaerobic conditions from developing. During the composting process, variables such as oxygen content, porosity, temperature, moisture percent and time are maintained within specific levels to effectively compost the feedstock. Each heap is placed on a “positive aeration system” which pumps air through the composting feedstock to supply oxygen. The membrane laminate is secured using tarpaulin retainers that contains any odor.
- **Vector Control.** As material is placed on the composting pad, it will be covered by the GORE™ Cover System, sealing the odors and protecting the feedstock from vectors.
- **Fire Response Plan.** Fires may occur at the facility. If a fire is detected, then a fire response will be initiated within the organization. If a fire cannot be eliminated within a

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reasonable period (8 hours) or requires outside emergency response, then the Department of Health, Solid and Hazardous Waste Branch, and the Clean Air Branch will be notified. The Plant Supervisor will determine whether outside emergency services are required. All personnel under the EMS Supervisor’s control will be trained.

2.4 DEVELOPMENT TIMETABLE AND PRELIMINARY COSTS

The estimated construction cost is \$10.5 million. The estimated time to construct is 1.5 to 2 years from notice to proceed. The contractor will front the construction cost. The County will repay up to \$10.5 million upon acceptance of the completed facility. Current tipping fees for greenwaste and acceptable organics is \$21.25 per ton, which is 25% of the landfill tipping fee (HCC §20-49(a)(2)(B)). The tipping fees are deposited into a special Solid Waste Fund. The County will pay the contractor to operate the facility on a fee schedule set forth in the contract. The tipping fees will partially pay for the operating costs, with any remaining balance from the general fund. No federal funding is anticipated for this Project.

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3 DESCRIPTION OF THE NATURAL ENVIRONMENT, POTENTIAL IMPACTS, AND MITIGATION MEASURES

This section describes existing conditions of the natural environment, potential impacts related to the Project and mitigation measures to minimize impacts.

3.1 CLIMATE

Hawai'i Island's geological features heavily influence its climate. Mauna Loa (13,679 foot summit elevation) and Mauna Kea (13,796 foot summit elevation) are the dominant ground-based atmospheric influences. Northeast trade winds typically occur during the day, while winds from the southwest typically occur during the night due to cold air drainage from the mountains. The mean annual wind speed at the airport is about 8 miles per hour (mph), and usually varies between about 4 and 12 mph during the day.

Average annual temperatures at the Hilo International Airport range from about 67 to 81 degrees Fahrenheit. The coolest month is generally February and the warmest is September (County of Hawai'i Data Book).

According to *The Rainfall Atlas of Hawai'i*, the Project Site receives an average annual rainfall of approximately 132 inches (Giambelluca, et al., 2012). Hilo's windward rainfall pattern is due to the orographic influences of the mountains and trade winds.

POTENTIAL IMPACTS AND MITIGATION MEASURES

No significant impact. Due to the covered design of the proposed composting process, the proposed system is not affected by Hilo's high rainfall. The rainwater collected from the composting platforms will flow into a stormwater drainage system.

3.2 GEOLOGY AND TOPOGRAPHY

Of the five volcanoes that formed the island of Hawai'i—Kohala, Hualālai, Mauna Kea, Mauna Loa, and Kīlauea—only Mauna Loa and Kīlauea are presently considered active; the other three are considered dormant.

Waiākea is located on the southeastern flank of Mauna Kea, the summit of which rises approximately 13,800 feet above mean sea level and provides the backdrop for Hilo town toward the west. The western slope of Mauna Kea is dry and unscathed by erosion; whereas the northeastern slope is exposed to the trade-wind rains creating canyons a few hundred yards deep. Mauna Loa deposited the lava underlying the Project Site between 750 and 1,500 years ago.

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The Project Site has been quarried and is approximately 50 feet deeper than the surrounding areas, located at elevations approximately 100 feet above mean sea level. The Project Site is generally flat with an average slope of one percent in a *mauka* to *makai*, west to east direction. Approximately half of parcel 142 is cleared, while the other half is densely vegetated. Parcels 160, 161, and 163 are mostly cleared, with patches of dense vegetation.

POTENTIAL IMPACTS AND MITIGATION MEASURES

Mitigable impact. The Project Site offers generally flat land that is optimal for development. Construction of the Composting Facility will fill the depression in the center of the Project Site. Due to the Project Site's otherwise generally flat surface, minimal grading will be required. Any grading will be in conformance with the Hawai'i County Grading Ordinance and recommendations of the geotechnical engineer. On-site fill will be used wherever necessary and fill slopes will not exceed 2:1. To minimize potential impacts, grading will be segmented and exposed areas will be immediately grassed or landscaped before commencement of grading in the next phase, in compliance with Chapter 10 (Erosion and Sedimentation Control) of the Hawai'i County Code (HCC).

3.3 SOILS

Three soil suitability studies prepared for Hawai'i describe the physical attributes of land and the relative productivity of different land types for agricultural production. The studies are: 1) the U.S. Department of Agriculture Natural Resource Conservation Services (NRCS) Soil Survey; 2) the University of Hawai'i Land Study Bureau (LSB) Detailed Land Classification; and 3) the State Department of Agriculture's Agricultural Lands of Importance to the State of Hawai'i (ALISH) system.

In addition, Hirata and Associates prepared a geotechnical report in March 2015 on the parcel immediately south of the Project Site (proposed site of the Mass Transit Agency's new baseyard). They performed borings and found basalt from ground level until a depth of approximately six feet. Surface soils were found to be a mixture of grayish brown clinker (sand, gravel, and cobbles) and volcanic ash. The surface ash is highly compressible with poor workability characteristics that would be replaced or covered. Because of the prior quarrying activities, such surface soils would not likely be present at the Project Site.

3.3.1 NRCS Soil Survey

Because of past quarrying, soil is no longer present. The former soil of the Project Site would have been classified by the U.S. Department of Agriculture Natural Resources Conservation Service as Papai extremely stony muck, 3 to 25 percent slopes (rPAE) (Figure 10).

Papai soils consist of a very dark brown, eight-inch thick surface layer that is underlain by a'a lava. This well-drained soil is friable and slightly sticky, plastic, and acid. Runoff from Papai soils

is slow while permeability is rapid. It has many roots and fine pores. In general Papai soils are used for woodland but some small areas are used for pasture, orchards, and truck crops (Soil Survey of the Island of Hawai'i, State of Hawai'i, 1973).

3.3.2 LSB Detailed Land Classification

The University of Hawai'i LSB Detailed Land Classification, Island of Hawai'i classifies soils based on a productivity rating. Letters indicate class of productivity with A representing the highest class and E the lowest. The former soils of the Project Site would have been classified "E" or "not suitable" for agriculture (Figure 11).

3.3.3 Agricultural Lands of Importance to the State of Hawai'i

The ALISH system classifies agricultural lands as Prime, Unique, or Other Important Agricultural Land. The former soils of the Project Site would have been classified "Other Important Agricultural Land," which is defined as an area that can be farmed satisfactorily by applying greater inputs of fertilizer, improving drainage, practicing erosion control, and protecting the land from flooding (Figure 11).

POTENTIAL IMPACTS AND MITIGATION MEASURES

No significant impact to agricultural lands; mitigable impact for construction impacts:

- Agricultural Lands. Given the Project Site's low productivity potential and need for high inputs, it is not suitable for agricultural activity. Therefore, construction of the Composting Facility will not reduce the inventory of productive lands available for agricultural uses.
- Construction Impacts. Short term soil impacts may include the potential for soil erosion and the generation of dust during grading and construction. All construction activities will comply with all applicable federal, state, and county regulations and rules for erosion control. Any grading will be in conformance with the Hawai'i County Grading Ordinance and recommendations of the geotechnical engineer. On-site fill will be used wherever possible and fill slopes will not exceed 2:1. Measures to control erosion during the site development period may include:
 - Minimizing the time of construction;
 - Retaining existing ground cover as long as possible;
 - Constructing drainage control features early;
 - Using temporary area sprinklers in non-active construction areas when ground cover is removed;
 - Providing a water truck on-site during the construction period to provide for immediate sprinkling, as needed;
 - Using temporary berms and cut-off ditches, where needed, for control of erosion;
 - Watering graded areas when construction activity for each day has ceased;

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- Grassing or planting all cut and fill slopes immediately after grading work has been completed; and
- Installing silt screens, where appropriate.

3.4 HYDROLOGY

The Project Site is located within the Hilo Watershed, which measures 470 square miles. Watersheds capture rainfall and atmospheric moisture from the air and allows the water to drip slowly into underground aquifers or enter stream channels and eventually to the ocean. The Hilo Watershed includes the combined eastern slopes of Mauna Kea and Mauna Loa reaching maximum elevations of 13,796 and 13,679 feet, respectively. The saddle between the two mountains drains mostly through Hilo into Hilo Bay. Within the Hilo Watershed are a number of sub-watersheds. Most of the Project Site is within the Wailoa sub-watershed, but a small portion also falls within the Ka’ahakini sub-watershed (see Figure 12).

Surface Water

The Project Site is located about one third of a mile from a flood channel of the perennial Ka’ahakini Stream (Figure 12). The headwaters of this stream are located to the south of the Project Site. The flood channel is known as the Waiākea-Uka Flood Control Channel. The Project Site is not located in a flood zone (Figure 14).

There are no wetlands or intermittent streams on the Project Site. The nearest wetland is a small freshwater pond approximately 0.6 miles southeast of the Project Site (Figure 12).

Ground Water

Due to the relatively young and porous geology of Hawai’i Island, most of the rainfall infiltrates to groundwater. Hawai’i has classified groundwater in the state under an aquifer coding system to identify and describe these aquifers. The Project Area overlies the Kea’au Aquifer System, a subset of the N.E. Mauna Loa Aquifer Sector. Groundwater within this aquifer exists primarily as basal groundwater followed by high level dike and perched water. Cap rock, although thick and extensive, does not play an important role in the coastal regions of the aquifer.

Sustainable yield is the amount of groundwater that can be pumped without depleting the source. The sustainable yield of the Hilo Aquifer System is 393 million gallons per day (MGD), and existing water use as of 2008 is 14.084 MGD (Wilson Okamoto Corporation, 2008). The Project Site is below the Underground Injection Control (UIC) line, which means that the underlying aquifer is not considered a drinking water source (Figure 13).

Marine Waters

The Site is approximately 2.5 miles inland from the nearest coastline. Near shore marine waters off the coast of Hilo Bay are classified as class “A” by the State DOH (State of Hawaii, 2012). According to DOH Water Quality Standards, “It is the objective of class A waters that their use

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for recreational purposes and aesthetic enjoyment be permitted as long as it is compatible with the protection and propagation of fish, shellfish, and wildlife, and with recreation in and on these waters” (HAR §11-54-03).

POTENTIAL IMPACTS AND MITIGATION MEASURES

No significant impact for water consumption; mitigable impact for stormwater runoff:

- **Groundwater Withdrawal.** Potable water to the Project will be supplied by the County Department of Water Supply's (DWS) Hilo Water System, which draws water from a series of groundwater wells. Section 4.8.1 (Water System) of this EA provides further information regarding anticipated water demands. According to the Hawai'i County Water Use and Development Plan (Fukunaga & Associates, Inc., August 2010), the existing and projected groundwater withdrawals, including DWS' Hilo water system, are substantially below the sustainable yield of the Northeast Mauna Loa Aquifer Sector. Therefore, the cumulative impact of the Project's groundwater usage is not significant.
- **Nonpoint Source from Stormwater Runoff.** Construction of the Composting Facility will result in an increase in the amount of impervious surface on the Project Site. Direct discharge of storm water runoff into marine waters is not anticipated due to the inland location of the Site. Similarly, due to distance from existing streams, it is highly unlikely that any storm runoff from will impact surface water resources.

The Composting Facility storm drainage system utilizing retention ponds will be designed to comply with the latest County of Hawai'i *Storm Drainage Standards and Standard Details for Public Works Construction*. To the extent practicable, the Project will be designed to maintain post-development peak runoff rate and average volume at levels that are similar to pre-development levels.

All NPDES permit requirements will be implemented. In accord with these requirements, the Composting Facility will utilize several best management practice categories, including infiltration practices, vegetated open channel practices, and filtering practices, defined in the Environmental Protection Agency's (EPA) guidance document entitled *National Management Measures to Control Nonpoint Source Pollution from Urban Areas* (November 2005, EPA-841-B-05-004). EPA has found these practices to be representative of the types of practices that can be applied successfully to achieve the new development runoff management measures specified in the Hawai'i Watershed Guidance.

The State Office of Planning has created the *Stormwater Impact Assessment* to identify and evaluate information on hydrology, stressors, sensitivity of aquatic and riparian resources, and management measures to control runoff occurrences. Mitigation measures and BMPs listed in this guidance can be applied to water runoff strategies to prevent damage to coastal ecosystems. Based on the Project Site conditions, relevant

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BMPs from the *Stormwater Impact Assessment* that may be implemented during construction include:

- Early construction of drainage control features;
- Construction of temporary sediment basins to trap silt;
- Use of temporary berms and cut-off ditches where needed; and
- Use of temporary silt fences or straw bale barriers to trap silt.

All grading operations will be conducted in compliance with dust and erosion control requirements of Chapter 10 (Erosion and Sedimentation Control), HCC and applicable provisions of Chapter 11-60.1, HAR, Section 11-60.1-33 regarding Fugitive Dust. A watering program will be implemented during construction to minimize soil loss through fugitive dust emission. Other pollution control measures include cleaning job-site construction equipment and establishing groundcover as quickly as possible after grading. Permanent landscaping will also help to retain soil throughout the Project Site.

3.5 NATURAL HAZARDS

Hawai'i Island is susceptible to potential natural hazards, such as flooding, hurricanes, volcanic hazards, earthquakes, and wildfires. This section provides an analysis of the Project Site's vulnerability to such hazards.

The State of Hawai'i Department of Defense, Office of Civil Defense operates a system of civil defense sirens throughout the State to alert the public of emergencies and natural hazards, particularly tsunamis and hurricanes. The closest siren to the Site is the South Hilo Baseyard Siren (HA106) located approximately 1.5 miles to the northwest of the Project Site.

3.5.1 Flood

The Federal Emergency Management Agency publishes flood information in the form of Flood Insurance Rate Maps (FIRM) used by government and insurance agencies to determine the relative potential for damage during flood events. According to the FIRM, the Project Site is within Zone X, which is an area of minimal hazard that is higher than the elevation of the 0.2-percent-annual-chance flood (Figure 14).

3.5.2 Tsunami

Twenty-five of the tsunamis recorded in Hawai'i since 1812 have had an adverse impact on the Island of Hawai'i; seven caused major damage and three were generated locally. The most recent tsunami to impact Hawai'i Island, which occurred on March 11, 2011, caused property damage at several locations on the Kona coast. The Project Site is well outside of the tsunami evacuation zone (Figure 15).

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3.5.3 Hurricane

Since 1980, two hurricanes have had a devastating effect on Hawai'i although not in the direct path of the hurricane: 'Iwa in 1982 and 'Iniki in 1992. While the Island of Hawai'i has not been in the direct path of a hurricane since recordation began in 1950, the models indicate that the island has a long-term hurricane hazard risk higher than any of the other islands for a direct hit.

The GORE™ covers are not designed to withstand hurricane-force winds. In preparation for the event, the covers would be rolled up and stored, together with the oxygen and temperature probes. During post-event recovery, although the State Disaster Debris Management Plan does not specify a location for a temporary debris storage and reduction site, the Project Site could serve that purpose.

3.5.4 Earthquake

In Hawai'i, most earthquakes are linked to volcanic activity, unlike in other places where a shift in tectonic plates is the cause of an earthquake. Each year, thousands of earthquakes occur in Hawai'i, the vast majority of which are so small they are detectable only with highly sensitive instruments. However, moderate and disastrous earthquakes have occurred in the islands, particularly on Hawai'i Island due to its geologically active nature.

Since 1868, nine disastrous earthquakes have occurred in Hawai'i County. The largest earthquake series occurred between March 27 and April 2, 1868 with an epicenter a few miles north of Pāhala in the district of Ka'ū. It is estimated that the magnitude of these earthquakes were 7.1 and 7.9. These earthquakes resulted in 77 deaths (46 from tsunami and 31 from landslides triggered by the earthquake). In 1929, an earthquake with an epicenter in Hualālai and a magnitude of 6.5 resulted in extensive damage. Another earthquake in 1951, with its epicenter in the Kona area and a magnitude of 6.9 also resulted in extensive damage. A series of earthquakes, with magnitudes of 6.7 and 6.0, occurred at Kīholo Bay on October 15, 2006. These earthquakes resulted in more than \$100 million in damages to the northwest area of the island (USGS, 2006).

3.5.5 Volcanic Hazards

Volcanic hazards include lava flows and emission of volcanic gases (vog).

Lava Flows. The volcanic hazard zone map for Hawai'i Island divides the island into zones ranked from one through nine, with one being the area of greatest hazard and nine being the area of least hazard. The zones are based chiefly on the location of active vents, frequency of past lava coverage, and topography. According to this map, the Project Site is within Zone 3, meaning only one to five percent of the area has been covered by lava since 1800 and 15-75

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percent within the last 750 years (USGS, 1997). The Project Site is approximately 25 miles from Kīlauea, the nearest active vent.

Vog. Volcanic gases, which are visible as a fog known as vog, are emitted during all types of eruptions. Halema‘uma‘u, the crater located at the summit of Kīlauea is currently erupting large amounts of volcanic gas. Any hazard posed by volcanic gases is greatest immediately downwind from active vents; the concentration of the gases quickly diminishes as the gases mix with air and are carried by winds away from the source (USGS, 1997).

The Project Site is located 25 miles northeast of Kīlauea Volcano. The prevailing northeasterly trade wind flow tends to push vog and any airborne particulates away from the Project Site. However, the amount of vog and other airborne particulates can significantly increase during periods when the winds are from the southwest.

3.5.6 Wildfires

Approximately 70 to 80 wildfires occur annually in Hawai‘i County. Humans are the number one cause of fires in Hawai‘i. The Project’s operator has a fire response plan to prevent, respond, and report on any fires.

POTENTIAL IMPACTS AND MITIGATION MEASURES

Mitigable impact for structures; unavoidable impact for uncovered material; beneficial impact for temporary debris storage; no significant impact for tsunami and lava:

- **Structural Design.** To minimize the potential hazard from earthquakes and hurricanes, structural elements in the proposed Composting Facility will be designed in accordance with the 2006 International Building Code (IBC) as amended by State of Hawai‘i Building Code. The 2006 IBC provides minimum design criteria to address the potential for damage due to seismic and hurricane forces.
- **Uncovered Material.** During hurricanes, uncovered compost and mulch will remain onsite. In the event any material blows offsite, these are light organic materials that would not cause injury or property damage. The forested buffer of approximately 500’ to the nearest residences would provide an adequate distance for dispersion of any windblown materials before reaching these residences.
- **Temporary Debris Storage Area.** The availability of the Site to serve as a temporary debris storage and reduction site to aid in the recovery phase of a natural disaster event is a beneficial impact.
- **No significant impact for Tsunami and Lava.** Construction of the Composting Facility will not exacerbate any tsunami hazard conditions. The Project Site is not in a designated tsunami evacuation zone and is not expected to be adversely impacted by a tsunami.

The Project Site is approximately 25 miles away from the nearest active volcano. Hazard and risk potential of shield volcanoes like those on Hawai‘i Island can be pinpointed reasonably well, unlike some other types of natural disasters (earthquakes and

hurricanes). Therefore, it is likely to have sufficient warning to relocate equipment and personnel.

3.6 FLORA AND FAUNA

As an inactive quarry, the Project Site has been heavily modified, and is currently vacant. As mentioned in Section 3.3.1 above, the soil on the Project Site is classified as Papai, which overlays relatively recent (750 – 1500 years ago) a’a lava flows that were most likely colonized by pioneer and early successional plant species such as ‘ōhi’a (*Metrosideros polymorpha*), lama (*Diospyros sandwicensis*), hala (*Pandanus tectorius*), and kupukupu fern (*Nephrolepis exaltata*) (Gagne & Cuddihy, 1990 cited in Appendix B - Flora and Fauna Survey). The arrival of humans brought forth the introduction of exotic and invasive plant and animal species. Moreover, several seeding attempts (using non-native seeds) following a large fire in the Panaewa Forest Reserve in 1926 drastically altered this native lowland wet forest into the dense, mostly non-native forest that currently exists in the project area (Judd 1926, Cuddihy & Stone 1990 cited in Appendix B - Flora and Fauna Survey).

The U.S. Fish & Wildlife Service confirmed “*There is no proposed or final critical habitat within the vicinity of the project area*” (see USFW letter in Appendix G). A flora and fauna survey of the proposed Project Site was conducted by environmental consultant Michael H. Riney in April-May 2016 (the survey report is attached to this EA as Appendix B Appendix C). The findings of the survey are summarized below.

3.6.1 Flora

A total of 83 plant species were observed and documented during the survey. Of the 83 species, 77 were non-native, three were indigenous, two were Polynesian introduced, and ‘ōhi’a was the only endemic plant species observed. The Project Site can be described by two general types of homogenously mixed non-native forest:

1. The perimeter of the Project Site and along the sides of access roads is a mixed non-native forest with somewhat dense canopy and a dense, varied understory consisting primarily of non-native herbs, vines, and shrubs.
2. Vast quarried regions of the Project Site are sparsely vegetated non-native forest with relatively open canopy and sparse understory consisting of mostly non-native herbs, vines, and shrubs.

The canopy in both landscape types was primarily non-native albizia (*Falcataria moluccana*); a rapidly growing and invasive tree known for its ability to transform landscapes as well as its brittle and destructive nature in high winds. During Hurricane Iselle in 2014, downed albizia trees closed roads and damaged buildings in the lower Puna District on Hawai’i Island. In this survey, several large albizia limbs were noticed lying across or near access roads and

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throughout forested areas. Albizia seedlings and saplings also appeared to be the dominant tree species colonizing the previously barren quarry floor. Other prominent tree species include non-native trema or gunpowder tree (*Trema orientalis*), melochia (*Melochia umbellata*), and bingabing (*Macaranga mappia*).

The understory consisted of mostly non-native ferns, sedges, grasses, vines, and herbaceous weeds. Again, two general understory types were observed:

1. The perimeter of the Project Site, sides of access roads, and non-quarried areas consisted of a dense assortment of grasses, herbs, ferns, vines, and shrubs most commonly represented by grasses such as molasses grass (*Melinis minutiflora*), cane or elephant grass (*Cenchrus purpureus*), and guinea grass (*Megathyrsus maximus*); herbaceous weeds such as rattlepod (*Crotalaria retusa*), billygoat weed (*Ageratum conyzoides*), and pinklady (*Dissotis rotundifolia*); non-native common and Asian sword ferns (*Nephrolepis* spp.); shrubs such as *Melastoma candidum* and pearl flower (*Tetrazygia bicolor*); and white morning glory (*Ipomoea alba*) vine.
2. The quarry floor consisted of more sparsely distributed vegetation most commonly represented by rattlepod (*Crotalaria retusa*), beard grass (*Schizachyrium condensatum*), patches of elephant grass (*Cenchrus purpureus*), and silver fern (*Pityrogramma calomelanos*).

Notable but less commonly observed indigenous species included the clubmoss wa‘wae‘iole (*Lycopodiella cernua*) and hala (*Pandanus tectorius*).

3.6.2 Fauna

Threatened and Endangered Species

According to the U.S. Fish & Wildlife Service (*see USFWS letter in Appendix G*), there are five federally listed species in the vicinity of the project area: the endangered Hawaiian hawk (*Buteo solitariussolitarius*), Hawaiian hoary bat (*Lasiurus cinereus semotus*), Hawaiian goose or nēnē (*Branta sandvicensis*), Hawaiian petrel (*Pterodroma phaeopygia sandwichensis*), and Blackburn’s sphinx moth (*Manduca blackburni*), and the threatened Newell’s shearwater (*Puffinus auricularis newelli*), and a species proposed for listing as endangered, the band-rumped storm-petrel (*Oceanodroma castro*). The flora/fauna survey findings for these species were as follows:

- Hawaiian Hawk. The endangered and endemic Hawaiian hawk or ‘io (*Buteo solitarius*) was spotted once during the survey atop a tall albizia tree along the southern border of the Project Site. Additional time was spent searching for ‘io nests on the property but none were found.
- Hawaiian Hoary Bat. Bat detection Station 1 recorded echolocation calls of the Hawaiian hoary bat on all 7 nights of the survey period, with a total of 104 bat call files. Station 2 recorded bat calls on two nights of the survey, with a total of three bat call files. Echolocation calls demonstrate the presence of Hawaiian hoary bats on the Project

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Site during this time of year. Station 1 recorded a far greater number of bat calls and on more nights than Station 2. The type of calls recorded at Station 1 included presence of foraging activity through “feeding buzzes”. This is most likely an artifact of the proximity of Station 1 to the landfill and wetland areas; places that most likely provide insect prey at night. Acoustic evidence demonstrated that bats were most likely not roosting on this property. If bats were roosting on the property, the highest recorded activity would have been in the early evenings and late mornings when bats typically depart or return to their roosts in trees. However, in this case, the highest activity was recorded during the hours of 12am and 2am, indicating that bats probably roost in the forest outside of the proposed project area, and come on to the property in the middle of the night to forage. General bat activity on this property is reflective of activity demonstrated by other studies in the Keaukaha region; bats are present and detectable year round at nearby locations on Keaukaha Military Reservation (Gorresen et al 2013).

- Nēnē. The survey does not mention the nēnē.
- Hawaiian Petrel and Newell’s Shearwater. Neither the endangered Hawaiian petrel (*Pterodroma sandwichensis*) nor the threatened Newell’s shearwater (*Puffinus auricularis newelli*) was observed in the project area during the survey, but it is possible that these two pelagic species may fly over the Project Site in transit from ocean to upland nesting sites.
- Blackburn’s Sphinx Moth. The survey does not mention the endangered Blackburn’s sphinx moth (*Manduca blackburni*). The State of Hawai’i Department of Land and Natural Resources (DLNR) provided Draft EA Early Consultation comments that stated, in part, that the proposed Project Site is not located within federally designated critical habitat for the Blackburn’s sphinx moth (see DLNR letter in Appendix G).

Other Birds and Habitat

A total of seven bird species (six non-native, one native) were observed during the survey (Table 2). The most commonly seen or heard birds were the common myna (*Acridotheres tristis*) and the zebra dove (*Geopelia striata*). Less common were the spotted dove (*Streptopelia chinensis*), yellow-billed cardinal (*Proaria capitata*), common house finch (*Carpodacus mexicanus*), and Japanese white-eye (*Zosterops japonicus*).

Marginal habitat included two artificially created ponded depressions (max. water depth = 2 inches) in the northwest quarried region of parcel 163 in a low elevation point on the Project Site (Fig. 2). These depressions appear to collect and temporarily hold water, possibly underlain by a “hardpan” or impervious substrate. The depressions are small (depression 1 = approximately 33 ft. diameter circle; depression 2 = 36 feet x 15 feet) and have low habitat potential for shore or migratory birds, but do provide habitat for invasive bufo frog tadpoles (*Rhinella marina*), aquatic insects including backswimmers (*Notonecta sp.*), the indigenous

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globe skimmer (*Plantala flavescens*) dragonfly, and the non-native common green darner (*Anax junius*) dragonfly.

No water birds were observed visiting these areas during the survey. Moreover, these temporarily ponded depressions are completely isolated and not interconnected to navigable water.

Other Vertebrate Fauna

Other mammals observed or expected to occur on the property include non-native mongoose (*Herpestes javanicus*), mice (*Mus musculus*), rats (*Rattus spp.*), and feral cats (*Felis catus*). None of these species are federally listed, and all are expected to occur in high abundance at this proximity to the Hilo Landfill.

Reptiles and amphibians observed included the mourning gecko (*Lepidodactylus lugubris*), coqui frog (*Eleutherodactylus coqui*), and cane toad (*Rhinella marina*).

All mammals, reptiles, and amphibians observed are listed in Table 2 of the Flora and Fauna Survey report in Appendix C.

Invertebrates

A limited invertebrate survey revealed the indigenous globes skimmer dragonfly, the non-native green darner dragonfly, backswimmers (aquatic insect), carpenter bees (*Xylocopa sp.*), several fly species (Order: *Diptera*), mosquitoes (*Aedes spp.* and *Culex quinquefasciatus*), and several ant species (Family: *Formicidae*). None of the invertebrates observed are federally listed.

POTENTIAL IMPACTS AND MITIGATION MEASURES

Mitigable impacts:

- **Flora.** No threatened, endangered, or otherwise federally listed plant species were found during the survey. Additionally, there are no critical flora habitat. However, notable is a small 'ōhi'a patch (N 19.69218, W 155.03999) of approximately 20 trees (Fig. 2). 'Ōhi'a are currently not endangered or threatened in Hawai'i, but are undoubtedly culturally, environmentally, and ecologically significant. Recently, Rapid 'Ōhi'a Death (ROD), caused by the fungus *Ceratocystis fimbriata*, has resulted in the death of hundreds of thousands of 'ōhi'a and is continuing to drastically alter forest composition across the Island of Hawai'i (Mortenson et al. 2016). Certain 'ōhi'a trees may be genetically predisposed to fend off the deleterious effects of *C. fimbriata*, but it is not yet known which trees may carry this defense mechanism (Mortenson et al. 2016). Consideration should be given to preserving the 'ōhi'a patch due to the alarming spread of ROD, as well as their cultural, environmental, ecological, and aesthetic value. ROD has been confirmed at numerous sites in and around Hilo. Therefore, preserving the local seed bank population may prove to be important in preserving this species in the near future.

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Should disturbance to the ‘ōhi‘a trees become necessary, the USFWS provided the following mitigation measures to avoid spreading Rapid ‘Ōhi‘a Death (see USFW letter in Appendix G):

- A survey of the proposed Project Site should be conducted within two weeks prior to any tree cutting to determine if there are any infected ‘ōhi‘a trees. If infected ‘ōhi‘a are suspected at the site, the following agencies should be contacted for further guidance: the USFWS, University of Hawai‘i Cooperative Extension Service, USDA Forest Service, and USDA Agriculture Research Service.
- Both prior to cutting ‘ōhi‘a and after the Project is complete:
- Tools used for cutting infected ‘ōhi‘a trees should be cleaned with a 70 percent rubbing alcohol solution. A freshly prepared 10 percent solution of chlorine bleach and water can be used as long as tools are oiled afterwards, as chlorine bleach will corrode metal tools. Chainsaw blades should be brushed clean, sprayed with cleaning solution, and run briefly to lubricate the chain.
- Vehicles used off-road in infected forest areas should be thoroughly cleaned. The tires and undercarriage of the vehicle should be cleaned with detergent if they have travelled from an area with ROD or travelled off-road.
- Shoes and clothing used in infected forests should also be cleaned. Shoes should be decontaminated by dipping the soles in 10 percent bleach or 70 percent rubbing alcohol to kill the ROD Fungus. Other gear can be sprayed with the same cleaning solutions. Clothing can be washed in hot water and detergent.
- Wood of affected ‘ōhi‘a trees should not be transported to other areas of Hawai‘i Island or interisland. All cut wood should be left on-site to avoid spreading the disease. The pathogen may remain viable for over a year in dead wood. The State of Hawai‘i Department of Agriculture (HDOA) has passed a new quarantine rule that prohibits interisland movement, except by permit, of all ‘ōhi‘a plant or plant parts.

The final design will avoid the ‘ōhi‘a tree cluster to the extent possible; if all or a portion need to be removed the construction documents will incorporate the above mitigation measures to prevent the spread of ROD.

- **Fauna.** The industrial activities near the Project Site make it fairly unlikely that the listed species of fauna would frequent the area. However, as part of the USFWS’s Draft EA Early Consultation comments, avoidance and impact minimization measures were provided for each of the listed species:
 - **Hawaiian hawk or ‘io.** To avoid impacts to Hawaiian hawks, it is recommended that the contractor avoid brush and tree clearing during their breeding season (March through September). If the Project Site must be cleared during Hawaiian hawk

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breeding season, we recommend a nest search of the area of the proposed construction site and surrounding area be conducted by a qualified ornithologist immediately prior to the start of construction activities. Pre-disturbance surveys should ensure that construction activity will not occur within 1,600 feet of any Hawaiian hawk nest.

- **Hawaiian hoary bat or ‘ōpe‘ape‘a.** It is recommended that woody plants greater than 15 feet tall should not be removed or trimmed during the Hawaiian hoary bat breeding season (June 1 to September 15). It is further recommended that barbed wire not be used for fencing to protect low-flying, foraging bats. In the flora and fauna survey report (Appendix D), it is recommended to use greatest caution with respect to trees closest to the northern boundary (near landfill) of the Project Site due to a high volume of bat detections in this area.
- **Nēnē.** In order to avoid impacts to nēnē, it is recommended that a qualified biologist survey the Project area prior to the initiation of any work and conduct nest searches for nēnē if the Project will occur during the breeding season (August to April). If a nest is discovered, work should cease immediately and the USFWS be contacted for further guidance. A 100-foot (30m) buffer should be established and maintained around all active nests and broods until the goslings have fledged. No disruptive activities should occur within this buffer. If a nēnē appears during ongoing work, all activity should be temporarily suspended until the animal leaves on its own accord.
- **Seabirds.** It is recommended that the East Hawai‘i Organics Facility avoid or minimize use of artificial lighting and avoid night work if possible. If artificial illumination must be used, it is recommended that this be shielded so the bulb is not visible at or above bulb-height. If night work must be conducted, it should take place outside the sea bird fledging season (September 15 through December 15) and should utilize shielded lighting.

The design will not specify any barbed wire. For any outdoor lighting, the design will specify shielded lights as required under the County’s outdoor lighting ordinance (HCC section 14-52). To the extent applicable, the construction documents will instruct the contractor to follow the above recommendations. According to the fauna survey, the small size, generally low quality, and limited habitat value of the ponded depressions found on the Project Site do not require the need for preservation. No adverse impacts to other vertebrate or invertebrate populations are expected as a result of development on this Project Site.

4 DESCRIPTION OF THE HUMAN ENVIRONMENT, POTENTIAL IMPACTS, AND MITIGATION MEASURES

This section describes the existing conditions of the human environment, preliminary potential impacts of the Composting Facility, and preliminary mitigation measures to minimize any impacts.

4.1 ARCHAEOLOGICAL AND HISTORIC RESOURCES

Scientific Consultant Services, Inc. (SCS) conducted an Archaeological Assessment (AA) for the Project Site (Appendix C). The AA was conducted in compliance with Section 6E-8, HRS “Historic Preservation” to determine the presence/absence of archaeological sites. The AA found that almost the entire Project Site has been altered by quarrying activities, and that no sites or features are present in the Project Site. Due to the absence of sites, the Project Site was documented in an AA pursuant to Title 13, Subtitle 13, Chapter 284-5(5A), HAR.

Historical Background

The Project Site is located in the *ahupua‘a* of Waiākea, Hilo Hanakāhi ‘Okana, in the *moku-o-loko* (district) of Hilo. The *ahupua‘a* of Waiākea is large, consists of roughly 95,000 acres, and was regarded as a region of abundant natural resources and numerous fishponds. Waiākea was also an early important political center, notably under chief Kulukulu‘a. Kamehameha lived and often returned to his *‘ili kūpono* (independent land division where all tributes were paid to the chief of the *‘ili* and not the *ahupua‘a*) lands of Pi‘opi‘o in the *ahupua‘a* of Waiākea. The *‘ili kūpono* lands and its royal fishpond were passed on to his son Liholiho after his death (Escott, 2014).

The Project Site is within Zone II “Upland Agricultural” according to McEldowney’s historic period land use zones (1979). Early inhabitants of this zone practiced swidden (slash and burn) agriculture, which eventually resulted in an open plain. However, in the 1800s, the Pana‘ewa forest extended from the existing Pana‘ewa Forest Reserve nearly to the ocean between Hilo and Kea‘au. Therefore, it is unlikely that the Project Site was used for swidden agriculture. Clearings in the forest may have been used for small scale agriculture (McEldowney, 1979). There were also forest plantations (Handy & Handy, 1972).

Between 1845 and 1865, traditional land-use and settlement patterns underwent a change due to the regular use of Hilo Bay by foreign vessels, the whaling industry, the establishment of missions in the Hilo area, the introduction of the sandalwood trade, the legalization of private land ownership (the Māhele), the introduction of cattle ranching, and the introduction of sugarcane cultivation. There were no kuleana claims in the immediate vicinity of the Project

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Site during the Māhele, but 26 claims were registered for lands in Waiākea. Most of Waiākea became Crown Lands (Geometrician Associates LLC, 2007).

Hilo became the center of population and traditional settlements along the shoreline in outlying regions declined or disappeared. While food was still grown for consumption, greater areas of land were continually given over to the specialized cultivation and processing of commercial foodstuffs for export (Escott, 2014). By the end of 1900, over 5,600 acres of sugar were cultivated in Waiākea. Sugarcane plantations and industrial facilities were established in areas that were once upland agricultural areas and coastal settlements, respectively (Escott, 2014). Waiākea Sugar Company operated in the Waiākea ahupua‘a from 1879 to 1947 (Rechtman, 2009). Historic site types in the vicinity of the Project Site likely included plantation agriculture-related features and residences.

Archaeological Assessment Findings

As stated above, no archaeological sites or features were identified within the Project Site. The absence of sites is attributable to the extensive quarrying that has occurred in the Project Site. SCS recommends no further archaeological work for the Project Site.

POTENTIAL IMPACTS AND MITIGATION MEASURES

Mitigable impact. The Project Site will not impact any surface archaeological resources, sites, or features. Given the extensive quarrying that has occurred in the Project Site, it is very unlikely that subsurface resources will be encountered. However, the County and its contractors will comply with all state and county laws and rules regarding the preservation of archaeological and historic sites. The construction documents will include a provision that should historic sites such as walls, platforms, pavements and mounds, or remains such as artifacts, burials, concentrations of shell or charcoal or artifacts be inadvertently encountered during construction activities, work will cease immediately in the immediate vicinity of the find and the find will be protected. The contractor will immediately contact State Historic Preservation Division (SHPD), which will assess the significance of the find and recommend appropriate mitigation measures, if necessary.

4.2 CULTURAL RESOURCES

Scientific Consultant Services, Inc. (SCS) conducted a Cultural Impact Assessment (CIA) for the Project Site, in order to evaluate the probability of impacts on identified cultural resources, including values, rights, beliefs, objects, records, properties, and stories occurring within the Project Site and its vicinity. Prepared in accordance with the methodology and content protocol provided in the Guidelines for Assessing Cultural Impacts (OEQC 1997 cited in Appendix C - Archaeological Assessment), the Cultural Impact Assessment contains archival and documentary research, as well as communication and interviews with organizations and

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individuals having knowledge of the project area, its cultural resources, and its practices and beliefs. The Cultural Impact Assessment is included as Appendix D of this EA.

POTENTIAL IMPACTS AND MITIGATION MEASURES

No significant impact. No past or ongoing cultural practices associated with the project area lands were identified during the CIA study. Based upon an evaluation of responses to inquiries, meeting discussions, and archival research, it is reasonable to conclude that, pursuant to Act 50, the exercise of Native Hawaiian rights, or those of any ethnic group, related to gathering, access, or other customary activities will not be affected by development activities on the Project Site.

4.3 AIRPORT HAZARDS

The Project Site is located approximately 1.5 miles from the Hilo International Airport (ITO). The State of Hawai'i Department of Transportation, Airports Division (HDOTA) advised that a composting facility is a potential wildlife attractant that is a concern if located within five statute miles of the airport:

Federal Aviation Administration (FAA) Advisory Circular 150/5200-33B, Hazardous Wildlife Attractants On Or Near Airports, recommends a distance of five (5) statute miles between the farthest edge of the Air Operations Area (AOA) and the hazardous wildlife attractant if the attractant could cause hazardous wildlife movement into or across the approach or departure space. Though [the] FAA Advisory Circular is termed 'advisory,' it is a requirement for certified airports such as ITO. (DOT-A letter in Appendix G)

The FAA Advisory Circular 150/5200-33B, *Hazardous Wildlife Attractants On Or Near Airports*, addresses composting facilities in section 2-2.e ("Composting operations on or near airport property"):

Composting operations that accept only yard waste (e.g., leaves, lawn clippings, or branches) generally do not attract hazardous wildlife. Sewage sludge, woodchips, and similar material are not municipal solid wastes and may be used as compost bulking agents. The compost, however, must never include food or other municipal solid waste. . . . Composting operations should not be located on airport property. Off-airport property composting operations should be located no closer than the greater of the following distances: 1,200 feet from any AOA or the distance called for by airport design requirements.

The Project will accept food waste; however, the food waste will be offloaded inside a completely enclosed building. Within the building, the food waste will be mixed with mulch. The mixture will then be transported to covered compost heaps. At no time will raw food waste be exposed to attract wildlife or pests. The closest distance between the compost facility property line and ITO is approximately 5,000 linear feet, which is greater than the minimum 1,200 feet recommended distance.

POTENTIAL IMPACTS AND MITIGATION MEASURES

No significant impact. The Project complies with FAA Advisory Circular 150/5200-33B as it applies to a composting facility—food waste is not exposed to wildlife and the facility is located greater than off-airport 1,200 feet minimum distance. The Composting Facility is also not located within the Accident Potential Zone or Runway Protection Zone/Clear Zone, and will not include any reflective surfaces, including photovoltaic panels, which could impair pilots' vision unless coordinated with the Airports Division.

4.4 ROADWAYS AND TRAFFIC

A traffic engineer, Fehr & Peers, prepared a transportation impact analysis report (TIAR) for this Project. The TIAR is included in this environmental assessment as Appendix E, and contains a full description of the assumptions and methods used to conduct the study, as well as a discussion of the results.

Roadways

Regional access to the Project Site is provided by Kaneohehewa Avenue, while local access is provided by Ho'olaulima Road (also known as Pana'ewa Drag Strip Road) via Leilani Street. The following describes the key roadways in the project vicinity:

Kaneohehewa Avenue (Highway 11) is operated and maintained by Hawaii Department of Transportation (HDOT) and is a five- to six-lane highway in the vicinity of the project site (i.e., some sections only include two northbound through lanes at intersections north and south of the immediate study area). Kaneohehewa Avenue is also known as Hawaii Belt Road which traverses around the entire island of Hawaii. The specific portion of it that passes along the proposed project site is identified as Route 11 and is oriented in a north-south direction. In the immediate vicinity of the site, this roadway includes a 20-foot buffer/median. The posted speed limit is 35 miles per hour (mph).

Leilani Street is under the jurisdiction of the County of Hawaii and is an east-west facility within the context of this study area with one lane in each direction. The western leg of Leilani Street provides access to residential neighborhoods, and the posted speed limit on this segment is 25 mph. Leilani Street east of Kaneohehewa Avenue provides access to a number of commercial properties, base yards and industrial facilities. The posted speed limit is 30 mph.

Railroad Avenue is under the jurisdiction of the County of Hawaii and is a north-south facility that includes one lane in each direction. The southern section of Railroad Avenue provides access to base yards and facilities, commercial sites, residential areas and to agricultural and undeveloped land south of Kahaopea Street. The posted speed limit in the study area is 30 mph. The northern section of Railroad Avenue terminates at the T-intersection with Leilani Street.

Ho'olaulima Road is under the jurisdiction of the County of Hawaii and is a north-south facility that begins at Leilani Street in the north and extends southerly to its current terminus three and a half miles to the south. This roadway is a two lane roadway with a posted 25 mph. The

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roadway has limited driveway access points, but provides direct access to the project site, as well as the existing Hilo Landfill and Hilo Recycling and Transfer Station.

There are two intersections in the vicinity of the Project that could be impacted by the Project—the signalized intersection at Kanoelehua/Leilani and the unsignalized intersection at Leilani/Railroad. Both intersections currently operate at Level of Service (LOS) C. LOS E represents “at capacity” operations. LOS F represents conditions that exceed capacity.

Traffic Impact Analysis

The TIAR assumed full buildout by 2018. Based on an analysis of West Hawai‘i’s green waste facility, the TIAR estimated the Project’s daily trip generation to be:

- Green waste/wood pallet diversion: 150
- Project employees: 8
- Mulch pickup/delivery: 10
- Compost organic materials: 31
- Total: 189

The Hawaii Regional Long-Range Land Transportation Plan (LRLTP) prepared by HDOT included development of an island-wide travel demand forecasting model for purposes of forecasting future traffic volumes. Based on the LRLTP, the calculated annual growth rate of the project study roadways are:

- Kanoelehua Avenue North of Leilani Street – 1%
- Kanoelehua Avenue South of Leilani Street – 2%
- Leilani Street West of Kanoelehua Avenue – 5%
- Leilani Street East of Kanoelehua Avenue – 3%
- Railroad Avenue South of Leilani Street – 2%

The annual growth factors were applied to existing intersection traffic volumes collected in April 2015 to account for regional growth. The only identified project in the immediate vicinity that may not be in the model and is anticipated to be built and operating by the year 2018 is the relocation of the Hilo Mass Transit Agency Baseyard & Maintenance Facility Relocation. The trip generation and assignment for the baseyard project was added to the future year traffic volumes. Based on the projected traffic volume without the Project, the two intersections would operate at LOS C during the morning (7:30 – 8:30 a.m.) and afternoon (3:30-4:30 p.m.) peak hours, except the peak afternoon hour for the Railroad/Leilani intersection would operate at LOS D. With the Project, the signalized Kanoelehua/Leilani intersection would operate at LOS C, while the unsignalized Railroad/Leilani intersection would operate at LOS D.

POTENTIAL IMPACTS AND MITIGATION MEASURES

No significant impact. Based on the TIAR, the direct and cumulative impact of the Project would result in an acceptable LOS C or D for the two intersections in the vicinity of the Project. The number of Project trips added to the roadway network is relatively low, even when

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accounting for heavier vehicle traffic, and no operational or capacity improvements to the roadway network would be needed based on the Project’s trip generation under future conditions.

4.5 NOISE

A noise-sensitive receptor is DHHL’s Pana’ewa Community located approximately 650’ from the Project Site. Existing background noise is produced by several industrial uses located in the vicinity of the Project Site, including a landfill, quarry, the future County of Hawai’i Mass Transit Authority (MTA) base yard, and the Pana’ewa Drag Strip. The background noise will drown anticipated operational noise that would come from the Project’s tractor equipment, chippers, and screen sorters.

POTENTIAL IMPACTS AND MITIGATION MEASURES

Mitigable impact. Noise levels comparable to the Project’s equipment already exist at the current greenwaste site on TMK 2-1-013:168, which abuts the homestead lots. The operations on parcel 168 would be relocated to the Project Site after the composting components are fully operational.

During the construction phase, there may be temporary noise impacts associated with the operation of heavy construction machinery, paving equipment, and material transport vehicles. Proper mitigation measures will be employed to minimize construction-related noise impacts and comply with all federal and state noise control regulations. Increased noise activity due to construction will be limited to daytime hours and persist only during the construction period. Noise from construction activities will be short-term and will comply with State DOH noise regulations (Chapter 11-46, Community Noise Control, HAR). When construction noise exceeds, or is expected to exceed, the DOH’s allowable limits, a permit must be obtained from the DOH. Specific permit restrictions for construction activities are:

- No permit shall allow any construction activities that emit noise in excess of the maximum permissible sound levels before 7:00 a.m. and after 6:00 p.m. of the same day, Monday through Friday;
- No permit shall allow any construction activities that emit noise in excess of the maximum permissible sound levels before 9:00 a.m. and after 6:00 p.m. on Saturday; and
- No permit shall allow any construction activities that would emit noise in excess of the maximum permissible sound levels on Sundays and holidays.

4.6 AIR QUALITY

Air quality in the Hilo area is generally considered to be good due to the prevailing northeasterly tradewinds that tend to disperse pollutants toward the mountains. However, the

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amount of particulates and other air pollutants can significantly increase during periods when the winds shift to a southwesterly direction. Air flow from this direction carrying vog can lead to an increase in pollution and a decrease in visibility.

DOH maintains a limited network of air monitoring stations around the state to gather data on certain regulated pollutants. Currently, no routine ambient air monitoring is conducted by DOH in the Hilo area. Historical monitoring during the 1970's and 1980's indicated very low pollutant levels in Hilo. The entire state has been an attainment area for the last several decades.

POTENTIAL IMPACTS AND MITIGATION MEASURES

No significant impact. Long-term negative impacts related to air quality due to the Composting Facility are not expected. The remoteness of the Project Site will limit the potential for local air quality impacts on sensitive receptors and reduce the impacts over the existing condition.

Construction activity will be the principal source of short-term air quality impact. Construction vehicle activity will temporarily increase automotive pollutant concentrations along the existing roadways as well as on the Project Site. Site preparation, earth moving, and building construction will create particulate emissions during the short term. Movement of construction vehicles on unpaved surfaces can also generate particulate emissions.

Although the potential for fugitive dust is low due to the wet climate and low wind speeds of Hilo, adequate dust control measures will be employed, particularly during construction during low-rainfall periods. Dust control will be accomplished by frequent watering of unpaved roads within the Project Site and areas of exposed soil surfaces. As soon as it is feasible, landscaping of completed areas will also be employed. Dust control measures will comply with applicable provisions of HAR section 11-60.1-33 and Chapter 10 (Erosion and Sedimentation Control), HCC. Measures to control dust during construction may include:

- Providing an adequate water source at the site prior to start-up construction activities;
- Irrigating the construction site during periods of drought or high winds and all dry conditions;
- Landscaping and rapid covering of bare areas, including slopes, starting from the initial grading phase;
- Disturbing only the areas of construction that are in the immediate zone of construction to limit the amount of time that the areas will be subject to erosion;
- Providing adequate dust control measures during weekends, after hours, and before daily start-up of construction activities; and
- Installing silt screening in the areas of disturbance.

4.7 VISUAL RESOURCES

The Project Site is generally flat with three large cleared areas interspersed with patches of fairly dense vegetation. There is also dense vegetation to the east, west, and south. The area

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immediately north is the Hilo Landfill (South Hilo Sanitary Landfill). Due to the flat topography and state of the vegetation, there are no notable visual resources either on or visible from the Project Site (Figure 4).

In addition, the Project Site is not listed by the county as being in a scenic view plane or as a site of natural beauty listed in the General Plan, nor is it home to any of the exceptional trees listed in the County Code (HCC Chapter 14, Article 10, pursuant to HRS Chapter 58).

POTENTIAL IMPACTS AND MITIGATION MEASURES

No significant impact. Any structures that are part of the Composting Facility will be designed and landscaped to be compatible with the character of the surrounding area.

Construction of the proposed Composting Facility will not block any identified scenic view planes or impact any areas of natural beauty. Other than grass landscaping no mitigation measures are planned. The proposed Composting Facility will not be visible from Kaneolehua Road or Auwae Road and will not change the appearance of the rural character of the area east of Kaneolehua Road. The placement and height of the building will not obstruct any view planes towards any natural landmarks.

4.8 INFRASTRUCTURE AND UTILITIES

4.8.1 Water System

The Project Site does not have an existing water service with the Department of Water Supply (DWS) as the parcels are beyond the service limits of DWS' existing water system. However, according to DWS, water could be made available after the completion and dedication of a 12-inch waterline currently being installed along Ho'olaulima Road by the Department of Public Works for the Mass Transit Agency Baseyard that would front the Project Site (see DWS letter in Appendix G).

POTENTIAL IMPACTS AND MITIGATION MEASURES

No significant impact; approval required. DEM must submit estimated maximum daily water usage calculations, prepared by a professional engineer licensed in the State of Hawaii for DWS' review. Based on the estimated water demand, DWS will determine 1) whether a water commitment can be issued; 2) the water commitment deposit and facilities charges due; 3) water system improvements to be made; and 4) any other conditions necessary for final approval. Assuming a water commitment is made, the Project design needs to include the installation of a reduced principle type backflow prevention assembly within five feet of the meter on private property, to be inspected and approved by the DWS prior to commencement of water service.

4.8.2 Wastewater System

There is no existing municipal sewer service to the Project Site. Similar to existing facilities in the vicinity and the future Mass Transit Baseyard, wastewater treatment and disposal would be by a new, on-site septic tank and leach field. Assuming comparable flows to the Mass Transit Baseyard project, the approximate size of the septic tank is 2,000 gallons and the leach field is 371 square feet.

POTENTIAL IMPACTS AND MITIGATION MEASURES

No significant impact; approval required. Prior to construction of the septic tank and leach field, the civil engineer will prepare an Individual Wastewater System permit and submit it to DOH. The new sewer system will comply with Title 11, Chapter 62, HAR.

4.8.3 Drainage System

According to the FIRM, the Project Site is within Zone X, which is an area of minimal hazard that is higher than the elevation of the 0.2-percent-annual-chance flood (Figure 14). Leachate will be generated from organic waste in the tipping building, and from active composting heaps. Leachate will be collected in a storage tank and will be recycled for feedstock moisture adjustment. Any rain which falls on the compost heap covers will be directed to an on-site stormwater system. Stormwater will flow through the use of site grading into surface swales towards a stormwater retention pond. Stormwater will pass through a sedimentation weir to remove any suspended solids prior to being stored in the ponds. This water may be recycled for on-site activity, including make-up process water, bio-filter re-hydration, dust control, landscape irrigation, and tipping building wash-down.

POTENTIAL IMPACTS AND MITIGATION MEASURES

No significant impact; approval required. The Composting Facility storm drainage system will be designed to comply with the latest County of Hawai'i *Storm Drainage Standards and Standard Details for Public Works Construction* to maintain post-development peak runoff rate and average volume at levels that are similar to pre-development levels. The design should consider vegetated swales to accomplish the following: (1) decrease the erosive potential of increased runoff volumes and velocities associated with development-induced changes in hydrology; (2) remove suspended solids and associated pollutants entrained in runoff that result from activities occurring during and after development; and (3) retain hydrological conditions to closely resemble those of the pre-disturbance condition.

The Project Site is below the Underground Injection Control (UIC) line, which means that:

- The underlying aquifer is not considered a drinking water source
- A wider variety of wells is allowed
- Injection wells need a UIC Permit or Permit Exemption

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- Permit limitations are imposed

If the Composting Facility requires an injection well, it will conform with the regulations in Title 11, Chapter 23, HAR, including obtaining a UIC Permit or Permit Exemption.

4.8.4 Solid & Hazardous Waste

The County of Hawai'i Department of Environmental Management, Solid Waste Division, operates and maintains, either by county personnel or by contracted services, all solid waste collection and disposal facilities on the island. This includes two landfills, twenty-one transfer stations and island-wide hauling operations in accordance with local, state and federal guidelines and regulations. Since the Project is a new component of the County solid waste disposal facilities, any "extension or addition thereto" requires a solid waste management permit issued by the Department of Health pursuant to HAR 11-85.1.

POTENTIAL IMPACTS AND MITIGATION MEASURES

Beneficial impact. The Project would divert organic waste from the landfills, which currently constitutes 54% of the landfilled waste. Besides converting "waste" to an asset, the Project would also extend the life of the landfill. The Project would not handle any hazardous waste, as defined and regulated under HAR 11-260 to -280.

4.8.5 Utilities

The Hawai'i Electric Light Company, Inc. (HELCO), a privately-owned utility company regulated by the State Public Utilities Commission, provides electrical power to the island of Hawai'i. The HELCO network of power plants serving Hilo includes the Kanoiehua Power Plant, Puna Power Plant, Wailuku Hydro Power Plant, Hilo Coast Power Plant, and Shipman Power Plant.

Telecommunication services are provided by Hawaiian Telcom via overhead lines.

POTENTIAL IMPACTS AND MITIGATION MEASURES

No significant impact; approval required. During the Draft EA Early Consultation process, Hawaiian Telcom commented that they currently have a proposed project to place facilities on a future pole line that will pass to the west of the EHO Project Site to serve the County of Hawai'i Mass Transit Agency (MTA) Baseyard and Maintenance Facility located on TMK (3) 2-1-013: 148. During the Project's design phase, coordination will be necessary with Hawaiian Telcom to ensure the capacity of the future line fronting the Site will be adequate for both projects.

4.9 SOCIO-ECONOMIC CHARACTERISTICS

The overall population of Hawai'i County has exhibited relatively stable growth over the past decade. The population of Hawai'i County was 194,190 people in 2014, a 30.6 percent increase from the 2000 population of 148,677 people (State of Hawai'i Department of Business, Economic Development, and Tourism, 2014).

The South Hilo district had a population of 50,927 in 2010 which represented approximately 28 percent of the total population for Hawai'i Island (County of Hawai'i, Current). The City of Hilo contains the main offices of the county government and branch offices of federal and state agencies. The island's major deep draft harbor and international airport are also located in Hilo. In addition to industrial, commercial and social service activities, the University of Hawai'i at Hilo and Hawai'i Community College and affiliated research programs play an important role in Hilo's economy.

As of December 2014, Hawai'i County's unemployment rate was 4.7 percent, compared to the state's overall rate of 4.0 percent. This was a decrease of 1.2 percent from a year prior (U.S. Bureau of Labor Statistics, 2014).

POTENTIAL IMPACTS AND MITIGATION MEASURES

No significant impact. Short-term employment benefits will be generated throughout the construction period as well as long-term employment benefits, such as potentially hiring new heavy equipment operators and mechanics. The benefits however will not be significant relative to the overall economy of the island. No changes are expected to the overall economy and no mitigation measures are planned.

The proposed Composting Facility will not affect area population and will not create additional strain on other area facilities.

4.10 PUBLIC SERVICES AND FACILITIES

4.10.1 Schools and Child Care Facilities

The closest State Department of Education (DOE) public schools are: Waiākeawaena Elementary School, Waiākea Elementary School, Waiākea Intermediate School, and Waiākea High School.

POTENTIAL IMPACTS AND MITIGATION MEASURES

No significant impact. The Project will not generate new residents or introduce new school-aged children to the area. Therefore, no additional demands will be placed on DOE facilities. While the construction of the proposed Project will generate noise and may generate dust, the closest public school, Waiākeawaena Elementary School, is located nearly two miles away. The distance will disperse construction noise. In addition, the Waiākeawaena Elementary School, is

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upwind of the proposed Project Site during predominant trade wind conditions, and so even if airborne dust was generated, it would be unlikely to impact children attending classes at Waiākeawaena Elementary School.

During the Draft EA Early Consultation process, the State of Hawai'i Department of Human Services (DHS) wrote: "Upon extensive search of the DHS computer system and Google maps, we find that currently there are no licensed or registered child care facilities in the near vicinity of the East Hawaii Organics Facility."

4.10.2 Police, Fire and Medical Services

Police Protection. The Project Site is located in South Hilo, Patrol District 1, which is the Hawai'i Police Department's largest staffed division. The district extends from Hakalau in the north, to the mid-point of Kanoelehua Avenue between Hilo and Kea'au in the south, to the Saddle Road in the west. The district includes the main police station, located at 349 Kapi'olani Street, approximately 3 miles from the Project Site. In fiscal year 2014-2015, police officers issued 11,720 traffic citations and responded to 2,536 reported thefts (an increase over 2013-2014), 24 robberies, 390 burglaries, 333 thefts of motor vehicles (a 75 percent increase over 2013-2014), 108 cases of sexual assault, 438 assaults, and two murder cases. During the Draft EA Early Consultation process, the Police Department wrote: "Staff, upon reviewing the provided documents, does not anticipate any significant impact to traffic and/or public safety concerns" (see letter in Appendix G).

Fire Protection. The Hawai'i County Fire Department Kawai'ani Fire Station provides fire protection and suppression services in Waiākea. The Kawai'ani Fire Station is an Engine Company with one engine, a 79-foot ladder truck, a tanker and a medic unit. Backup support is provided by 1) Central Fire Station, located 3.5 miles away in Hilo, with an Engine Company and an ALS medic unit; 2) Kaumana Fire Station, located 4.5 miles away, with an Engine Company and HAZMAT Response capabilities; and 3) Waiākea Fire Station, located 2.5 miles away in Keaukaha. In addition, a new fire station, Haihai, is being proposed less than three miles from the Project Site. Waiākea Fire Station is a Rescue Company providing firefighting response with an Engine, Light and Heavy Rescue, including helicopter response and ocean rescue response capabilities. At this time, no tanker vehicles are assigned to the Hilo area due to the adequate hydrant system and all of the Engines (also referred to as Pumpers) each carry 1,000 gallons of water. At any one time, there are five to six firefighters on duty at the Kawai'ani Fire Station.

Medical Services. Hilo Medical Center (HMC) is the primary health care facility serving the South Hilo district. HMC is located approximately five miles from the Project Site at 1190 Waiānue Avenue. Ambulance service in Hilo is provided by the Hawai'i Fire Department, which can serve the Project Site area (during construction) from the Kawai'ani Fire Station in two minutes. When the new Haihai Fire Station is operational, the site will have 24 hour trained

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Emergency Medical Service personnel on site. As mentioned above, Central Fire Station also provides ALS medic response to the Hilo area.

POTENTIAL IMPACTS AND MITIGATION MEASURES

No significant impact; approval required. The Fire Department must approve the Project’s design to ensure compliance with the National Fire Protection Association (NFPA) 1, Hawai’i State Fire Code, as amended by the County of Hawai’i (Hawai’i County Code Chapter 26) and also approve the Project’s fire response plan.

4.10.3 Recreational Facilities

The entire South Hilo District contains 54 parks totaling 590 acres. The nearest recreational facilities to the Project Site are Pana’ewa Park and Malama Park. Other recreational facilities, parks, and open spaces in the Hilo area include Hilo Municipal Golf Course, Ainaola Park, Ahualani Park, Lokahi Park, Waiākea Uka Park, Kūhiō-Kalaniana’ole Park, Honoli’i Beach Park, Lili’uokalani Gardens, Reeds Bay, Onekahakaha Beach Park, Kealoha Beach Park, Carlsmith Beach Park and Richardson Ocean Park.

POTENTIAL IMPACTS AND MITIGATION MEASURES

No significant impact. The Project is not a direct generator of new residents requiring recreational facilities. No significant impacts to recreational facilities are anticipated as a result of the Composting Facility, and therefore no mitigation measures are proposed.

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5 LAND USE CONFORMANCE

State of Hawai‘i and Hawai‘i County land use plans, policies, and ordinances relevant to the proposed Project are described below.

5.1 STATE OF HAWAII‘I

5.1.1 Chapter 343, Hawai‘i Revised Statutes

Compliance with Chapter 343, HRS is required as described in Section 1.4.

5.1.2 State Land Use Law, Chapter 205, Hawai‘i Revised Statutes

The State Land Use Law (Chapter 205, HRS), establishes the State Land Use Commission (LUC) and authorizes this body to designate all lands in the state into one of four Districts: Urban, Rural, Agricultural, or Conservation. The Project Site is located within the State Agricultural District (Figure 5).

According to HRS §205-4.5(c), “Within the agricultural district, all lands with soil classified by the land study bureau's detailed land classification as overall (master) productivity rating class C, D, E, or U shall be restricted to the uses permitted for agricultural districts as set forth in section 205-5(b).” The Project Site is classified as Class E (see §3.3.2 above). HRS section 205-5(b) states that “Within agricultural districts, uses compatible to the activities described in section 205-2 as determined by the commission shall be permitted; provided that accessory agricultural uses and services described in sections 205-2 and 205-4.5 may be further defined by each county by zoning ordinance.”

The County zoning ordinance lists “Public uses and structures which are necessary for agricultural practices” as a permitted use (HCC §25-5-72(a)(18)). Increasingly, agricultural practices rely upon local sources of fertilization and soil amendment instead of synthetic imported materials. Additionally, increasing backyard non-commercial production diversifies food sources fitting the rural lifestyle of this island. The Project plays an important role to support the trends toward localizing the agricultural inputs, expanding commercial organic practices, and encouraging non-commercial backyard production by providing affordable, quality-controlled mulch and compost.

5.1.3 Coastal Zone Management Act, Chapter 205A, Hawai‘i Revised Statutes

The entire state of Hawai‘i is defined to be within the Coastal Zone Management (CZM) Area, pursuant to 205A-1, HRS (definition of “coastal zone management area”). As such, the proposed Project lies within the CZM Area and a discussion of the Project’s consistency with the objectives and policies set forth in HRS 205A-2 is summarized in this section, supported by a more detailed analysis in a table of objectives and policies included in Appendix F).

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Due to the Project's inland location, over two miles from the shoreline, the objectives and policies relating to Recreational Resources, Economic Uses, Coastal Hazards, Beach Protection, and Marine Resources are not applicable. The Project is not in conflict with any of the objectives and policies. The Project is consistent with the following applicable objectives and policies:

Historic Resources

Objective: *Protect, preserve, and, where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.*

Policies

- (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: Scientific Consultant Services, Inc. (SCS) conducted an Archaeological Assessment (AA) for the Project Site (Appendix C). The AA was conducted in compliance with Section 6E-8, HRS "Historic Preservation" to determine the presence/absence of archaeological sites. The AA found that almost the entire Project Site has been altered by quarrying activities, and that no sites or features are present in the Project Site. Due to the absence of sites, the Project Site was documented in an AA pursuant to Title 13, Subtitle 13, Chapter 284-5(5A), HAR. The County of Hawai'i and its contractors will comply with all state and county laws and rules regarding the preservation of archaeological and historic sites. The construction documents will include a provision that should historic sites such as walls, platforms, pavements and mounds, or remains such as artifacts, burials, concentrations of shell or charcoal or artifacts be inadvertently encountered during construction activities, work will cease immediately in the immediate vicinity of the find and the find will be protected. The contractor will immediately contact the State Historic Preservation Division, which will assess the significance of the find and recommend appropriate mitigation measures, if necessary.

Scenic and Open Space Resources

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

Policies

- (A) *Identify valued scenic resources in the coastal zone management area;*

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Discussion: There are no Natural Beauty sites or scenic view planes on the Project Site nor in the vicinity identified in the General Plan. There are no exceptional trees identified on the Project Site (see §4.7).

Coastal Ecosystems

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

Policies

(E) Promote water quantity and quality planning and management practices that reflect the tolerance of fresh water and marine ecosystems and maintain and enhance water quality through the development and implementation of point and nonpoint source water pollution control measures.

Discussion: Due to the inland location, there would be direct impact on coastal ecosystems. However, to protect coastal ecosystems from nonpoint source pollution, the State of Hawai'i has adopted water quality standards. Generally, these standards will require the submittal and adherence to a NPDES permit. As required for projects on land greater than one acre in size, a NPDES NGPC for Storm Water Associated with Construction Activity will be necessary for the Project. Construction will follow erosion control and water quality BMPs as prescribed in the NPDES Permit. The contractor will submit a site-specific construction BMP plan to the State of Hawai'i DOH.

The State Office of Planning has created the Hawai'i Watershed Guidance to provide direction on methods to safeguard Hawai'i's watersheds and implement watershed plans. This guidance provides a number of management measures that address polluted runoff from urban activities, and summary and links to management measures that may be implemented to minimize coastal nonpoint pollution impact. As requested by the State Office of Planning (in its Draft EA Early Consultation comments), the following sections of the Hawai'i Watershed Guidance were examined:

Urban Runoff – New Development Management Measure

1. By design or performance:

a. Construction has been completed and the site is permanently stabilized, reduce the average annual total suspended solid (TSS) loadings by 80%. For the purposes of this measure, an 80% TSS reduction is to be determined on an average annual basis, or*

b. Reduce the postdevelopment loadings of TSS so that the average annual TSS loadings are no greater than predevelopment loadings, and

2. To the extent practicable, maintain postdevelopment peak runoff rate and average volume at levels that are similar to predevelopment levels.

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To the extent practicable, the Project will be designed to maintain post-development peak runoff rate and average volume at levels that are similar to pre-development levels. By adhering to the BMPs required under an NPDES permit, the Project will ensure that it is meeting the TSS loading standards in this measure. In accord with the NPDES BMPs, the Project will utilize several practice categories, including infiltration practices, vegetated open channel practices, and filtering practices, defined in the Environmental Protection Agency's (EPA) guidance document entitled *National Management Measures to Control Nonpoint Source Pollution from Urban Areas* (November 2005, EPA-841-B-05-004). EPA has found these practices to be representative of the types of practices that can be applied successfully to achieve the above new development management measures.

Managing Development

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

Policies

(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 proposed Project is not a coastal development, is not located on the coastline, and is not in the SMA; however, this EA, will provide opportunity for public input during the Draft EA Public Comment period. Early consultation comments were obtained and are reproduced in Appendix G. In addition, this EA discusses potential impacts and mitigation measures of the proposed Project and will provide an opportunity for input during the Draft EA Public Comment period.

Public Participation

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

Policies

(A) Promote public involvement in coastal zone management processes;

Discussion: The proposed Project is not a coastal development, is not located on the coastline, and is not in the SMA; however, this EA, will provide opportunity for public input during the Draft EA Public Comment period. Early consultation comments were obtained and are reproduced in Appendix G. In addition, this EA discusses potential impacts and mitigation measures of the proposed Project and will provide an opportunity for input during the Draft EA Public Comment period.

5.1.4 Hawai'i State Plan

The Hawai'i State Plan (Chapter 226, HRS), establishes a set of goals, objectives and policies that serve as long-range guidelines for the growth and development of the state. This section analyzes the Project's consistency with relevant objectives, policies and priority guidelines. A full table of HRS Chapter 226 objectives and policies can be found in Appendix F. The Project is not in conflict with any of the policies. The Project is consistent with the following applicable objectives, policies, and priority guidelines:

Objectives and Policies For The Economy – Agriculture (§226-7)

Objectives

Planning for the State's economy with regard to agriculture shall be directed towards the following objectives:

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

Policies

- (2) Encourage agriculture by making best use of natural resources.*
- (12) Expand Hawaii's agricultural base by promoting growth and development of flowers, tropical fruits and plants, livestock, feed grains, forestry, food crops, aquaculture, and other potential enterprises.*
- (13) Promote economically competitive activities that increase Hawaii's agricultural self-sufficiency.*

Discussion: The Project will produce agricultural fertilizers, allowing local agriculture to use local fertilizer, promoting self-sufficiency and providing a vital resource for agricultural producers statewide. By using solid organic waste, the compost process represents a prudent use of natural resources to help achieve the State's goal.

Objectives and Policies For The Physical Environment – Land-Based, Shoreline, and Marine Resources (§226-11)

Objectives

Planning for the State's physical environment shall be directed towards achievement of the objective of enhancement of Hawaii's scenic assets, natural beauty, and multi-cultural/historical resources.

- (2) Effective protection of Hawaii's unique and fragile environmental resources.*

Policies

- (1) Exercise an overall conservation ethic in the use of Hawaii's natural resources.*

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- (7) *Provide public incentives that encourage private actions to protect significant natural resources from degradation or unnecessary depletion.*
- (8) *Pursue compatible relationships among activities, facilities, and natural resources.*

Discussion: The Organics Facility will be reducing the amount of waste buried in the Hilo landfill, reducing strain on natural resources and allowing private individuals, organic-waste-producing industry, and agricultural industries to share in a natural resource which otherwise would be turned into pollution. This reduces the need of the agricultural industry to import fertilizers and/or deplete natural resources unnecessarily, instead promoting a conservational relationship between state agriculture and private individuals/industry.

Objectives and Policies for Facility Systems—In General (§226-14)

Objective

Planning for the State’s facility systems in general shall be directed towards achievement of the objective of water, transportation, waste disposal, and energy and telecommunication systems that support statewide social, economic, and physical objectives.

Policies

- (1) *Accommodate the needs of Hawaii's people through coordination of facility systems and capital improvement priorities in consonance with state and county plans.*
- (2) *Encourage flexibility in the design and development of facility systems to promote prudent use of resources and accommodate changing public demands and priorities.*
- (3) *Ensure that required facility systems can be supported within resource capacities and at reasonable cost to the user.*

Discussion: The Project will assist the County of Hawaii in its Zero Waste goal as part of its county plan. It will also encourage the prudent use of resources through the composting of organic solid waste from individuals and industries which produce organic waste. As the facility will consume waste and produce a marketable commodity, the facility will be able to maintain its capacity with reasonable cost to the user.

Objectives and Policies for Facility Systems—Solid and Liquid Wastes (§226-15)

Objective

Planning for the State’s facility systems with regard to solid and liquid wastes shall be directed towards the achievement of the following objectives:

Policies

- (2) *Promote re-use and recycling to reduce solid and liquid wastes and employ a conservation ethic.*

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- (3) *Promote research to develop more efficient and economical treatment and disposal of solid and liquid wastes.*

Discussion: The Project will conserve landfill space and treat solid organic waste in a way that produces products beneficial to the economy of Hawaii.

5.1.5 HRS Chapter 344 Environmental Policy

The State’s environmental policy and guidelines are set forth in HRS Chapter 344. A full table of HRS Chapter 344 Environmental Policies can be found in Appendix F. The Project is not in conflict with any of the policies. The Project’s consistency with the relevant policies is as follows:

Environmental Policy (§344-3)

It shall be the policy of the State, through its programs, authorities, and resources to:

- (1) *Conserve the natural resources, so that land, water, mineral, visual, air and other natural resources are protected by controlling pollution, by preserving or augmenting natural resources, and by safeguarding the State’s unique natural environmental characteristics in a manner which will foster and promote the general welfare, create and maintain conditions under which humanity and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of the people of Hawaii.*

- (2) *Enhance the quality of life by:*

- (D) *Establishing a commitment on the part of each person to protect and enhance Hawaii’s environment and reduce the drain on nonrenewable resources.*

Discussion: By turning would-be pollution into a valuable and environmentally-friendly product, this project is supportive of the State’s goal for resource augmentation and a more harmonious relationship between nature and residents of Hawaii. Diverting organic waste from landfills also allows individual residents to have less of an impact on the environment through their sorting of solid waste into organic, and inorganic, as well as allowing them to purchase reclaimed agricultural products. This allows individuals to commit to enhancing the environment and reducing nonrenewable resource drain.

Environmental Guidelines (§344-4)

In pursuance of the state policy to conserve the natural resources and enhance the quality of life, all agencies, in the development of programs, shall, insofar as practicable, consider the following guidelines:

- (2) *Land, water, mineral, visual, air, and other natural resources:*
(A) *Encourage management practices which conserve and fully utilize all natural resources;*

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(G) Promote the optimal use of solid wastes through programs of waste prevention, energy resource recovery, and recycling so that all our wastes become utilized.

(5) Economic development:

(A) Encourage industries in Hawaii which would be in harmony with our environment;

(B) Promote and foster the agricultural industry of the State; and preserve and conserve productive agricultural lands;

Discussion: The Project will divert greenwaste and other designated organic materials from the Hilo landfill, recycling solid organic wastes by recovering usable resources through a composting process, providing important fertilizers to agriculture statewide. Diverting this waste will reduce the impact the landfill has on the natural environment, preserving the land and bringing the state and county closer to zero waste.

5.1.6 Department of Hawaiian Home Lands (DHHL) Hawai'i Island Plan and Pana'ewa Regional Plan

The DHHL Pana'ewa Homestead lots are located across the Project Site west of Ho'olaulima Road (see Figure 16). The Hawai'i Island Plan (PBR HAWAII, 2002) designates the closest lot as Subsistence Agriculture. According to the Pana'ewa Regional Plan, this lot is unencumbered (PBR Hawaii, 2009), and would serve as an approximate 500' buffer between the Project Site and closest agricultural homestead lots. The homestead lots are downwind of the Project Site when the predominant northeasterly trade winds are blowing. Fortunately, the outdoor mulching operations do not generate significant noise and odor and the foodwaste and other potential organic odor-producing feedstock would be processed in an enclosed building where it will be mixed with mulch, then composted in a covered (in-vessel) windrow system. The covered composting process is carefully monitored for moisture, temperature, and aeration to keep the process from turning anaerobic where odors could become a problem (see §2.3 above). The mulch and compost would be available to the homestead farmers.

5.2 COUNTY OF HAWAII

County-specific land use plans and ordinances pertaining to the Project include the General Plan and the zoning code.

5.2.1 County of Hawai'i General Plan

The County of Hawai'i General Plan is the policy document for the long-range comprehensive development of the Island of Hawai'i. Among the purposes of the General Plan are to guide the pattern of development in Hawai'i County and to provide the framework for regulatory decisions and capital improvement projects. The General Plan undergoes a comprehensive review every ten years, with the last review being completed in 2005.

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The policy land use map, referred to as the Land Use Pattern Allocation Guide (LUPAG) Map, is intended to guide the direction and quality of future developments in a coordinated and rational manner. The site for the proposed Base Yard and Maintenance Facility is designated as “Open Area” and “Low Density Urban” (Figure 6).

Specific General Plan goals, policies, and courses of action most applicable to the proposed Base Yard and Maintenance Facility are discussed below.

Environmental Quality

Section 4.3 POLICIES

- d. Encourage the concept of recycling agricultural, industrial, and municipal waste material.*

Discussion: To help the County achieve its diversion and Zero Waste goals, this Project will divert greenwaste and designated organic materials from the South Hilo Sanitary Landfill (SHSL) and the West Hawai'i Sanitary Landfill (WHSL) by establishing Hawai'i County's first municipal composting operation at the East Hawai'i Organics Facility (EHOF). This composting facility will accept waste from residents and commercial businesses, thus encouraging the concept and practice of recycling various greenwaste and organic materials.

Flooding and Other Natural Hazards

Section 5.2 GOALS

- a. Protect human life.*
- b. Prevent damage to man-made improvements.*

Section 5.3 POLICIES

- l. Continue to promote public education programs on tsunami, hurricane, storm surge, and flood hazards.*
- q. Consider natural hazards in all land use planning and permitting.*

Discussion: According to the FIRM, the Project Site is within Zone X, which is an area of minimal hazard that is higher than the elevation of the 0.2-percent-annual-chance flood (Figure 14). There are no floodplains defined by FEMA on or near the Project Site.

Historic Sites

Section 6.2 GOALS

- a. Protect, restore, and enhance the sites, buildings, and objects of significant historical and cultural importance to Hawai'i.*

Section 6.3 POLICIES

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- a. *Agencies and organizations, either public or private, pursuing knowledge about historic sites should keep the public apprised of projects.*
- c. *Require both public and private developers of land to provide historical and archaeological surveys and cultural assessments, where appropriate, prior to the clearing or development of land when there are indications that the land under consideration has historical significance.*
- o. *Recognize the importance of certain natural features in Hawaiian culture by incorporating the concept of “cultural landscapes” in land use planning.*

Discussion: Scientific Consultant Services, Inc. (SCS) conducted an Archaeological Assessment (AA) for the Project Site (Appendix C). The AA was conducted in compliance with Section 6E-8, HRS “Historic Preservation” to determine the presence/absence of archaeological sites. The AA found that almost the entire Project Site has been altered by quarrying activities, and that no sites or features are present in the Project Site. Due to the absence of sites, the Project Site was documented in an AA pursuant to Title 13, Subtitle 13, Chapter 284-5(5A), HAR. The County of Hawai'i and its contractors will comply with all state and county laws and rules regarding the preservation of archaeological and historic sites. The construction documents will include a provision that should historic sites such as walls, platforms, pavements and mounds, or remains such as artifacts, burials, concentrations of shell or charcoal or artifacts be inadvertently encountered during construction activities, work will cease immediately in the immediate vicinity of the find and the find will be protected. The contractor will immediately contact the State Historic Preservation Division, which will assess the significance of the find and recommend appropriate mitigation measures, if necessary.

Natural Beauty

Section 7.2 GOALS

- b. *Protect scenic vistas and view planes from becoming obstructed.*
- c. *Maximize opportunities for present and future generations to appreciate and enjoy natural and scenic beauty.*

Section 7.3 POLICIES

- h. *Protect the views of areas endowed with natural beauty by carefully considering the effects of proposed construction during all land use reviews.*
- i. *Do not allow incompatible construction in areas of natural beauty.*

Discussion: The proposed Composting Facility will not be visible from Kaneolehua Road or Auwae Road and will not change the appearance of the rural character of the area east of Kaneolehua Road. The placement and height of the building will not obstruct any view planes towards any natural landmarks.

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Public Facilities

Section 10.1.2 GOALS

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

Section 10.5.2 POLICIES

- h. Encourage the full development and implementation of a green waste recycling program.*

Discussion: To help the County achieve its diversion and Zero Waste goals, this Project will divert greenwaste and designated organic materials from the South Hilo Sanitary Landfill (SHSL) and the West Hawai'i Sanitary Landfill (WHSL) by establishing Hawai'i County's first municipal composting operation at the East Hawai'i Organics Facility (EHOF). This composting facility will accept and recycle/process greenwaste and designated organic materials from residents and commercial businesses, thus improving public service through better and more functional facilities in keeping with the environmental concerns of the community.

Land Use – Agriculture

Section 14.2.2 GOALS

- a. Identify, protect, and maintain important agricultural lands on the island of Hawai'i.*

Section 14.2.3 POLICIES

- j. Ensure that development of important agricultural land be primarily for agricultural use.*
- l. Assist in the development of agriculture.*

Discussion: As mentioned in Section 3.3.3 above, the soils of the Project Site are classified as "Other Important Agricultural Land," which is defined as an area that can be farmed satisfactorily by applying greater inputs of fertilizer, improving drainage, practicing erosion control, and protecting the land from flooding. It is thus not considered "Prime Important Agricultural Land." Given the Project Site's low productivity potential and need for high inputs, it is not suitable for agricultural activity. Therefore, construction of the Composting Facility will not reduce the inventory of productive lands available for agricultural uses.

The proposed Composting Facility will assist in the development of agriculture by providing mulch and compost, which are valued soil amendments to support subsistence and commercial agriculture, and will be sold to the public.

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5.2.2 County of Hawai'i Zoning

The County zoning code (HCC Chapter 25) regulates the type and intensity of uses in the State Land Use Urban District, and can specify in more detail the permissible uses and intensity in the State Land Use Agricultural and Rural Districts consistent with the State Land Use law (HRS Chapter 205). The Project Site is zoned A-20a (Figure 7).

One of the permitted uses in the Agricultural District is “Public uses and structures which are necessary for agricultural practices” (HCC §25-5-72(a)(18)). Compost and mulch are essential to reduce the need for artificial fertilization and pesticides, to localize sourcing of soil amendments (thereby reducing input cost and import vulnerability), to encourage organic agricultural practices, and to encourage backyard food production.

The Project will require Plan Approval to ensure compliance with the height and setback requirements. The height limit in the A district for non-residential structures is 45 feet (HCC §25-5-73). The minimum yards in the A district are thirty feet for front and rear yards, and twenty feet for side yards (HCC §25-5-76). Consolidation or resubdivision may be necessary to adjust the parcel boundaries to meet the setback requirements depending on the final site plan.

Special Permits (SPP) had been issued for three of the Project Site parcels to establish a quarry, stockpile, and rock crushing operation: SPP No. 929 for Parcel 160, SPP No. 930 for Parcel 161, and SPP No. 928 for Parcel 163 (see letter from the Planning Department in Appendix G). Condition No. 6 of each permit stated that *"The life of this Special Permit shall be coterminous with the State Department of Land and Natural Resources Land License."* Since quarrying activities have ceased, these licenses are presumed to have expired (the Department of Land and Natural Resources has not responded to a request to confirm that the subject licenses have expired). Accordingly, there are no active Special Permits affecting the Project Site.

5.2.3 Special Management Area

The Project Site is not located within the Special Management Area (SMA) (see Figure 8).

5.3 APPROVALS AND PERMITS

A listing of anticipated permits and approvals required for the East Hawai'i Organics Facility is presented below:

Table 1: Anticipated Approvals and Permits

Permit/Approval	Responsible Agency
Solid Waste Management Permit	State Department of Health

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Permit/Approval	Responsible Agency
DWS Water Commitment	Hawai'i County Department of Water Supply
Fire Response Plan	Hawai'i County Fire Department
Plan Approval	Hawai'i County Planning Department
Subdivision	Hawai'i County Planning Department
National Pollutant Discharge Elimination System (NPDES) Permit	State Department of Health
Individual Wastewater System Permit	Department of Health
Grading/Building Permits	Hawai'i Department of Public Works
Noise Permit	State Department of Health

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6 ALTERNATIVES

This section identifies and evaluates a range of alternatives that could meet the purpose and need and possibly avoid, reduce, or minimize adverse environmental effects. The reference point to compare alternatives is the “no action” alternative.

6.1 NO ACTION ALTERNATIVE

The purpose and need for the Project include solid waste diversion to achieve zero waste goals and support agriculture by turning waste to compost (see §2.2 above). The 2009 Integrated Solid Waste Management Plan determined that 54% of the waste disposed at the landfills were organics. Of this amount, greenwaste constituted 26% based on data from the 2009 Integrated Solid Waste Management Plan (CH2MHill, December 2009). Greenwaste can be processed into mulch without the composting features of this Project. However, the Project provides fire ants control to the mulching process and would be able to process the remaining 74% of the organics that is not greenwaste (e.g., paper, food, biosolids).

Without this Project, the support for agriculture through the production of affordable, quality-controlled compost would not happen. Given the county’s dire need to reduce disposal to the landfill, and the added bonus of supporting agriculture, this “no action” alternative does not advance the purpose and need and has, therefore, been eliminated.

6.2 ALTERNATIVE SITES

Four primary site selection criteria include: 1) proximity to either the East Hawai‘i or West Hawai‘i landfill to centralize the sorting and disposal operations; 2) available State or County land to avoid the expense of land acquisition; 3) available infrastructure to minimize development costs; and 4) availability of water for the composting process. Besides the proposed Project Site, the only other candidate was the West Hawai‘i Sanitary Landfill at Puuanahulu where adequate land is available. However, the West Hawai‘i site does not have adequate water. Other State land in the vicinity of the East Hawai‘i landfill to the east of the Project Site meet all other criteria except available infrastructure. Extensive grubbing and grading would also be necessary compared to the former quarry use of the Project Site. The Project Site has access to existing roads, water, and electricity.

6.3 ALTERNATIVE COMPOSTING METHODS

Composting facilities are aerated or unaerated, and covered or not covered. Composting methods include passive piles, windrow composting, static piles, and in-vessel composting (Sherman, 1999). The Project is an in-vessel (covered) aerated facility. Passive piles, created by stacking materials and allowing them to decompose over time with little management, can overheat and spontaneously combust, can become anaerobic and release odors, can take a

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long time occupying valuable space, can attract pests, and can look like a dump. A static pile is a passively aerated system. In-vessel methods confine the composting process within an enclosure, and uses a combination of forced aeration and mechanical turning to speed the composting process. The Project best addresses the potential impacts of odor and pest management in the shortest processing time.

6.4 ALTERNATIVE SITE PLANS

The current site plan (Figure 9) is conceptual and can be revised to respond to concerns raised during this environmental review. The siting of the various buildings and processes can change, as well as the access point. The current plan proposes access from the [west or south] side of the Project Site.

7 FINDINGS AND ANTICIPATED DETERMINATION

To determine whether the construction of the Project may have a significant impact on the physical and human environment, all phases and expected consequences of the proposed Project have been evaluated, including potential primary, secondary, short-range, long-range, and cumulative impacts. Based on this evaluation, the Proposing Agency anticipates issuing a Finding of No Significant Impact (FONSI). The supporting rationale for this finding is presented in this chapter.

7.1 SIGNIFICANCE CRITERIA

The discussion below evaluates the significance of the Project's impacts based upon the Significance Criteria set forth in Hawai'i Administrative Rules section 11-200-12. An action shall be determined to have a significant impact on the environment if it meets any one of the following criteria:

- (1) Involves an irrevocable commitment to loss or destruction of any natural or cultural resource;**

Discussion: The proposed Project is not anticipated to involve any construction activity that may lead to a loss or destruction of any natural or cultural resource. The Project Site has been the subject of biological, archaeological, and cultural studies conducted in and around the Project Site. These studies have revealed the absence of any significant natural or cultural resources.

- (2) Curtails the range of beneficial uses of the environment;**

Discussion: The Project will not curtail the range of beneficial uses of the environment. By diverting solid waste from local landfills, the Project will instead promote beneficial uses of the environment.

- (3) Conflicts with the State's long term environmental policies or goals and guidelines as expressed in Chapter 344, HRS; and any revisions thereof and amendments thereto, court decisions, or executive orders;**

Discussion: The Project is not in conflict with the long-term environmental policies, goals, and guidelines of the State of Hawai'i as discussed in §5.1.5 above.

- (4) Substantially affects the economic or social welfare of the community or State;**

Discussion: The proposed Project will have beneficial effects on the agricultural sector of the economy by providing affordable and quality-controlled compost and mulch.

- (5) Substantially affects public health;**

Discussion: There will be temporary impacts to noise and air quality levels during the construction phase of the Project; however, these potential impacts will be short-term and are

not expected to substantially affect public health, particularly because of the distance of the Project Site from the closest residences. All construction activities will comply with applicable regulations and will implement appropriate mitigation measures. The enclosed tipping building and covered compost heaps will mitigate potential odor and vector concerns.

(6) Involves substantial secondary impacts, such as population changes or effects on public facilities;

Discussion: The Project will not induce any increases or shifts in population, and will not have a significant effect on any other public facilities, except a beneficial impact of diverting organic waste from the landfill.

(7) Involves a substantial degradation of environmental quality;

Discussion: Construction activities associated with the proposed Project are anticipated to result in negligible short-term impacts to noise, air-quality, and traffic in the immediate vicinity. With the incorporation of the recommended mitigation measures during the construction period, the Project will not result in degradation of environmental quality. No long term negative impacts are expected from implementation. Reducing waste input to landfills will improve environmental quality.

(8) Is individually limited but cumulatively has considerable effect on the environment, or involves a commitment for larger actions;

Discussion: Although this Project adds another solid waste facility, it will not have a cumulative impact on traffic (§4.4 above) nor nonpoint source pollution (§4.8.3 above). The Project is a stand-alone project which does not involve a commitment for larger actions.

(9) Substantially affects a rare, threatened or endangered species or its habitat;

Discussion: There are no known, threatened, or endangered species of flora, fauna, or associated habitats located on the Project Site that could be adversely affected by the construction and operation of the proposed Project. According to the USFWS, it is possible that several endangered species of use or overfly the Project Site. Mitigation measures have been specified to be incorporated in the construction documents.

(10) Detrimentially affects air or water quality or ambient noise levels;

Discussion: Construction activities for development of the proposed Project could potentially impact noise and air and water quality levels on the Project Site. However, these impacts will be short-term and are not expected to be detrimental. All construction activities will comply with applicable regulations and will implement appropriate mitigation measures as necessary. After construction, the development is not expected to adversely impact ambient noise levels or water and air quality. There will be an increase in impervious surfaces over the Project Site's current vacant state; however, any increase in runoff will be accommodated by proposed drainage improvements and will not detrimentally affect water quality. Odor would be

contained with the enclosed tipping building. Operational noise levels would not exceed the ambient noise levels.

- (11) Affects or is likely to suffer damage by being located in an environmentally sensitive area, such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters;**

Discussion: The development will not affect any environmentally sensitive area. The Project is located outside a FIRM-designated flood plain and inland from the coast. The proposed Project will be constructed in compliance with County of Hawai'i building codes, and the drainage improvements will be designed to minimize any potential for localized flooding.

- (12) Substantially affects scenic vistas and view planes identified in County or State plans or studies; or,**

Discussion: The proposed Project will not alter the visual setting of the area, nor will it block any scenic vistas. The area is not listed as a scenic view plane or area of natural beauty by the county.

- (13) Requires substantial energy consumption.**

Discussion: Construction and operation of the Project will not require substantial increases in energy consumption.

7.2 ANTICIPATED DETERMINATION

Pursuant to Chapter 343, HRS, the determining agency, the County of Hawai'i Department of Environmental Management anticipates a Finding of No Significant Impact (FONSI) for this environmental assessment. This finding will be based on the basis of impacts and mitigation measures examined in this document, public comments received during the pre-assessment consultation and public comment phases, and analyzed under the above criteria.

COUNTY OF HAWAII' – EAST HAWAII' ORGANICS FACILITY

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8 CONSULTATION

8.1 EARLY CONSULTATION

A pre-assessment consultation was conducted from January 2016 through April 2016 prior to preparation of the Draft EA. The purpose of the pre-assessment consultation was to consult with agencies, organizations and individuals with technical expertise, or an interest or will be affected by the proposed East Hawai'i Organics Facility. This process is part of the scoping process for the Draft EA. Comments and input received during this period were used to identify environmental issues and concerns to be addressed in the Draft EA, which in turn will undergo a 30-day public comment period.

As part of the Early Consultation process, the following agencies, organizations and individuals were sent pre-assessment consultation letters. Those that provided written comments (either by hardcopy or email) are highlighted in *italics*. Copies of the written comments and responses are reproduced in Appendix G.

8.1.1 State of Hawai'i

- Department of Agriculture
- *Department of Accounting and General Services*
- Department of Business, Economic Development & Tourism (DBEDT)
- DBEDT – Energy Division
- DBEDT – Hawai'i Housing Finance and Development Corporation
- *DBEDT – Office of Planning*
- Department of Defense
- *Department of Hawaiian Homelands*
- *Department of Health - Environmental Planning Office*
- Department of Health - Hawai'i District
- *Department of Human Services*
- Department of Labor and Industrial Relations
- *Department of Land and Natural Resources (DLNR)*
- DLNR - State Historic Preservation Division
- *Department of Transportation (DOT)*
- *DOT – Airports Division*
- *Office of Environmental Quality Control*
- *Office of Hawaiian Affairs*
- University of Hawai'i Water Resources Research Center
- State Representative R. Onishi
- State Senator Kauhale

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8.1.2 Federal

- U.S. Army Corps of Engineers – Regulatory Branch
- U.S. Federal Emergency Management Agency
- *U.S. Fish and Wildlife Service*
- U.S. Geological Survey – Hawaiian Volcano Observatory

8.1.3 County of Hawai'i

- Department of Environmental Management
- Department of Parks & Recreation
- Department of Research & Development
- *Department of Water Supply*
- *Fire Department*
- Office of Housing and Community Development
- *Planning Department*
- *Police Department*
- County Councilmember D. Onishi

8.1.4 Private Organizations & Individuals

- Hawaiian Electric Light Co.
- *Hawaiian Telecom*

8.2 PUBLIC REVIEW

This Draft EA was published in the OEQC Environmental Notice on September 8, 2016 initiating a 30-day public comment period scheduled to end on October 10, 2016. The Draft EA was mailed to all of the agencies and organizations previously consulted as listed above, as well as the Keaukaha-Pana'ewa Farmers' Alliance and Pana'ewa Hawaiian Home Lands Community Association. In addition, copies were mailed to the newspapers (Hawaii Tribune Herald, West Hawai'i Today, Star Advertiser) and Hilo Public Library to inform the general public.

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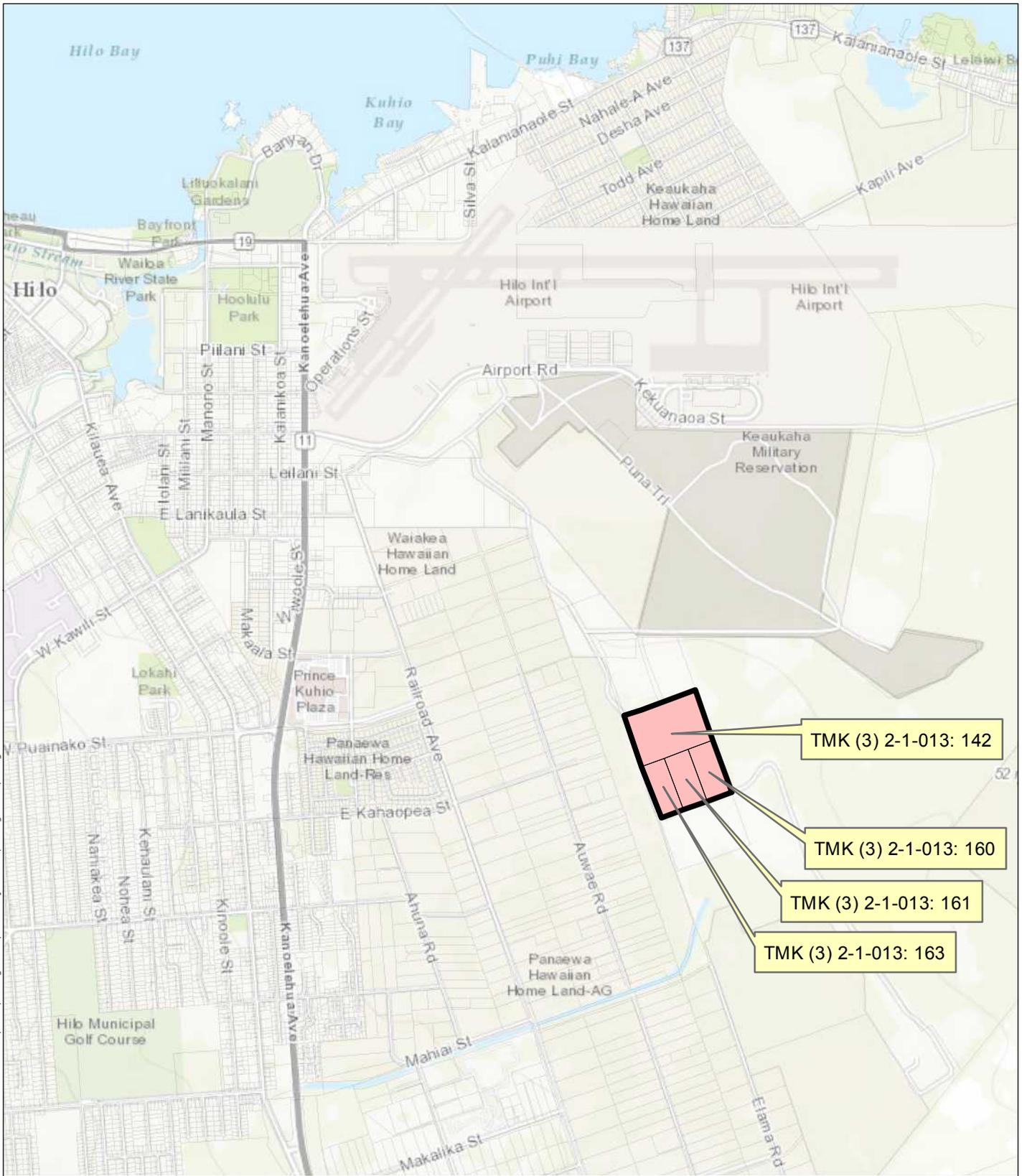
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Appendix A

Figures



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DATE: 7/14/2016

LEGEND

-  Project Site
-  Tax Map Key Parcels

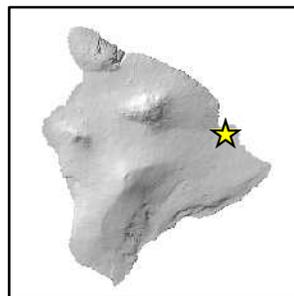


FIGURE 1 :
Regional Location

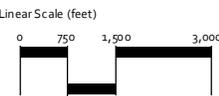
**EAST HAWAII
 ORGANICS FACILITY**

County of Hawaii Department of Environmental Management Island of Hawaii

North



Linear Scale (feet)






THIRD	DIVISION	
ZONE	SEC.	PLAT
2	1	13
CONTAINING PARCELS		
Scale: 1 in. = 1000 ft.		

LEGEND

Project Site

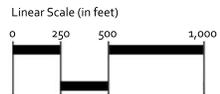
7/14/2016

FIGURE 2 :
Tax Map Key

EAST HAWAII ORGANICS FACILITY

County of Hawaii Department of Environmental Management
North

Island of Hawaii





DATE: 7/14/2016

LEGEND

-  Project Site
-  Tax Map Key Parcels

FIGURE 3 :
Aerial Photo

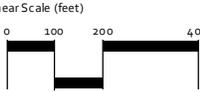
**EAST HAWAII
ORGANICS FACILITY**

County of Hawaii Department of Environmental Management Island of Hawaii

No rth



Linear Scale (feet)



PBR HAWAII
& ASSOCIATES, INC.

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1. Existing mulching site on TMK (3) 2-1-013:150



2. Typical site conditions – relatively level compacted ground within a quarried depression (trees line the foot of the cut)



3. Existing access – Ho'olaulima Road



Key Map

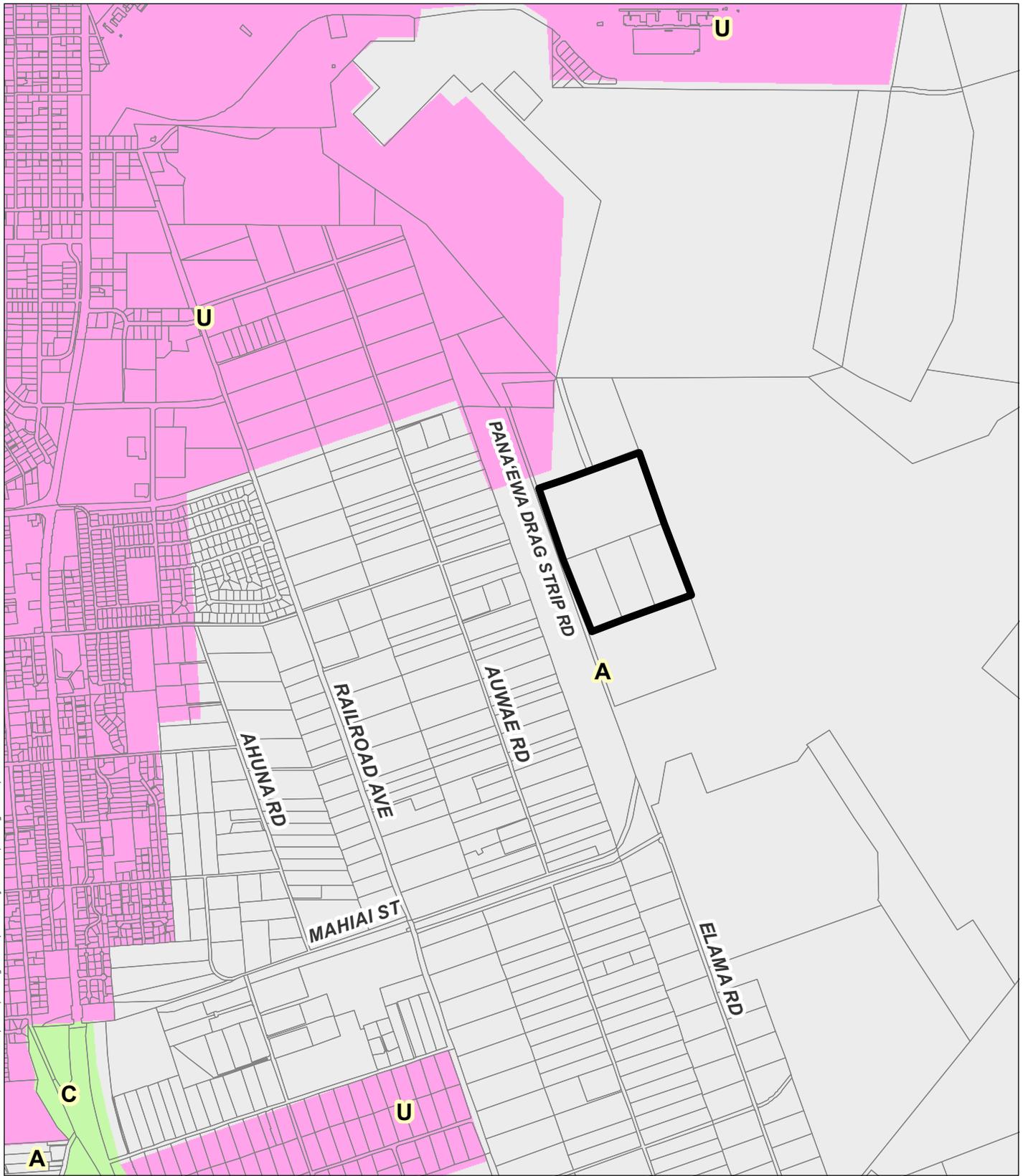
**Figure 4
Site Photographs**

East Hawai'i Organics Facility

ISLAND OF HAWAII

/24/2016





DATE: 7/14/2016

LEGEND

- | | | | |
|---|---------------------|---|-------------------------|
|  | Project Site |  | State Land Use District |
|  | Tax Map Key Parcels |  | A - Agriculture |
| | |  | C - Conservation |
| | | | U - Urban |

FIGURE 5 :
State Land Use Districts

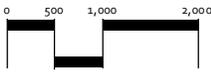
**EAST HAWAII
 ORGANICS FACILITY**

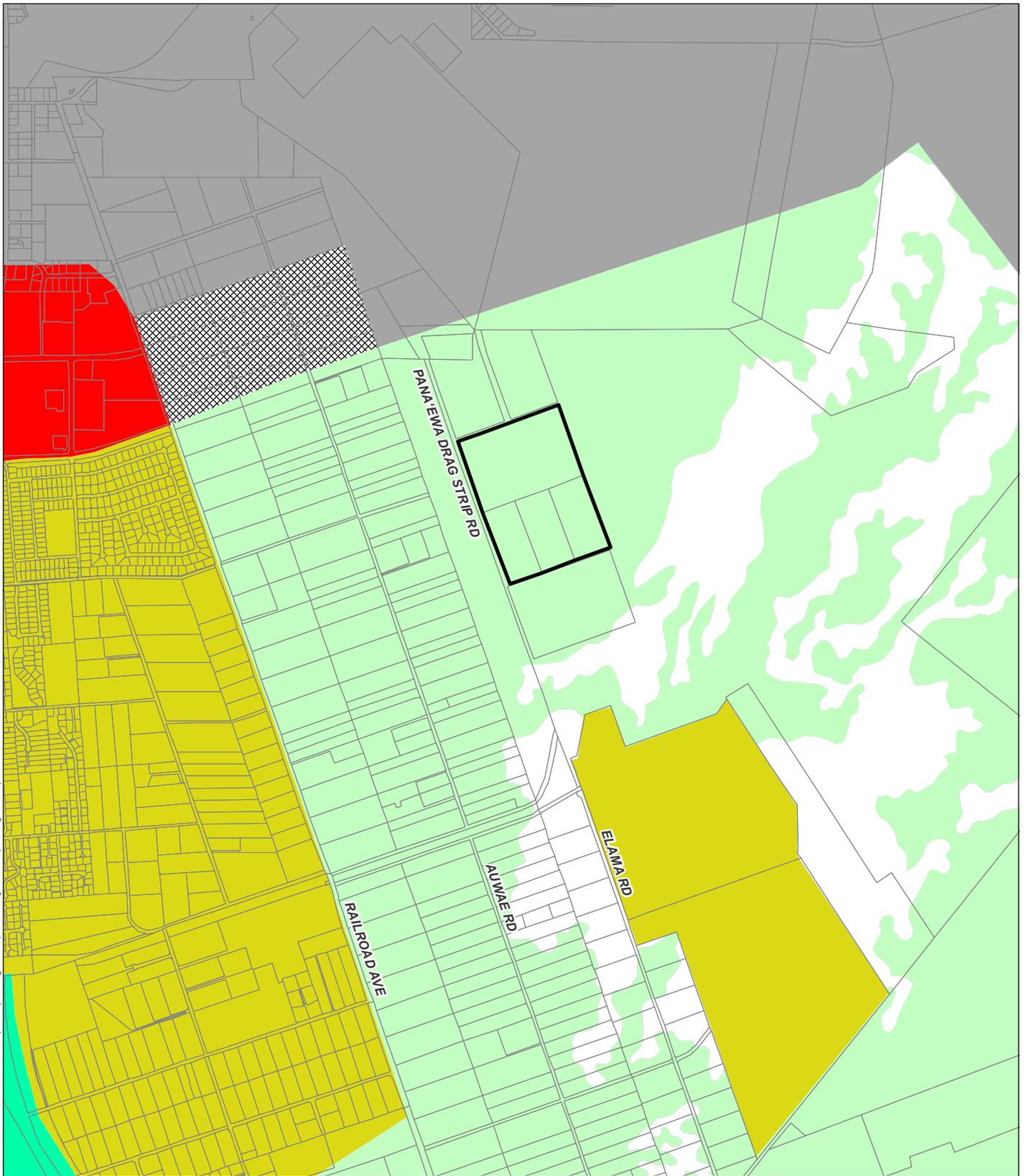
County of Hawaii Department of Environmental Management Island of Hawaii

North



Linear Scale (feet)



DATE: 7/14/2016

LEGEND

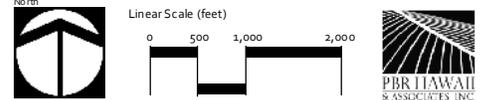
- | | | | |
|---|---------------------|---|-----------------------|
|  | Project Site | Land Use Pattern Allocation Guide (LUPAG) | |
|  | Tax Map Key Parcels |  | Conservation |
| | |  | Extensive Agriculture |
| | |  | High Density Urban |
| | |  | Important Ag. Lands |
| | |  | Industrial |
| | |  | Low Density Urban |
| | |  | Urban Expansion |

FIGURE 6 :
County of Hawai'i General Plan
Land Use Pattern Allocation Guide

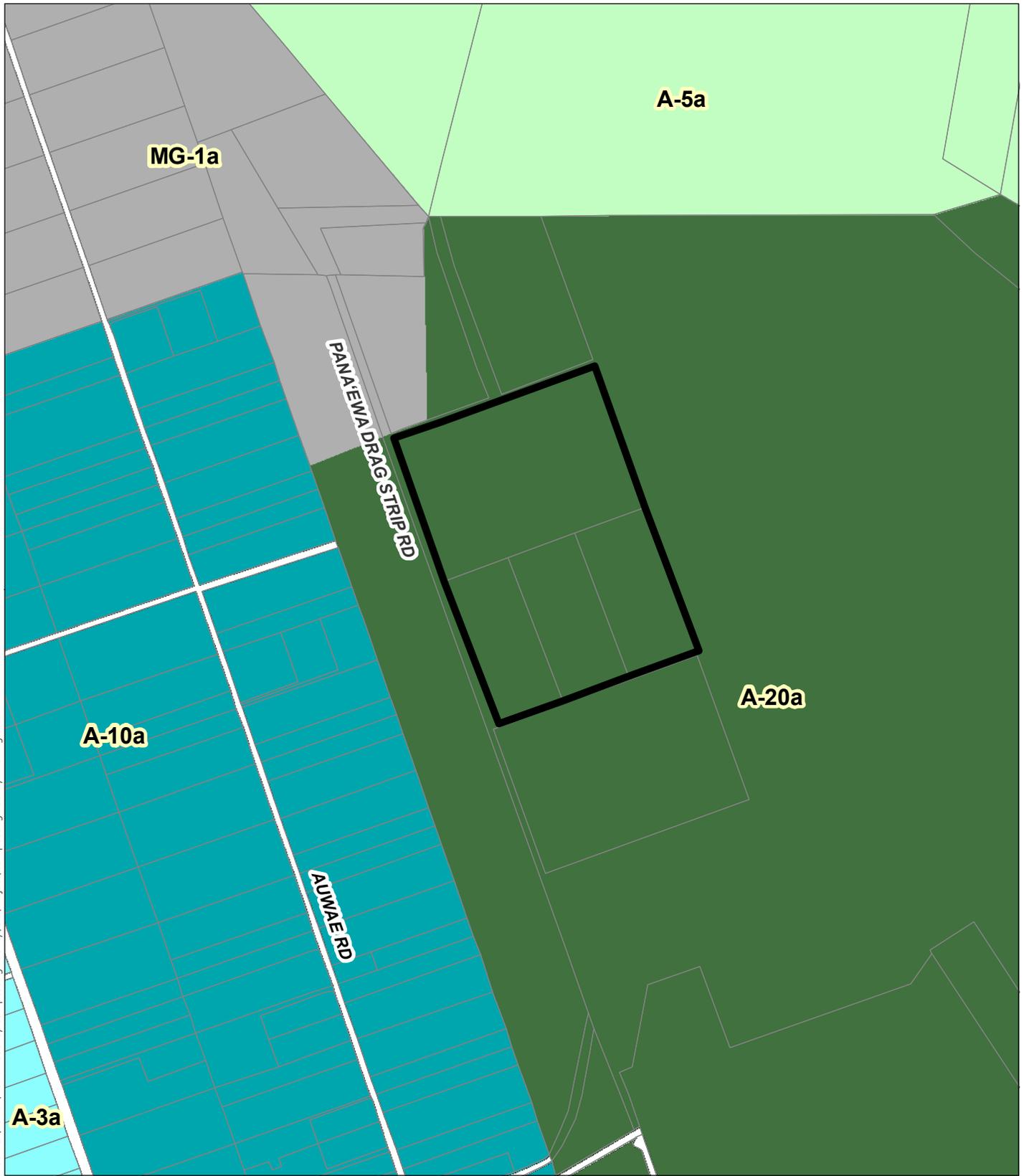
EAST HAWAI'I
ORGANICS FACILITY

County of Hawai'i Department of Environmental Management Island of Hawai'i

North



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 Path: O:\Hawaii\Hawaii County Composting Facility\GIS\Project\Composting Facility - Zoning.mxd



DATE: 7/14/2016

LEGEND

- Project Site
- Tax Map Key Parcels
- County of Hawai'i Zoning**
- (road)
- A-10a
- A-20a
- A-3a
- A-5a
- MG-1a

FIGURE 7:
County of Hawai'i Zoning

**EAST HAWAI'I
 ORGANICS FACILITY**

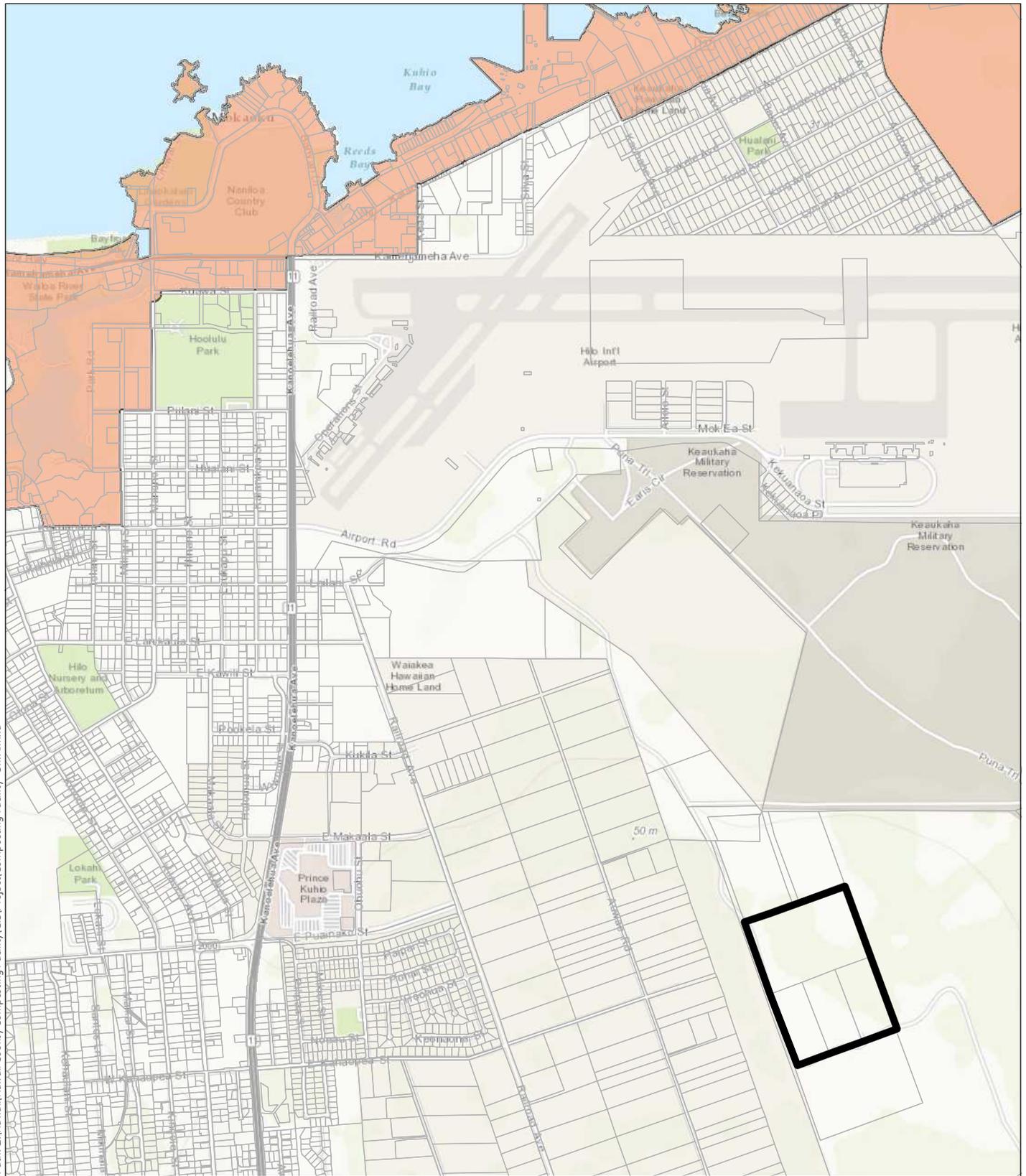
County of Hawai'i Department of Environmental Management Island of Hawai'i

North

Linear Scale (feet)

0 250 500 1,000

Source: County of Hawai'i, 2015. Mitsunaga & Associates, 2015.
 Disclaimer: This graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.



DATE: 7/14/2016

LEGEND

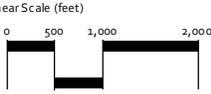
-  Project Site
-  Tax Map Key Parcels
-  Special Management Area

FIGURE 8 :
Special Management Area

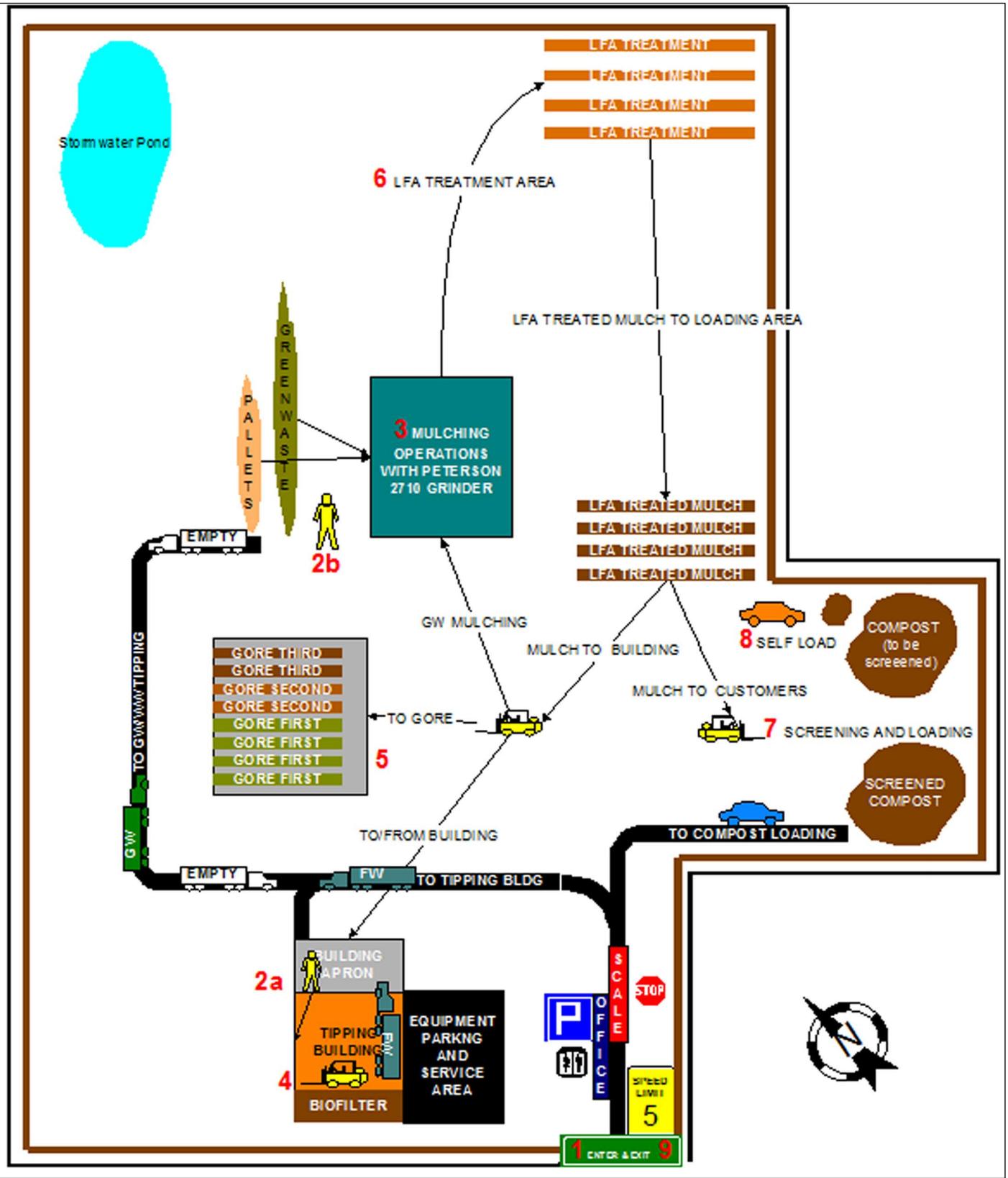
**EAST HAWAII
 ORGANICS FACILITY**

County of Hawaii Department of Environmental Management Island of Hawaii

North 

Linear Scale (feet) 





7/25/2016

FIGURE 9 :
Conceptual Site Plan

EAST HAWAII ORGANICS FACILITY

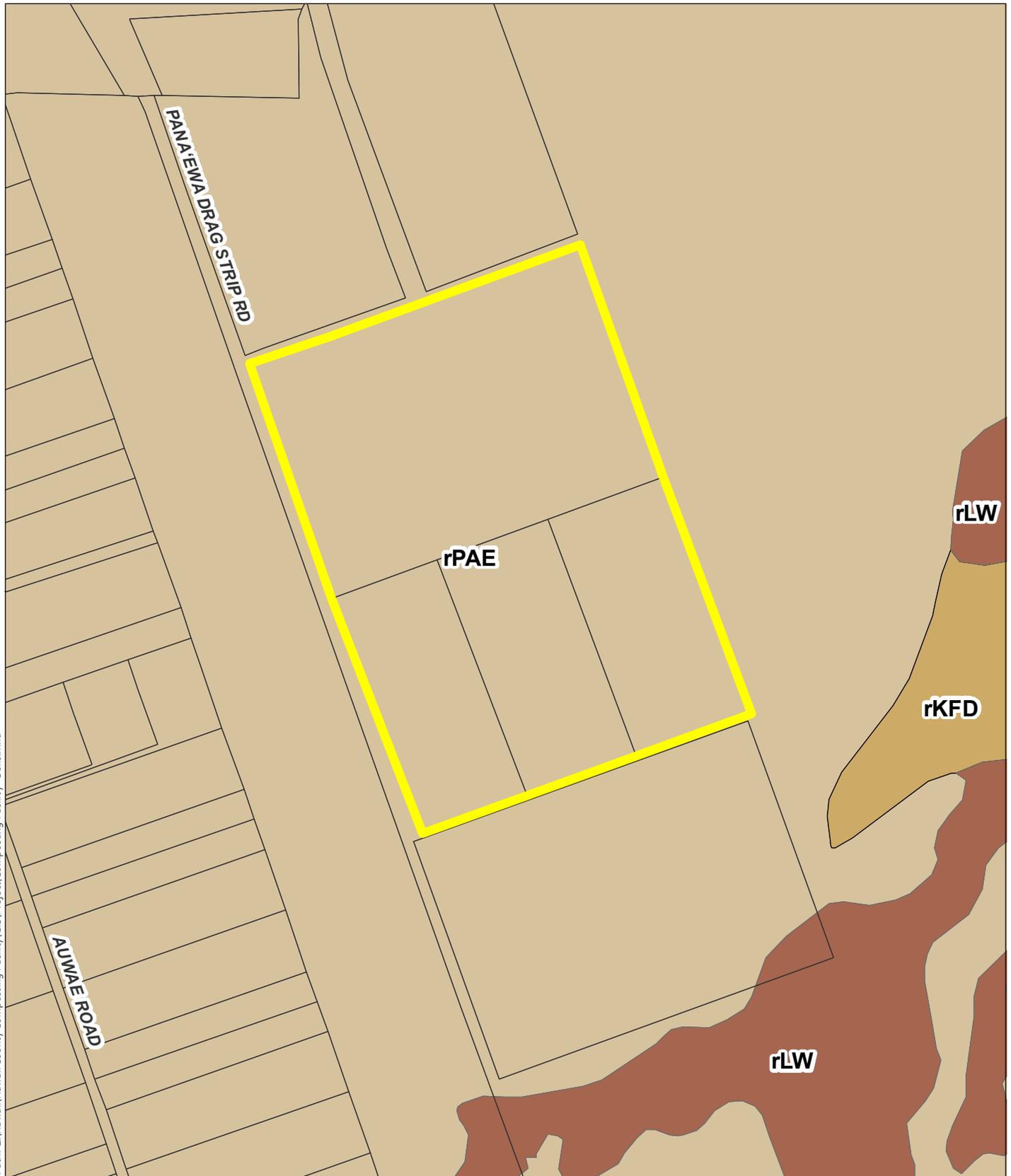
County of Hawaii's Department of Environmental Management
North

Island of Hawaii



Drawing not to scale





DATE: 7/14/2016

LEGEND

-  Project Site
-  Tax Map Key Parcels

Soils

-  rKFD - *Keaukaha extremely rocky muck, 6 to 20 percent slopes*
-  rLW - *Lava flows, pahoehoe*
-  rPAE - *Papai extremely stony muck, 3 to 25 percent slopes*

FIGURE 10:
Soils

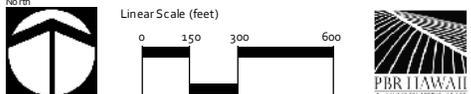
**EAST HAWAII
ORGANICS FACILITY**

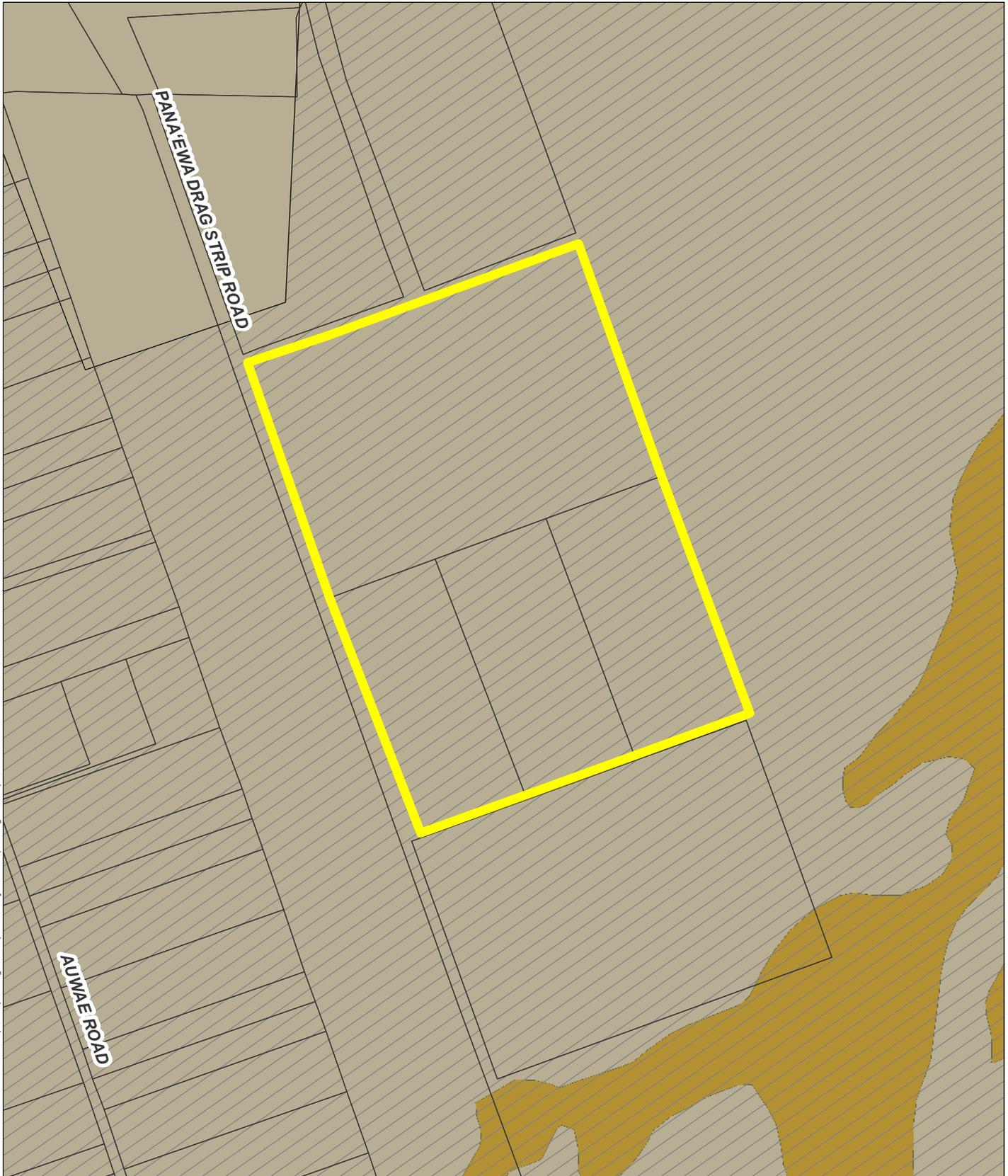
County of Hawaii Department of Environmental Management Island of Hawaii

North

Linear Scale (feet)

0 150 300 600





DATE: 7/14/2016

LEGEND

-  Project Site
-  Tax Map Key Parcels
-  Other ALISH
-  Unclassified
- Land Study Bureau - Detailed Land Classification**
-  E - Very Poor

FIGURE 11 :
Agricultural Land Classifications

**EAST HAWAI'I
 ORGANICS FACILITY**

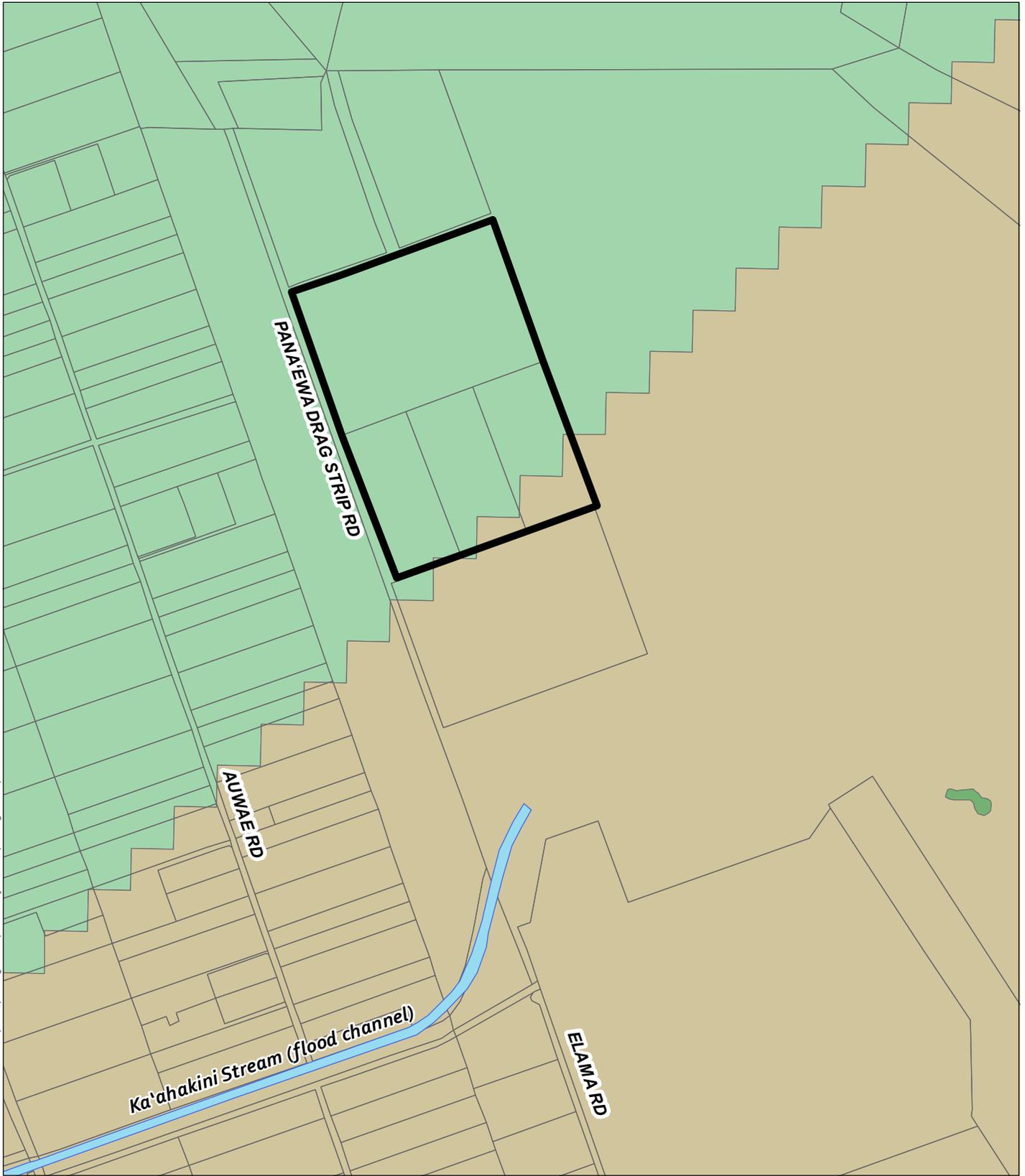
County of Hawai'i Department of Environmental Management Island of Hawai'i

North

Linear Scale (feet)

Source: County of Hawai'i, 2014. Land Study Bureau, 1973. State of Hawai'i Department of Agriculture, 1977. Mitsunaga & Associates, 2015.
 Disclaimer: This graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.

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DATE: 7/14/2016

LEGEND

- | | |
|---|--|
|  Project Site | Watersheds |
|  Tax Map Key Parcels |  Ka'ahakini |
|  Surface Water |  Wailoa |
| Wetlands | |
|  Freshwater Pond | |

FIGURE 12 :
*Surface Water, Wetlands
 & Watersheds*

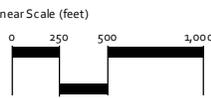
**EAST HAWAII
 ORGANICS FACILITY**

County of Hawaii Department of Environmental Management Island of Hawaii

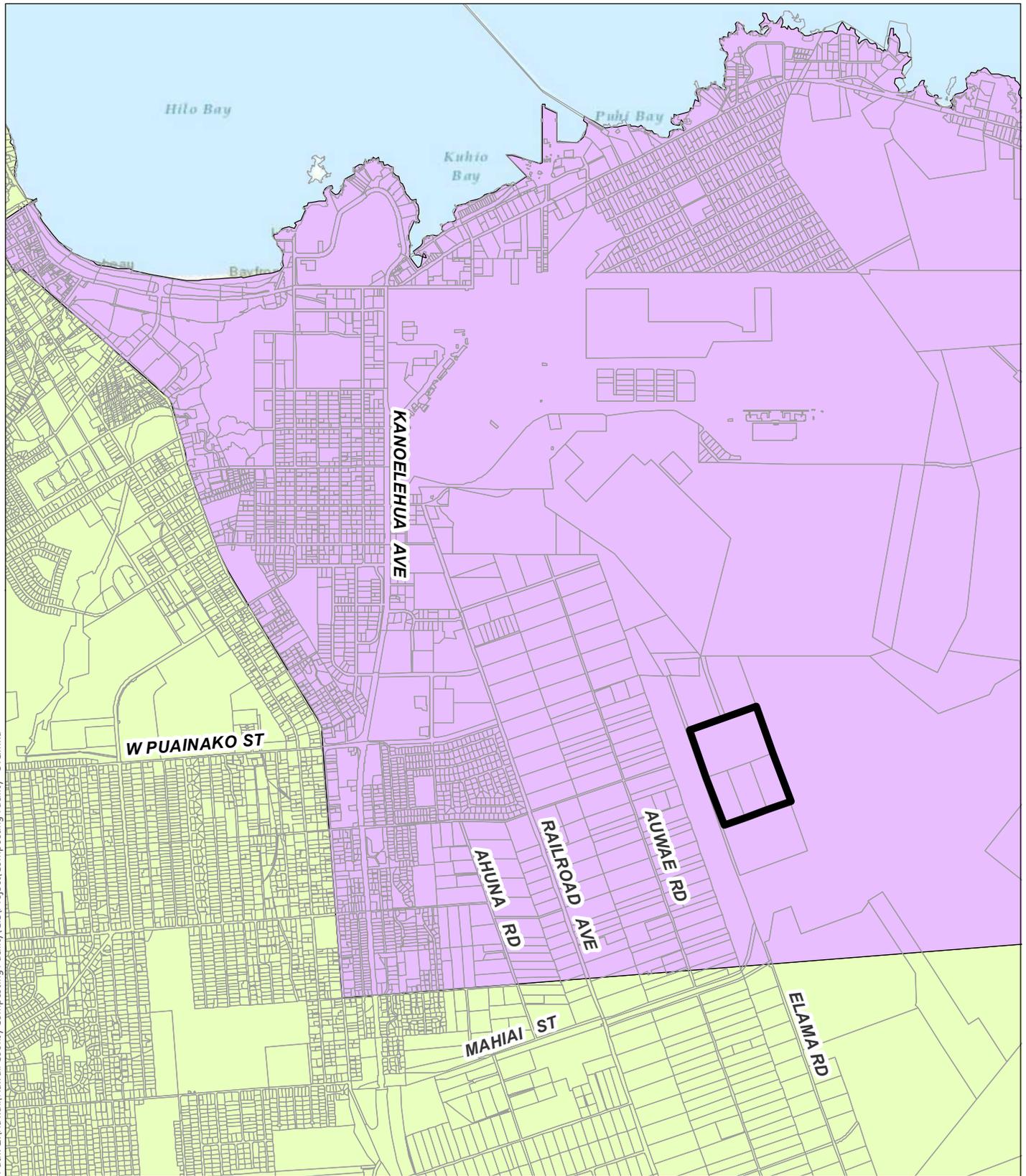
North



Linear Scale (feet)




Source: County of Hawaii, 2014. State of Hawaii Department of Land and Natural Resources. U.S. Fish and Wildlife Service National Wetlands Inventory. Mitsunaga & Associates, 2015.
 Disclaimer: This graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.



DATE: 7/14/2016

LEGEND

-  Project Site
-  Tax Map Key Parcels
- Underground Injection Control (UIC) Areas**
-  Below (makai) UIC Line
-  Above (mauka) UIC Line

FIGURE 13 :
Underground Injection Control

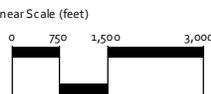
**EAST HAWAII
 ORGANICS FACILITY**

County of Hawaii Department of Environmental Management Island of Hawaii

North



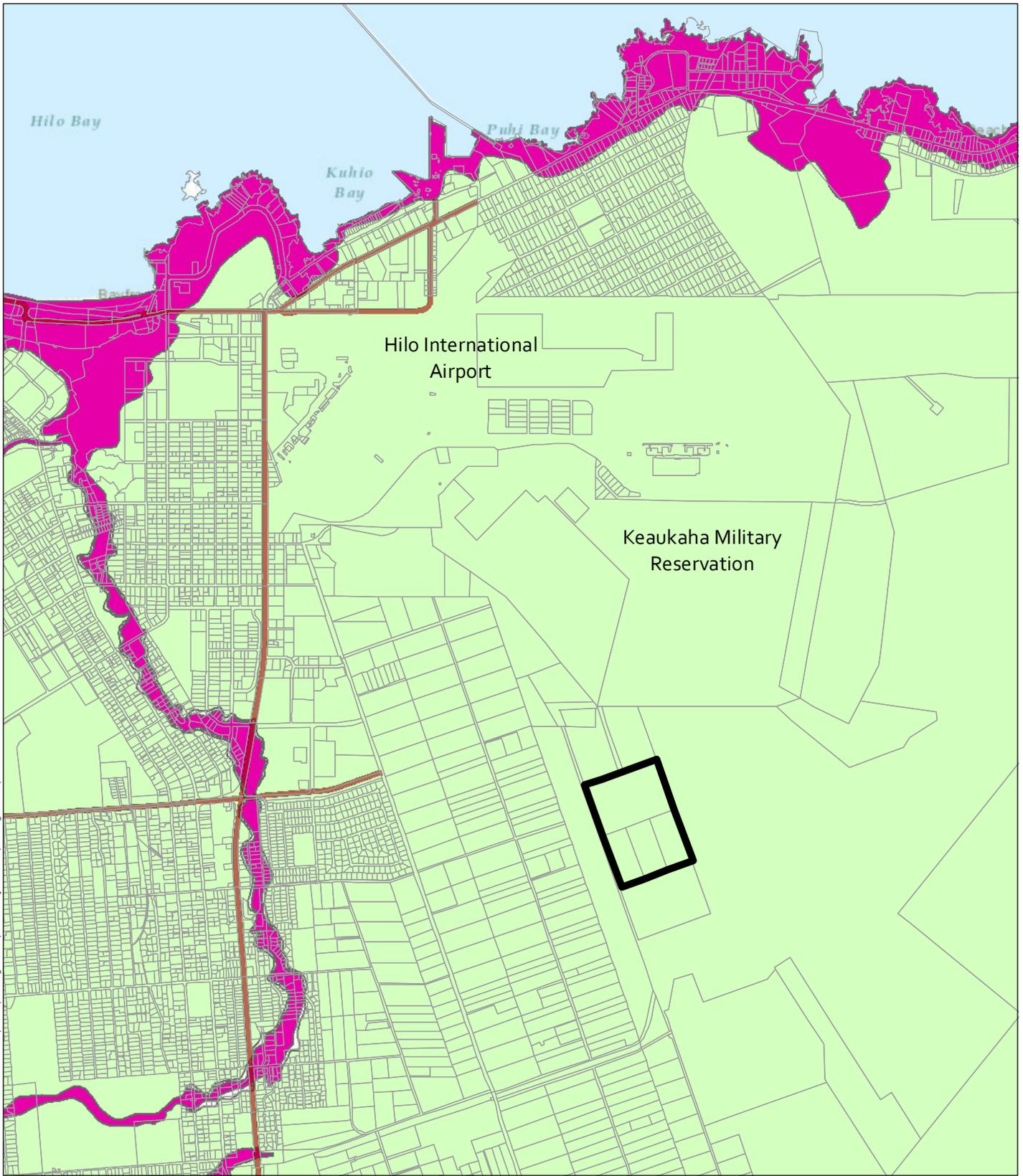
Linear Scale (feet)




Source: County of Hawaii, 2014. State Department of Health Safe Drinking Water Branch, 2004.

Disclaimer: This graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.

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DATE: 7/14/2016

LEGEND

-  Project Site
-  Tax Map Key Parcels
-  State Highway
- Flood Zones**
-  A Areas subject to inundation by the 1-percent-annual-chance flood event
-  X Areas determined to be outside 0.2-percent-annual-chance floodplain

FIGURE 14 :
Flood Insurance Rate Map

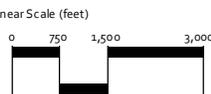
**EAST HAWAII
 ORGANICS FACILITY**

County of Hawaii Department of Environmental Management Island of Hawaii

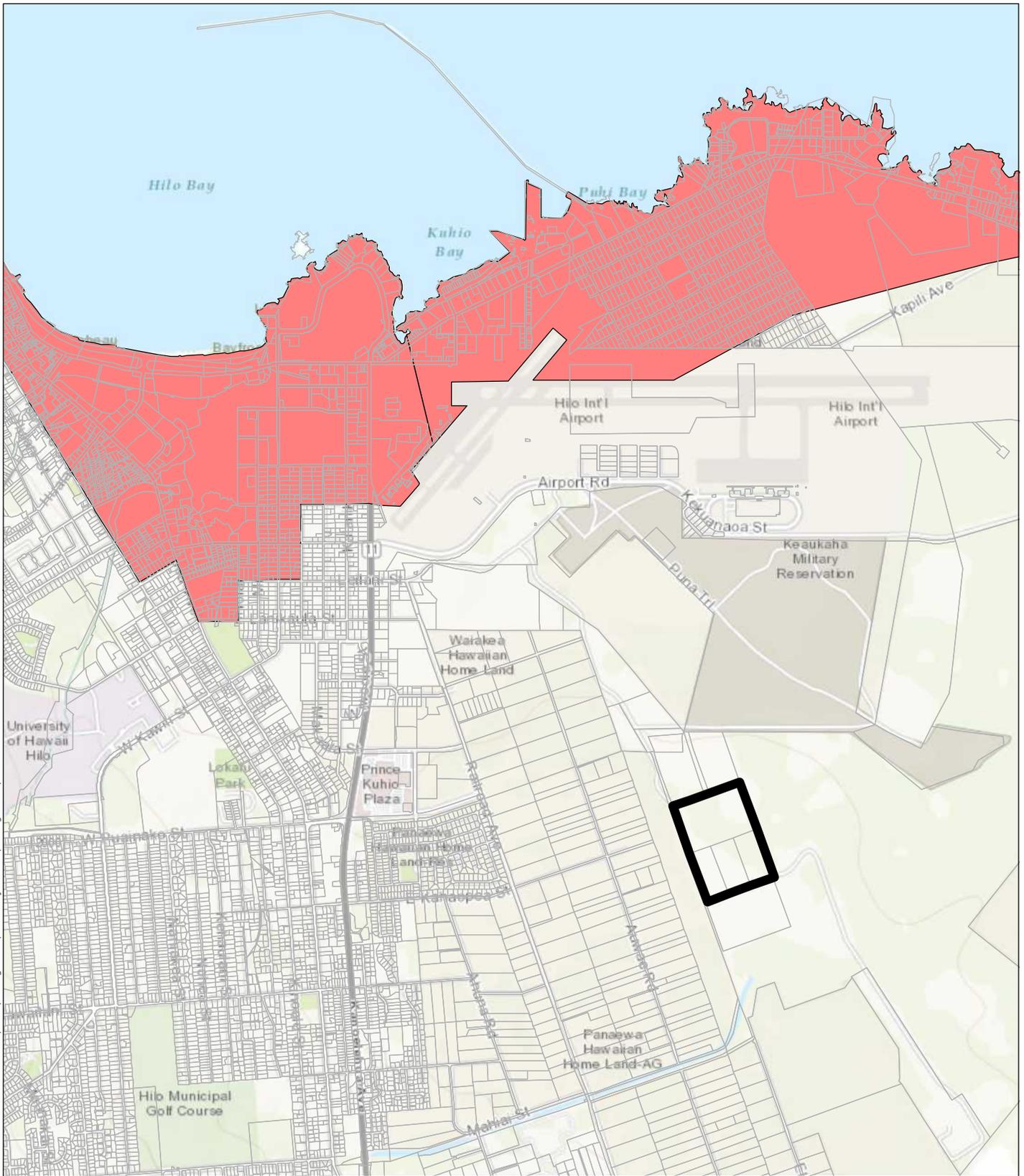
North



Linear Scale (feet)




Source: Federal Emergency Management Agency, Panel No. 155166 0885 C, 1988. Mitsunaga & Associates, 2015.
 Disclaimer: This graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.



DATE: 7/14/2016

LEGEND

-  Project Site
-  Tax Map Key Parcels
-  Tsunami Evacuation Zone

FIGURE 15 :
Tsunami Evacuation Zone

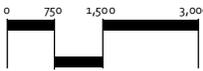
**EAST HAWAII
 ORGANICS FACILITY**

County of Hawaii Department of Environmental Management Island of Hawaii

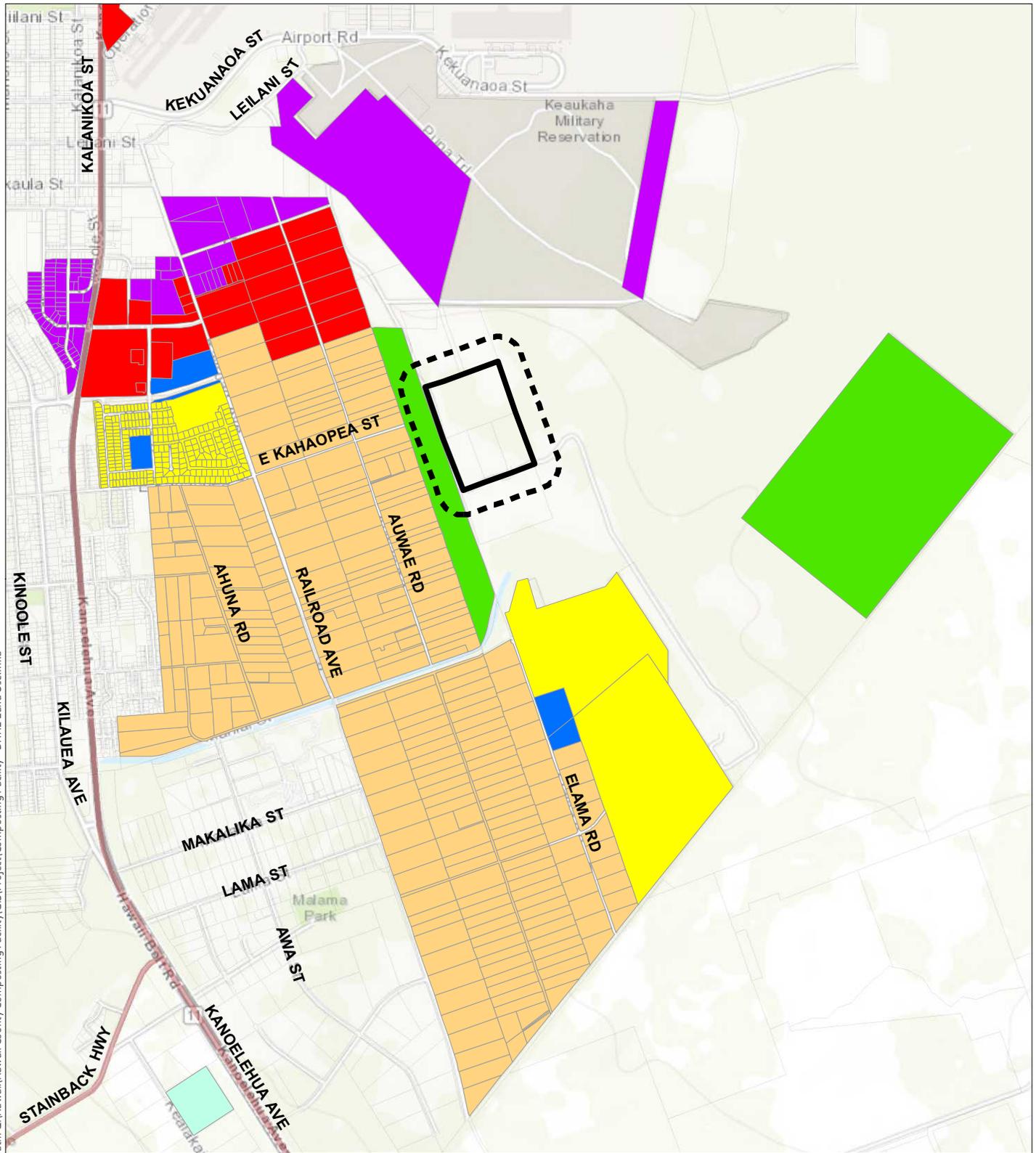
North



Linear Scale (feet)







DATE: 7/17/2016

LEGEND

- Project Site
- 500' Buffer
- Tax Map Key Parcels

DHHL Island Plan Designations

- Residential
- Subsistence Agriculture
- Supplemental Agriculture
- Community Use
- Commercial
- Industrial
- General Agriculture

FIGURE 16 :
DHHL Hawai'i Island Plan

**EAST HAWAII
 ORGANICS FACILITY**

County of Hawaii Department of Environmental Management Island of Hawaii

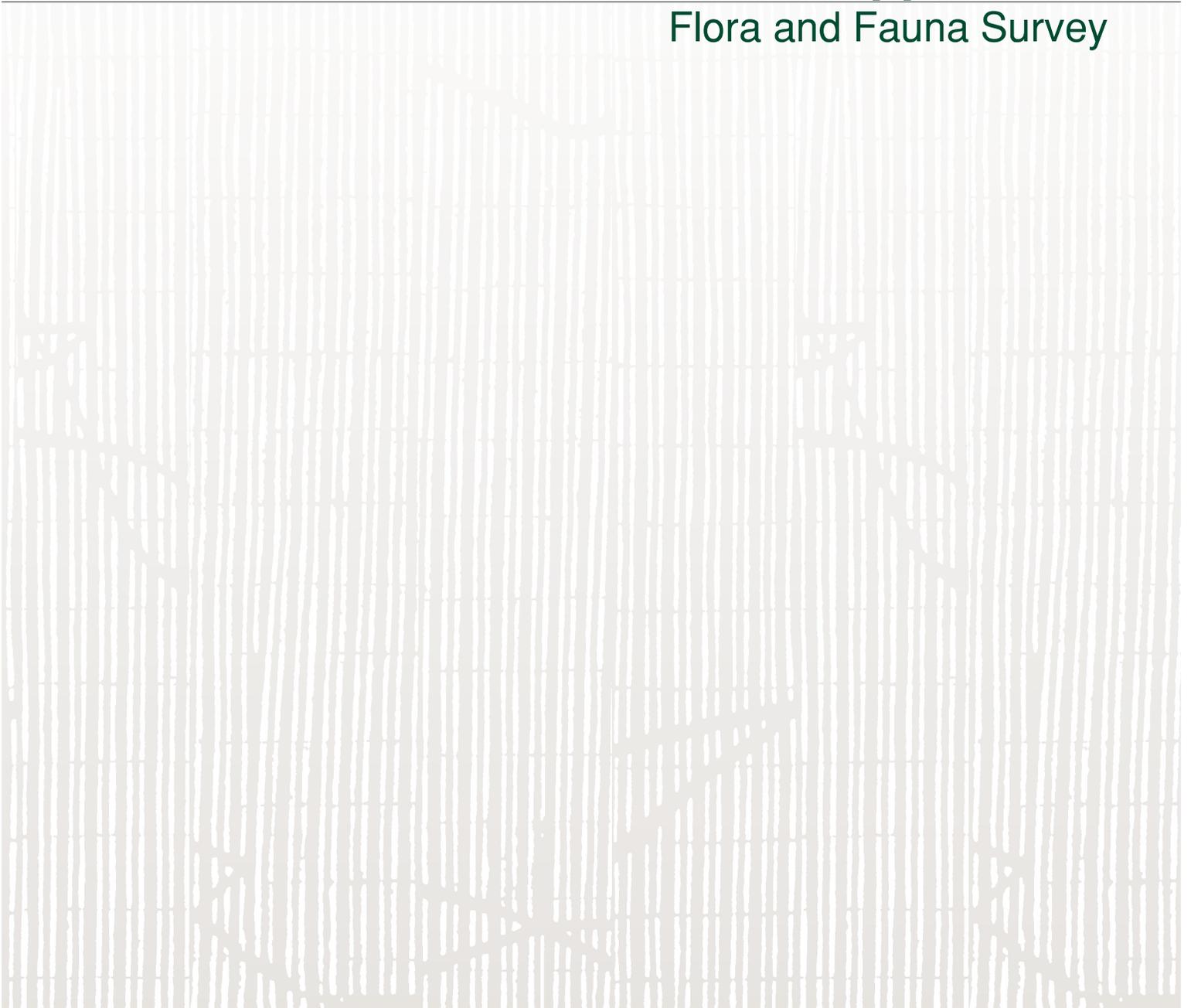
North

Linear Scale (feet)

PBR HAWAII & ASSOCIATES, INC.

Appendix B

Flora and Fauna Survey



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**FLORA AND FAUNA SURVEY AND GENERAL HABITAT ASSESSMENT
COUNTY OF HAWAI‘I COMPOSTING FACILITY
WAIAKEA, SOUTH HILO, HAWAI‘I**

**By Michael H. Riney, M.S.
Environmental Consultant**

Prepared for PBR Hawaii & Associates, Inc., Honolulu, HI

Introduction

The proposed County of Hawai‘i Composting Facility project site is an 80 acre, four parcel lot (TMK (3)2-1-013: 142, 160, 161, & 163) adjacent to the Hilo Landfill in the Waiakea area of South Hilo, County of Hawai‘i (Fig. 1). This biological survey fulfills the flora and fauna survey requirement for the Environmental Assessment (EA) of the area described.

The objectives of the survey were to:

1. Identify and document all plants that occur on the proposed project site.
2. Identify and document all vertebrate fauna that were observed on the proposed project site.
3. Describe the status and abundance of each species.
4. Determine the occurrence or likelihood of rare, threatened, or endangered species, including the possible presence of any federally listed (USFWS 2016) species.
5. Describe any habitat located on the property that if lost or altered may negatively impact the flora and/or fauna that occur or are likely to occur in this area.

Site description

Most of the project area is an abandoned/inactive quarry with an elevation range of 82 to 157 feet above sea level. Relatively small areas of non-quarried lowland wet forest and shrub land can be found along the sides and slopes of access roads or near vertical quarry walls. The soil on this project site is classified as Papai – extremely cobbly, highly decomposed plant material with 2-10% slopes – by the U.S. Natural Resources Conservation Service. Papai soil exists in non-quarried areas of the property, while highly disturbed quarried areas consist mostly of crushed and compacted basalt. This lowland wet forest area receives approximately 132 inches mean annual rainfall per year (Giambelluca et al. 2013).

Biological History

The Papai soil overlays relatively recent (750 – 1500 y.a.) a‘a lava flows that were most likely colonized by pioneer and early successional plant species such as ‘ōhi‘a (*Metrosideros polymorpha*), lapa (*Diospyros sandwicensis*), hala (*Pandanus tectorius*), and kupukupu fern (*Nephrolepis exaltata*) (Gagne & Cuddihy 1990). The arrival of humans brought forth the introduction of exotic and invasive plant and animal species. Moreover, several seeding attempts (using non-native seeds) following a large fire in the Panaewa Forest Reserve in 1926 drastically altered this native lowland wet forest into the dense, mostly non-native forest that currently exists in the project area (Judd 1926, Cuddihy & Stone 1990).

Today, Hoolaulima Road (aka Panaewa Dragstrip Rd.) borders the west and south sides of the property while the north side of the property lies adjacent to the Hilo Landfill. A combination of non-native forest and a functioning rock quarry border the eastern property line.

Flora Survey

Flora Survey Methods

A walk-through botanical survey was performed during several visits between April 25th and April 30th, 2016. Plant species were either identified on site or keyed out in a laboratory. Special attention was paid to examining quarry walls and densely forested areas for rare or endangered species. Table 1 includes scientific names, authors, status, and abundance of all species observed. Abundance descriptors in Table 1 are defined as follows:

- Abundant – Forming a major part of the vegetation throughout the project area.
- Common – Locally abundant within portion(s) of the project area.
- Occasional – Occurring in a few small patches within the project area.
- Sparse – A few isolated individuals within the project area.

Flora Survey Results

A total of 83 plant species were observed and documented during the survey (Table 1). Of the 83 species, 77 were non-native, three were indigenous, two were Polynesian introduced, and ‘ōhi‘a was the only endemic plant species observed. The project area can be described by two general types of homogenously mixed non-native forest:

- 1) The perimeter of the property and along the sides of access roads is a mixed non-native forest with somewhat dense canopy and a dense, varied understory consisting primarily of non-native herbs, vines, and shrubs.
- 2) Vast quarried regions of the property are sparsely vegetated non-native forest with relatively open canopy and sparse understory consisting of mostly non-native herbs, vines, and shrubs.

The canopy in both landscape types was primarily non-native albizia (*Falcataria moluccana*); a rapidly growing and invasive tree known for its ability to transform landscapes as well as its brittle and destructive nature in high winds. During Hurricane Iselle in 2014, downed albizia trees closed roads and damaged buildings in the lower Puna District on Hawai‘i Island. In this survey, several large albizia limbs were noticed lying across or near access roads and throughout forested areas. Albizia seedlings and saplings also appeared to be the dominant tree species colonizing the previously barren quarry floor. Other prominent tree species include non-native trema or gunpowder tree (*Trema orientalis*), melochia (*Melochia umbellata*), and bingabing (*Macaranga mappa*).

The understory consisted of mostly non-native ferns, sedges, grasses, vines, and herbaceous weeds. Again, two general understory types were observed:

- 1) The perimeter of the property, sides of access roads, and non-quarried areas consisted of a dense assortment of grasses, herbs, ferns, vines, and shrubs most commonly represented by grasses such as molasses grass (*Melinis minutiflora*), cane or elephant grass (*Cenchrus purpureus*), and guinea grass (*Megathyrsus maximus*); herbaceous weeds such as rattlepod (*Crotalaria retusa*), billygoat weed (*Ageratum conyzoides*), and pinklady (*Dissotis rotundifolia*); non-native common and Asian sword ferns (*Nephrolepis* spp.); shrubs such as *Melastoma candidum* and pearl flower (*Tetrazygia bicolor*); and white morning glory (*Ipomoea alba*) vine.
- 2) The quarry floor consisted of more sparsely distributed vegetation most commonly represented by rattlepod (*Crotalaria retusa*), beard grass (*Schizachyrium condensatum*), patches of elephant grass (*Cenchrus purpureus*), and silver fern (*Pityrogramma calomelanos*).

Notable but less commonly observed indigenous species included the clubmoss wa‘wae‘iole (*Lycopodiella cernua*) and hala (*Pandanus tectorius*).

Flora Survey Discussion and Recommendations

No threatened, endangered, or otherwise federally listed plant species were found during the survey. Additionally, no critical flora habitat was found.

Notable is a small ‘ōhi‘a patch (N 19.69218, W 155.03999) of approximately 20 trees (Fig. 2). ‘Ōhi‘a are currently not endangered or threatened in Hawaii, but are undoubtedly culturally, environmentally, and ecologically significant. Recently, Rapid ‘Ōhi‘a Death (ROD), caused by the fungus *Ceratocystis fimbriata*, has resulted in the death of hundreds of thousands of ‘ōhi‘a and is continuing to drastically alter forest composition across the Island of Hawai‘i (Mortenson et al. 2016). Certain ‘ōhi‘a trees may be genetically predisposed to fend off the deleterious effects of *C. fimbriata*, but it is not yet known which trees may carry this defense mechanism (Mortenson et al. 2016).

Due to the history of disturbance within the proposed project area, no adverse impacts to vegetation are expected as a result of future development. However, consideration should be given to preserving the ‘ōhi‘a patch due to the alarming spread of ROD, as well as their cultural, environmental, ecological, and aesthetic value. ROD has been confirmed at numerous sites in and around Hilo. Therefore, preserving the local seed bank population may prove to be important in preserving this species in the near future.

Fauna Survey

Bird survey methods

A visual/auditory survey of birds was conducted on May 5, 2016 by foot, using binoculars and no other specialized equipment. Special attention was paid to potential nesting areas (e.g., tall trees) for the native Hawaiian hawk, ‘io (*Buteo solitarius*), as well as to critical bird habitat such as wetlands.

‘Ōpe‘ape‘a - Hoary Bat Survey Methods

An acoustic survey using two automated ultrasonic recording devices (Song Meter SM2BAT+ Ultrasonic Recorders, Wildlife Acoustics, Inc., Concord, MA) to detect the potential presence of the Hawaiian hoary bat (*Lasiurus cinereus semotous*) was conducted for seven nights from April 28th through May 5th, 2016. Recordings began one hour before local sunset and concluded one hour after local sunrise. Recording stations were placed at least 1300 feet apart (Station 1: N 19.695387, W 155.041780528331; Station 2: N 19.691927, W 155.03938244236) to cover the property without over sampling (Figs. 2, 3). Station sites were chosen based on quality of recording airspace to detect flying and echolocating bats, and proximity to habitat features such as potential roost trees and foraging areas. Post processing of acoustic data was performed with Kaleidoscope software (version 3.1.4B, Wildlife Acoustics).

Fauna Survey Results

Birds and Bird Habitat

A total of seven bird species (six non-native, one native) were observed during the survey (Table 2). The most commonly seen or heard birds were the common myna (*Acridotheres tristis*) and the zebra dove (*Geopelia striata*). Less common were the spotted dove (*Streptopelia chinensis*), yellow-billed cardinal (*Proaria capitata*), common house finch (*Carpodacus mexicanus*), and Japanese white-eye (*Zosterops japonicus*).

The endangered and endemic Hawaiian hawk or ‘io (*Buteo solitarius*) was spotted once during the survey atop a tall albizia tree along the southern border of the property. Additional time was spent searching for ‘io nests on the property but none were found.

Neither the endangered Hawaiian petrel (*Pterodroma sandwichensis*) nor the threatened Newell’s shearwater (*Puffinus auricularis newelli*) was observed in the project area during the survey, but it is possible that these two pelagic species may fly over the property in transit from ocean to upland nesting sites.

Marginal habitat included two artificially created ponded depressions (max. water depth = 2 inches) in the northwest quarried region of parcel 163 in a low elevation point on the property (Fig. 2). These depressions appear to collect and temporarily hold water, possibly underlain by a “hardpan” or impervious substrate. The depressions are small (depression 1 = approximately 33 ft. diameter circle; depression 2 = 36 feet x 15 feet) and have low habitat potential for shore or migratory birds, but do provide habitat for invasive bufo frog tadpoles (*Rhinella marina*), aquatic insects including backswimmers (*Notonecta* sp.), the indigenous globe skimmer (*Plantala flavescens*) dragonfly, and the non-native common green darner (*Anax junius*) dragonfly.

No birds were observed visiting these areas during the survey. Moreover, these temporarily ponded depressions are completely isolated and not interconnected to navigable water.

‘Ōpe ‘ape ‘a - Hawaiian Hoary Bat

Bat detection Station 1 recorded echolocation calls of the Hawaiian hoary bat on all 7 nights of the survey period, with a total of 104 bat call files. Station 2 recorded bat calls on two nights of the survey, with a total of three bat call files. Echolocation calls demonstrate the presence of Hawaiian hoary bats on the property during this time of year.

Station 1 recorded a far greater number of bat calls and on more nights than Station 2. The type of calls recorded at Station 1 included presence of foraging activity through “feeding buzzes”. This is most likely an artifact of the proximity of Station 1 to the landfill and wetland areas; places that most likely provide insect prey at night.

Acoustic evidence demonstrated that bats were most likely not roosting on this property. If bats were roosting on the property, the highest recorded activity would have been in the early evenings and late mornings when bats typically depart or return to their roosts in trees. However, in this case, the highest activity was recorded during the hours of 12am and 2am, indicating that bats probably roost in the forest outside of the proposed project area, and come on to the property in the middle of the night to forage.

General bat activity on this property is reflective of activity demonstrated by other studies in the Keaukaha region; bats are present and detectable year round at nearby locations on Keaukaha Military Reservation (Gorresen et al 2013).

Other Vertebrate Fauna

Other mammals observed or expected to occur on the property include non-native mongoose (*Herpestes javanicus*), mice (*Mus musculus*), rats (*Rattus* spp.), and feral cats (*Felis catus*). None of these species are federally listed, and all are expected to occur in high abundance at this proximity to the Hilo Landfill.

Reptiles and amphibians observed included the mourning gecko (*Lepidodactylus lugubris*), coqui frog (*Eleutherodactylus coqui*), and cane toad (*Rhinella marina*).

All mammals, reptiles, and amphibians observed are listed in Table 2.

Invertebrates

A limited invertebrate survey revealed the indigenous globes skimmer dragonfly, the non-native green darner dragonfly, backswimmers (aquatic insect), carpenter bees (*Xylocopa* sp.), several fly species (Order: Diptera), mosquitoes (*Aedes* spp. and *Culex quinquefasciatus*), and several ant species (Family: Formicidae). None of the invertebrates observed are federally listed.

Fauna Survey Discussion and Recommendations

Bird and Bird Habitat Impacts and Recommendations

The ‘io is listed as endangered and carries federal protections. It is also important in traditional Hawaiian culture, known as “aumakua” - or a family god in the shape of an animal. Breeding and nesting may occur

in large trees during the months of March through September. Therefore, the following recommendation applies:

- Felling or trimming of large trees should occur outside of breeding and nesting time period (March through September). However, if this time period cannot be avoided, a thorough examination of the canopy for 'io nests should be conducted by an experienced biologist prior to trimming or felling operations.

The use of artificial outdoor lighting at night may attract and disorient the endangered Hawaiian petrel and threatened Newell's shearwater, resulting in collisions with man-made obstacles such as suspended utility lines, buildings, vehicles, or fences. To avoid these potentially harmful collisions, the following recommendation applies:

- Avoid construction activities requiring artificial lighting after dark during the months of March through November. If it is necessary to conduct night time construction activities during these months, properly shield lighting equipment so it is primarily visible from below and shielded from above.

The small size, generally low quality, and limited habitat value of the ponded depressions do not require the need for preservation.

'Ōpe'ape'a - Hawaiian Hoary Bat Impacts and Recommendations

The 'ōpe'ape'a or Hawaiian hoary bat is the only surviving land mammal native to Hawai'i. It is federally listed as endangered and therefore carries federal protections. Hawaiian hoary bats roost in tall trees and forage for insects throughout the night, but are particularly active near roosting sites during the hours closest to sunset and sunrise. Our limited study did not reveal activity that is consistent with roosting sites on this property. However, Hawaiian hoary bats are also known to birth and rear their pups June through September. Therefore, tree trimming and felling restrictions provided by the State and Federal wildlife authorities should be followed to avoid adverse effects to roosting bats during the pupping season.

The following recommendation should be utilized to avoid impacts to the endangered 'ōpe'ape'a:

- Avoid the removal of tall trees, to the extent practical, during the months of June through September (pupping season). Use greatest caution with respect to trees closest to the northern boundary (near landfill) of the property due to a high volume of bat detections in this area.

Other Vertebrate & Invertebrate Impacts and Recommendations

No adverse impacts to other vertebrate or invertebrate populations are expected as a result of development on this project site.

Report Limitations

This biological survey cannot claim to have detected every species present on the property. The relatively short duration of the survey does not allow for differences in flora and fauna due to seasonality, migratory patterns, or daily variation in habitat or patch usage. Dense forests with a thick understory underlain by

a‘a lava can obscure specimens from observation. This survey does not ensure the absence of any particular species and should be interpreted with proper caution.

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Figure 1. Aerial photo of COH Composting Facility project area. © Google Earth

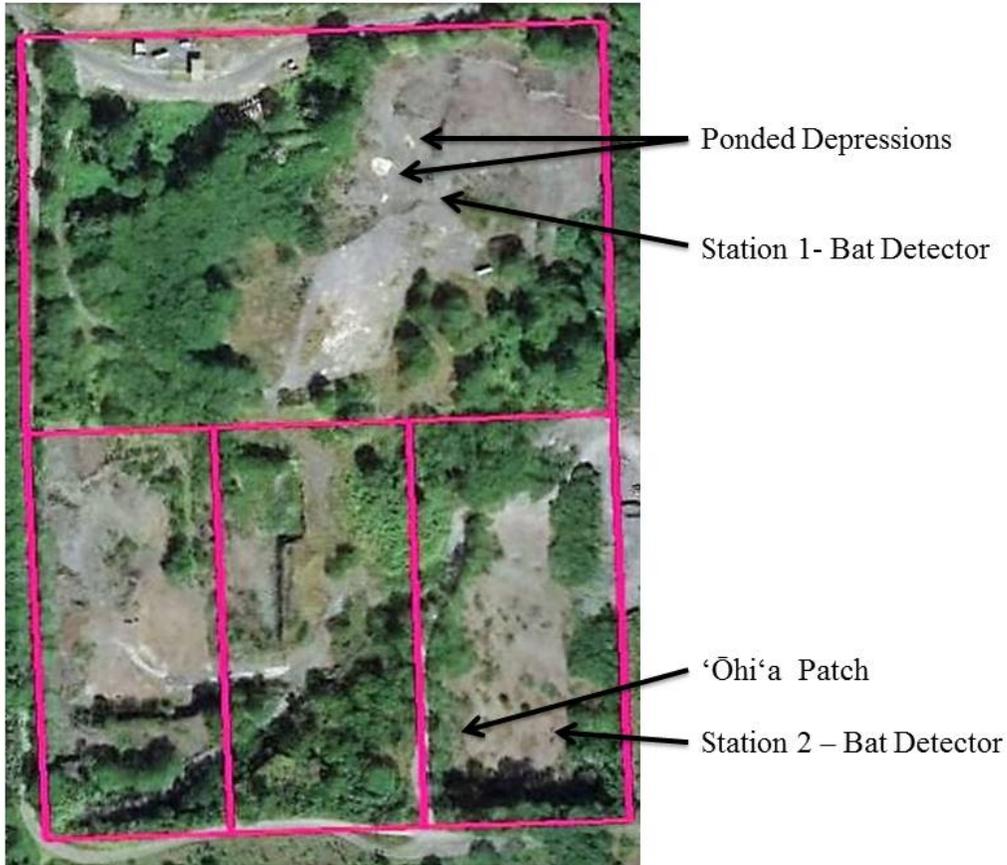


Figure 2. Approximate locations of 'ōhi'a patch, bat detection stations, and ponded depressions that appear to be dry at time of aerial photograph.

© Google Earth



Figure 3. Bat detection equipment disguised and fastened to juvenile albizia (*Falcataria moluccana*) tree in open area near southeast corner of property.

**Table 1. Flora observed in the proposed County of Hawaii Composting Facility project area,
April 25th – April 30th, 2016**

Scientific Name	Common Name	Status	Abundance
Ferns			
NEPHROLEPIDACEAE (False Staghorn Family)			
<i>Nephrolepis brownii</i> Hovenkamp & Miyam.	Asian Sword Fern	Non-native	Common
LYCOPODIACEAE (Club Moss Family)			
<i>Lycopodiella cernua</i> (L.) Pic. Serm.	Wawae'iole	Indigenous	Sparse
POLYPODIACEAE (Polypody Fern Family)			
<i>Phlebodium aureum</i> (L.) J. Sm.	Golden Polypody	Non-native	Common
<i>Microsorium scolopendria</i> (Burm. f.) Copel.	Laua'e	Non-native	Common
PTERIDACEAE (Maidenhair Fern Family)			
<i>Pityrogramma calomelanos</i> (L.) Link	Silver Fern	Non-native	Common
Grasses			
POACEAE (Grass Family)			
<i>Oplismenus hirtellus</i> (L.) P.Beauv.	Basket Grass	Non-native	Occasional
<i>Andropogon virginicus</i> L.	Andropogon	Non-native	Common
<i>Axonopus compressus</i> (Sw.) P.Beauv.	Broad-leaved Carpetgrass	Non-native	Common
<i>Axonopus fissifolius</i> (Raddi) Kuhlman	Narrow-leaved Carpetgrass	Non-native	Common
<i>Eragrostis brownii</i> (Kunth) Nees	Eragrostis	Non-native	Common
<i>Melinis minutiflora</i> P.Beauv.	Molasses Grass	Non-native	Common
<i>Megathyrsus maximus</i> (Jacq.) B.K.Simon & Jacobs	Guinea Grass	Non-native	Abundant
<i>Paspalum paniculatum</i> L.	Arrocillo	Non-native	Occasional
<i>Paspalum scrobiculatum</i> L.	Kodo Millet	Non-native	Occasional
<i>Cenchrus purpureus</i> (Schumacher) Morrone	Elephant Grass	Non-native	Common
<i>Sacciolepis indica</i> (L.) Chase	Glenwood Grass	Non-native	Occasional
<i>Schizachyrium condensatum</i> (Kunth) Nees	Beardgrass	Non-native	Common
<i>Sporobolus indicus</i> (L.) R.Br.	W. Indian Dropseed	Non-native	Occasional
<i>Eragrostis pectinacea</i> (Michx.) Nees	Tufted Lovegrass	Non-native	Common
Herbs			
ASTERACEAE (Sunflower Family)			
<i>Ageratum conyzoides</i> (L.) L.	Billygoat Weed	Non-native	Common
<i>Bidens pilosa</i> L.	Beggar's Tick	Non-native	Common
<i>Conyza bonariensis</i> (L.) Cronquist	Conyza	Non-native	Occasional
<i>Emilia fosbergii</i> Nicolson	Tassel Flower	Non-native	Occasional

<i>Erechtites valerianifolia</i> (Link ex Wolf) Less. ex DC.	Fireweed	Non-native	Occasional
<i>Sonchus oleraceus</i> (L.) L.	Pualele	Non-native	Occasional
<i>Sphagneticola trilobata</i> (L.) Pruski	Creeping-oxeye	Non-native	Abundant
<i>Synedrella nodiflora</i> (L.) Gaertn.	Synedrella	Non-native	Occasional
COMMELINACEAE (Dayflower Family)			
<i>Commelina diffusa</i> Burm.f.	Honohono	Non-native	Common
CYPERACEAE (Sedge Family)			
<i>Cyperus halpan</i> L.	Cyperus	Non-native	Occasional
EUPHORBIACEA (Spurge Family)			
<i>Euphorbia scordiifolia</i> Jacq.	Thyme-leaved spurge	Non-native	Common
<i>Phyllanthus niruri</i> L.	Niruri	Non-native	Common
FABACEAE (Pea Family)			
<i>Chamaecrista nictitans</i> (L.) Moench	Partridge Pea	Non-native	Common
<i>Crotalaria retusa</i> L.	Wedge-leaved Rattlepod	Non-native	Abundant
<i>Desmodium triflorum</i> (L.) DC.	Creeping Tick Trefoil	Non-native	Common
<i>Mimosa pudica</i> L.	Sleeping Grass	Non-native	Common
LAMIACEAE (Mint Family)			
<i>Hyptis pectinata</i> (L.) Poit.	Hyptis	Non-native	Occasional
MELASTOMATACEAE (Tibouchina Family)			
<i>Clidemia hirta</i> (L.) D. Don	Koster's Curse	Non-native	Occasional
<i>Heterocentron subtriplinervium</i> (Link & Otto) A. Braun & C.D. Bouché	Pearl Flower	Non-native	Common
<i>Melastoma candidum</i> D. Don	Melastoma	Non-native	Common
ORCHIDACEAE (Orchid Family)			
<i>Arundina graminifolia</i> (D.Don) Hochr.	Bamboo Orchid	Non-native	Common
<i>Dendrobium</i> sp.	Dendrobium	Non-native	Sparse
<i>Phaius tancarvilleae</i> (L'Hér.) Blume	Chinese Ground Orchid	Non-native	Occasional
<i>Spathoglottis plicata</i> Blume	Phillipine Ground Orchid	Non-native	Sparse
POLYGALACEAE (Milkwort Family)			
<i>Polygala paniculata</i> L.	Milkwort	Non-native	Occasional
POLYGONACEAE (Knotweed Family)			
<i>Polygonum capitata</i> Kom.	Pink Knotweed	Non-native	Common
RUBIACEAE (Coffee Family)			
<i>Oldenlandia corymbosa</i> L.	Dwarf Hedyotis	Non-native	Occasional
<i>Spermacoce assurgens</i> Ruiz & Pav.	Spermacoce	Non-native	Occasional
VERBENACEAE (Verbena Family)			
<i>Lantana camara</i> L.	Lantana	Non-native	Occasional
<i>Stachytarpheta australis</i> Moldenke	Branched Porterweed	Non-native	Occasional
<i>Stachytarpheta jamaicensis</i> (L.) Vahl	Blue Porterweed	Non-native	Occasional

OROBANCHACEAE (Broomrape Family)

<i>Castilleja miniata</i> Douglas ex Hook.	Indian paint brush	Non-native	Occasional
<i>Ludwigia octovalvis</i> (Jacq.) P.H.Raven	Willow primrose	Non-native	Sparse

Shrubs

AGAVOIDEAE (Agave Family)

<i>Cordyline fruticosa</i> (L.) A.Chev.	Ti	Polynesian int.	Sparse
<i>Dracaena marginata</i> Lam.	Money Tree	Non-native	Sparse

ASTERACEAE (Sunflower Family)

<i>Pluchea carolinensis</i> (Jacq.) G.Don	Sourbush	Non-native	Occasional
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BUDDLEJACEAE (Butterfly Bush Family)

<i>Buddleja asiatica</i> Lour.	Dog Tail	Non-native	Occasional
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MELASTOMATACEAE (Tibouchina Family)

<i>Miconia clavescens</i> Markgr.	Miconia	Non-native	Occasional
<i>Tetrazygia bicolor</i> (Mill.) Cogn.	Pearl flower	Non-native	Common
<i>Dissotis rotundifolia</i> (Sm.) Triana	Dissotis, Pinklady	Non-native	Common

Trees

APOCYNACEAE (Dogbane Family)

<i>Alstonia scholaris</i> (L.) R. Br.	Devil's tree	Non-native	Occasional
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ARALIACEAE (Ginseng Family)

<i>Schefflera actinophylla</i> (Endl.) Harms	Octopus tree	Non-native	Common
<i>Cocos nucifera</i> L.	Coconut	Polynesian int.	Sparse

BIGNONIACEAE (Bignonia Family)

<i>Spathodea campanulata</i> P.Beauv.	African Tulip	Non-native	Occasional
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CANNABACEAE (Hemp Family)

<i>Trema orientalis</i> (L.) Blume	Gunpowder Tree	Non-native	Abundant
<i>Clusia rosea</i> Jacq.	Autograph Tree	Non-native	Common

EUPHORBIACEAE (Spurge Family)

<i>Macaranga mappa</i> (L.) Müll.Arg.	Bingabing	Non-native	Common
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FABACEAE (Pea Family)

<i>Falcataria moluccana</i> (Miq.) Barneby & J.W.Grimes	Albizia	Non-native	Abundant
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MALVACEAE (Mallow Family)

<i>Melochia umbellata</i> (Houtt.) Stapf	Melochia	Non-native	Common
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MYRTACEAE (Myrtle Family)

<i>Metrosideros polymorpha</i> Gaudich.	ōhi'a	Endemic	Sparse
<i>Psidium cattleianum</i> Afzel. ex Sabine	Strawberry Guava	Non-native	Occasional
<i>Psidium guajava</i> L.	Guava	Non-native	Occasional

PANDANACEAE (Screw-Pine Family)

Pandanus tectorius Parkinson ex Du Roi Hala Indigenous Sparse

URTICACEAE (Nettle Family)

Cecropia obtusifolia Bertol. Tree-of-laziness Non-native Common

Vines

APOCYNACEAE (Dogbane Family)

Allamanda cathartica L. Allamanda Non-native Sparse

ARACEAE (Arum Family)

Epipremnum pinnatum (L.) Engl. Pothos Non-native Common

CONVOLVULACEAE (Morning Glory Family)

Ipomoea alba L. White Morning Glory Non-native Sparse

Merremia tuberosa (L.) Rendle Hawaiian woodrose Non-native Occasional

CUCURBITACEAE (Gourd Family)

Momordica charantia L. Bitter Melon Non-native Sparse

FABACEAE (Pea Family)

Macroptilium atropurpureum (DC.) Urb. Cow Pea Non-native Occasional

RUBIACEAE (Coffee Family)

Paederia foetida L. Maile Pilau Non-native Occasional

MENISPERMICACEAE (Moonseed Family)

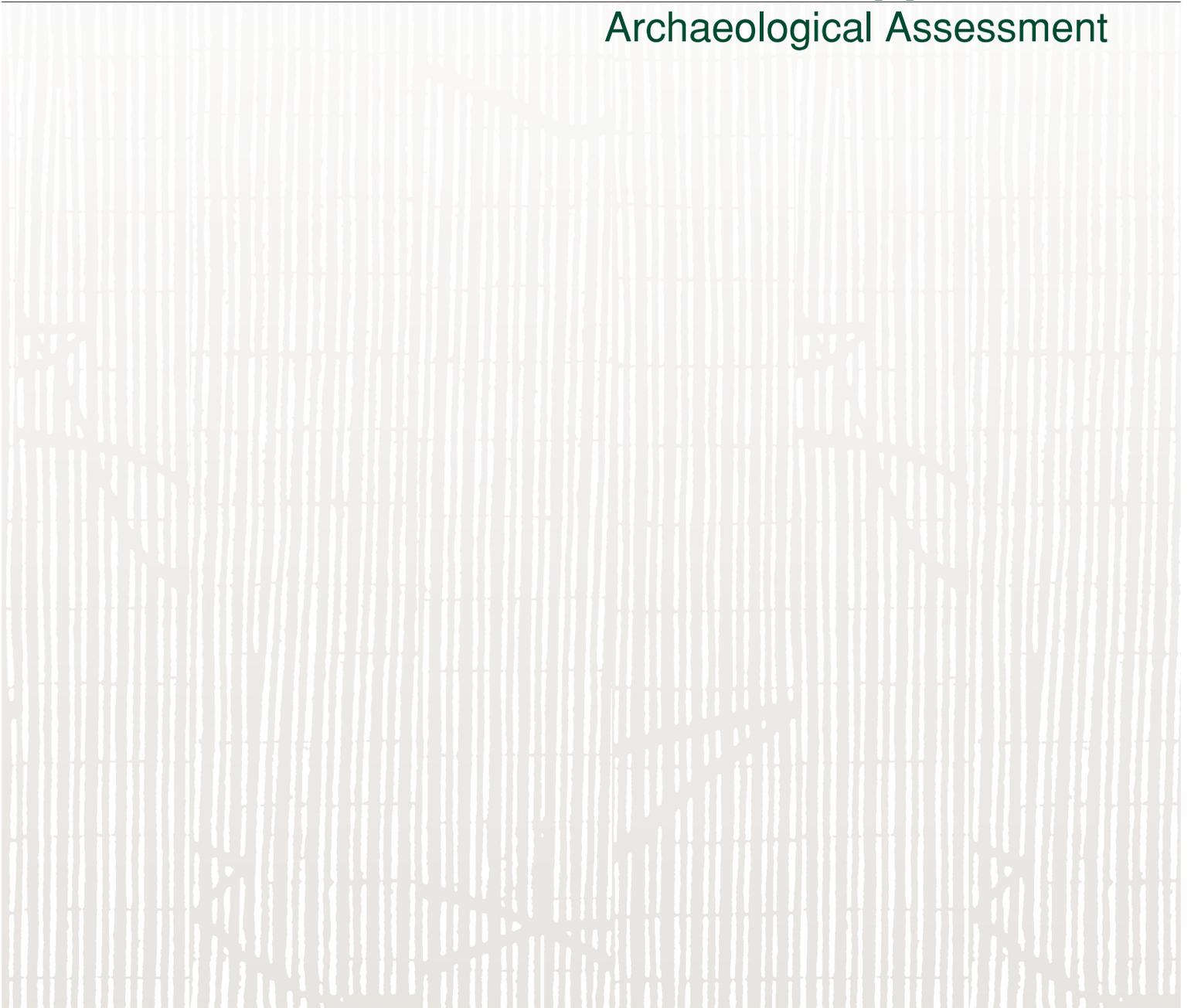
Cocculus trilobus (Thunb.) DC. Huehue Indigenous Sparse

Table 2. Fauna observed in the proposed County of Hawaii Composting Facility project area, April 25th – May 5th, 2016

Scientific Name	Common Name	Status	Abundance
Birds			
<i>Acridotheres tristis</i> L.	Common Myna	Non-native	Common
<i>Buteo solitarius</i> Peale	‘io	Endemic	Sparse
<i>Carpodacus mexicanus</i> Muller	House Finch	Non-native	Occasional
<i>Geopelia striata</i> L.	Zebra Dove Yellow-billed	Non-native	Common
<i>Paroaria capitata</i> Orbigny & Lafrasnaye	Cardinal	Non-native	Occasional
<i>Streptopelia chinensis</i> Scopoli	Spotted Dove	Non-native	Occasional
<i>Zosterops japonicus</i> Temminck & Schlegel	Japanese White-eye	Non-native	Occasional
Mammals			
<i>Herpestes javanicus</i> Saint-Hilaire	Javan Mongoose	Non-native	Occasional
<i>Lasiurus cinereus semotous</i> Allen	‘Ōpe‘ape‘a	Endemic	Occasional
Reptiles and Amphibians			
<i>Lepidodactylus lugubris</i> Dumeril & Bibron	Mourning Gecko	Non-native	Sparse
<i>Eleutherodactylus coqui</i> Dumeril & Bibron	Coqui Frog	Non-native	Occasional
<i>Rhinella marina</i> L.	Cane Toad	Non-native	Occasional

Appendix C

Archaeological Assessment



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**AN ARCHAEOLOGICAL ASSESSMENT ON 80 ACRES
OF MODERN QUARRY LAND FOR THE PROPOSED
COUNTY OF HAWAI'I COMPOSTING FACILITY IN
THE PANA'EWA REGION OF WAIĀKEA AHUPUA'A,
SOUTH HILO DISTRICT, HAWAI'I ISLAND, HAWAI'I**

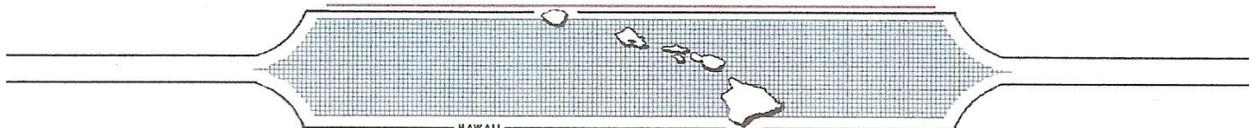
[TMK: 2-1-013: 142, 160, 161, & 163]

Prepared By:
Glenn G. Escott, M.A.

**JULY 2016
DRAFT**

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ABSTRACT

At the request of PBR Hawai'i, Scientific Consultant Services, Inc. (SCS) conducted an archaeological assessment of 80.0 acres of modern quarry land [TMK: (3) 2-1-013: 142, 160, 161, and 163] located in the Pana'ewa region of Waiākea Ahupua'a, South Hilo District, Island of Hawai'i, Hawai'i. The County of Hawai'i is proposing to use the formerly quarried land for a composting facility.

The proposed project is a Hawai'i County government undertaking and is covered under Hawai'i Administrative Rules, Title 13, Subtitle 13, Chapter 275, State Historic Preservation Rules Governing Procedures for Historic Preservation Review for Governmental Projects Covered Under Sections 6E-7 and 6E-8. No portion of the funding for the proposed composting facility project includes federal money.

The four parcels form a contiguous 80-acre area of quarried land along the east side of the Pana'ewa Drag Strip road, south of the Hilo landfill. The project area land is from 95 feet (29 meters) to 105 feet (32 meters) above mean sea level (amsl). The north side of the project area is bordered by the Hilo landfill. The south and east boundaries are bordered by previously altered land. The western boundary borders undeveloped land. The Pana'ewa Drag Strip road is located along the west and south boundaries of the project area.

A pedestrian survey (16 person-hours) was carried out in March 2016 by Glenn Escott, M.A and Suzan Keris, B.A. A series of northeast/southwest oriented transects spaced three to five meters apart was walked across the entire project area. Glenn Escott was the principal investigator.

The majority of the project area is excavated quarry. A small area in the northeast corner of the project area is previously bulldozed level ground, and an unaltered bedrock cliff is present along the southeast boundary of the property. Vegetation is not very thick across the project area and ground surface visibility was good. No archaeological sites or historic resources were identified during the survey.

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INTRODUCTION

PROJECT AREA DESCRIPTION

At the request of PBR Hawai'i, Scientific Consultant Services, Inc. (SCS) conducted an archaeological assessment of 80.0 acres of modern quarry land [TMK: (3) 2-1-013: 142, 160, 161, and 163] located in the Pana'ewa region of Waiākea Ahupua'a, South Hilo District, Island of Hawai'i, Hawai'i. The County of Hawai'i is proposing to use the formerly quarried land for a composting facility (Figure 1, Figure 2, and Figure 3). The archaeological inventory survey was undertaken in accordance with Hawai'i Administrative Rules 13§13-284 and was performed in compliance with Hawai'i Administrative Rules 13§13-275, State Historic Preservation Rules Governing Procedures for Historic Preservation Review for Governmental Projects Covered Under Sections 6E-7 and 6E-8. No portion of the funding for the proposed composting facility project includes federal money.

The four parcels form a contiguous 80-acre area of quarried land along the east side of the Pana'ewa Drag Strip road, south of the Hilo landfill. The project area land is from 95 feet (29 meters) to 105 feet (32 meters) above mean sea level (amsl). The north side of the project area is bordered by the Hilo landfill. The south and east boundaries are bordered by previously altered land. The western boundary borders undeveloped land. The Pana'ewa Drag Strip road is located along the west and south boundaries of the project area.

METHODS

The proposed undertaking is a governmental project covered, in part, under Sections 6E-7 and 6E-8 such that the archaeological assessment was conducted in accordance with Hawai'i Administrative Rules 13§13-284 and was performed in compliance with the Hawai'i Administrative Rules 13§13-275, State Historic Preservation Rules Governing Procedures for Historic Preservation Review for Governmental Projects Covered Under Sections 6E-7 and 6E-8.

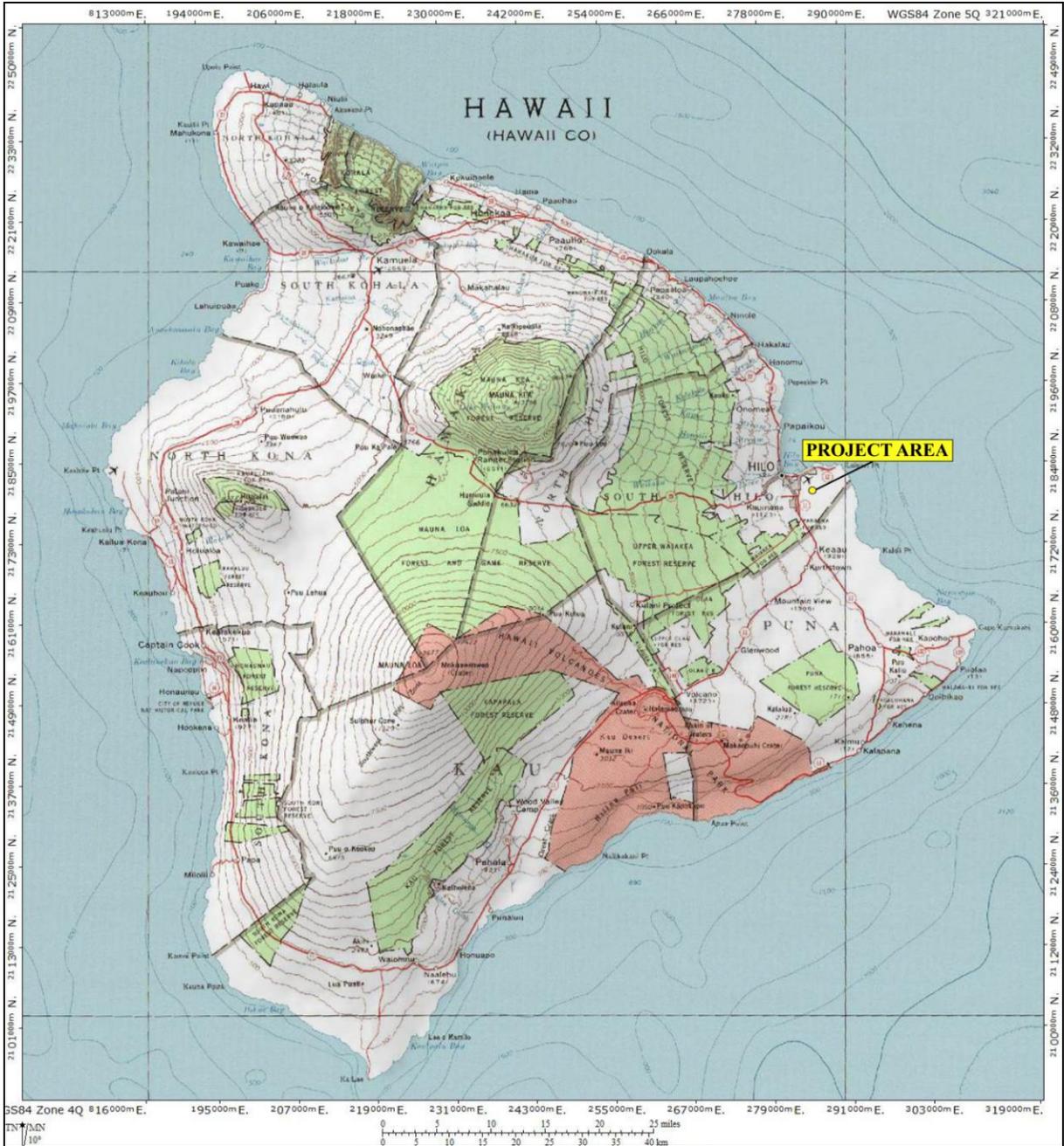


Figure 1: 5,500 K-Series Map of Hawai‘i Showing Location of Project Area (National Geographic Topo!, 2003. Sources: National Geographic Society, USGS).

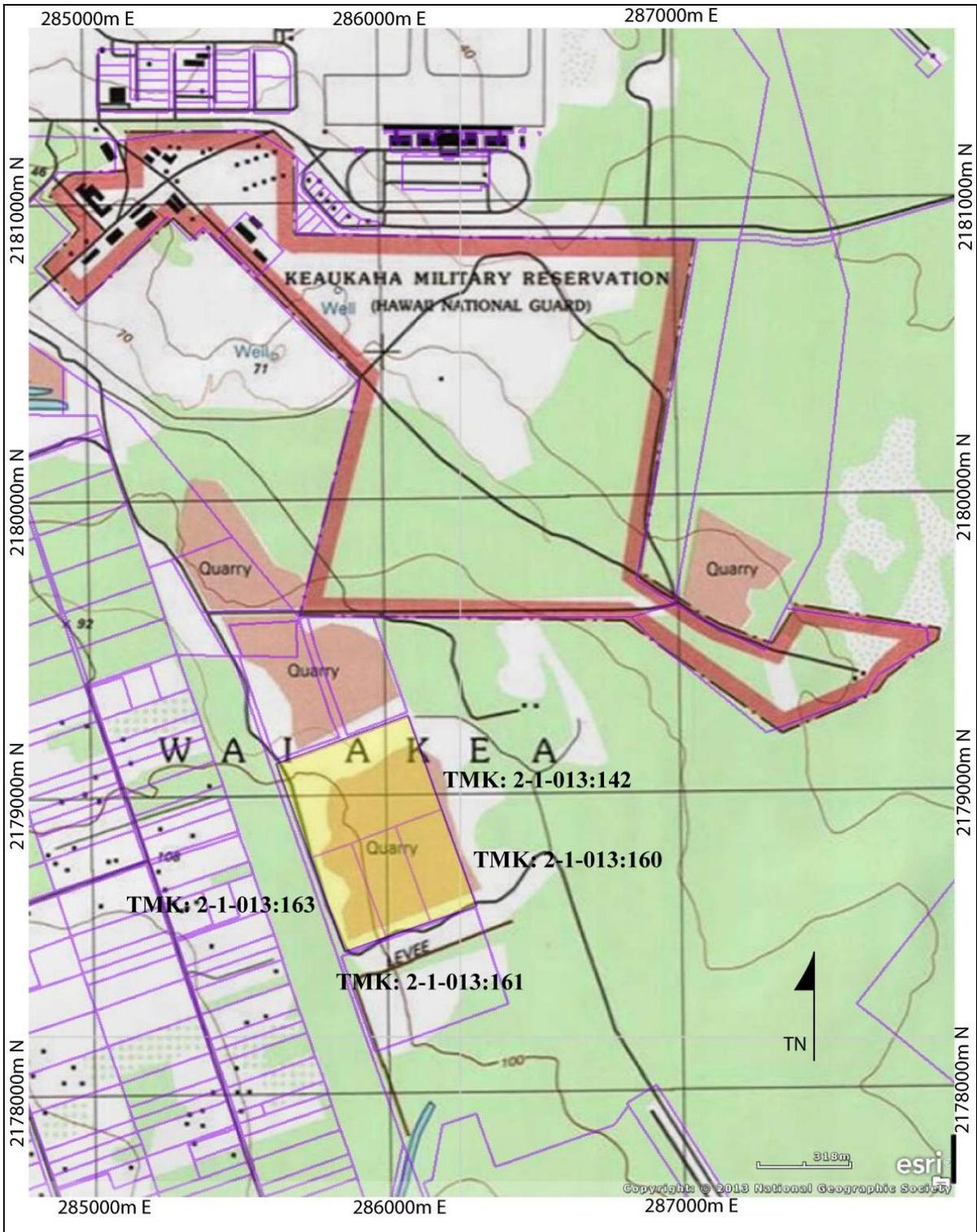


Figure 2: 7.5-Minute Series USGS Topographic Map Showing Location of Project Area Shaded Yellow (ESRI, 2013. Sources: National Geographic Society, USGS Hilo Quadrangle).

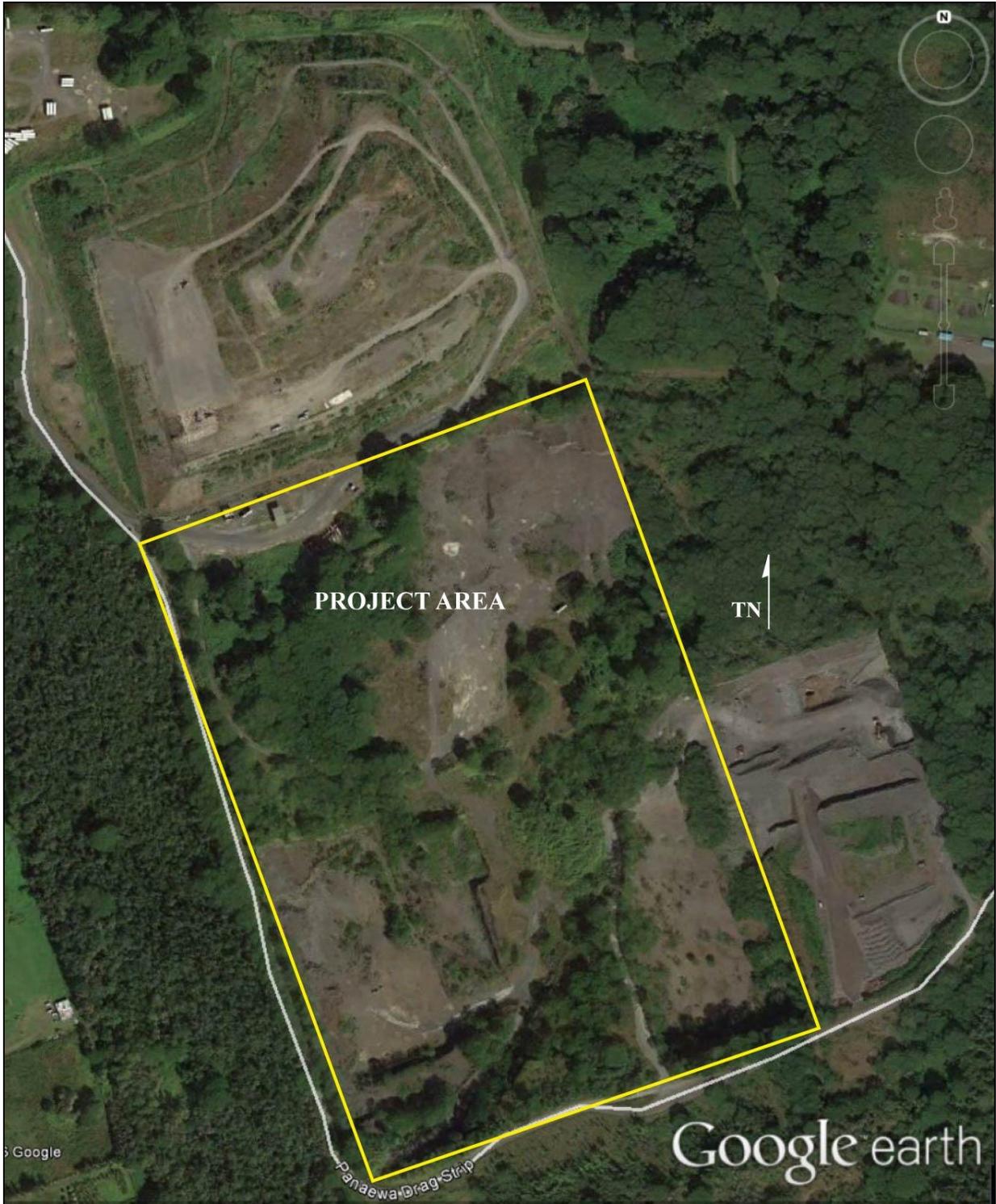


Figure 3: Aerial Photograph Showing Project Area (Google Earth, 2013 Image. Hilo, HI, 5Q 285515m E 2179033m N).

The investigation included the following procedures:

1. Historical and archaeological archival research was conducted, including a search of historic maps, aerial photos, written records, Land Commission Award documents, State and County Planning Division documents, and previous archaeological reports. The research was aimed at determining past land-use in the project area.
2. A 100 percent pedestrian survey of the project area. All sites and features were located, mapped (GIS), described, drawn at appropriate scales, and photographed. Sites were assigned temporary numbers pending State Historic Preservation Division (SHPD) assignment of State Inventory of Historic Property site numbers.

Archival Methods

Prior to commencing field work, archival research was conducted in the State Historic Preservation Division (SHPD) report database and library facility (Hilo, HI), the Hawai‘i County land records office, the *Waihona ‘Āina Māhele* database website, the Hawaiian collections holdings at the University of Hawai‘i-Hilo Library, and the Hawai‘i State Library system.

Archival work consisted of general research on the history and cultural practices specific to the project area, as well as research of previous archaeological studies in and around the subject parcels. Historic land use data, land ownership, maps, and narrative information were obtained from the Hawai‘i County land records office, the *Waihona ‘Āina Māhele* database website, the Papakilo database, and the Ukukau Hawaiian Library, and the University of Hawai‘i, Hilo, Special Collections.

Based on previous studies, none of the four parcels are within areas of traditional pre-Contact Hawaiian settlement and habitation. The parcels are inland of the coast where early settlements were located. In 1825, the majority of Waiākea’s estimated 2,000 inhabitants lived along the coast (Ellis 1963: 253). While there were settlements along the coast at Keaukaha and in Puna District to the southeast, the majority of habitation and gardens were along what is now Hilo Bay.

Field Methods

A pedestrian survey was carried out in March 2016 by Glenn Escott, M.A and Suzan Keris, B.A. A series of northeast/southwest oriented transects spaced between two to five meters apart was walked across the entire project area. The field effort totaled 16 person-hours. A small area in the northeast of the project area is previously bulldozed level ground, and an unaltered bedrock cliff is present along the southeast boundary of the property. Vegetation is not very thick across the project area and ground surface visibility was good. Glenn Escott is the principal investigator for the project.

Consultation

Consultation letters containing project area background, proposed project details, and maps of the project area were mailed to Shane Palacat Nelson, Coordinator of the Hawai'i Branch of the Office of Hawaiian Affairs and Herbert Poepoe, SHPD Hawai'i Island Burial sites Specialist. The letter requested if they, or anyone they knew, had information regarding possible historic properties or cultural practices associated with the project area lands.

Public notices requesting information about historic properties and cultural practices were published in the Office of Hawaiian Affairs Ka Wai Ola Newspaper, the Honolulu Star-Advertiser and the Hawai'i Tribune Herald (Appendix A).

Three individuals with long-time associations with the project area lands and the wider Pana'ewa forest area responded to the public notices request for information. The individuals included Lei Leihua Kane, Carmen Malunao, and Aunty Carmelita Dutchie Saffery. Carmen Malunao and Aunty Dutchie Safferey were not aware of any historic properties or past/ongoing cultural practices associated with the project area lands. Lei Leihua Kane, a traditional Hawaiian cultural practitioner of hula, recounted that her family is from Waiāea, and that her family used to travel along the coastal trail east of the Pana'ewa forest and chant on their way to make offerings to Pele. Lei, her mom, and Lei's sister know parts of the chant. She was not aware of any historic properties or past/ongoing cultural practices associated with the project area lands.

This report contains background information outlining the project area environmental and cultural contexts, a presentation of previous archaeological studies within the study area and in the immediate vicinity, and current survey expectations based on the previous studies, as well as an explanation of project methods.

ENVIRONMENTAL SETTING

The ground surface at all four parcels is level to slightly undulating Paipai Series (rPAE) extremely rocky muck (Sato et al. 1973: 46) overlaying a Mauna Loa lava flow dated between 750 and 1,500 years before present (ybp) (Wolf and Morris 1996). There are exposed ‘a‘a bedrock outcrops and low ridges on the ground surface across the property. Annual rainfall ranges from 120 to 160 inches.

The majority of the project area is open excavated quarry with very little vegetation. A small area in the northeast corner of the project area is previously bulldozed level ground, and an unaltered bedrock cliff is present along the southeast boundary of the property. Vegetation within the majority of the project area is composed of a suite of invasive plant species including albizia trees (*Falcataria moluccana*), guava (*Psidium* sp.), gunpowder tree (*Trema orientalis*), octopus tree (*Schefflera actinophylla*), Asian Melastoma (*Melastoma septemnerium*), and bingabing (*Macaranga mappa*) (Starr Environmental 2014).

HISTORICAL AND CULTURAL CONTEXTS

The project area is located in the *ahupua‘a* of Waiākea, Hilo Hanakāhi ‘Okana, in the *moku-o-loko* (district) of Hilo (Maly 1996:4–5) (Figure 4). The *ahupua‘a* of Waiākea is large, consists of roughly 95,000 acres, and was regarded as a region of abundant natural resources and numerous fishponds. Waiākea was also an early important political center, notably under chief Kulukulu‘a (Kelly et al. 1981:3).

Kamehameha often returned to his *‘ili kūpono* (independent land division where all tributes were paid to the chief of the *‘ili* and not the *ahupua‘a*) lands of Pi‘opi‘o in the *ahupua‘a* of Waiākea (Figure 5). The *‘ili kūpono* lands and its royal fishpond were passed on to his son Liholiho after his death.

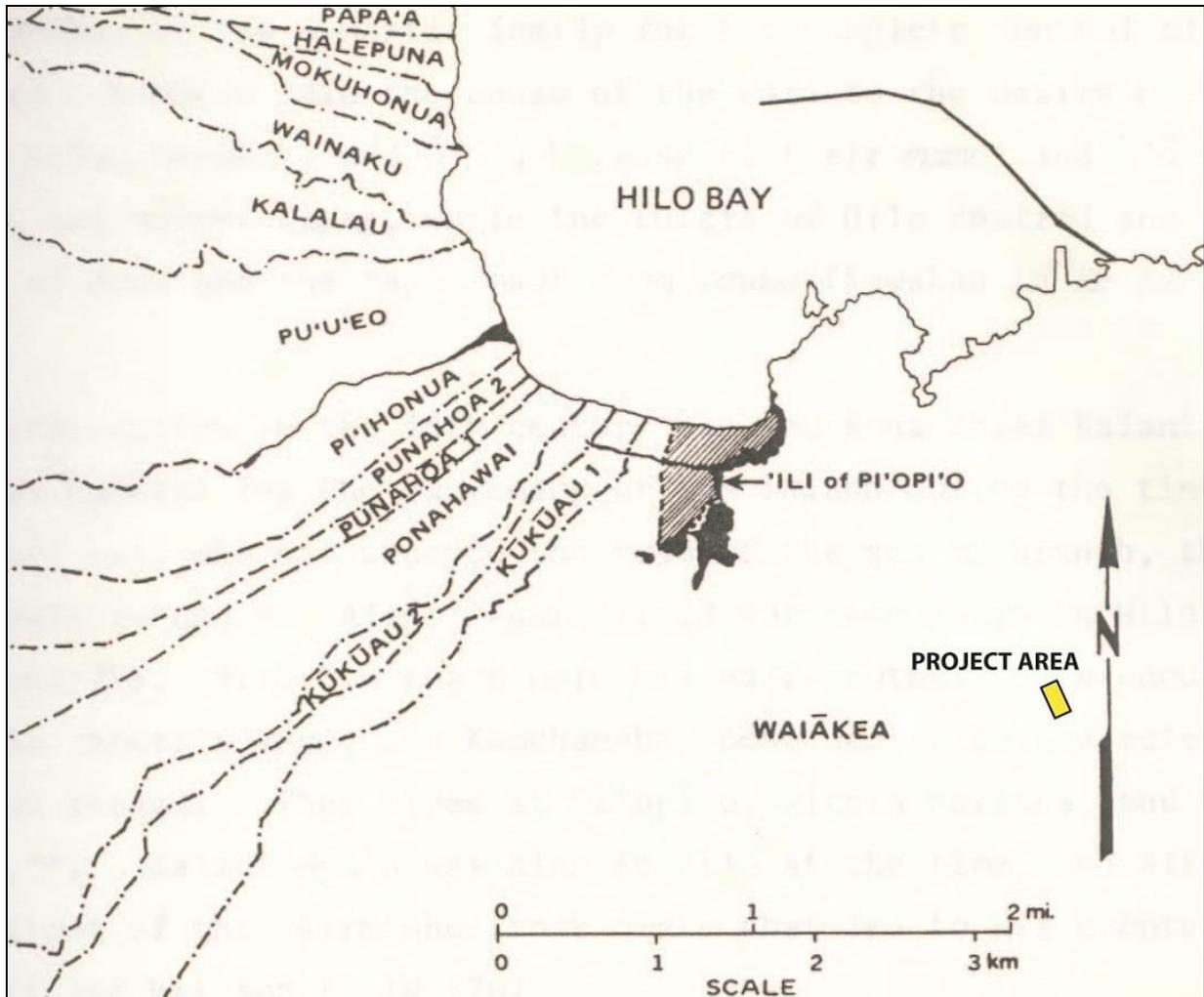


Figure 5: Map of Kamehameha,s *'Ili Kūpono* Lands of Pi'opi'o in the *Ahupua'a* of Waiākea Showing Project Area Location (adapted from Kelly et al. 1981).

PRE-CONTACT ACCOUNTS OF HILO

The earliest account of Hilo appears in 'Umi-a-Liloa's (1600–1620) conquest of the Island of Hawai'i, which establishes Hilo as a royal center by the seventeenth century. In the account, 'Umi-a-Liloa began his conquest of the Island of Hawai'i by defeating chief Kulukulu'ā, who lived in Waiākea, and the other chiefs of Hilo (Kamakau 1992:16–17). 'Umi-a-Liloa's second son, Keawe-nui-a-'Umi, ruled Hāmākua, Hilo, and Puna from his residence at Hilo (*ibid*: 34). It was from Hilo that he waged war on the Kona chiefs and unified the island. Keawe-nui-a-'Umi's descendants single handedly continued to rule, from Hilo, for many generations.

After the death of Keawe-nui-a-'Umi the kingdom was divided into three parts and was established under warring chiefs; Hilo was ruled by Kumalae-nui-pu'awa-lau and his son Makua (*ibid*: 45). It was during the period of time that Kamehameha I was born. Kalani'ōpu'u's grandson, Keoua Kuahu'ula and nephew Kamehameha vied for control over the six chiefdoms constituting the island kingdom and Keoua conquered Hilo chief Keawe-mau-hili and harvested the benefits for a short time only to be killed by Kamehameha late in 1791. Kamehameha's son Liholiho was born in Hilo in November 1797 (Kamakau 1992:22). Waiākea was inherited by Liholiho after Kamehameha's death. The 'ili *kūpono* of Pi'opi'o and its royal fishpond were given to his favorite wife, Ka'ahumanu (see Figure 5).

TRADITIONAL SETTLEMENT PATTERNS, SUBSISTENCE, AND LAND-USE

Historical accounts and archaeological/cultural studies pertaining to the *ahupua'a* of Waiākea (Bingham 1969; Bird 1974; Ellis 1963; Handy and Handy 1972; Kelly et al. 1981; Maly 1996; McEldowney 1979) provide a wealth of information on traditional residence patterns, land-use, and subsistence horticulture of the area. It is widely held that these historical accounts of residence patterns, land-use, and subsistence horticulture, indicative of traditional practices, developed long before contact with Europeans (McEldowney 1979). These are synthesized below in order to explain the types of cultural resources possibly located within the current project area.

Early accounts of Waiākea portray it as divided into several distinct environmental regions. From the coast to a distance of five or six miles, scattered subsistence agriculture was evident, followed by a region of tall fern and bracken, flanked at higher elevations by a forest region between 10 and 20 miles wide, beyond which was an expanse of grass and lava (Ellis 1963:403). The American Missionary C.S. Stewart wrote, "the first four miles of the country is open and uneven, and beautifully sprinkled with clumps, groves, and single trees of the bread-fruit, pandanus, and candle tree (Stewart 1970:361-363). The majority of Waiākea's estimated 2,000 inhabitants (in 1825) lived within this coastal region (Ellis 1963: 253). Taro, plantains, bananas, coconuts, sweet potatoes, and breadfruit were grown individually or in small garden plots. Fish, pig, dog, and birds were also raised and captured for consumption.

The present study area is situated inland of the coastal region, in the Pana'ewa Forest. The project area lands are not located in an area of known traditional habitation. The Pana'ewa forest area was traditionally known as a forbidding and dangerous

landscape. The legendary origin of the Pana‘ewa Forest is associated with Pele’s search for a suitable home in the Hawaiian Islands.

When a suitable place was finally discovered on Hawaii, the Paoa staff was planted in Panaewa and became a living tree, multiplying itself until it was a forest. The writer’s informant says that it is a tree known to the present generation of men. “I have seen sticks cut from it,” said he, “but not the living tree itself” [Emerson 2005:xi].

When Pele sent her sister Hi‘iakapoliopole (referred to as Hi‘iaka) to travel to Kaua‘i to contact Lohi‘au, Hi‘iaka passed through the Pana‘ewa Forest. Hi‘iaka could have passed around the forest, taking the pathway along the shoreline from Hā‘ena (southeast of the project area) to Waiākea and Hilo, but she instead chose to cut through the forest taking a more direct, and shorter route.

Two routes offered themselves for Hiiaka’s choice, a makai road, circuitous but safe, the one ordinarily pursued by travelers; the other direct but bristling with danger, because it traversed the territory of the redoubtable witch-mo‘o, Pana-ewa. ... When Hiiaka announced her determination to take the short road, the one of danger that struck through the heart of Pana-ewa, Pa-pulehu drew back in dismay and expostulated: “That is not a fit road for us, or for any but a band of warriors. If we go that way we shall be killed” [Emerson 2005:30].

Pana‘ewa did not let her pass without a fight.

The battle that ensued when Pana‘ewa sent to the attack his nondescript pack of mo‘o, dragonlike anthropoids, the spawn of witchcraft, inflamed with the spite of demons, was hideous and uncanny. Tooth and claw ran amuck. Flesh was torn, limbs rent apart, blood ran like water. If it had been only a battle with enemies in the open Hiiaka would have made short work of the job. Her forces lay ambushed in every wood and brake and assumed every imaginable disguise. A withered bush, a bunch of grass, a

moss-grown stone, any, the most innocent object in nature, might prove to be an assailant ready to spit venom or tear with hook and talon [Emerson 2005:35].

The *mo‘o* Pana‘ewa and all of his minions were defeated by Hi‘iaka and her assistants. “Hawaii for once, and for all time, was rid of that pestilential, man-eating, mo‘o band headed by Pana-ewa who, from the time of Pele’s coming, had remained entrenched in the beautiful forest-land that still bears the name – Pana-ewa” (Emerson 2005:46).

The forest is heavily wooded and dense with thickets. Travel through it is made more difficult by the broken and undulating ground surface. There is an historic trail that leads from the modern day Lili‘uokalani Gardens area to the Puna coast. The trail is often called the Puna Trail and/or the Old Government Road (Escott and Tolleson 2003). Remains of the trail cross the Hawai‘i Army Reserve National Guard (HIARNG) Keaukaha Military Reserve (KMR) property, and it has the current appearance of a gravel-covered dirt road (Figure 6 and Figure 7). While there may have been some scattered home sites and gardens in this area, most of the known habitation was along the coast. The probable use of the area prehistorically was for trapping birds and collecting plants, including the plentiful *pandanus* or *hala* (Kelly et al. 1981:20).

THE MĀHELE OF 1848 AND LAND COMMISSION AWARDS

Prior to the Māhele, Waiākea Ahupua‘a belonged to King Kamehameha, then Lihiliho, and was later held by the chiefess Ka-unu-o-hua, granddaughter of Keawe-mauhili (Kelly et al. 1981:40). Waiākea became Crown Lands during the Māhele of 1848 and in the following years twenty-six Land Claims were awarded within the *ahupua‘a* of Waiākea (Table 1). The awards were small in area, 25 of which went to native claimants. The vast majority of awards were further west in the area of Hilo Bay. No Land Commission awards were made within or near the current project area. The project area property is owned by the State of Hawai‘i lands and is administered by Hawai‘i County under executive orders.

Table 1: Land Commission Awards in Waiākea Ahupua‘a.

Grantee	LCA	Acreage
Barenaba	2327	12.25
Halai, L.K.	1279	0.60
Hale	40004	4.25
Kahue	2663	3.75
Kaiana, J.B.	2281	10.25
Kaihenui	11050-B	5.19
Kalolo	1333	2.25
Kalua	8854	3.40
Kaluhikaua	1738	2.98
Kamamalu, V.	7713	<i>'ili 'aina</i>
Kamanuhaka	8803	1.02
Kapu	1-F	1.60
Kealiko	11174	1.00
Keaniho	2402	5.00
Keawe	5018	0.24
-	10505	-
Kuaio	4344	1.22
Leoi	9982	0.80
Lolo	4738-B	1.27
Mahoe	1-E	4.46
Moealoha	4737	1.03
Nakai	4785	1.05
Napeahi	2603	1.30
Wahine	4737-B	1.01
Wahinealua	11173	2.50
Wahinenohoihilo	10004	1.69

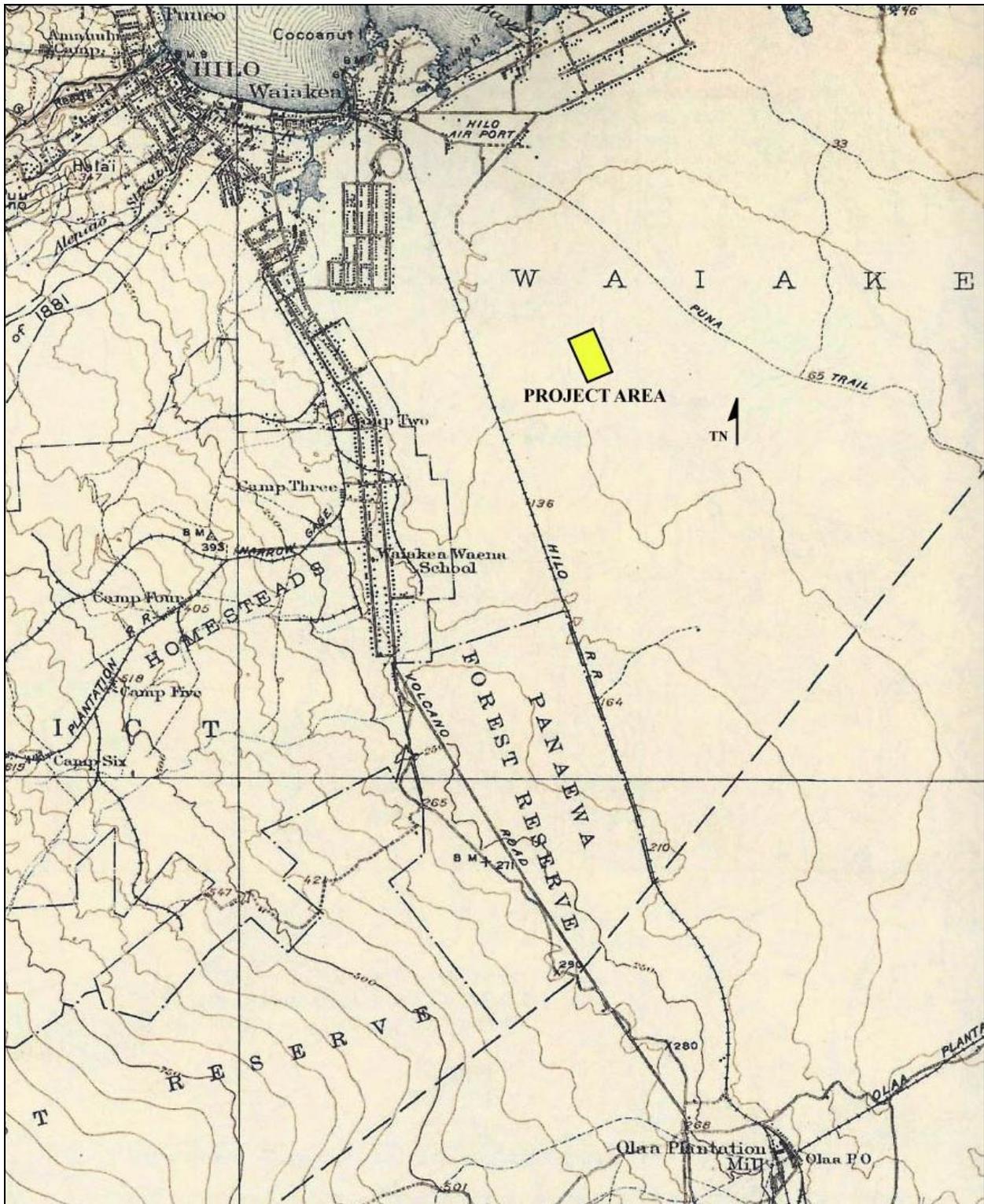


Figure 6: Portion of 1932 15-Minute Series USGS Topographic Map Showing Location of Puna Trail and Project Area (USGS Hilo Quadrangle).



Figure 7: Portion of 1954 USDA Aerial Photograph of Hilo Airport Showing Location of Project Area.

CHANGING RESIDENTIAL AND LAND-USE PATTERNS (1845-1865)

Between 1845 and 1865 traditional land-use and residential patterns underwent a change. In particular, the regular use of Hilo Bay by foreign vessels and the whaling industry, in addition to the establishment of missions in the Hilo area, the introduction of the sandalwood trade, the legalization of private land ownership, the introduction of cattle ranching, and the introduction of sugar cane cultivation, all brought about changes in settlement patterns and long-established land-use patterns (Kelly et al. 1981).

As Hilo became the center of population, settlements in outlying regions declined or disappeared. While food was still grown for consumption, greater areas of land were continually given over to the specialized cultivation and processing of commercial foodstuffs for export. Sugar cane plantations, and industrial, transportation, and military facilities were established in areas that were once upland agricultural areas and coastal settlements, respectively. In particular, the land immediately north of the current project area was used as the location of a jail, an airfield, and the Keaukaha Military Reserve (KMR).

HISTORIC OVERVIEW OF KMR

KMR comprises 503.6 acres located between General Lyman Field (Hilo International Airport) to the north, and the current project area to the south. The area lies in rugged, broken, undulating lava flows, and where unmodified by bulldozing, a dense forest of mixed and native flora abounds. Rainfall in this portion of Hilo keeps the jungle wet, and the ground surface slippery.

In 1914, the Territory of Hawai‘i, via Executive Order Number (EO) 26 set aside 213.43 acres of government lands in Waiākea, north of the current project area, for a National Guard rifle range. In 1925, the Territory withdrew 33 acres for the building of Lyman Airfield by the Army Corp of Engineers.

In August of 1938, a territorial prison camp was constructed on 13.55 acres in Waiākea, north of the current project area. The complex included an acting Jailer's cottage, and a large fenced area with two dormitories, a mess/laundry building, and a recreation/workshop. The prison camp was moved in 1946 and all buildings were removed.

The Army Corp of Engineers constructed a coral runway at KMR beginning in 1925. Hawaiian Airlines used the airport at the outbreak of World War II. The Navy expanded the airfield to three runways, built storage for 450,000 gallons of gasoline, and 24 airplane revetments. KMR became a Naval Station in August 1943 under the 14th Naval District Command Servicing Carrier Aircraft Service Unit (CASU) No. 31 and Air Group One. Extensive building took place including officer and enlisted men's quarters, a swimming pool, two clubs, a three-tank tank farm, water systems, cesspools, tennis courts, and other infrastructure. Personnel at KMR hit a wartime peak of 4,500 upon completion of construction in 1945.

Naval Air Station Hilo officially closed on August 31, 1947. On May 10, 1943, Hilo Airport was officially renamed General Lyman Field. In May 1946, while the Naval Station at KMR was being reduced to caretaker status, the Army Air Force announced that the 7th Army Air Corps (AAC) would begin 24-hour operations at Lyman Field.

In 1947, reactivation of the Hawai'i Army Reserve and National Guard (HIARNG) resulted in the HIARNG using several Navy buildings. During this time, many buildings were demolished or sold to the public as war surplus. KMR is the headquarters for the island of Hawai'i National Guard units of the 2nd Battalion, 299th Infantry Company D and 2nd Battalion 299th Infantry, as well as Army Air Guard units 451Bt Aviation Detachment, and the 452nd Aviation Attachment. KMR has firing ranges, training areas, barracks, support facilities, an armory and offices. During annual or special training operations, several hundred to thousands of Guardsmen are housed in cabins and tents pitched in the encampment area.

PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS

Many archaeological and historical studies have been conducted in Waiākea Ahupua'a from Hilo Bay west of the current project area, to the Waiākea Sugar Mill sugarcane fields southwest of the current project area, to the KMR lands just north of the current project area. Summaries of 39 of these studies are provided in Table 2 below. Figure 8 and Figure 9 shows the locations of archaeological studies in the region surrounding the current project area. A rough model of archaeological site types and distribution can be formulated from these regional archaeological studies.

Table 2: Inventory of Previous Archaeological Investigations in Waiākea.

Reference	Study	Location	Results
Ching and Staruder (1974)	Reconnaissance	Proposed Road alignment from S. Hilo to Puna	Wall, enclosure, platform burial, and habitation site near Puna boundary
Bonk (1979)	Survey	West of KMR	Historic wall and road alignment
McElowney (1979)	Historical research	Hilo	Settlement pattern
Kelly, Nakamura and Barrère (1981)	Historical research	Hilo	Chronology
Kam (1983)	Site inspection	Reed's Bay	1 site, heiau
Smith and Tourtellotte (1988)	Burial removal	Wailoa Bridge	One individual encountered
Rosendahl, M. (1988)	Reconnaissance	Various parcels in Hilo Town	No sites
Rosendahl, M. and L. Talea (1988)	Reconnaissance	North West of KMR	No sites
Rosendahl, P. (1988)	Reconnaissance		No sites
Pietrusewsky (1989)	Skeletal analysis	Wailoa Bridge	1 Individual
Stokes (1991)	Intermittent survey	Various Parcels	Heiau locations
Hunt and McDermott (1993)	Inventory Survey	Puainako Street Extension	11 sites, historic sugarcane
Borthwick et al. (1993)	Inventory Survey	UH Hilo	Sugar cane remains in uplands
Maly (1996)	Cultural History	Puainako- Komohana Street area	Sugar cane history
Robbins and Spear (1996)	Inventory Survey	Puainako Street	Sugar cane sites in the uplands
Eblé et al. (1997)	Supplemental Testing	Puainako Street	Sugar cane sites in the uplands
Deveroux, et al. (1997)	Reconnaissance	KMR	2 sites
Carson (1999)	Inventory Survey	Pana'ewa	No sites
McGerty and Spear (1999)	Inventory Survey	Puainako Street Extension	1 site
Dega and Benson (1999)	Reconnaissance	Puainako Street Extension	Possible prehistoric 'auwai

Reference	Study	Location	Results
Dega (2000)	Inventory Survey	Puainako Street Extension	'Auwai equals historical ditch
Bush et al. (2000)	Inventory Survey	Puainako Street Extension	Burial in cave in uplands
Hammatt & Bush (2000)	Inventory Survey	KMR	Mounds and Puna Trail
McDermott and Hammatt (2001)	Inventory Survey	Puainako Street Extension	2 historical sites in uplands
Tolleson and Godby 2001		KMR	Historic era sites and Puna Trail
Rosendahl, P. (2002)	Assessment Survey	Quarry Site on Southeast Edge of KMR	No sites
Escott and Tolleson (2002)	Inventory Survey	KMR	Trail and planting features
Haun & Henry (2002)		Southwest of KMR	No sites
Rechtman (2003)	Archaeological study and limited CIA	Western edge of KMR	No site
Escott (2004)	Inventory Survey	Puainako Street and Komohana Street area	WWII sites in the uplands
Wolforth (2004)	Inventory Survey	Reed's Bay	Fishponds, railroad, Historic era foundations
Wolforth (2006)	Inventory Survey	Western edge of KMR	Modern military building remains
Rechtman (2006)	Inventory Survey	Quarry site south of KMR	No sites
Hammatt & Uyeoka (2007)	Archaeological Monitoring	Southeast of KMR	No sites
Tulchin & Hammatt (2007)	Field Inspection	Wal-Mart Property	No sites
Escott (2013a)	Archaeological Assessment	Quarry site west of KMR	No sites
Escott (2013b)	Archaeological Assessment	Quarry site west of KMR	No sites
Wheeler et al. (2014)	Inventory Survey	KMR	Eleven sites, some pre-Contact era, some historic, and some more modern including military features
Escott 2015	Archaeological Assessment	50 acres of DHHL property	No sites

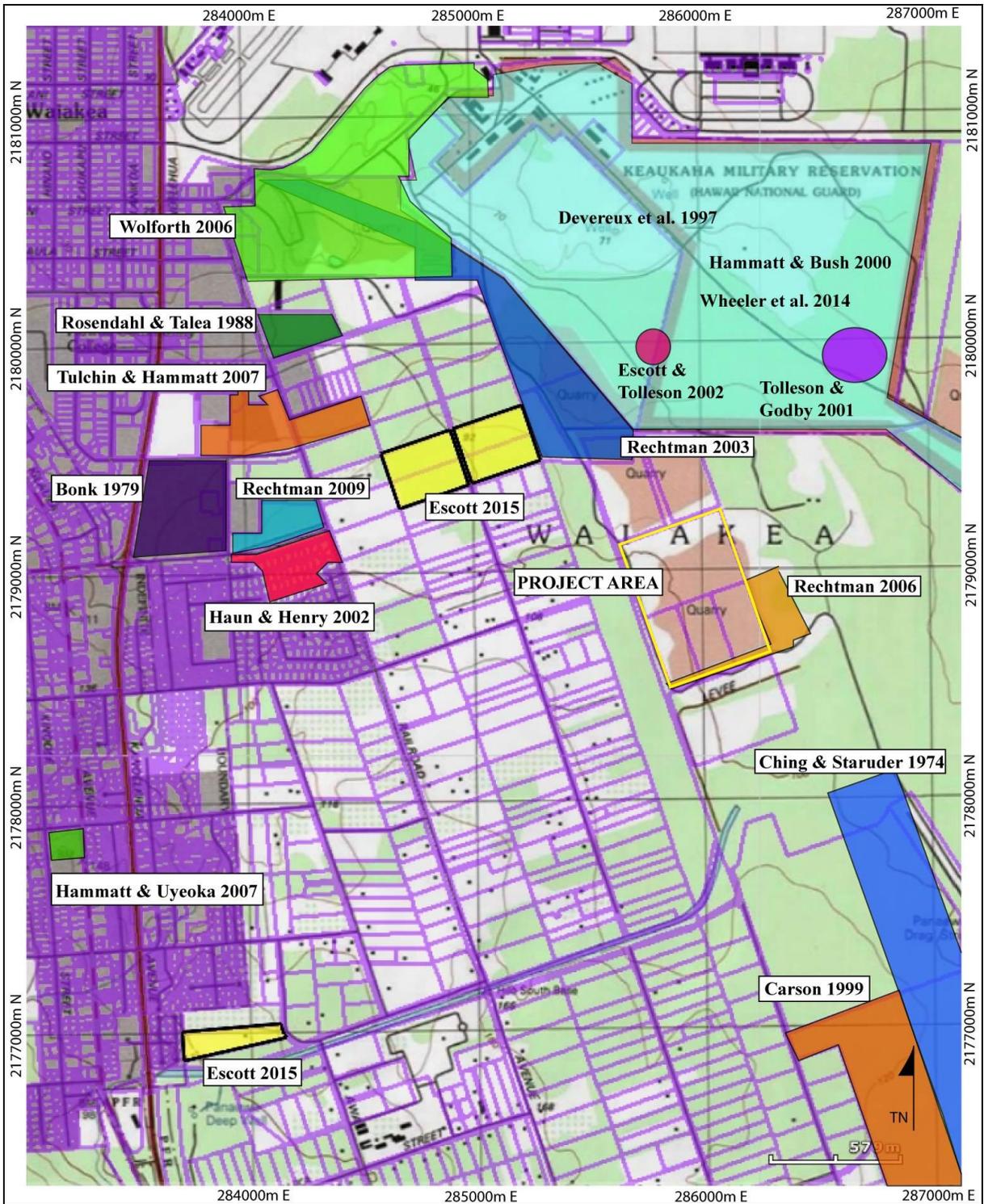


Figure 8: 7.5-Minute Series USGS Topographic Map Showing Location of Previous Archaeological Studies Near the Project Area (ESRI, 2013. Sources: National Geographic Society, USGS Hilo Quadrangle).

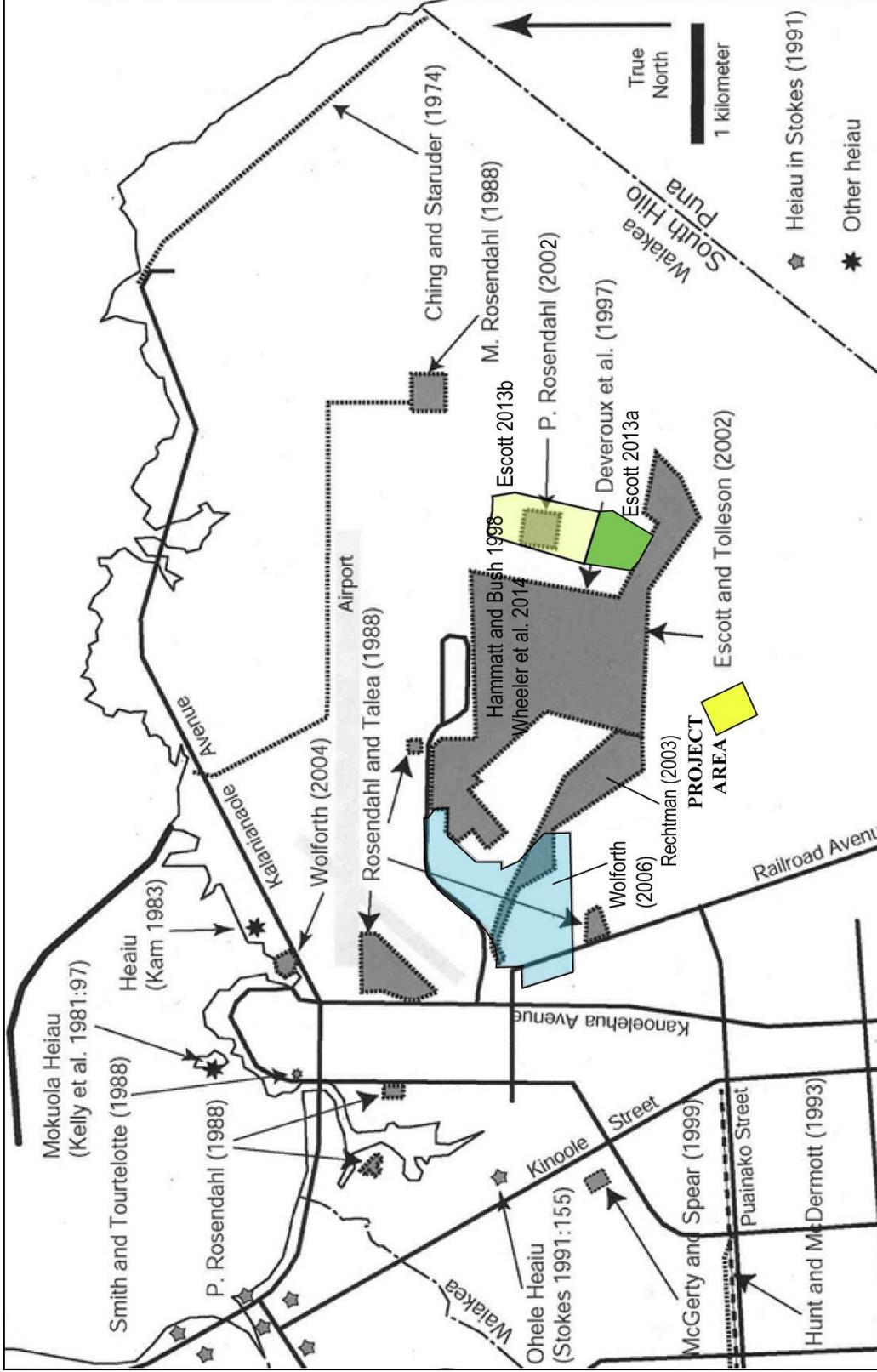


Figure 9: Map Showing Location of Previous Archaeological Studies Near KMR and the Project Area (adapted from Wolforth 2006).

The current project area lands are situated inland of the Coastal Settlement Zone of the east Hawai‘i settlement model (McEldowney 1979). As reflected in the name of that zone, prehistoric habitation is focused along the coastline. Fishponds for *ali‘i* and *maka‘āinana* were created, maintained, and used all along the coast. The basic cultivated crops such as irrigated and dry taro, bananas, breadfruit, *kukui* nuts, pandanus and *ti* were grown in these lower elevations. They did not grow uniformly over the coastal zone, however. The heavily weathered soils on the Mauna Kea flows along the western portion of Hilo Bay were particularly well suited for agriculture. This bias towards the western area is evident in the distribution of fields portrayed in an early depiction of the Hilo Bay (Figure 10). The eastern half of the Hilo Bay area and further south and east are covered by younger Mauna Loa flows that lack soil the level of soil development present in the Mauna Kea flows.

Few archaeological sites have been recorded as a result of the projects conducted in the lower elevations of Waiākea. It is likely that the extent of disturbance by the 200 years of development in Hilo town is partially to blame for the lack of recorded lowland sites. In the case of archaeological projects conducted very close to the current project area, it is more likely that the lack of habitation is the result of this region being an inland, rugged, forest area that was not settled. Also, modern disturbance from historic and modern uses have likely removed some archaeological remains.

Paul H. Rosendahl Inc. (PHRI) (Rosendahl and Talea 1988) conducted research on five 5-acre lots dispersed through the South Hilo area, recording no cultural deposits due to extensive landform changes caused by the development of Hilo Town (see Figure 9). A reconnaissance survey by PHRI (M. Rosendahl 1988) conducted at the eastern end of General Lyman Field again resulted in no extant archaeological remains due to previous land disturbance.

Devereux et al (1997) conducted a reconnaissance level survey for HIARNG on selected portions of KMR along a corridor parallel to the Puna Trail (see Figure 9). Two sites (assigned temporary site numbers CSH 1 and CSH 2) were recorded: as a prehistoric C-shaped enclosure and a coral mound, the team also addressed 10 historic structures over 50 years of age. CSH2 was later interpreted as a modern bulldozer push.

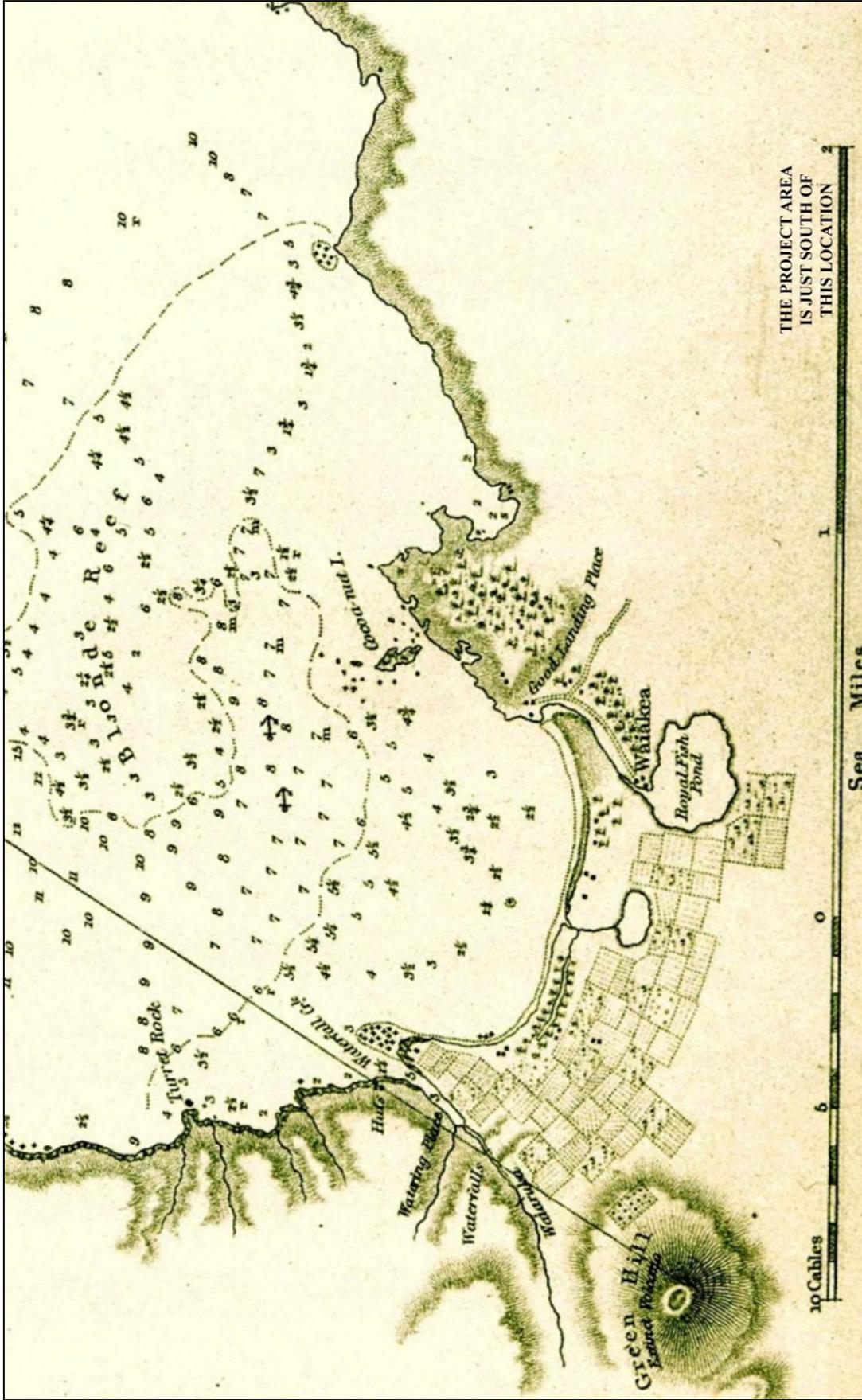


Figure 10: Portion of 1825 Map of Hilo Bay Showing Location of Major Habitation and Agricultural Fields (Malden 1825).

Hammatt and Bush (2000) conducted an inventory level survey of KMR adjacent to the portion of the Puna Trail that extends through the facility. In this report, they discussed the history of the Puna Trail that continues down to south Puna where it meets with the Old Gov't Road (also called the Puna trail). They noted extensive mechanical grading of the ground surface at KMR during military occupation that has effectively removed all surface traces of historic/prehistoric occupation. However, the entire facility was not completely surveyed. Hammatt and Bush recorded three archaeological sites, a C-shaped enclosure, thought to be military in origin, a group of five *ahu*, possibly markers to denote the trail set parallel to the Puna Trail and a modified natural lava blister interpreted as a traditional Hawaiian agricultural planting feature.

Tolleson and Godby (2001) conducted archaeological data recovery at Site 21771 located adjacent to the paved portion of the Puna Trail that traverses KMR. This site consists of a complex comprised of a low platform, an enclosure, a possible *imu*, fruit trees, and a meadow. Artifacts, such as horse/mule shoes, sharpening implements, a sharpening wheel, and hoof files suggest the site is related to historical road construction along the Puna Trail.

PHRI (P. Rosendahl 2002) conducted an archaeological assessment survey of 14.99-acres of the quarry site within the current project area. No archaeological sites were identified during the study.

Escott and Tolleson (2003) conducted an archaeological inventory survey just east of the current project area. A single site (Site 23273) consisting of a remnant trail segment and two planting features were recorded along the south west boundary of the project area.

Wolforth (2006) conducted an archaeological inventory survey of 147 acres south of the Hilo International Airport. Four sites (SIHP 50-10-35-25538, 25539, 25540, and 25541), associated with a Naval Air Station facilities and a quarry were recorded. No pre-Contact or early post-Contact era sites were documented on the project area.

Scientific Consultant Services, Inc. (Escott 2013a, Escott 2013b) conducted two archaeological assessments of 50 and 85 acres of land along the eastern edge of the KMR. No archaeological sites or historic properties were identified during the study.

The study did document modern dirt roads that were cut by bulldozers, likely in anticipation of building out this area. The dirt roads were straight and were oriented northwest/southeast. A search was made of Hawai'i County Planning documents, historic maps, and archival documents to ensure the dirt road was not constructed over a pre-existing trail or government road. In addition, SCS consulted with Ala Kahakai and Na Ala Hele. There were no documents showing a traditional trail or government road in the location of the dirt road identified during the current study.

Cultural Surveys Hawai'i, Inc. recently conducted an archaeological inventory survey of the KMR (Wheeler et al. 2014). During that study eleven sites were documented, including seven early post-Contact era to modern era sites, and four pre-Contact to Historic era sites (Wheeler et al. 2014:64). The pre-Contact era to Historic era sites included two trails, a modified lava tube, and a modified outcrop complex. The trails were associated with travel and transportation through the area, and the latter two sites were associated with temporary habitation, possibly while traveling through the area, or while collecting forest resources. The early post-Contact to modern era sites included three trail segments, a military position, and two possible homesteads with small agricultural garden plots.

Scientific Consultant Services, Inc. (Escott 2015) conducted an archaeological assessment of 50 acres of land southwest of the current project area (see Figure 9). No archaeological sites or historic properties were identified during the study.

EXPECTED ARCHAEOLOGICAL PATTERNS

The current project area has been used since at least 1975 as a quarry and baseyard for excavating, crushing, storing, and hauling rock for local construction purposes. The property was leased by the State of Hawai'i to private contractors for those purposes. The majority of the project area is open quarry.

Based on previous archaeological studies, geological studies, historical research, and modern land-use records, archaeological sites in the area surrounding the current project should be associated primarily with modern commercial quarrying activities. This is likely since this area is not known to have been used for habitation or agricultural purposes, ever.

The Pana‘ewa forest area where the project parcels only began to be accessed to a larger degree in the Historic era as new areas were opened up for rock quarrying. The Pana‘ewa region where the project area is located contains marginally thin soils and is not well suited to mechanical agricultural techniques.

It is possible that pre-Contact era site types such as trail segments, temporary habitation features associated with travel and forest resource extraction might be present on the project area. It is less likely, but possible, that scattered temporary habitation features adjacent to planting features might be present. It is also possible that more modern features associated with WWII training and quarrying in the area might be present on the project area.

RESULTS OF FIELDWORK

There were no archaeological sites and no remains of historic properties identified during the pedestrian survey conducted at the project area. Almost the entire property has been altered by quarrying activities. There was no evidence of archaeological features or artifacts identified on the project area.

CONCLUSION AND RECOMMENDATIONS

There were archaeological sites or historic properties identified within the project area during the archaeological survey. The results of the survey support the results of the ethnographic and historical archival record for this area. According to ethnographic and historical documentation, the Pana‘ewa forest was traditionally considered an inhospitable place. The forest was thick and was difficult to travel through. The Pana‘ewa forest was not a traditional location for settlements or gardens. Settlements and garden areas were located along the coast on the outside edges of the forest.

Previous archaeological studies in the region have identified archaeological sites further north, closer to the Hilo International Airport. The majority are the remains of post-Contact era to modern era trails, military sites and individual homestead sites. There are a small number of pre-Contact era sites that include small rock mound complexes and trail segments. All of these sites have been identified north of the current project area.

It has been determined through archaeological survey that no historic properties exist within the project area and that no historic properties will be affected by the proposed undertaking. SCS recommends that the SHPD concur with the determination of no effect.

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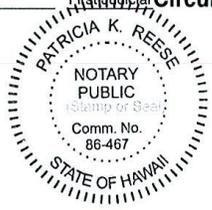
APPENDIX A: PUBLIC NOTICES

AFFIDAVIT OF PUBLICATION

IN THE MATTER OF
SCS1894 Hilo Compost Facility CIA Public Notices

STATE OF HAWAII }
} SS.
City and County of Honolulu }

Doc. Date:	MAR 28 2016	# Pages:	1
Notary Name:	Patricia K. Reese	First Judicial Circuit	
Doc. Description:	Affidavit of Publication		
Notary Signature	<i>Patricia K. Reese</i>	Date	MAR 28 2016



CULTURAL IMPACT ASSESSMENT NOTICE
 Information requested by Scientific Consultant Services, Inc. of cultural resources and/or cultural practices on four parcels located in Hilo on lands of Waialea Ahupua'a, South Hilo District, Island of Hawaii (TMC (3) 2-1-013:142, 160, 161, and 163). Please respond within 30 days to Glenn Escott at (808) 938-0968. (H1H657965 3/23, 3/24, 3/27/16)

Rose Rosales being duly sworn, deposes and says that she is a clerk, duly authorized to execute this affidavit of Oahu Publications, Inc. publisher of The Honolulu Star-Advertiser, MidWeek, The Garden Island, West Hawaii Today, and Hawaii Tribune-Herald, that said newspapers are newspapers of general circulation in the State of Hawaii, and that the attached notice is true notice as was published in the aforementioned newspapers as follows:

- Honolulu Star-Advertiser 0 times on:
- MidWeek 0 times on:
- The Garden Island 0 times on:
- Hawaii Tribune-Herald 3 times on:
03/23, 03/24, 03/27/2016
- West Hawaii Today 0 times on:

Other Publications: 0 times on:

And that affiant is not a party to or in any way interested in the above entitled matter.

RR
 Rose Rosales
 Subscribed to and sworn before me this 28th day of March A.D. 20 16
Patricia K. Reese
 Patricia K. Reese, Notary Public of the First Judicial Circuit, State of Hawaii
 My commission expires: Oct 07, 2018



Ad # 0000857965

SP.NO.: _____ L.N.

Hawai'i Tribune-Herald Public Notice Affidavit.

AFFIDAVIT OF PUBLICATION

IN THE MATTER OF
SCS1894 Hilo Compost Facility CIA Public Notices

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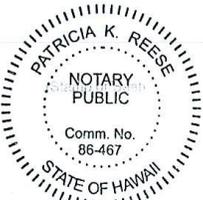
STATE OF HAWAII }
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City and County of Honolulu }

Doc. Date: MAR 28 2016 **# Pages:** 1

Notary Name: Patricia K. Reese **First Judicial Circuit**

Doc. Description: Affidavit of Publication

Patricia K. Reese MAR 28 2016
Notary Signature Date



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Information requested by Scientific Consultant Services, Inc. of cultural resources and/or cultural practices on four parcels located in Hilo on lands of Waialeale Ahupua'a, South Hilo District, Island of Hawaii (TMK: (3) 2-1-013:142, 160, 161, and 163). Please respond within 30 days to Glenn Escott at (808) 938-0968. (SA857958 3/23, 3/24, 3/27/16)

Rose Rosales being duly sworn, deposes and says that she is a clerk, duly authorized to execute this affidavit of Oahu Publications, Inc. publisher of The Honolulu Star-Advertiser, MidWeek, The Garden Island, West Hawaii Today, and Hawaii Tribune-Herald, that said newspapers are newspapers of general circulation in the State of Hawaii, and that the attached notice is true notice as was published in the aforementioned newspapers as follows:

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03/23, 03/24, 03/27/2016
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- West Hawaii Today 0 times on:

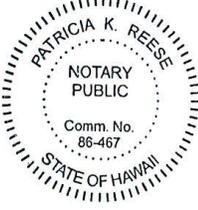
Other Publications: 0 times on:

And that affiant is not a party to or in any way interested in the above entitled matter.

Rose Rosales
Rose Rosales
Subscribed to and sworn before me this 28th day of March A.D. 2016

Patricia K. Reese
Patricia K. Reese, Notary Public of the First Judicial Circuit, State of Hawaii
My commission expires: Oct 07, 2018

Ad # 0000857958



SP.NO.: _____ L.N.

Honolulu Star-Advertiser Public Notice Affidavit.

CULTURAL IMPACT ASSESSMENT NOTICE

Information requested by Scientific Consultant Services, Inc. of cultural resources and/or cultural practices on four parcels located in Hilo on lands of Waiākea Ahupua'a, South Hilo District, Island of Hawai'i [TMK: (3) 2-1-013:142, 160, 161, and 163]. Please respond within 30 days to Glenn Escott at (808) 938-0968.

Scientific Consultant Services, Inc. (SCS) is seeking information on cultural resources and traditional, previously or on-going, cultural activities conducted on or near the proposed County of Kaua'i Adolescent Drug Treatment Facility located next to Ma'alo Road at the intersection of Ehiku Street and a cane haul road leading to Hanamā'ulu in Hanamā'ulu Ahupua'a, Puna District, Island of Kaua'i, Hawai'i [TMK (4) 3-8-002:001 por.]. Please respond within 30 days to Cathleen Dagher at (808) 597-1182.

Kalaupapa National Historical Park plans to do preservation and repair work on the following grave sites at Papaloa Cemetery from

6/2/16-9/30/16. Plot # and Name: H021-Unknown; H026-Unknown; H027-Delphine J. Soares; H028-Mrs. Esther M. Robinson; H031-Unknown; H033-Soloman Thompson; H036-Unknown; H041-Mr. G. Kettle; H045-Unknown; H046-Unknown; H047-Paulo Keaho; H055-Unknown; H063-Unknown; H069-F. P. Kaalehua and Jno. Kaalehua; H075-Wikoli Hueu; H076-Visonahlo; H096-Unknown; G099-Robert Holt and Louis Stanton; G104-Mrs. E. Kaleimoni Kini; G108-Mrs. S. Kelii Kekoa.

If you have any questions or concerns, please contact Ka'ohulani McGuire at: 808-567-6802, ext. 1701 or kaohulani_mcguire@nps.gov.

Information requested by Scientific Consultant Services, Inc. (SCS) on cultural resources; traditional/on-going; cultural; recreational; and/or educational activities on or near the proposed Ala Wai Canal Dredging, Wall Repair and Improvements project area, located in Waikiki, Pālolo, Makiki, and Mānoa Ahupua'a, Honolulu (Kona) District, O'ahu Island [Tax Map Keys: (1) 2-3, 2-6, and 2-7] Please respond within 30 days to Cathleen Dagher at (808) 597-1182. ■

Ka Wai Ola Public Notice (May 2016 Issue).

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Appendix D

Cultural Impact Assessment



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**A CULTURAL IMPACT ASSESSMENT FOR
80 ACRES OF MODERN QUARRY LAND FOR
THE PROPOSED COUNTY OF HAWAI‘I COMPOSTING FACILITY
IN THE PANA‘EWA REGION OF WAIĀKEA AHUPUA‘A,
SOUTH HILO DISTRICT, HAWAI‘I ISLAND, HAWAI‘I**

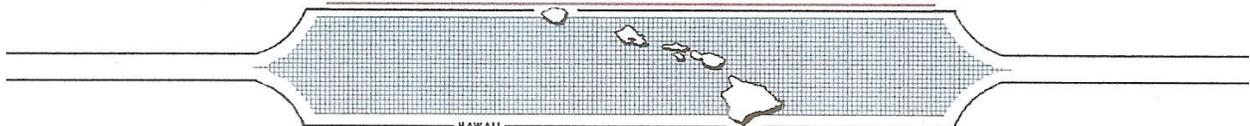
[TMK: 2-1-013: 142, 160, 161, & 163]

Prepared By:
Glenn G. Escott, M.A.

**June 2016
DRAFT**

Prepared for:
**PBR Hawaii
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Honolulu, Hawai‘i 96813-3429**

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INTRODUCTION

At the request of PBR Hawai‘i, Scientific Consultant Services, Inc. (SCS) conducted a Cultural Impact Assessment (CIA) for 80.0 acres of modern quarry land [TMK: (3) 2-1-013: 142, 160, 161, and 163] located in the Pana‘ewa region of Waiākea Ahupua‘a, South Hilo District, Island of Hawai‘i, Hawai‘i. The County of Hawai‘i is proposing to use the formerly quarried land for a composting facility (Figure 1, Figure 2, and Figure 3).

The four parcels form a contiguous 80-acre area of quarried land along the east side of the Pana‘ewa Drag Strip road, south of the Hilo landfill. The project area land is from 95 feet (29 meters) to 105 feet (32 meters) above mean sea level (amsl). The north side of the project area is bordered by the Hilo landfill. The south and east boundaries are bordered by previously altered land. The western boundary borders undeveloped land. The Pana‘ewa Drag Strip road is located along the west and south boundaries of the project area.

The Constitution of the State of Hawai‘i clearly states the duty of the State and its agencies is to preserve, protect, and prevent interference with the traditional and customary rights of native Hawaiians. Article XII, Section 7 requires the State to “protect all rights, customarily and traditionally exercised for subsistence, cultural and religious purposes and possessed by *ahupua‘a* tenants who are descendants of native Hawaiians who inhabited the Hawaiian Islands prior to 1778” (2000). In spite of the establishment of the foreign concept of private ownership and western-style government, Kamehameha III (Kauikeaouli) preserved the people’s traditional right to subsistence.

In 1850, the Hawaiian Government confirmed the traditional access rights to native Hawaiian *ahupua‘a* tenants to gather specific natural resources for customary uses from undeveloped private property and waterways, codified now under the Hawai‘i Revised Statutes (HRS) 7-1. In 1992, the State of Hawai‘i Supreme Court reaffirmed HRS 7-1 and expanded it by stating “native Hawaiian rights...may extend beyond the *ahupua‘a* in which a native Hawaiian resides where such rights have been customarily and traditionally exercised in this manner” (Pele Defense Fund v. Paty, 73 Haw.578, 1992).

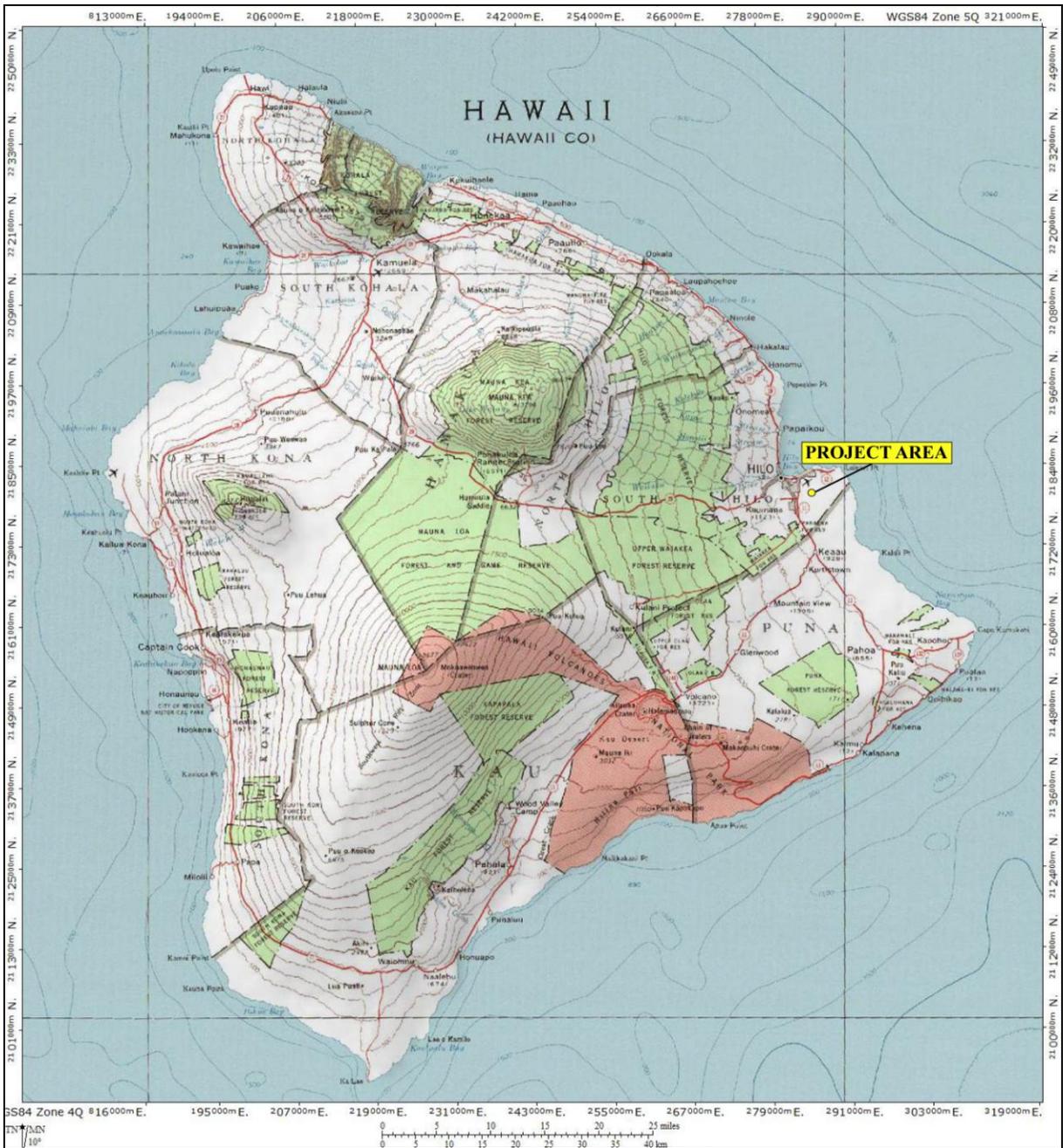


Figure 1: 5,500 K-Series Map of Hawai‘i Showing Location of Project Area (National Geographic Topo!, 2003. Sources: National Geographic Society, USGS).

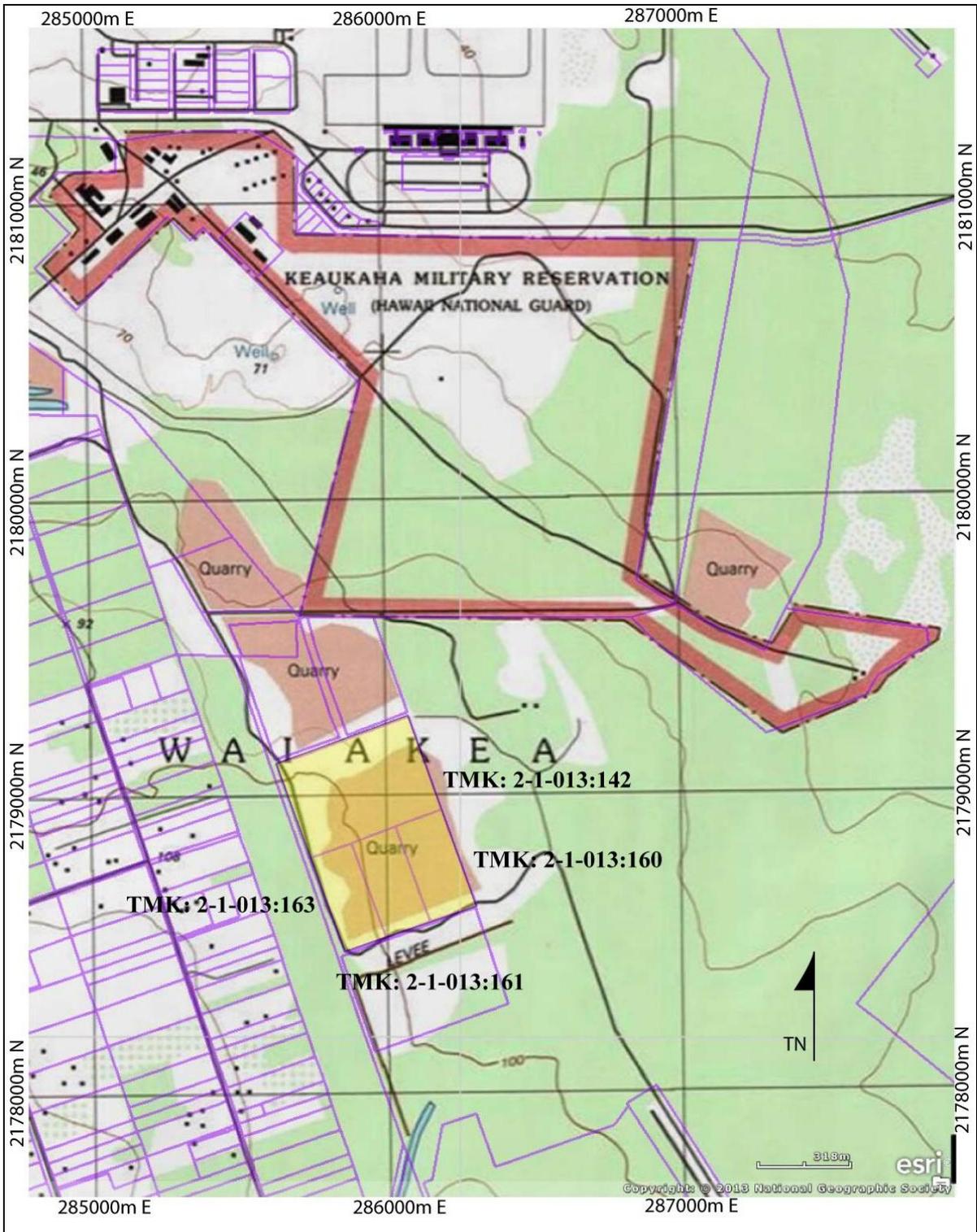


Figure 2: 7.5-Minute Series USGS Topographic Map Showing Location of Project Area Shaded Yellow (ESRI, 2013. Sources: National Geographic Society, USGS Hilo Quadrangle).

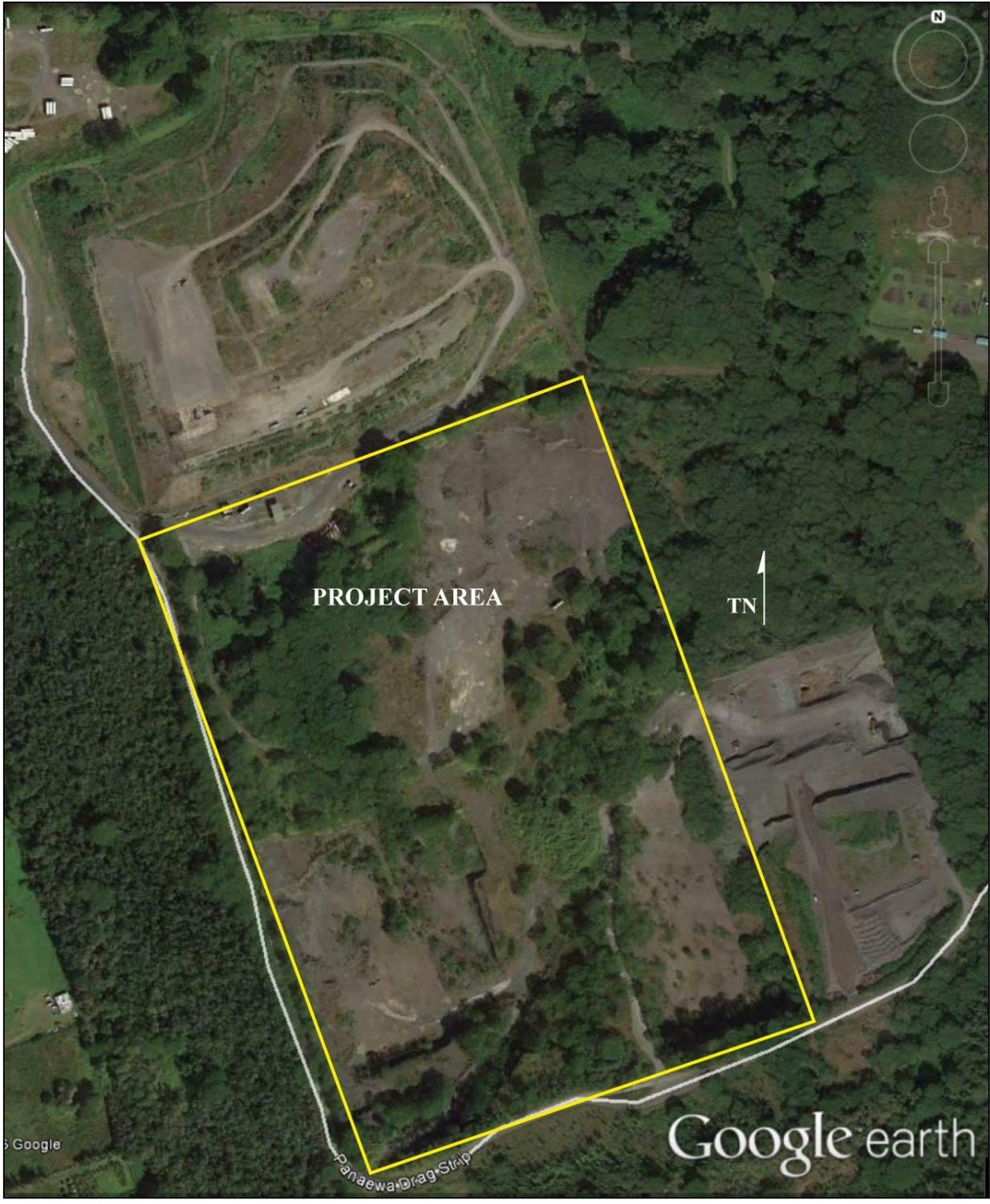


Figure 3: Aerial Photograph Showing Project Area (Google Earth, 2013 Image. Hilo, HI, 5Q 285515m E 2179033m N).

Act 50, enacted by the Legislature of the State of Hawai‘i (2000) with House Bill 2895, relating to Environmental Impact Statements, stated that:

...there is a need to clarify that the preparation of environmental assessments or environmental impact statements should identify and address effects on Hawaii’s culture, and traditional and customary rights... [H.B. NO. 2895].

Act 50 requires state agencies and other developers to assess the effects of proposed developments subject to the HRS Chapter 343 environmental review process on the “cultural practices of the community and State” (2001).

The purpose of HRS 343 has broadened, “to promote and protect cultural beliefs, practices and resources of native Hawaiians [and] other ethnic groups, and it also amends the definition of ‘significant effect’ to be re-defined as “the sum of effects on the quality of the environment including actions that are...contrary to the State’s environmental policies...or adversely affect the economic welfare, social welfare, or cultural practices of the community and State” (H.B. 2895, Act 50, 2000). The *ahupua‘a* or district is recognized as a culturally appropriate geographic unit of study, depending on the scale of the project.

The process distinguishes ‘anthropological’ cultural practices from ‘social’ cultural practices. For example, *limu* (edible seaweed) gathering would be considered an anthropological cultural practice, while a modern-day marathon would be considered a social cultural practice.

According to the Guidelines for Assessing Cultural Impacts established by the Hawaii State Office of Environmental Quality Control (OEQC 1997): The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religions and spiritual customs. The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both manmade and natural, which support such cultural beliefs.

This Cultural Impact Assessment involves evaluating the probability of impacts on identified cultural resources, including values, rights, beliefs, objects, records, properties, and stories occurring within the project area and its vicinity (H.B. 2895, Act 50, 2000). The vicinity can be defined as "the broad geographical area, e.g. district or *ahupua'a*" (QEQC 1997).

METHODOLOGY

This Cultural Impact Assessment was prepared in accordance with the methodology and content protocol provided in the Guidelines for Assessing Cultural Impacts (OEQC 1997). In outlining the "Cultural Impact Assessment Methodology", the OEQC state: ...information may be obtained through scoping, community meetings, ethnographic interviews and oral histories... (1997).

The report contains archival and documentary research, as well as communication with organizations having knowledge of the project area, its cultural resources, and its practices and beliefs. This Cultural Impact Assessment was prepared in accordance with the methodology and content protocol provided in the Guidelines for Assessing Cultural Impacts (OEQC 1997). According to these Guidelines, the assessment concerning cultural impacts should address, but not necessarily be limited to, the following matters:

- (1) a discussion of the methods applied and results of consultation with individuals and organizations identified by the preparer as being familiar with cultural practices and features associated with the project area, including any constraints or limitations with might have affected the quality of the information obtained;
- (2) a description of methods adopted by the preparer to identify, locate, and select the persons interviewed, including a discussion of the level of effort undertaken;
- (3) ethnographic and oral history interview procedures, including the circumstances under which the interviews were conducted, and any constraints or limitations which might have affected the quality of the information obtained;
- (4) biographical information concerning the individuals and organizations consulted, their particular expertise, and their historical and genealogical relationship to the project area, as well as information concerning the persons submitting information or interviewed, their particular knowledge and cultural expertise, if any, and their historical and genealogical relationship to the project area;

- (5) a discussion concerning historical and cultural source materials consulted, the institutions and repositories searched, and the level of effort undertaken, as well as the particular perspective of the authors, if appropriate, any opposing views, and any other relevant constraints, limitations or biases;
- (6) a discussion concerning the cultural resources, practices and beliefs identified, and for the resources and practices, their location within the broad geographical area in which the proposed action is located, as well as their direct or indirect significance or connection to the project site.
- (7) a discussion concerning the nature of the cultural practices and beliefs, and the significance of the cultural resources within the project area, affected directly or indirectly by the proposed project;
- (8) an explanation of confidential information that has been withheld from public disclosure in the assessment;
- (9) a discussion concerning any conflicting information in regard to identified cultural resources, practices and beliefs;
- (10) an analysis of the potential effect of any proposed physical alteration on cultural resources, practices or beliefs; the potential of the proposed action to isolate cultural resources, practices or beliefs from their setting; and the potential of the proposed action to introduce elements which may alter the setting in which cultural practices take place, and;
- (11) the inclusion of bibliography of references, and attached records of interviews, which were allowed to be disclosed.

Based on the inclusion of the above information, assessments of the potential effects on cultural resources in the project area and recommendations for mitigation of these effects can be proposed.

ARCHIVAL RESEARCH

Archival research involved study of both published and unpublished sources. These included legendary accounts of native and early foreign writers; early historical journals and narratives; historic maps and land records such as Land Commission Awards, Royal Patent Grants, and Boundary Commission records; historic accounts, and previous archaeological project reports. Such scholars as ‘Ī‘Ī, Kamakau, Chinen, Kame‘eleihiwa, Fornander, Kuykendall, Kelly, Handy and Handy, Puku‘i and Elbert, Thrum, and Cordy have contributed, and continue to contribute to our knowledge and understanding of Hawai‘i, past and present. The works of these and other authors were consulted and incorporated in the report where appropriate. Land use document research was conducted using several online databases including, the Waihona ‘Āina 2014 database, the Papakilo database, and the Ukukau Hawaiian Library. Historical and cultural source materials were extensively used and can be found listed in the *References Cited* portion of the report.

INTERVIEW METHODOLOGY

Interviews were conducted in accordance with Federal and State laws and guidelines. Individuals and/or groups who have knowledge of traditional practices and beliefs associated with the project area or who know of historical properties within the project area were sought for consultation. Individuals who have particular knowledge of traditions passed down from preceding generations and a personal familiarity with the project area were invited to share their relevant information. Organizations including the Hawai‘i Island Burial Council (HIBC), the State Historic Preservation Division (SHPD) Burial Sites Specialist, the Kona Hawaiian Civic Club, and the Office of Hawaiian Affairs were asked for their recommendations of suitable informants. These groups were invited to contribute their input, and suggest further avenues of inquiry, as well as specific individuals to interview.

The “level of effort undertaken” to identify a proposed project's potential effect to cultural resources, traditional cultural places, or traditional cultural beliefs (OEQC 1997) has not been officially defined and is left up to the investigator. A good faith effort can mean contacting agencies by letter, interviewing people who may be affected by the project or who know its history, research identifying sensitive areas and previous land use, holding meetings in which the public is invited to testify, notifying the community through the media, and other appropriate strategies based on

the type of project being proposed and its impact potential. Sending inquiring letters to organizations concerning development of a piece of property that has already been totally impacted by previous activity and is located in an already developed industrial area may be, in itself, a “good faith effort”. However, when many factors need to be considered, such as in coastal or mountain development, a good faith effort might mean an entirely different level of research activity.

In the case of the current project, letters of inquiry briefly outlining the development plans along with maps of the project area were sent to individuals and organizations whose jurisdiction includes knowledge of the area with an invitation for consultation. In the case of the proposed project, consultation was sought from Shane Palacat Nelson, Coordinator of the Hawai‘i Branch of the Office of Hawaiian Affairs and Herbert Poepoe, SHPD Hawai‘i Island Burial sites Specialist.

Public notices were published in the Office of Hawaiian Affairs Ka Wai Ola Newspaper, the Honolulu Star-Advertiser and the Hawai‘i-Tribune Herald (see Appendix A). Personal interviews with knowledgeable individuals are written out in summary form and returned to each of the participants for their review and comments. Key topics discussed with the interviewees included personal association to the *ahupua‘a*; land use in the project’s vicinity; knowledge of traditional trails, gathering areas, burials, water sources, religious sites; place names and their meanings; stories that were handed down concerning special places or events in the vicinity of the project area; and evidence of previous activities identified while in the project vicinity.

ENVIRONMENTAL SETTING

The ground surface at all five parcels is level to slightly undulating Paipai Series (rPAE) extremely stony muck (Sato et al. 1973: 46) overlaying a Mauna Loa lava flow dated between 750 and 1,500 years before present (ybp) (Wolf and Morris 1996). There are exposed ‘a‘a bedrock outcrops and low ridges on the ground surface across the property. Annual rainfall ranges from 120 to 160 inches.

The majority of the project area is open excavated quarry with very little vegetation. A small area in the northeast corner of the project area is previously bulldozed level ground, and an unaltered bedrock cliff is present along the southeast boundary of the property. Vegetation within the majority of the project area is composed of a suite of invasive plant species including albizia trees (*Falcataria moluccana*), guava

(*Psidium* sp.), gunpowder tree (*Trema orientalis*), octopus tree (*Schefflera actinophylla*), Asian Melastoma (*Melastoma septemnerium*), and bingabing (*Macaranga mappia*) (Starr Environmental 2014).

HISTORICAL AND CULTURAL CONTEXTS

The project area is located in the *ahupua'a* of Waiākea, Hilo Hanakāhi 'Okana, in the *moku-o-loko* (district) of Hilo (Maly 1996:4–5) (Figure 4). The *ahupua'a* of Waiākea is large, consists of roughly 95,000 acres, and was regarded as a region of abundant natural resources and numerous fishponds. Waiākea was also an early important political center, notably under chief Kulukulu'a (Kelly et al. 1981:3).

Kamehameha often returned to his *'ili kūpono* (independent land division where all tributes were paid to the chief of the *'ili* and not the *ahupua'a*) lands of Pi'opi'o in the *ahupua'a* of Waiākea (Figure 5). The *'ili kūpono* lands and its royal fishpond were passed on to his son Liholiho after his death.

PRE-CONTACT ACCOUNTS OF HILO

The earliest account of Hilo appears in 'Umi-a-Liloa's (1600–1620) conquest of the Island of Hawai'i, which establishes Hilo as a royal center by the seventeenth century. In the account, 'Umi-a-Liloa began his conquest of the Island of Hawai'i by defeating chief Kulukulu'ā, who lived in Waiākea, and the other chiefs of Hilo (Kamakau 1992:16–17). 'Umi-a-Liloa's second son, Keawe-nui-a-'Umi, ruled Hāmākua, Hilo, and Puna from his residence at Hilo (*ibid*: 34). It was from Hilo that he waged war on the Kona chiefs and unified the island. Keawe-nui-a-'Umi's descendants single handedly continued to rule, from Hilo, for many generations.

After the death of Keawe-nui-a-'Umi the kingdom was divided into three parts and was established under warring chiefs; Hilo was ruled by Kumalae-nui-pu'awa-lau and his son Makua (*ibid*: 45). It was during the period of time that Kamehameha I was born. Kalani'ōpu'u's grandson, Keoua Kuahu'ula and nephew Kamehameha vied for control over the six chiefdoms constituting the island kingdom and Keoua conquered Hilo chief Keawe-mau-hili and harvested the benefits for a short time only to be killed by Kamehameha late in 1791. Kamehameha's son Liholiho was born in Hilo in November 1797 (Kamakau 1992:22).

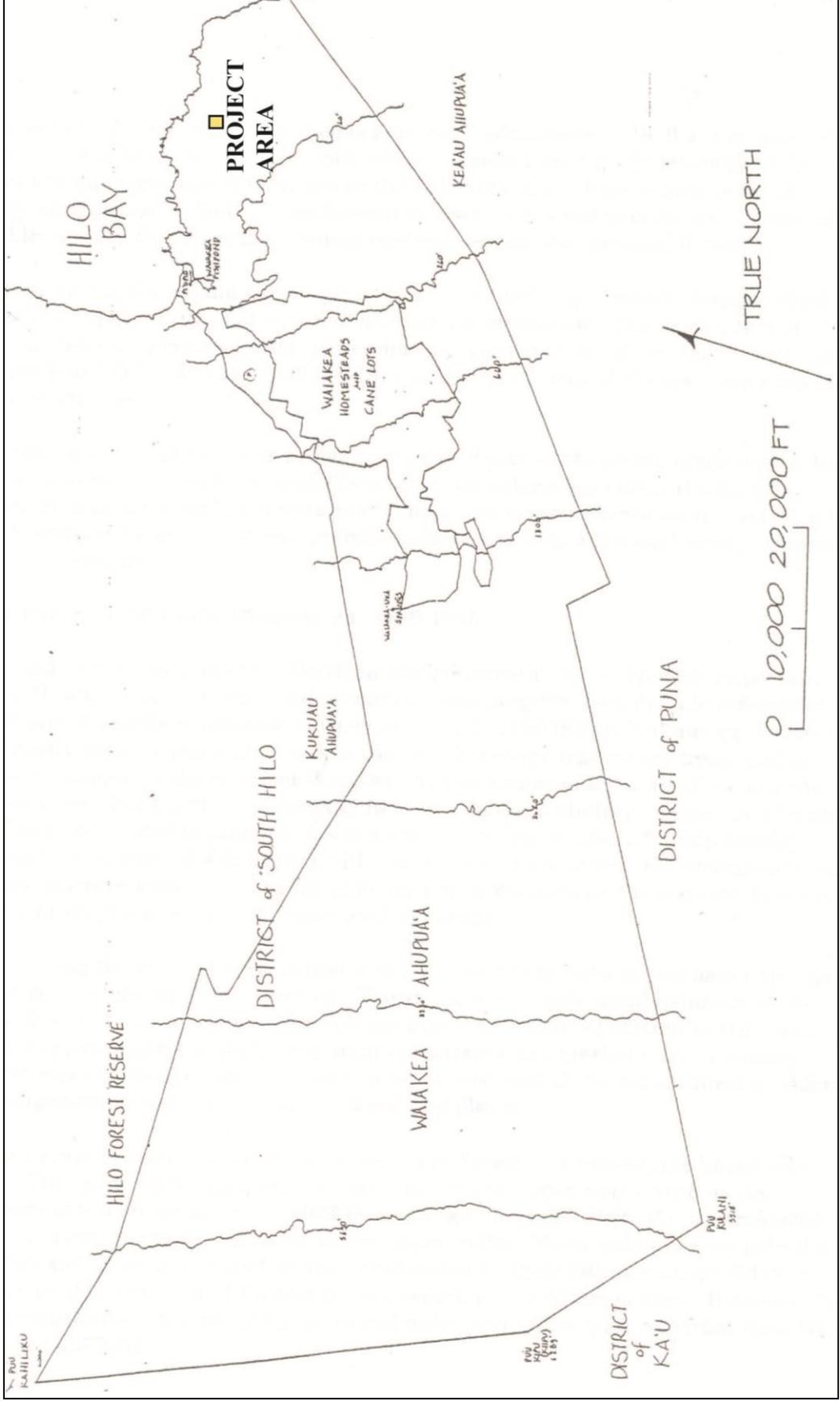


Figure 4: Map of Waiākea Ahupuaʻa Showing Location of Project Area (adapted from Bush et al. 2000).

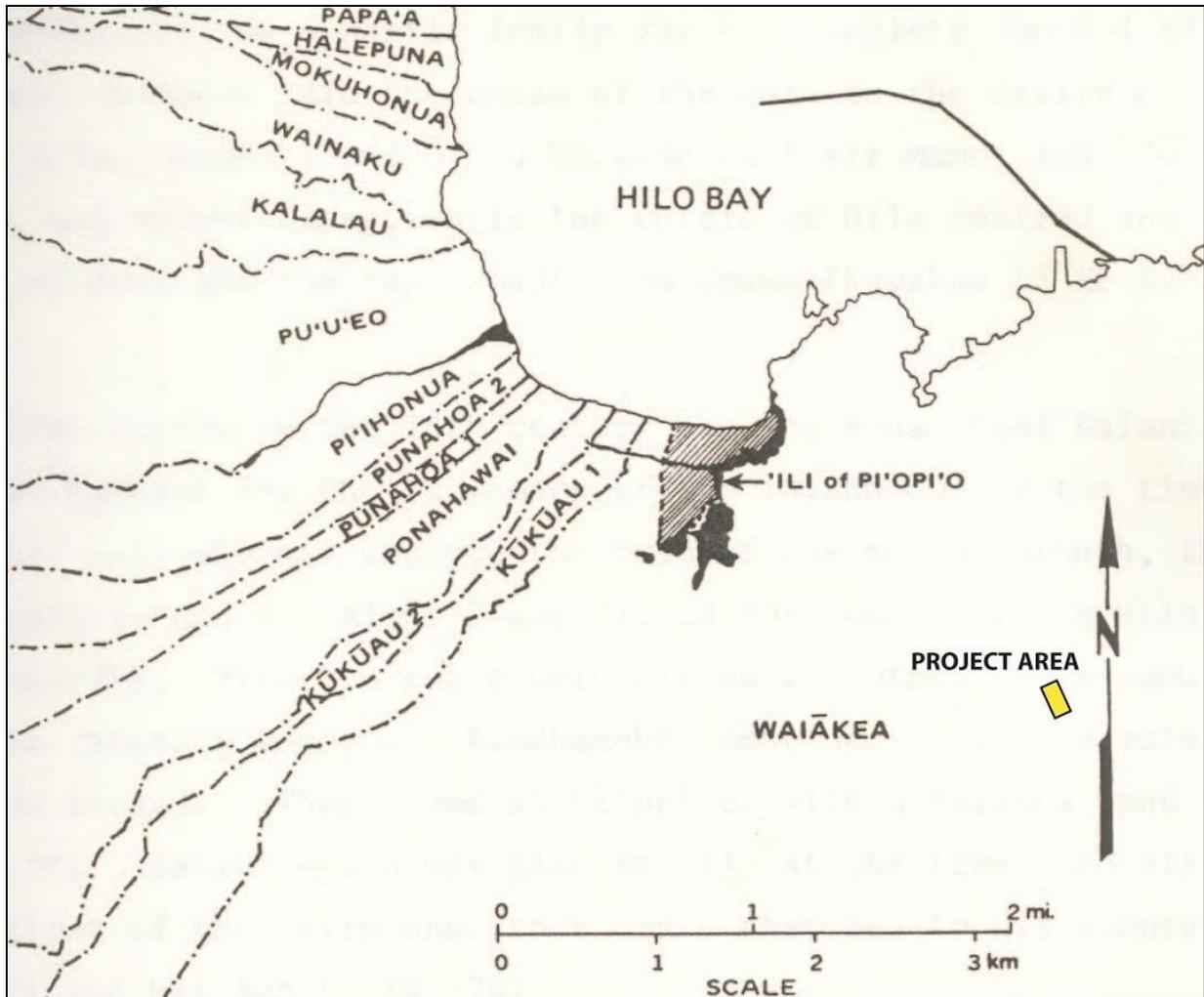


Figure 5: Map of Kamehameha's *'Ili Kūpono* Lands of Pi'opi'o in the *Ahupua'a* of Waiākea Showing Project Area Location (adapted from Kelly et al. 1981).

Waiākea was inherited by Lihiliho after Kamehameha's death. The *'ili kūpono* of Pi'opi'o and its royal fishpond were given to his favorite wife, Ka'ahumanu (see Figure 5).

TRADITIONAL SETTLEMENT PATTERNS, SUBSISTENCE, AND LAND-USE

Historical accounts and archaeological/cultural studies pertaining to the *ahupua'a* of Waiākea (Bingham 1969; Bird 1974; Ellis 1963; Handy and Handy 1972; Kelly et al. 1981; Maly 1996; McEldowney 1979) provide a wealth of information on traditional residence patterns, land-use, and subsistence horticulture of the area. It is widely held that these historical accounts of residence patterns, land-use, and subsistence horticulture, indicative of traditional practices, developed long before contact with Europeans

(McEldowney 1979). These are synthesized below in order to explain the types of cultural resources possibly located within the current project area.

Early accounts of Waiākea portray it as divided into several distinct environmental regions. From the coast to a distance of five or six miles, scattered subsistence agriculture was evident, followed by a region of tall fern and bracken, flanked at higher elevations by a forest region between 10 and 20 miles wide, beyond which was an expanse of grass and lava (Ellis 1963:403). The American Missionary C.S. Stewart wrote, “the first four miles of the country is open and uneven, and beautifully sprinkled with clumps, groves, and single trees of the bread-fruit, pandanus, and candle tree (Stewart 1970:361-363). The majority of Waiākea’s estimated 2,000 inhabitants (in 1825) lived within this coastal region (Ellis 1963: 253). Taro, plantains, bananas, coconuts, sweet potatoes, and breadfruit were grown individually or in small garden plots. Fish, pig, dog, and birds were also raised and captured for consumption.

The present study area is situated inland of the coastal region, in the Pana‘ewa Forest. The project area lands are not located in an area of known traditional habitation. The Pana‘ewa forest area was traditionally known as a forbidding and dangerous landscape. The legendary origin of the Pana‘ewa Forest is associated with Pele’s search for a suitable home in the Hawaiian Islands.

When a suitable place was finally discovered on Hawaii, the Paoa staff was planted in Panaewa and became a living tree, multiplying itself until it was a forest. The writer’s informant says that it is a tree known to the present generation of men. “I have seen sticks cut from it,” said he, “but not the living tree itself” [Emerson 2005:xi].

When Pele sent her sister Hi‘iakapoliopole (referred to as Hi‘iaka) to travel to Kaua‘i to contact Lohi‘au, Hi‘iaka passed through the Pana‘ewa Forest. Hi‘iaka could have passed around the forest, taking the pathway along the shoreline from Hā‘ena (southeast of the project area) to Waiākea and Hilo, but she instead chose to cut through the forest taking a more direct, and shorter route.

Two routes offered themselves for Hi‘iaka’s choice, a makai road, circuitous but safe, the one ordinarily pursued by travelers; the other direct but bristling with danger, because it traversed the territory of the

redoubtable witch-mo‘o, Pana-ewa. ... When Hiiaka announced her determination to take the short road, the one of danger that struck through the heart of Pana-ewa, Pa-pulehu drew back in dismay and expostulated: “That is not a fit road for us, or for any but a band of warriors. If we go that way we shall be killed” [Emerson 2005:30].

Pana‘ewa did not let her pass without a fight.

The battle that ensued when Pana‘ewa sent to the attack his nondescript pack of mo‘o, dragonlike anthropoids, the spawn of witchcraft, inflamed with the spite of demons, was hideous and uncanny. Tooth and claw ran amuck. Flesh was torn, limbs rent apart, blood ran like water. If it had been only a battle with enemies in the open Hiiaka would have made short work of the job. Her forces lay ambushed in every wood and brake and assumed every imaginable disguise. A withered bush, a bunch of grass, a moss-grown stone, any, the most innocent object in nature, might prove to be an assailant ready to spit venom or tear with hook and talon [Emerson 2005:35].

The *mo‘o* Pana‘ewa and all of his minions were defeated by Hi‘iaka and her assistants. “Hawaii for once, and for all time, was rid of that pestilential, man-eating, mo‘o band headed by Pana-ewa who, from the time of Pele’s coming, had remained entrenched in the beautiful forest-land that still bears the name – Pana-ewa” (Emerson 2005:46).

The forest is heavily wooded and dense with thickets. Travel through it is made more difficult by the broken and undulating ground surface. There is an historic trail that leads from the modern day Lili‘uokalani Gardens area to the Puna coast. The trail is often called the Puna Trail and/or the Old Government Road (Escott and Tolleson 2003). Remains of the trail cross the Hawai‘i Army Reserve National Guard (HIARNG) Keaukaha Military Reserve (KMR) property, and it has the current appearance of a gravel-covered dirt road (Figure 6 and Figure 7). While there may have been some scattered home sites and gardens in this area, most of the known habitation was along the coast. The probable use of the area prehistorically was for trapping birds and collecting plants, including the plentiful *pandanus* or *hala* (Kelly et al. 1981:20).

THE MĀHELE OF 1848 AND LAND COMMISSION AWARDS

Prior to the Māhele, Waiākea Ahupua‘a belonged to King Kamehameha, then Lihiliho, and was later held by the chiefess Ka-unu-o-hua, granddaughter of Keawe-mauhili (Kelly et al. 1981:40). Waiākea became Crown Lands during the Māhele of 1848 and in the following years twenty-six Land Claims were awarded within the *ahupua‘a* of Waiākea (Table 1). The awards were small in area, 25 of which went to native claimants. The vast majority of awards were further west in the area of Hilo Bay. No Land Commission awards were made within or near the current project area. The project area property is owned by the State of Hawai‘i lands and is administered by Hawai‘i County under executive orders.

Table 1: Land Commission Awards in Waiākea Ahupua‘a.

Grantee	LCA	Acreage
Barenaba	2327	12.25
Halai, L.K.	1279	0.60
Hale	40004	4.25
Kahue	2663	3.75
Kaiana, J.B.	2281	10.25
Kaihenui	11050-B	5.19
Kalolo	1333	2.25
Kalua	8854	3.40
Kaluhikaua	1738	2.98
Kamamalu, V.	7713	<i>‘ili ‘aina</i>
Kamanuhaka	8803	1.02
Kapu	1-F	1.60
Kealiko	11174	1.00
Keaniho	2402	5.00
Keawe	5018	0.24
-	10505	-
Kuaio	4344	1.22
Leoi	9982	0.80
Lolo	4738-B	1.27
Mahoe	1-E	4.46
Moealoha	4737	1.03
Nakai	4785	1.05
Napeahi	2603	1.30
Wahine	4737-B	1.01
Wahinealua	11173	2.50
Wahinenohoihilo	10004	1.69

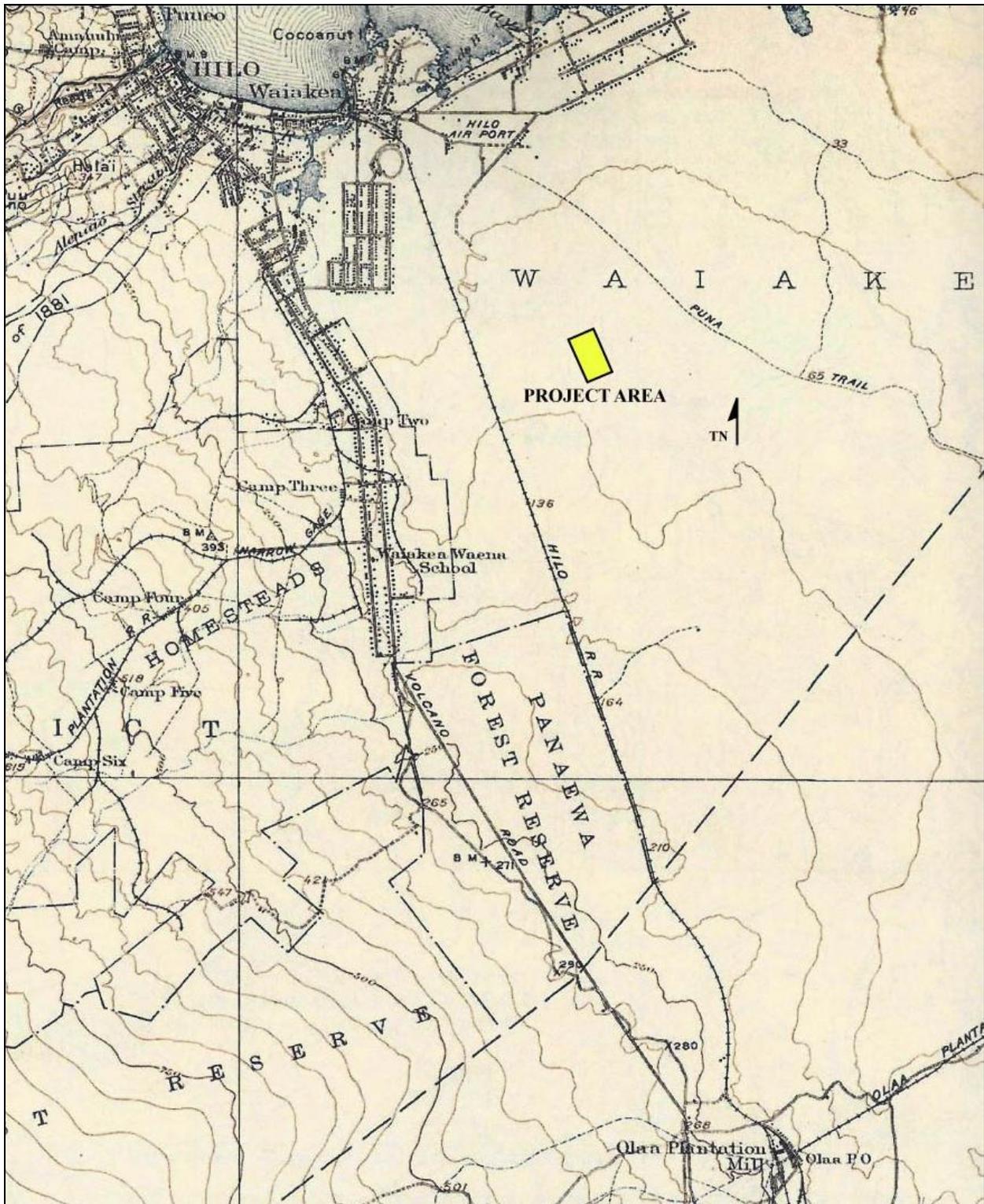


Figure 6: Portion of 1932 15-Minute Series USGS Topographic Map Showing Location of Puna Trail and Project Area (USGS Hilo Quadrangle).



Figure 7: Portion of 1954 USDA Aerial Photograph of Hilo Airport Showing Location of Project Area.

CHANGING RESIDENTIAL AND LAND-USE PATTERNS (1845-1865)

Between 1845 and 1865 traditional land-use and residential patterns underwent a change. In particular, the regular use of Hilo Bay by foreign vessels and the whaling industry, in addition to the establishment of missions in the Hilo area, the introduction of the sandalwood trade, the legalization of private land ownership, the introduction of cattle ranching, and the introduction of sugar cane cultivation, all brought about changes in settlement patterns and long-established land-use patterns (Kelly et al. 1981).

As Hilo became the center of population, settlements in outlying regions declined or disappeared. While food was still grown for consumption, greater areas of land were continually given over to the specialized cultivation and processing of commercial foodstuffs for export. Sugar cane plantations, and industrial, transportation, and military facilities were established in areas that were once upland agricultural areas and coastal settlements, respectively. In particular, the land immediately north of the current project area was used as the location of a jail, an airfield, and the Keaukaha Military Reserve (KMR).

HISTORIC OVERVIEW OF KMR

KMR comprises 503.6 acres located between General Lyman Field (Hilo International Airport) to the north, and the current project area to the south. The area lies in rugged, broken, undulating lava flows, and where unmodified by bulldozing, a dense forest of mixed and native flora abounds. Rainfall in this portion of Hilo keeps the jungle wet, and the ground surface slippery.

In 1914, the Territory of Hawai‘i, via Executive Order Number (EO) 26 set aside 213.43 acres of government lands in Waiākea, north of the current project area, for a National Guard rifle range. In 1925, the Territory withdrew 33 acres for the building of Lyman Airfield by the Army Corp of Engineers.

In August of 1938, a territorial prison camp was constructed on 13.55 acres in Waiākea, north of the current project area. The complex included an acting Jailer's cottage, and a large fenced area with two dormitories, a mess/laundry building, and a recreation/workshop. The prison camp was moved in 1946 and all buildings were removed.

The Army Corp of Engineers constructed a coral runway at KMR beginning in 1925. Hawaiian Airlines used the airport at the outbreak of World War II. The Navy expanded the airfield to three runways, built storage for 450,000 gallons of gasoline, and 24 airplane revetments. KMR became a Naval Station in August 1943 under the 14th Naval District Command Servicing Carrier Aircraft Service Unit (CASU) No. 31 and Air Group One. Extensive building took place including officer and enlisted men's quarters, a swimming pool, two clubs, a three-tank tank farm, water systems, cesspools, tennis courts, and other infrastructure. Personnel at KMR hit a wartime peak of 4,500 upon completion of construction in 1945.

Naval Air Station Hilo officially closed on August 31, 1947. On May 10, 1943, Hilo Airport was officially renamed General Lyman Field. In May 1946, while the Naval Station at KMR was being reduced to caretaker status, the Army Air Force announced that the 7th Army Air Corps (AAC) would begin 24-hour operations at Lyman Field.

In 1947, reactivation of the Hawai‘i Army Reserve and National Guard (HIARNG) resulted in the HIARNG using several Navy buildings. During this time, many buildings were demolished or sold to the public as war surplus. KMR is the headquarters for the island of Hawai‘i National Guard units of the 2nd Battalion, 299th Infantry Company D and 2nd Battalion 299th Infantry, as well as Army Air Guard units 451Bt Aviation Detachment, and the 452nd Aviation Attachment. KMR has firing ranges, training areas, barracks, support facilities, an armory and offices. During annual or special training operations, several hundred to thousands of Guardsmen are housed in cabins and tents pitched in the encampment area.

PROJECT AREA LAND-USE

The current project area has been used since at least 1975 as a quarry and baseyard for excavating, crushing, storing, and hauling rock for local construction purposes. The property was leased by the State of Hawai‘i to private contractors for those purposes. The majority of the project area is open quarry.

PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS

Many archaeological and historical studies have been conducted in Waiākea Ahupua‘a from Hilo Bay west of the current project area, to the Waiākea Sugar Mill sugarcane fields southwest of the current project area, to the KMR lands just north of the

current project area. Summaries of 39 of these studies are provided in Table 2 below. Figure 8 and Figure 9 shows the locations of archaeological studies in the region surrounding the current project area. A rough model of archaeological site types and distribution can be formulated from these regional archaeological studies.

The current project area lands are situated inland of the Coastal Settlement Zone of the east Hawai'i settlement model (McEldowney 1979). As reflected in the name of that zone, prehistoric habitation is focused along the coastline. Fishponds for *ali'i* and *maka'āinana* were created, maintained, and used all along the coast. The basic cultivated crops such as irrigated and dry taro, bananas, breadfruit, *kukui* nuts, pandanus and *ti* were grown in these lower elevations. They did not grow uniformly over the coastal zone, however. The heavily weathered soils on the Mauna Kea flows along the western portion of Hilo Bay were particularly well suited for agriculture. This bias towards the western area is evident in the distribution of fields portrayed in an early depiction of the Hilo Bay (Figure 10). The eastern half of the Hilo Bay area and further south and east are covered by younger Mauna Loa flows that lack soil the level of soil development present in the Mauna Kea flows.

Few archaeological sites have been recorded as a result of the projects conducted in the lower elevations of Waiākea. It is likely that the extent of disturbance by the 200 years of development in Hilo town is partially to blame for the lack of recorded lowland sites. In the case of archaeological projects conducted very close to the current project area, it is more likely that the lack of habitation is the result of this region being an inland, rugged, forest area that was not settled. Also, modern disturbance from historic and modern uses have likely removed some archaeological remains.

Paul H. Rosendahl Inc. (PHRI) (Rosendahl and Talea 1988) conducted research on five 5-acre lots dispersed through the South Hilo area, recording no cultural deposits due to extensive landform changes caused by the development of Hilo Town (see Figure 9). A reconnaissance survey by PHRI (M. Rosendahl 1988) conducted at the eastern end of General Lyman Field again resulted in no extant archaeological remains due to previous land disturbance.

Table 2: Inventory of Previous Archaeological Investigations in Waiākea.

Reference	Study	Location	Results
Ching and Staruder (1974)	Reconnaissance	Proposed Road alignment from S. Hilo to Puna	Wall, enclosure, platform burial, and habitation site near Puna boundary
Bonk (1979)	Survey	West of KMR	Historic wall and road alignment
McEldowney (1979)	Historical research	Hilo	Settlement pattern
Kelly, Nakamura and Barrère (1981)	Historical research	Hilo	Chronology
Kam (1983)	Site inspection	Reed's Bay	1 site, heiau
Smith and Tourtellotte (1988)	Burial removal	Wailoa Bridge	One individual encountered
Rosendahl, M. (1988)	Reconnaissance	Various parcels in Hilo Town	No sites
Rosendahl, M. and L. Talea (1988)	Reconnaissance	North West of KMR	No sites
Rosendahl, P. (1988)	Reconnaissance		No sites
Pietrusewsky (1989)	Skeletal analysis	Wailoa Bridge	1 Individual
Stokes (1991)	Intermittent survey	Various Parcels	Heiau locations
Hunt and McDermott (1993)	Inventory Survey	Puainako Street Extension	11 sites, historic sugarcane
Borthwick et al. (1993)	Inventory Survey	UH Hilo	Sugar cane remains in uplands
Maly (1996)	Cultural History	Puainako- Komohana Street area	Sugar cane history
Robbins and Spear (1996)	Inventory Survey	Puainako Street	Sugar cane sites in the uplands
Eblé et al. (1997)	Supplemental Testing	Puainako Street	Sugar cane sites in the uplands
Deveroux, et al. (1997)	Reconnaissance	KMR	2 sites
Carson (1999)	Inventory Survey	Pana'ewa	No sites
McGerty and Spear (1999)	Inventory Survey	Puainako Street Extension	1 site
Dega and Benson (1999)	Reconnaissance	Puainako Street Extension	Possible prehistoric 'auwai
Dega (2000)	Inventory Survey	Puainako Street Extension	'Auwai equals historical ditch
Bush et al. (2000)	Inventory Survey	Puainako Street Extension	Burial in cave in uplands

Reference	Study	Location	Results
Hammatt & Bush (2000)	Inventory Survey	KMR	Mounds and Puna Trail
McDermott and Hammatt (2001)	Inventory Survey	Puainako Street Extension	2 historical sites in uplands
Tolleson and Godby 2001		KMR	Historic era sites and Puna Trail
Rosendahl, P. (2002)	Assessment Survey	Quarry Site on Southeast Edge of KMR	No sites
Escott and Tolleson (2002)	Inventory Survey	KMR	Trail and planting features
Haun & Henry (2002)		Southwest of KMR	No sites
Rechtman (2003)	Archaeological study and limited CIA	Western edge of KMR	No site
Escott (2004)	Inventory Survey	Puainako Street and Komohana Street area	WWII sites in the uplands
Wolforth (2004)	Inventory Survey	Reed's Bay	Fishponds, railroad, Historic era foundations
Wolforth (2006)	Inventory Survey	Western edge of KMR	Modern military building remains
Rechtman (2006)	Inventory Survey	Quarry site south of KMR	No sites
Hammatt & Uyeoka (2007)	Archaeological Monitoring	Southeast of KMR	No sites
Tulchin & Hammatt (2007)	Field Inspection	Wal-Mart Property	No sites
Escott (2013a)	Archaeological Assessment	Quarry site west of KMR	No sites
Escott (2013b)	Archaeological Assessment	Quarry site west of KMR	No sites
Wheeler et al. (2014)	Inventory Survey	KMR	Eleven sites, some pre-Contact era, some historic, and some more modern including military features
Escott 2015	Archaeological Assessment	50 acres of DHHL property	No sites

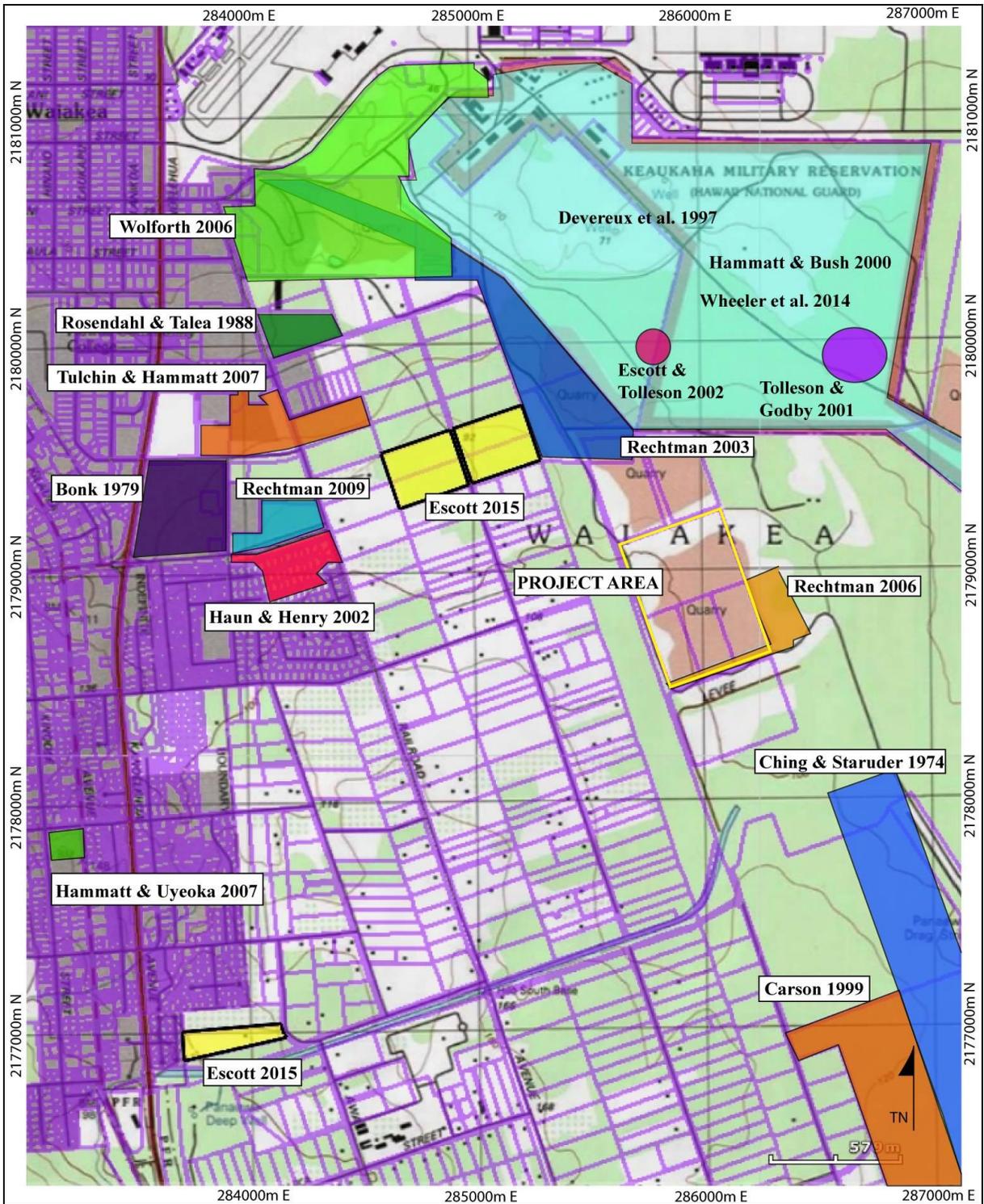


Figure 8: 7.5-Minute Series USGS Topographic Map Showing Location of Previous Archaeological Studies Near the Project Area (ESRI, 2013. Sources: National Geographic Society, USGS Hilo Quadrangle).

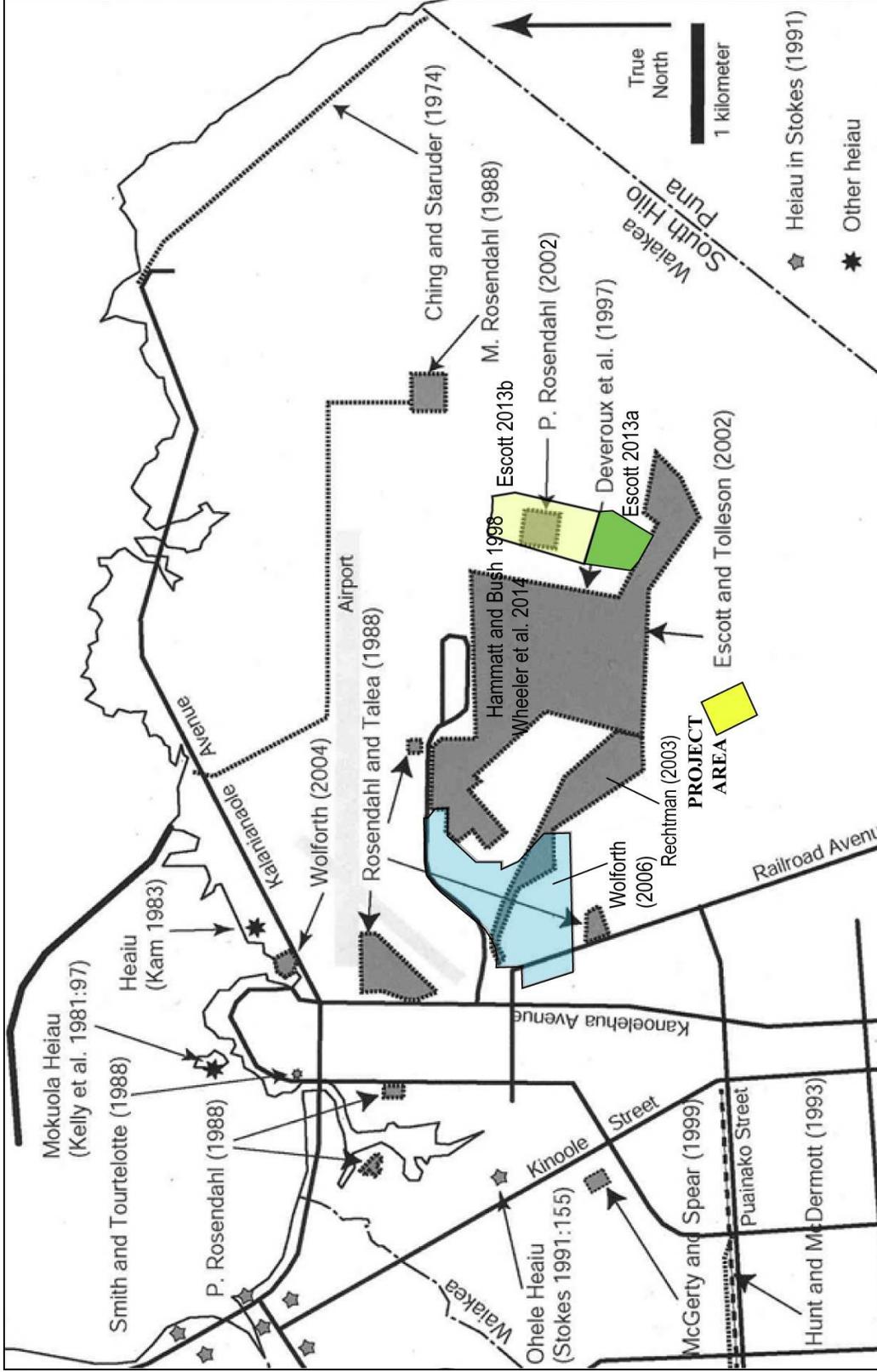


Figure 9: Map Showing Location of Previous Archaeological Studies Near KMR and the Project Area (adapted from Wolforth 2006).

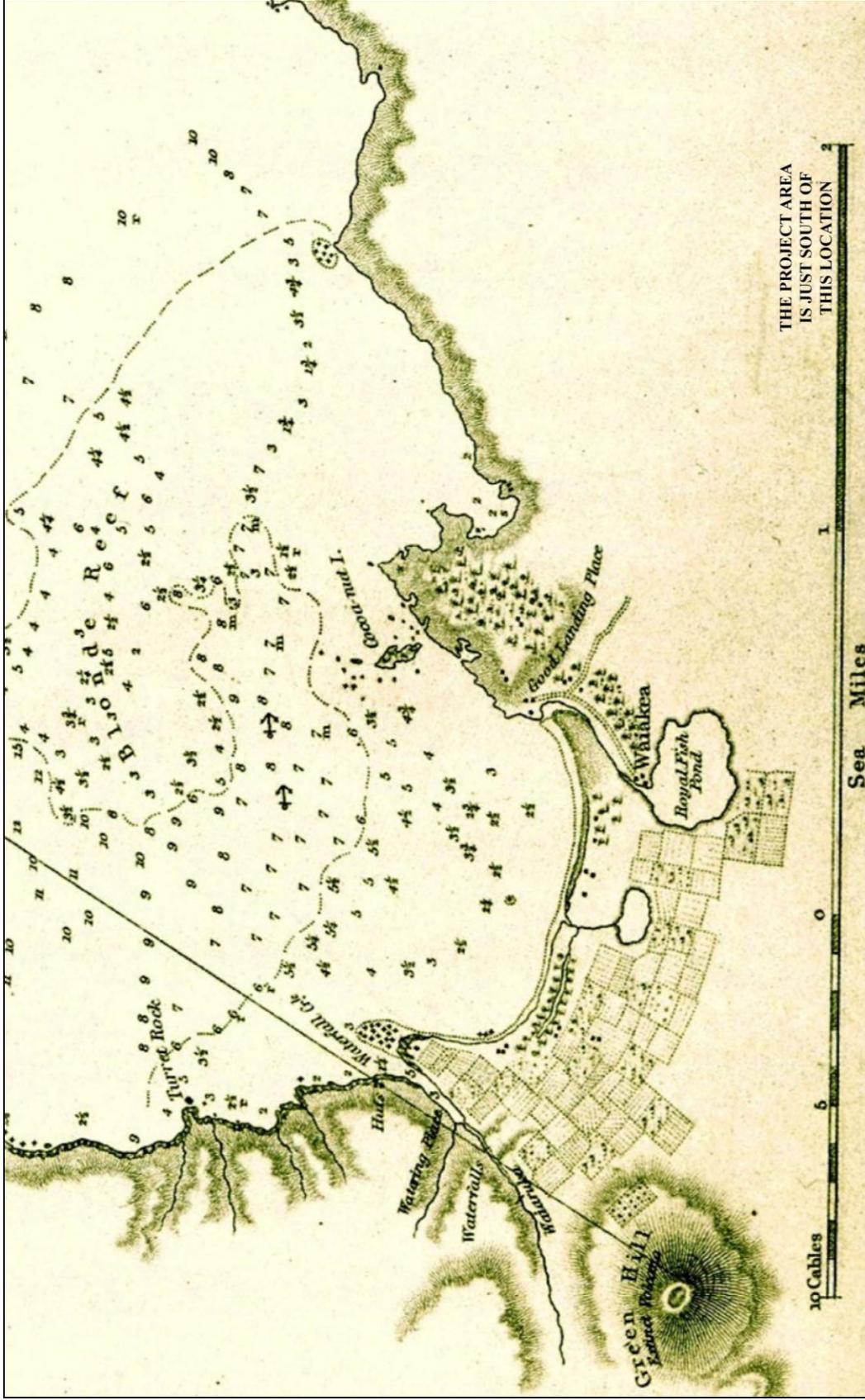


Figure 10: Portion of 1825 Map of Hilo Bay Showing Location of Major Habitation and Agricultural Fields (Malden 1825).

Devereux et al (1997) conducted a reconnaissance level survey for HIARNG on selected portions of KMR along a corridor parallel to the Puna Trail (see Figure 9). Two sites (assigned temporary site numbers CSH 1 and CSH 2) were recorded: as a prehistoric C-shaped enclosure and a coral mound, the team also addressed 10 historic structures over 50 years of age. CSH2 was later interpreted as a modern bulldozer push.

Hammatt and Bush (2000) conducted an inventory level survey of KMR adjacent to the portion of the Puna Trail that extends through the facility. In this report, they discussed the history of the Puna Trail that continues down to south Puna where it meets with the Old Gov't Road (also called the Puna trail). They noted extensive mechanical grading of the ground surface at KMR during military occupation that has effectively removed all surface traces of historic/prehistoric occupation. However, the entire facility was not completely surveyed. Hammatt and Bush recorded three archaeological sites, a C-shaped enclosure, thought to be military in origin, a group of five *ahu*, possibly markers to denote the trail set parallel to the Puna Trail and a modified natural lava blister interpreted as a traditional Hawaiian agricultural planting feature.

Tolleson and Godby (2001) conducted archaeological data recovery at Site 21771 located adjacent to the paved portion of the Puna Trail that traverses KMR. This site consists of a complex comprised of a low platform, an enclosure, a possible *imu*, fruit trees, and a meadow. Artifacts, such as horse/mule shoes, sharpening implements, a sharpening wheel, and hoof files suggest the site is related to historical road construction along the Puna Trail.

PHRI (P. Rosendahl 2002) conducted an archaeological assessment survey of 14.99-acres of the quarry site within the current project area. No archaeological sites were identified during the study.

Escott and Tolleson (2003) conducted an archaeological inventory survey just east of the current project area. A single site (Site 23273) consisting of a remnant trail segment and two planting features were recorded along the south west boundary of the project area.

Wolforth (2006) conducted an archaeological inventory survey of 147 acres south of the Hilo International Airport. Four sites (SIHP 50-10-35-25538, 25539, 25540, and 25541),

associated with a Naval Air Station facilities and a quarry were recorded. No pre-Contact or early post-Contact era sites were documented on the project area.

Scientific Consultant Services, Inc. (Escott 2013a, Escott 2013b) conducted two archaeological assessments of 50 and 85 acres of land along the eastern edge of the KMR. No archaeological sites or historic properties were identified during the study.

The study did document modern dirt roads that were cut by bulldozers, likely in anticipation of building out this area. The dirt roads were straight and were oriented northwest/southeast. A search was made of Hawai'i County Planning documents, historic maps, and archival documents to ensure the dirt road was not constructed over a pre-existing trail or government road. In addition, SCS consulted with Ala Kahakai and Na Ala Hele. There were no documents showing a traditional trail or government road in the location of the dirt road identified during the current study.

Cultural Surveys Hawai'i, Inc. recently conducted an archaeological inventory survey of the KMR (Wheeler et al. 2014). During that study eleven sites were documented, including seven early post-Contact era to modern era sites, and four pre-Contact to Historic era sites (Wheeler et al. 2014:64). The pre-Contact era to Historic era sites included two trails, a modified lava tube, and a modified outcrop complex. The trails were associated with travel and transportation through the area, and the latter two sites were associated with temporary habitation, possibly while traveling through the area, or while collecting forest resources. The early post-Contact to modern era sites included three trail segments, a military position, and two possible homesteads with small agricultural garden plots.

Scientific Consultant Services, Inc. (Escott 2015) conducted an archaeological assessment of 50 acres of land southwest of the current project area (see Figure 9). No archaeological sites or historic properties were identified during the study.

Scientific Consultant Services, Inc. (Escott 2016 draft) conducted an archaeological assessment of the current 70- acre project area. The entire project area was subjected to a pedestrian survey and no archaeological sites or historic properties were identified during the study.

CULTURAL INFORMANT INTERVIEWS

As part of the consultation methodology discussed above, SCS, Inc. consulted with Shane Palacat Nelson, Coordinator of the Hawai‘i Branch of the Office of Hawaiian Affairs and Herbert Poepoe, SHPD Hawai‘i Island Burial sites Specialist (Table 1). In addition, three individuals with long-time associations with the project area lands and the wider Pana‘ewa forest area responded to the public notices request for information. The individuals included Lei Leihua Kane, Carmen Malunao, and Aunty Carmelita Dutchie Saffery. Carmen Malunao and Aunty Dutchie Safferey were not aware of any historic properties or past/ongoing cultural practices associated with the project area lands.

Table 3: Results of CIA Consultation.

Name	Affiliation (Family/Agency)	Response (Written/Oral)	Knowledge (Yes/No)	Practices & Beliefs (Yes/No)
Shane Palacat Nelson	Office of Hawaiian Affairs	-	-	-
Herbert Poepoe	State Historic Preservation Division Cultural Historian	Oral	No	-
Lei Leihua Kane	Cultural Practitioner	Oral	Yes	No
Carmen Malunao	Cultural Affiliation	Oral	Yes	No
Carmelita Dutchie Safferey	Cultural Affiliation	Oral	Yes	No

Lei Leihua Kane, a traditional Hawaiian cultural practitioner of hula, recounted that her family is from Waiāea, and that her family used to travel along the coastal trail east of the Pana‘ewa forest and chant on their way to make offerings to Pele. Lei, her mom, and Lei’s sister know parts of the chant. She was not aware of any historic properties or past/ongoing cultural practices associated with the project area lands.

CULTURAL ASSESSMEMNT

No past or ongoing cultural practices associated with the project area lands were identified during the current CIA study. Based upon an evaluation of responses to inquiries, meeting discussions, and archival research, it is reasonable to conclude that, pursuant to Act 50, the exercise of native Hawaiian rights, or any ethnic group, related to gathering, access or other customary activities will not be affected by development activities on the project area.

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Borthwick, D., J. Collins, W.H. Folk, and H.H. Hammatt

1993 *Archaeological Survey and Testing of Lands Proposed for Research and Technology Lots at the University of Hawaii at Hilo (TMK:2-4-01:7 and 41)*. On file at State Historic Preservation Division, Kapolei, Hawaii.

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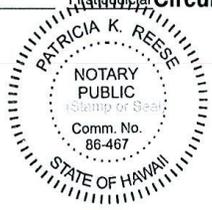
APPENDIX A: PUBLIC NOTICES

AFFIDAVIT OF PUBLICATION

IN THE MATTER OF
SCS1894 Hilo Compost Facility CIA Public Notices

STATE OF HAWAII }
} SS.
City and County of Honolulu }

Doc. Date:	MAR 28 2016	# Pages:	1
Notary Name:	Patricia K. Reese	First Judicial Circuit	
Doc. Description:	Affidavit of Publication		
Notary Signature	<i>Patricia K. Reese</i>	Date	MAR 28 2016



CULTURAL IMPACT ASSESSMENT NOTICE
 Information requested by Scientific Consultant Services, Inc. of cultural resources and/or cultural practices on four parcels located in Hilo on lands of Waialea Ahupua'a, South Hilo District, Island of Hawaii (TMC (3) 2-1-013:142, 160, 161, and 163). Please respond within 30 days to Glenn Escott at (808) 938-0968. (HTH657965 3/23, 3/24, 3/27/16)

Rose Rosales being duly sworn, deposes and says that she is a clerk, duly authorized to execute this affidavit of Oahu Publications, Inc. publisher of The Honolulu Star-Advertiser, MidWeek, The Garden Island, West Hawaii Today, and Hawaii Tribune-Herald, that said newspapers are newspapers of general circulation in the State of Hawaii, and that the attached notice is true notice as was published in the aforementioned newspapers as follows:

- Honolulu Star-Advertiser 0 times on:
- MidWeek 0 times on:
- The Garden Island 0 times on:
- Hawaii Tribune-Herald 3 times on:
03/23, 03/24, 03/27/2016
- West Hawaii Today 0 times on:

Other Publications: 0 times on:

And that affiant is not a party to or in any way interested in the above entitled matter.

Rose Rosales
 Rose Rosales
 Subscribed to and sworn before me this 28th day of March A.D. 2016
Patricia K. Reese
 Patricia K. Reese, Notary Public of the First Judicial Circuit, State of Hawaii
 My commission expires: Oct 07, 2018



Ad # 0000857965

SP.NO.: _____ L.N.

Hawai'i Tribune-Herald Public Notice Affidavit.

AFFIDAVIT OF PUBLICATION

IN THE MATTER OF
SCS1894 Hilo Compost Facility CIA Public Notices

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STATE OF HAWAII }
} SS.
City and County of Honolulu }

Doc. Date: MAR 28 2016 # Pages: 1
 Notary Name: Patricia K. Reese First Judicial Circuit
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Publication
 Notary Signature: [Signature] Date: MAR 28 2016
 [Notary Seal: PATRICIA K. REESE, NOTARY PUBLIC, Comm. No. 86-467, STATE OF HAWAII]

CULTURAL IMPACT ASSESSMENT NOTICE
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- West Hawaii Today 0 times on:

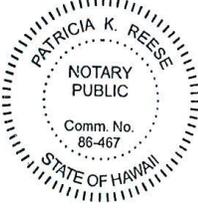
Other Publications: 0 times on:

And that affiant is not a party to or in any way interested in the above entitled matter.

[Signature]
Rose Rosales
Subscribed to and sworn before me this 28th day of March A.D. 2016

[Signature]
Patricia K. Reese, Notary Public of the First Judicial Circuit, State of Hawaii
My commission expires: Oct 07, 2018

Ad # 0000857958



SP.NO.: _____ L.N. _____

Honolulu Star-Advertiser Public Notice Affidavit.

CULTURAL IMPACT ASSESSMENT NOTICE

Information requested by Scientific Consultant Services, Inc. of cultural resources and/or cultural practices on four parcels located in Hilo on lands of Waiākea Ahupua'a, South Hilo District, Island of Hawai'i [TMK: (3) 2-1-013:142, 160, 161, and 163]. Please respond within 30 days to Glenn Escott at (808) 938-0968.

Scientific Consultant Services, Inc. (SCS) is seeking information on cultural resources and traditional, previously or on-going, cultural activities conducted on or near the proposed County of Kaua'i Adolescent Drug Treatment Facility located next to Ma'alo Road at the intersection of Ehiku Street and a cane haul road leading to Hanamā'ulu in Hanamā'ulu Ahupua'a, Puna District, Island of Kaua'i, Hawai'i [TMK (4) 3-8-002:001 por.]. Please respond within 30 days to Cathleen Dagher at (808) 597-1182.

Kalaupapa National Historical Park plans to do preservation and repair work on the following grave sites at Papaloa Cemetery from

6/2/16-9/30/16. Plot # and Name: H021-Unknown; H026-Unknown; H027-Delphine J. Soares; H028-Mrs. Esther M. Robinson; H031-Unknown; H033-Soloman Thompson; H036-Unknown; H041-Mr. G. Kettle; H045-Unknown; H046-Unknown; H047-Paulo Keaho; H055-Unknown; H063-Unknown; H069-F. P. Kaalehua and Jno. Kaalehua; H075-Wikoli Hueu; H076-Visonahlo; H096-Unknown; G099-Robert Holt and Louis Stanton; G104-Mrs. E. Kaleimoni Kini; G108-Mrs. S. Kelii Kekoa.

If you have any questions or concerns, please contact Ka'ohulani McGuire at: 808-567-6802, ext. 1701 or kaohulani_mcguire@nps.gov.

Information requested by Scientific Consultant Services, Inc. (SCS) on cultural resources; traditional/on-going; cultural; recreational; and/or educational activities on or near the proposed Ala Wai Canal Dredging, Wall Repair and Improvements project area, located in Waikīkī, Pālolo, Makiki, and Mānoa Ahupua'a, Honolulu (Kona) District, O'ahu Island [Tax Map Keys: (1) 2-3, 2-6, and 2-7] Please respond within 30 days to Cathleen Dagher at (808) 597-1182. ■

Ka Wai Ola Public Notice (May 2016 Issue).

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Appendix E

Transportation Impact Analysis Report



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REPORT

**Transportation Impact Analysis
for the County of Hawaii
East Hawaii Organics Facility**

Prepared for:
PBR Hawaii

August 2016

SD16-0208

FEHR  PEERS

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1.0 EXECUTIVE SUMMARY

The following findings resulted from the TIAR:

- Under Existing and Near Term 2018 Conditions, all study intersections operate acceptably at LOS D or better, which is the desired minimum operating level for both the County of Hawaii and the State of Hawaii Department of Transportation (HDOT).
- The proposed project (i.e., the compost operation) is estimated to generate 133 diverted daily vehicle trips, including 36 during the AM peak hour (28 inbound/8 outbound) and 23 in the PM peak hour (5 inbound/8 outbound). These trips are being diverted from the existing West Hawaii Sanitary Landfill (WHSL) and South Hilo Sanitary Landfill (SHSL) to the new East Hawaii Organics Composting Facility.
- Under Near Term 2018 plus Project Conditions all intersections are projected to operate acceptably at LOS D or better, and no intersections are significantly impacted by the proposed project. Accordingly, no roadway improvements at the study locations are needed or recommended.

2.0 INTRODUCTION

This transportation impact analysis report (TIAR) presents the results of the study conducted by Fehr & Peers for the proposed County's green waste diversion and compost operation at the East Hawaii Organics Facility (EHOF), which would take access from Ho'olaulima Road below Railroad Avenue in Hilo on the island of Hawaii. The TIAR includes a description of the assumptions and methods used to conduct the study, as well as a discussion of the results. This TIAR was conducted in accordance with the guidelines and standards of the affected government agencies. Detailed site plans for the proposed project were not available at the time of this study.

2.1 PROJECT DESCRIPTION

The proposed project is the development of the County's first compost operation at the East Hawaii Organics Facility (EHOF), located approximately one mile south of the South Hilo Sanitary Landfill (SHSL) and Hilo Recycling and Transfer Station. During the first year of operation, the new facility would divert Green waste and designated organic materials from the South Hilo Sanitary Landfill and the West Hawaii Sanitary Landfill. In year two, the facility will expand to a full composting facility that will accept a full range of organic materials. The location of the project site and immediate study area are shown on **Figure 1**.



● Study Intersection

■ Project Site



Figure 1
Study Area

2.2 PROJECT STUDY AREA

The study analyzed the potential project-related traffic impacts under typical weekday AM and PM peak hour traffic conditions at full build-out in 2018. The transportation analysis evaluated the operations at two intersections in the vicinity of the proposed project. The analyzed intersections are listed below and are shown on **Figure 1**:

1. Kanoelehua Avenue/Leilani Street
2. Leilani Street/Railroad Avenue

The project will incorporate use of existing roads for regional and local vehicle access. Regional access to the proposed project will be provided via Kanoelehua Avenue, also known as Highway 11. Local access is provided via Leilani Street and Ho'olaulima Road.

Analysis of the proposed project includes the intersections of Kanoelehua Avenue/Leilani Street, and Railroad Avenue/Leilani Street. The study includes an analysis of AM and PM peak hour intersection operations, where the peak hour is the highest one-hour total of traffic between 6:00 am and 9:00am in the morning and between 3:00 pm and 6:00pm in the late afternoon/evening. Existing conditions are described below, followed by a description of conditions with the proposed project.

The operations of the study intersections were evaluated during the weekday morning (AM) and evening (PM) peak hours for the following scenarios:

- **Existing Conditions** – The analysis of existing traffic conditions was based on 2015 counts collected for the analyzed peak hours. The existing conditions analysis also includes a description of key area roadways and an assessment of bicycle, pedestrian, and transit facilities and services near the site.
- **Near Term (2018) Baseline Conditions** – Existing peak-hour volumes increased to account for approved (but not yet occupied) development projects and growth in the area to the year of anticipated project occupancy in 2018. 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 forms the baseline for identifying project impacts.
- **Near Term (2018) Plus Project Conditions** – This traffic scenario provides projected traffic volumes and an assessment of operating conditions under Near Term Baseline Conditions with the addition of project-generated traffic. The near term impacts of the proposed project on future traffic conditions were identified.

2.3 TRAFFIC ANALYSIS METHODS

The analysis of roadway operations performed for this study is based on procedures presented in the *Highway Capacity Manual* (HCM), published by the Transportation Research Board in 2010. 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 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 methodologies for signalized and unsignalized intersections are described below.

2.3.1 SIGNALIZED INTERSECTIONS

The method described in Chapter 18 of the *Highway Capacity Manual 2010* was used to prepare the LOS calculations for the signalized study intersection, which is the Kanoelehua Avenue/Leilani Street intersection. 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 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 9.0 analysis software and is correlated to a LOS designation as shown in **Table 1**.

TABLE 1: SIGNALIZED INTERSECTION LOS CRITERIA

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*, Transportation Research Board, 2010.

2.3.2 UNSIGNALIZED INTERSECTIONS

The Railroad Avenue/Leilani Street intersection is currently side-street stop controlled. The operations of the unsignalized intersections were evaluated either using the method contained in Chapter 19: Two-Way Stop-Controlled Intersections of the *HCM 2010*. LOS ratings for stop-sign-controlled intersections are based on the average control delay expressed in seconds per vehicle. At all-way stop-controlled intersections the overall intersection delay and LOS is reported, and the LOS is characterized solely on control delay. At two-way or side-street-controlled (TWSC) intersections, the average control delay is calculated for each minor-street stopped movement and the major-street left turns, not for the intersection as a whole. For approaches composed of a single lane, the control delay is computed as the average of all movements in that lane. For approaches with multiple lanes, the control delay is computed for each movement; the movement with the worst (i.e., longest) delay is presented for TWSC. The average control delay for unsignalized intersections is calculated using Synchro 9.0 analysis software and is correlated to a LOS designation as shown in **Table 2**.

TABLE 2: UNSIGNALIZED INTERSECTION LEVEL OF SERVICE DEFINITIONS

Level of Service	Description	Average Control Delay Per Vehicle (Seconds)
A	Little or no delay.	≤ 10.0
B	Short traffic delay.	> 10.0 to 15.0
C	Average traffic delays.	> 15.0 to 25.0
D	Long traffic delays.	> 25.0 to 35.0
E	Very long traffic delays.	> 35.0 to 50.0
F	Extreme traffic delays with intersection capacity exceeded.	> 50.0

Source: *Highway Capacity Manual*, Transportation Research Board, 2010.

Notes:

¹ For approach-based and intersection-wide assessments, such as that used for AWSC intersections, LOS is defined solely by control delay.

2.3.3 SIGNIFICANT IMPACT CRITERIA

The analysis of Near Term Conditions compares future baseline operations with conditions when the project is fully built out to determine whether or not project traffic is expected to result in a significant impact on the surrounding roadways. Based on previous studies conducted for HDOT and the County of Hawaii, the minimum desirable operating level for roadways is LOS D. If a facility operates or is projected to operate at LOS E or F, feasible capacity enhancements or other improvements may be needed to improve operations. Unacceptable vehicle operations may be permitted to occur if potential vehicle improvements will result in substantial secondary impacts to other travel modes including walking, bicycling and transit.

Each of the identified significant impacts is categorized as either a project-related or cumulative impact. If the addition of project traffic is expected to degrade LOS D or better operations to LOS E or F at a signalized intersection, then the project is considered to have a project-specific impact. An impact is considered a cumulative impact at a signalized intersection if the addition of project trips exacerbates LOS E or F operations.

For unsignalized intersections, the project is determined to have a significant project-specific impact if the addition of project traffic causes an unsignalized intersection to degrade from LOS D or better to LOS E or

F and if the peak hour signal warrant is satisfied. An impact is considered a cumulative impact when it adds traffic to a study location that includes a controlled approach that operates at an undesired level (i.e., LOS E or F) and if the peak hour signal warrant is satisfied.

In addition, an impact at a signalized intersection is deemed to be significant if a project exacerbates operations on facilities already operating at LOS E or F and changes the corresponding volume-to-capacity (V/C) ratio by at least 0.01. This impact is deemed a cumulative project-related impact since the already poor operations are caused by traffic generated from other sources, as well as from the proposed project. When evaluating operations at any location, other factors should be considered in the analysis, such as traffic volumes, volume-to-capacity (V/C) ratios (which should ideally be less than 1.00), and secondary impacts to pedestrian, bicycle, and transit travel.

Neither the County of Hawaii, nor HDOT, specify 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, or 2) create walking, bicycling, or transit use demand without providing adequate and appropriate facilities for non-motorized mobility. The existing amenities for pedestrians, bicycles, and transit users were inventoried to evaluate the quality of the facilities in place today.

2.4 REPORT ORGANIZATION

This report is divided into eight chapters. The existing transportation system serving the project site and the current operating conditions of the key intersections are described in **Chapter 3** Existing Conditions. **Chapter 4** summarizes the methodologies used to forecast future cumulative project traffic volumes and the resultant forecasts, and presents the analysis for Near Term (2018) Baseline Conditions. **Chapter 5** describes the project trip generation, distribution, and assignment used in the transportation impact analysis. **Chapter 6** presents the analysis of the Near Term (2018) Plus Project Conditions, assesses any traffic impacts at study intersections, and identifies mitigation measures to address any project impacts. **Chapter 7** includes an assessment of the potential future effect of the project on existing and future transit, bicycle, and pedestrian facilities.

3.0 EXISTING CONDITIONS

This chapter describes the existing roadway network and includes a discussion of the bicycle, pedestrian, and transit facilities located in the project study area. This chapter also includes a discussion of the existing intersection LOS results.

3.1 EXISTING TRANSPORTATION FACILITIES

A comprehensive data collection effort was undertaken to identify existing transportation conditions in the 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 service and 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 site are described below. **Figure 1** illustrates the proposed project location and the surrounding roadway system.

Kanoelehua Avenue (Highway 11) is operated and maintained by Hawaii Department of Transportation (HDOT) and is a five- to six-lane highway in the vicinity of the project site (i.e., some sections only include two northbound through lanes at intersections north and south of the immediate study area). Kanoelehua Avenue is also known as Hawaii Belt Road which traverses around the entire island of Hawaii. The specific portion of it that passes along the proposed project site is identified as Route 11 and is oriented in a north-south direction. In the immediate vicinity of the site, this roadway includes a 20-foot buffer/median. The posted speed limit is 35 miles per hour (mph).

Leilani Street is under the jurisdiction of the County of Hawaii and is an east-west facility within the context of this study area with one lane in each direction. The western leg of Leilani Street provides access to residential neighborhoods, and the posted speed limit on this segment is 25 mph. Leilani Street east of Kanoelehua Avenue provides access to a number of commercial properties, base yards and industrial facilities. The posted speed limit is 30 mph.

Railroad Avenue is under the jurisdiction of the County of Hawaii and is a north-south facility that includes one lane in each direction. The southern section of Railroad Avenue provides access to base yards and facilities, commercial sites, residential areas and to agricultural and undeveloped land south of Kahaopea

Street. The posted speed limit in the study area is 30 mph. The northern section of Railroad Avenue terminates at the T-intersection with Leilani Street.

Ho'olaulima Road is under the jurisdiction of the County of Hawaii and is a north-south facility that begins at Leilani Street in the north and extends southerly to its current terminus three and a half miles to the south. This roadway is a two lane undivided roadway with a posted 25 mph. The roadway has limited driveway access points, but provides direct access to the project site, as well as the existing Hilo Landfill and Hilo Recycling and Transfer Station.

3.1.2 EXISTING TRANSIT SERVICES

"Hele-On Bus" is the County of Hawaii's primary form of public transit that offers fixed-route transit services in the Hilo and Kona districts. There are currently no bus stops directly on Ho'olaulima Road or Leilani Street serving the project site, but two Intra-Hilo (Waiakea-Uka and Kaumana) transit routes travel within the study area on Kanoehua Avenue and Railroad Avenue. The nearest bus stop is located approximately two miles from the project site on Ohohu Street at the Prince Kuhio Shopping Center.

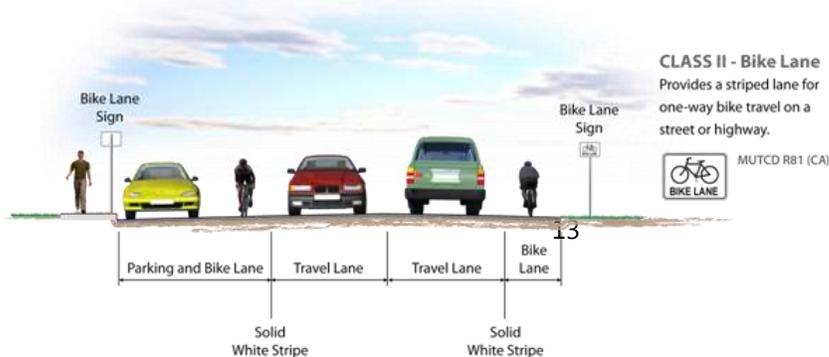
3.1.3 EXISTING BICYCLE FACILITIES

Bicycle facilities generally consist of three types of facilities, which are outlined below:

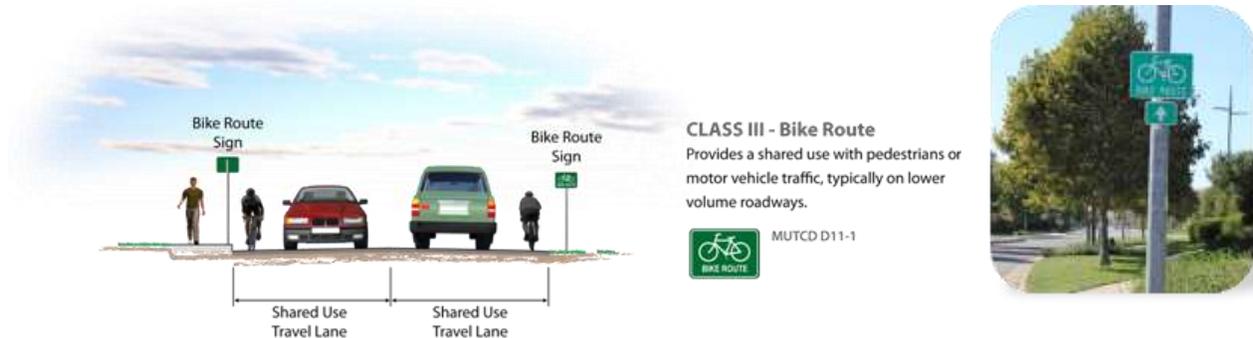
- *Bike or Shared Use Paths* provide a completely separate right-of-way and is designated for the exclusive use of bicycles and pedestrians with vehicle and pedestrian cross-flow minimized. Generally, the recommended pavement width for a two-directional shared use path is ten (10) feet.



- *Bike Lanes* provide a restricted right-of-way and are designated for the use of bicycles with a striped lane on a street or highway. Bicycle lanes are generally five (5) feet wide. Adjacent vehicle parking and vehicle/pedestrian cross-flow are permitted.



- Bike Route or Signed Shared Roadways provide for a right-of-way designated by signs or shared lane pavement markings, or “sharrows,” for shared use with pedestrians or motor vehicles.



As depicted in **Figure 6**, no bicycle infrastructure is provided within the direct proximity of the project site; thus, bicyclists are required to share the roadway.

3.1.4 EXISTING PEDESTRIAN FACILITIES

Pedestrian facilities consist of sidewalks, crosswalks, and pedestrian signals at signalized intersections. Since the proposed project is located in a rural area and surrounded by few industrial facilities, the existing pedestrian activity in the study area is considerably low, and pedestrian facilities are limited. No pedestrian sidewalks are provided on Ho’olaulima Road, Leilani Street, or Railroad. High visibility crosswalks are provided across all four legs of the Kanoelehua Avenue/Leilani Street intersection.

3.2 EXISTING INTERSECTION VOLUMES AND LANE CONFIGURATIONS

The operations of the two existing study intersections were evaluated during weekday morning (6:00 to 8:00 AM) and evening (3:00 to 6:00 PM) peak-period conditions. Traffic counts were collected during the weekday AM and PM peak periods at the study intersections in April 2015, when local schools were in session. The weekday AM peak hour of traffic for the study area generally occurs between the hours of 7:30 AM to 8:30 AM. During the weekday evening, the PM peak hour of traffic generally occurs between the hours of 3:30 PM to 4:30 PM.

Existing lane configurations and signal controls were obtained through field observations. **Figure 2** presents the existing AM and PM peak-hour turning movement volumes, corresponding lane configurations, and traffic control devices. Raw traffic count data sheets are provided in **Appendix A**.

3.3 EXISTING INTERSECTION LEVELS OF SERVICE

Peak hour intersection capacity analysis was performed for the study intersections using the methodology described above and the recently collected traffic count data. **Table 3** below shows the results of the intersection operations analysis for Existing Conditions, and the detailed LOS Worksheet can be found in **Appendix B**. It is important to note that the LOS for the unsignalized intersection represents the worst case controlled movement or approach and not the entire intersection.

TABLE 3: EXISTING (2015) INTERSECTION LEVELS OF SERVICE

Intersection	Traffic Control ¹	Peak Hour	Delay (sec/veh) ₁	LOS ²
1. Kanoelehua Ave/Leilani St	Signal	AM	24.0	C
		PM	23.9	C
2. Railroad Ave/Leilani St	Side Street Stop Control	AM	20.6	C
		PM	22.9	C

Source: Fehr & Peers, 2016.

Notes:

¹ Whole intersection weighted average stopped delay expressed in seconds per vehicle for signalized and all-way stop-controlled intersections. The vehicular delay for the worst movement is reported for side-street stop-controlled intersections.

² LOS calculations performed using the *Highway Capacity Manual (HCM) 2010* method. LOS for side street stop-controlled (SSSC) intersections is worst-case movement.

Table 3 shows that all intersections currently operate at an acceptable Level of Service (LOS) of C or better during both peak hours.

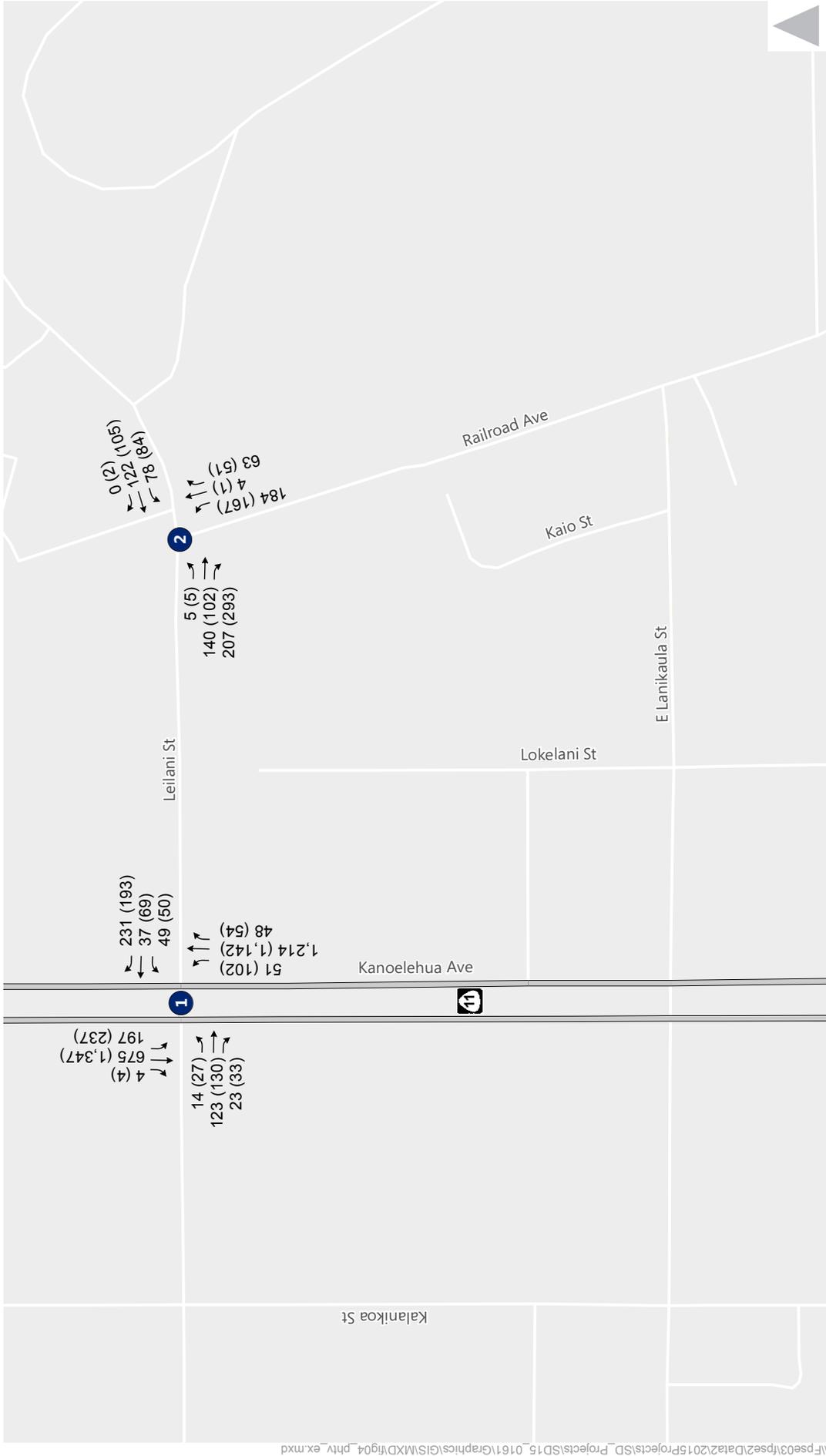


Figure 2
 Existing Peak Hour Volumes

4.0 NEAR TERM (2018) BASELINE 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, as well as traffic increases generated by other specific developments near the project site. This scenarios 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 these future traffic scenarios is described in this chapter.

4.1 NEAR TERM (2018) TRAFFIC ESTIMATES

Future baseline traffic projections include two elements: 1) growth in the existing background volumes reflect the effects of overall growth and development in and around the study area (referred to as ambient growth); and 2) traffic generated by future projects located in the vicinity of the project site.

4.1.1 AREAWIDE OR AMBIENT TRAFFIC GROWTH

The Hawaii Regional Long-Range Land Transportation Plan (LRLTP) prepared by HDOT included development of an island-wide travel demand forecasting model for purposes of forecasting future traffic volumes. The model includes land use and socioeconomic attributes in Traffic Analysis Zones (TAZs) to generate trips and assign traffic across the roadway network, which can then be used to provide AM and PM volume projections along major facilities across the island. A review of the trip assignment shows that significant employment and housing growth is projected between 2007 and 2035, especially new housing units in the Keaau and Pahoia communities.

By 2035, the project study area is projected to experience significant traffic growth, particularly on Kanoelehua Avenue and parallel facilities, such as Railroad Avenue. According to the model, traffic volumes on Kanoelehua Avenue are anticipated to exceed capacity during the AM and PM peak periods; consequently, traffic would use alternative routes to bypass the congestion on Kanoelehua Avenue.

The model growth rates derived between base year (2007) and the horizon year (2035) traffic projections provided by the LRLTP model were applied linearly to the existing traffic counts. The calculated annual growth rate of the project study roadways are:

- Kanoelehua Avenue North of Leilani Street – 1%
- Kanoelehua Avenue South of Leilani Street – 2%
- Leilani Street West of Kanoelehua Avenue – 5%
- Leilani Street East of Kanoelehua Avenue – 3%
- Railroad Avenue South of Leilani Street – 2%

The annual rates of 3% or more are considered conservative and are difficult to sustain over an extended period given historical patterns, where rates of 1% or 2% per year are more typical for the island of Hawaii. However, these rates were used since the model is currently the best available planning tool, and they result in a conservative analysis. The annual growth factors were applied to existing intersection traffic volumes collected in April 2015 to account for regional growth. The growth rates were compounded over the three-year timeframe (2015 to 2018) up to the time of full development of the proposed project.

4.1.2 BACKGROUND PROJECT TRAFFIC GENERATION AND ASSIGNMENT

Future base traffic forecasts also include the effects of individual planned/approved development projects, expected to be constructed by the project's opening year, 2018, and expected to add traffic in the vicinity of the project site. While the majority of individual projects are expected to be included in the land use projections in the regional model, some more unique projects may not be accounted for.

The only identified project in the immediate vicinity that may not be in the model and is anticipated to be built and operating by the year 2018 is the relocation of the Hilo Mass Transit Agency Baseyard & Maintenance Facility Relocation. The facility is expected to be relocated from E Lanikaula Street to Ho'olaulima Road in Hilo. The trip generation and assignment for the baseyard project was added to the future year traffic volumes discussed previously.

4.1.3 FUTURE TRANSPORTATION IMPROVEMENTS

One planned transportation improvement in the study area is the proposed connector road between Leilani Street and Airport Road. This new connection would help alleviate traffic at the Leilani Street and Kanoelehua Avenue intersection as it would provide a new access to Airport Road. However, this improvement was not assumed under the Near Term (2018) Conditions given that the current schedule for completion is unknown.

Figure 3 shows the peak hour traffic volumes for the Near Term (2018) Baseline Conditions.



Figure 3
 Near Term (2018) Baseline Peak Hour Volumes

4.2 NEAR TERM (2018) BASELINE LEVELS OF SERVICE

Levels of service calculations were conducted to evaluate the operating levels of the study intersections under Near Term (2018) Baseline Conditions based on the anticipated growth in traffic. The results of the LOS analysis are presented in **Table 5**. The corresponding LOS calculation sheets are included in **Appendix C**.

TABLE 4: NEAR TERM (2018) BASELINE INTERSECTION LEVELS OF SERVICE

Intersection	Traffic Control ¹	Peak Hour	Delay (sec/veh) ¹	LOS ²
1. Kanoelehua Ave/Leilani St	Signal	AM	26.2	C
		PM	26.4	C
2. Railroad Ave/Leilani St	Side Street Stop Control	AM	23.5	C
		PM	25.0	D

Source: Fehr & Peers, 2016.

Notes:

¹ Whole intersection weighted average stopped delay expressed in seconds per vehicle for signalized and all-way stop-controlled intersections. The vehicular delay for the worst movement is reported for side-street stop-controlled intersections.

² LOS calculations performed using the *Highway Capacity Manual (HCM) 2010* method. LOS for side street stop-controlled (SSSC) intersections is worst-case movement.

The analysis results indicate that the two study intersections are forecasted to operate at LOS C or better under Near Term (2018) Baseline Conditions. The changes in operations from Existing Conditions are the result of the addition of ambient traffic growth and additional traffic from planned/approved projects.

5.0 PROJECT TRAFFIC PROJECTIONS

This section describes the anticipated number of vehicle trips and 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 will 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 details in the following sections.

5.1 PROJECT TRIP GENERATION ESTIMATES

The project's trip generation was based on variety of sources, including existing green waste data at the West Hawaii Organics Facility (WHOF) and discussions with County staff to determine existing travel patterns at the adjacent landfills and transfer stations. The WHOF green waste data was provided for the months of February and March of 2016. WHOF's operating hours are between 7:00 AM and 4:15 PM. That facility's peak day occurred on March 2nd with a total of 75 loads; which is based on the number of green waste loads delivered or picked up in one day. For the traffic analysis, one load is assumed to be two vehicle trips: one trip entering and one trip existing the project site; consequently, the total for the green waste/wood pallet diversion would be 150 daily trips. Based on discussions with County staff, the majority of WHOF traffic occurs during the morning when contractors are dropping off waste, and a smaller volume of traffic arrives to unload their waste in the afternoon before the facility closes.

As described under the *Project Description* section, after the first year of operation, the project would begin accepting organic (food) materials for the composting operations, in addition to still accepting green waste and wood pallet diversions from adjacent landfills and transfer stations. According to County staff, the proportion of green waste/wood pallet volume is likely to be higher than the organic waste; therefore, an 80 percent green waste/wood pallets and 20 percent food waste was assumed in the analysis. Additionally, the project would provide free mulch pick-up. Based on existing mulch delivery data provided by the County, an estimated 10 daily trips for mulch pick up trips was assumed in the analysis.

The composting facility traffic will be comprised of employee vehicle trips, local contractor trucks and trailers, municipal garbage trucks, and personal vehicles transporting recycled commodities. As shown in **Table 5** the proposed project is anticipated to generate a total of 189 diverted daily vehicle trips, including 50 trips during the AM peak hour (32 inbound/18 outbound), and 25 trips during the PM peak hour (7 inbound/18 outbound).

TABLE 5: PROJECT TRIP GENERATION ESTIMATES

Compost Facility	Daily ²	AM Peak Hour ²			PM Peak Hour ²		
		In	Out	Total	In	Out	Total
Year 1 (Green Waste/Wood Pallet Diversion Only)							
Green Waste/Wood Pallet Diversion ¹	150	23	15	38	5	10	15
New Employees	8	4	0	4	0	4	4
Mulch Pick-up	10	0	0	0	1	2	3
Year 2 (Full Composting Operations – Green Waste/Wood Pallet/Organic Materials)							
Organic Materials ²	31	5	3	8	1	2	3
TOTAL NEW TRIPS							
	189	32	18	50	7	18	25

Source: Fehr & Peers, 2016

Notes:

1. Green Waste/Wood Pallet traffic diversion based on WHOF data provided for the months of February and March 2016.
2. Organic materials estimated to be 20% of the total green waste/wood pallet volume

Additionally, the project proposes to include an educational facility that will provide tours for up to 30 people. Given the infrequency of these tours and the high likelihood of them occurring outside of the peak hour (i.e. 7:30 AM to 8:30 AM and 3:30 PM to 4:30 PM), the trips related to the educational facility were excluded from the analysis, and are not expected to significantly affect the study results and findings.

For traffic analysis purposes, the project's truck trips were converted into passenger-car-equivalents (PCEs) since these vehicles have a greater impact on traffic variables, such as speed, headway, and density compared to a personal automobile. Specifically, heavier trucks have the same effect as two smaller passenger vehicles; accordingly, a PCE factor of 2.0 was applied to the project's estimated trip generation (precluding employee vehicle trips), which resulted in 96 PCE trips during the AM peak hour (60 inbound/36 outbound), and 46 PCE trips during the PM peak hour (14 inbound/32 outbound).

5.2 PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

The distribution of traffic generated by the project onto the roadway system was based on the locations of existing landfills and transfer stations, prevailing travel patterns, and existing traffic volumes. Based on these factors, the vehicle trip distribution of the project-generated traffic is estimated to be:

- 40% to/from the North on Kanoelehua Avenue
- 30% to/from the South on Kanoelehua Avenue
- 20% to/from the West on Leilani Street
- 10% to/from the South on Railroad Avenue

Figure 4 illustrates the project trip distribution pattern described above.

Using the estimated trip generation and the distribution patterns discussed, the traffic generated by the proposed project was assigned to the study intersections and the individual turning movements. **Figure 5** shows the assignment of trips generated by the project.

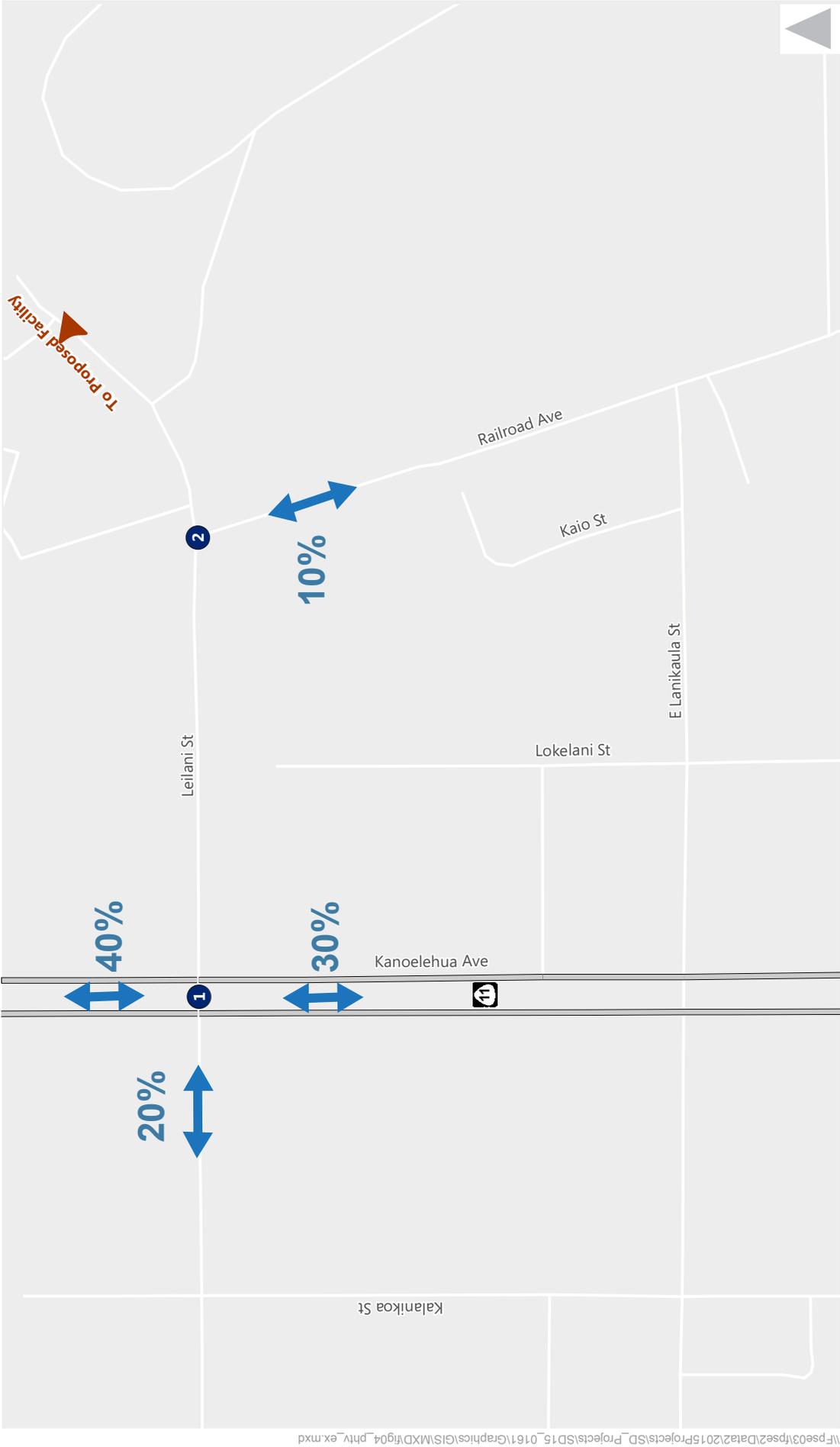


Figure 4
Project Trip Distribution

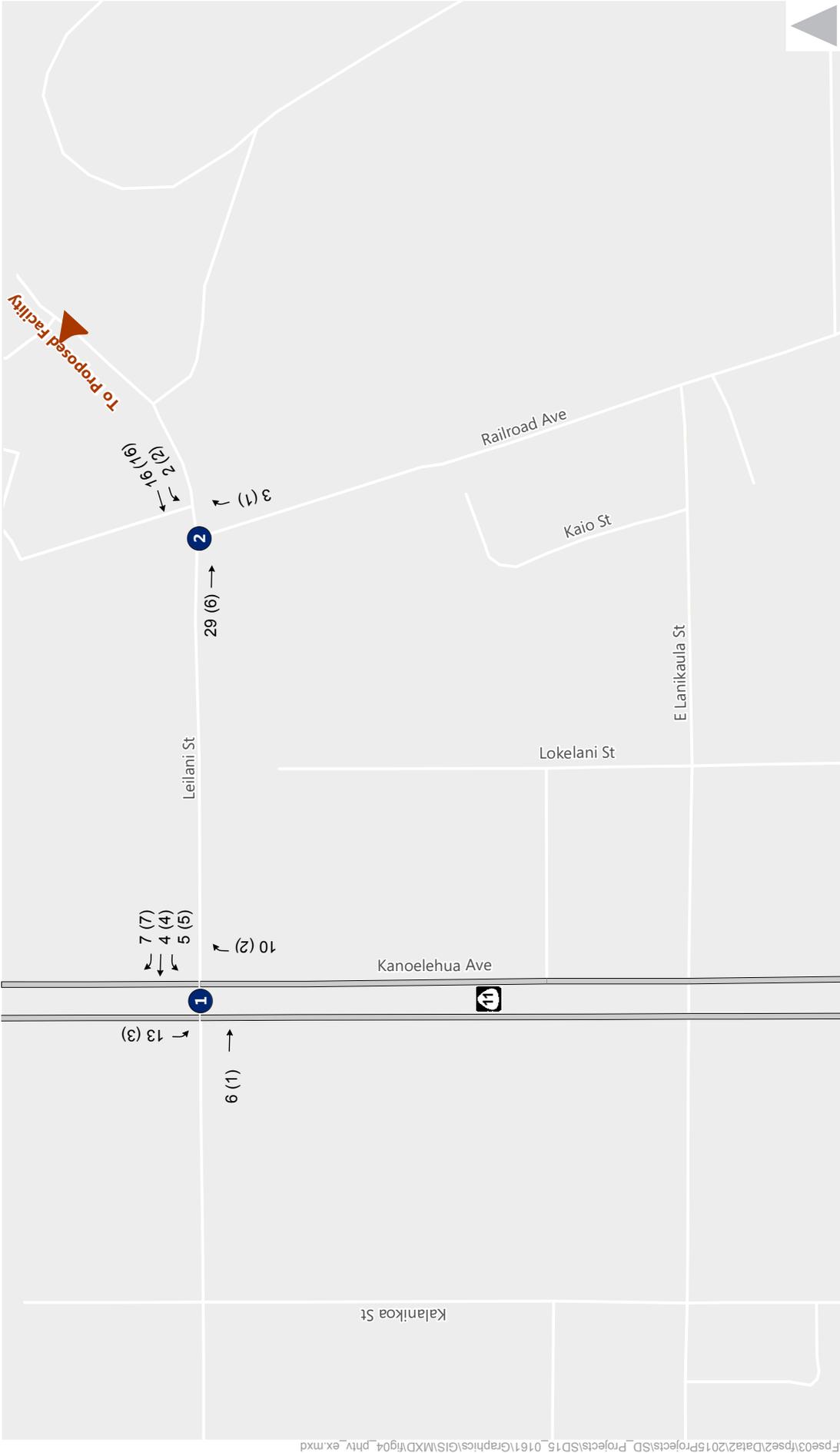


Figure 5
 Project Trip Assignment

6.0 NEAR TERM (2018) PLUS PROJECT CONDITIONS

This section summarizes and presents an analysis of the potential impacts on the roadway system due to projected increases in traffic, including traffic generated by the project in 2018. The Near Term (2018) roadway network is the same network assumed under the baseline scenario. The analysis compares the project levels of service at each study intersection under future baseline conditions against the “Plus Project” scenario to determine potential Near Term impacts.

6.1 NEAR TERM (2018) PLUS PROJECT INTERSECTION LEVEL OF SERVICE

To forecast the peak hour operating conditions at each study intersection, the project trip assignment was superimposed on Near Term (2018) Baseline traffic volumes to yield Near Term (2018) Plus Project volumes. **Figure 6** presents the anticipated Near Term (2018) Plus Project AM and PM peak hour volumes. These volumes were used to analyze operations using the aforementioned LOS methodology.

The results of the LOS analysis for the study intersections are presented in **Table 6**, and detailed LOS results for intersection movements and corresponding LOS calculation sheets are included in **Appendix C**.

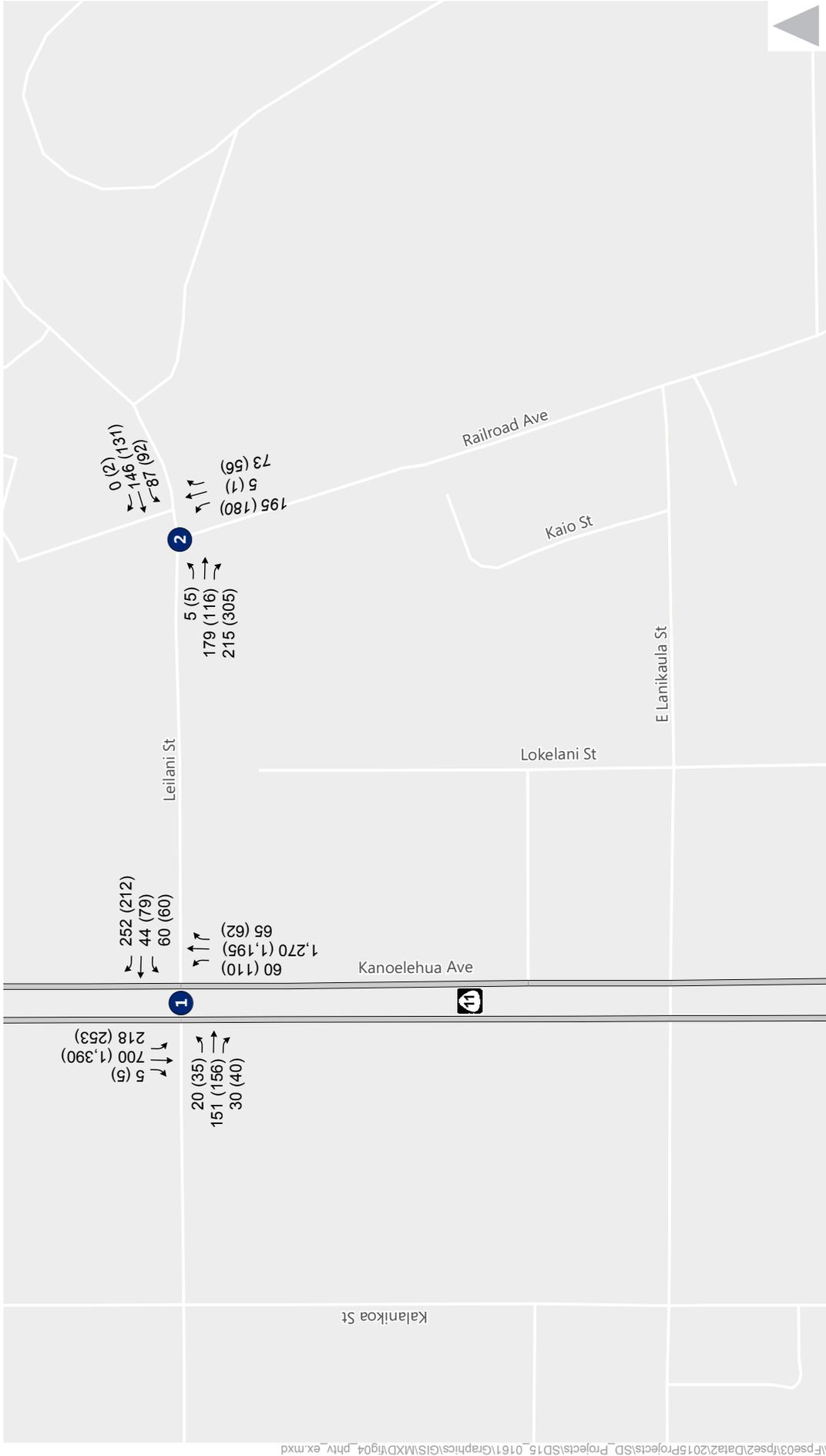


Figure 6
 Near Term (2018) Plus Project Peak Hour Volumes

TABLE 6: NEAR TERM (2018) BASELINE INTERSECTION LEVELS OF SERVICE

Intersection	Traffic Control ¹	Peak Hour	Near Term Baseline		Near Term Plus Project	
			Delay (sec/veh) ¹	LOS ²	Delay (sec/veh) ¹	LOS ²
1. Kanoelehua Ave/ Leilani St	Signal	AM	26.2	C	29.2	C
		PM	26.4	C	28.0	C
2. Railroad Ave/Leilani St	Side Street Stop Control	AM	23.5	C	31.5	D
		PM	25.0	D	28.9	D

Source: Fehr & Peers, 2016.

Notes:

¹ Whole intersection weighted average stopped delay expressed in seconds per vehicle for signalized and all-way stop-controlled intersections. The vehicular delay for the worst movement is reported for side-street stop-controlled intersections.

² LOS calculations performed using the *Highway Capacity Manual (HCM) 2010* method. LOS for side street stop-controlled (SSSC) intersections is worst-case movement.

The results presented in **Table 6** indicate that under Near Term (2018) Plus Project conditions, all study intersections are anticipated to operate acceptably at LOS D or better under both peak hours.

6.2 TRAFFIC IMPACTS

Based upon County of Hawaii and HDOT significance criteria and the results of the operations analysis, the proposed project is not expected to result in a traffic impact to the surrounding roadway network. The number of project trips added to the roadway network is relatively low, even when accounting for heavier vehicle traffic, and no operational or capacity improvements to the roadway network would be needed under Near Term (2018) conditions.

7.0 MULTI-MODAL ASSESSMENT

As noted previously, no existing pedestrian facilities connect to the proposed facility on Ho'olaulima Road. Given the operation of the proposed composting facility as a drop off and pick up facility of heavy material, and the fact that it is nearly one mile to the closest residential area and two miles to the closest commercial area, pedestrian demand generated by the site is expected to be negligible. Thus, no off-site pedestrian enhancements are recommended as part of the project.

Bike Plan Hawaii (2003), a State master plan for bikeways, is intended to serve as one basis for future bikeway planning and development decisions in Hilo. Within the project study area, Bike Plan Hawaii indicates Railroad Avenue between Leilani St and Kaaahi Road is planned to include bicycle lanes. No designated bike facility has been identified or proposed immediately at the project frontage along Ho'olaulima Road. While it is possible that some project employees may commute to the site by bicycle, the traffic volume on Ho'olaulima Road is relatively low, which allows bicyclists to share the road with vehicles. However, it is unlikely that a high volume of people traveling to the site would use their bicycle, since they are probably delivering or picking up large loads of material; thus, the implementation of the project is not expected to significantly impact or conflict with existing or planned services.

While it is possible that some project employees might take transit to the project site, it will not be conducive to transit use given the lengthy distance to the closest transit stop. Again, the project is not expected to conflict with any existing or proposed transit facilities and services.

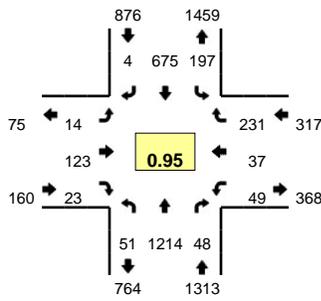
As noted above, the project is not anticipated to result in any significant impacts to pedestrian, bicycle, or transit facilities within the study area, and no multi-modal improvements are needed.

APPENDIX A: TRAFFIC COUNT DATA

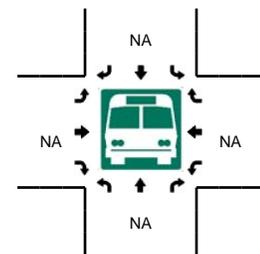
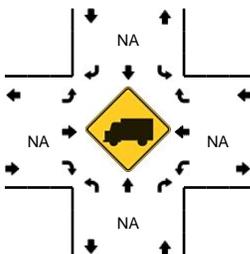
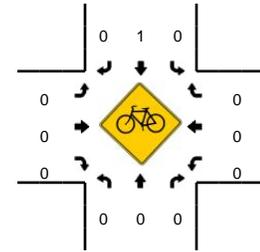
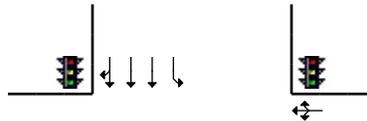
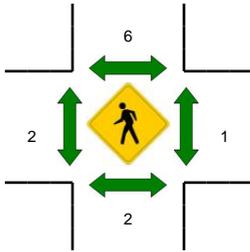
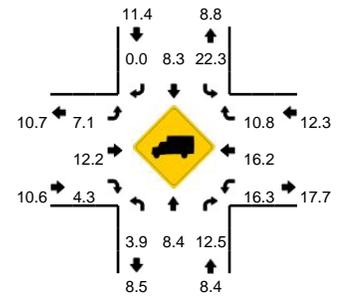


LOCATION: Mamalahoa Hwy (Hwy 11) -- Leilani St
CITY/STATE: Hilo, HI

QC JOB #: 13361607
DATE: Tue, Apr 21 2015



Peak-Hour: 7:25 AM -- 8:25 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

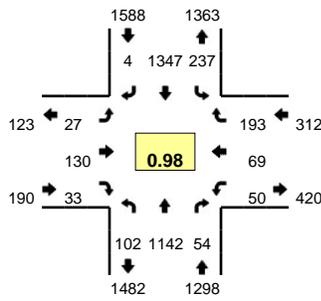


5-Min Count Period Beginning At	Mamalahoa Hwy (Hwy 11) (Northbound)				Mamalahoa Hwy (Hwy 11) (Southbound)				Leilani St (Eastbound)				Leilani St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:55 AM	3	89	3	1	13	33	1	0	2	9	7	0	4	3	15	0	183	1674
7:00 AM	1	110	3	1	8	24	0	0	3	11	1	0	2	2	12	0	178	1756
7:05 AM	6	102	2	2	7	55	0	0	3	4	5	0	4	5	15	0	210	1876
7:10 AM	0	108	4	2	4	37	0	0	2	8	2	0	3	2	22	0	194	1972
7:15 AM	3	105	3	1	10	28	0	0	0	3	4	0	3	4	32	0	196	2050
7:20 AM	3	141	6	0	13	32	0	0	0	9	1	0	1	7	10	0	223	2141
7:25 AM	3	98	4	1	18	51	1	0	3	10	1	0	3	1	21	0	215	2223
7:30 AM	3	134	5	0	10	48	0	0	0	9	0	0	1	1	22	0	233	2320
7:35 AM	4	78	2	1	19	49	0	0	1	9	4	0	6	2	24	0	199	2369
7:40 AM	3	117	7	0	12	34	1	0	0	11	1	0	3	6	23	0	218	2443
7:45 AM	1	91	5	0	22	57	1	0	3	12	2	0	2	3	21	0	220	2477
7:50 AM	3	122	7	0	12	52	0	0	2	13	2	0	4	4	20	0	241	2510
7:55 AM	2	84	3	5	27	75	0	0	2	6	2	0	4	4	29	0	243	2570
8:00 AM	3	64	0	2	19	62	0	0	2	13	2	0	7	3	13	0	190	2582
8:05 AM	2	119	6	3	17	64	0	0	0	11	0	0	5	1	12	0	240	2612
8:10 AM	7	81	3	3	13	59	0	0	1	9	4	0	7	4	20	0	211	2629
8:15 AM	0	102	5	2	18	68	0	0	0	6	1	0	6	4	13	0	225	2658
8:20 AM	3	124	1	0	10	56	1	0	0	14	4	0	1	4	13	0	231	2666
8:25 AM	4	70	2	4	21	56	0	0	0	6	1	0	4	2	17	0	187	2638
8:30 AM	3	68	1	3	20	50	1	0	0	7	5	0	7	4	16	0	185	2590
8:35 AM	1	77	6	1	13	84	0	0	1	9	4	0	5	0	16	0	217	2608
8:40 AM	0	80	4	2	5	60	0	0	1	6	3	0	4	5	18	0	188	2578
8:45 AM	1	89	2	1	17	54	0	0	0	7	0	0	5	4	15	0	195	2553
8:50 AM	2	74	6	3	14	62	0	1	0	10	5	0	3	1	14	0	195	2507
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	24	1188	60	20	244	736	4	0	28	124	24	0	40	44	280	0	2816	
Heavy Trucks	0	104	12		64	44	0		0	12	4		4	8	20		272	
Pedestrians		0				16				0				4				20
Bicycles	0	0	0		0	1	0		0	0	0		0	0	0		1	
Railroad																		
Stopped Buses																		

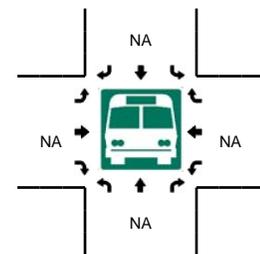
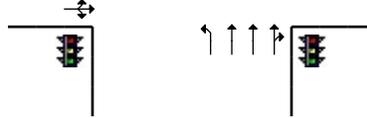
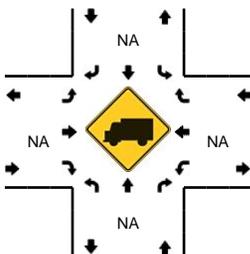
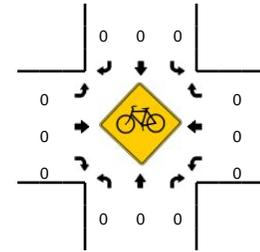
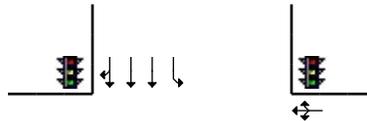
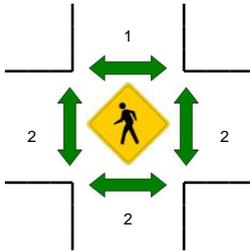
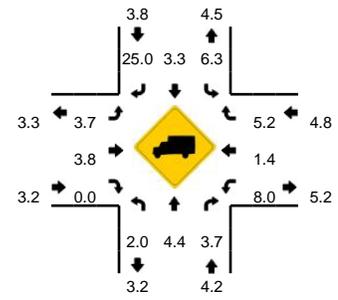
Comments:

LOCATION: Mamalahoa Hwy (Hwy 11) -- Leilani St
CITY/STATE: Hilo, HI

QC JOB #: 13361608
DATE: Tue, Apr 21 2015



Peak-Hour: 3:40 PM -- 4:40 PM
Peak 15-Min: 3:40 PM -- 3:55 PM



5-Min Count Period Beginning At	Mamalahoa Hwy (Hwy 11) (Northbound)				Mamalahoa Hwy (Hwy 11) (Southbound)				Leilani St (Eastbound)				Leilani St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:10 PM	3	106	5	3	15	119	0	0	2	13	5	0	4	1	14	0	290	
3:15 PM	4	84	3	8	15	92	0	0	1	14	3	0	8	4	16	0	252	
3:20 PM	6	98	4	3	21	78	1	0	0	7	5	0	7	5	19	0	254	
3:25 PM	3	107	3	8	16	93	0	0	0	9	4	0	3	0	8	0	254	
3:30 PM	3	122	5	5	22	99	1	0	0	8	2	0	6	2	22	0	297	
3:35 PM	9	71	7	1	20	102	3	0	1	10	3	0	7	8	22	0	264	
3:40 PM	7	121	5	7	23	123	1	0	2	14	4	0	6	5	11	0	329	
3:45 PM	4	106	7	5	16	112	0	0	0	5	1	0	6	5	18	0	285	
3:50 PM	3	68	3	3	18	94	1	0	6	15	5	0	6	6	21	0	249	
3:55 PM	3	98	4	7	28	114	0	0	2	11	4	0	1	7	12	0	291	3254
4:00 PM	5	116	3	1	16	118	0	0	0	14	2	0	2	2	9	0	288	3307
4:05 PM	1	88	4	1	12	101	0	0	3	11	3	0	9	8	18	0	259	3312
4:10 PM	7	72	5	5	31	100	1	0	2	9	1	0	4	4	19	0	260	3282
4:15 PM	5	99	4	3	19	119	0	0	3	9	3	0	1	2	11	0	278	3308
4:20 PM	4	108	1	5	19	112	0	1	4	12	0	0	2	7	12	0	287	3341
4:25 PM	5	78	4	7	20	89	1	0	1	13	2	0	7	6	30	0	263	3350
4:30 PM	3	96	10	3	19	119	0	0	3	11	5	0	3	6	17	0	295	3348
4:35 PM	3	92	4	5	15	146	0	0	1	6	3	0	3	11	15	0	304	3388
4:40 PM	4	79	1	1	17	99	0	0	2	19	1	0	7	2	21	0	253	3312
4:45 PM	2	107	2	5	24	110	2	0	1	9	3	0	3	3	12	0	283	3310
4:50 PM	2	95	3	2	22	138	1	0	0	7	1	0	5	1	10	0	287	3348
4:55 PM	0	80	1	6	19	113	0	0	0	14	2	0	10	4	19	0	268	3325
5:00 PM	2	78	2	6	27	107	0	1	0	11	3	0	4	2	9	0	252	3289
5:05 PM	3	72	1	2	13	142	0	0	0	6	2	0	3	3	11	0	258	3288
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	56	1180	60	60	228	1316	8	0	32	136	40	0	72	64	200	0	3452	
Heavy Trucks	4	68	0		20	32	0		0	0	0		8	0	20		152	
Pedestrians	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	
Railroad																		
Stopped Buses																		

Comments:

APPENDIX B: EXISTING LOS WORKSHEETS



HCM 2010 Signalized Intersection Summary
 1: Mamalahoa Hwy & Leilani St

Existing Conditions
 AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↕			↕			↕	↕↕↕		↕	↕↕↕
Traffic Volume (veh/h)	14	123	23	49	37	231	17	34	1214	48	197	675
Future Volume (veh/h)	14	123	23	49	37	231	17	34	1214	48	197	675
Number	7	4	14	3	8	18		5	2	12	1	6
Initial Q (Qb), 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	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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900		1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	15	129	17	52	39	124		36	1278	45	207	711
Adj No. of Lanes	0	1	0	0	1	0		1	3	0	1	3
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
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2	2	2
Cap, veh/h	47	247	31	87	60	149		46	2843	100	234	3500
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16		0.03	0.56	0.56	0.13	0.67
Sat Flow, veh/h	87	1515	189	304	367	915		1774	5044	178	1774	5227
Grp Volume(v), veh/h	161	0	0	215	0	0		36	859	464	207	461
Grp Sat Flow(s),veh/h/ln	1791	0	0	1587	0	0		1774	1695	1831	1774	1695
Q Serve(g_s), s	0.0	0.0	0.0	5.8	0.0	0.0		2.4	17.8	17.8	13.8	6.2
Cycle Q Clear(g_c), s	9.7	0.0	0.0	15.6	0.0	0.0		2.4	17.8	17.8	13.8	6.2
Prop In Lane	0.09		0.11	0.24		0.58		1.00		0.10	1.00	
Lane Grp Cap(c), veh/h	324	0	0	296	0	0		46	1911	1032	234	2270
V/C Ratio(X)	0.50	0.00	0.00	0.73	0.00	0.00		0.79	0.45	0.45	0.89	0.20
Avail Cap(c_a), veh/h	552	0	0	494	0	0		266	1911	1032	266	2270
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
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00		1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.1	0.0	0.0	48.4	0.0	0.0		58.1	15.3	15.3	51.2	7.6
Incr Delay (d2), s/veh	1.1	0.0	0.0	3.1	0.0	0.0		10.5	0.8	1.4	24.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	0.0	0.0	7.1	0.0	0.0		1.3	8.4	9.3	8.3	2.9
LnGrp Delay(d),s/veh	47.2	0.0	0.0	51.5	0.0	0.0		68.6	16.1	16.7	75.2	7.8
LnGrp LOS	D			D				E	B	B	E	A
Approach Vol, veh/h		161			215				1359			921
Approach Delay, s/veh		47.2			51.5				17.7			23.0
Approach LOS		D			D				B			C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	19.8	73.8		26.3	7.1	86.6		26.3				
Change Period (Y+Rc), s	* 4	* 6.2		* 6.8	* 4	* 6.2		* 6.8				
Max Green Setting (Gmax), s	* 18	* 50		* 35	* 18	* 50		* 35				
Max Q Clear Time (g_c+I1), s	15.8	19.8		11.7	4.4	8.2		17.6				
Green Ext Time (p_c), s	0.1	11.3		2.2	0.0	12.3		2.0				
Intersection Summary												
HCM 2010 Ctrl Delay				24.0								
HCM 2010 LOS				C								
Notes												
User approved ignoring U-Turning movement.												

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	4
Future Volume (veh/h)	4
Number	16
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1900
Adj Flow Rate, veh/h	3
Adj No. of Lanes	0
Peak Hour Factor	0.95
Percent Heavy Veh, %	2
Cap, veh/h	15
Arrive On Green	0.67
Sat Flow, veh/h	22
Grp Volume(v), veh/h	253
Grp Sat Flow(s),veh/h/ln	1859
Q Serve(g_s), s	6.2
Cycle Q Clear(g_c), s	6.2
Prop In Lane	0.01
Lane Grp Cap(c), veh/h	1245
V/C Ratio(X)	0.20
Avail Cap(c_a), veh/h	1245
HCM Platoon Ratio	1.00
Upstream Filter(l)	1.00
Uniform Delay (d), s/veh	7.6
Incr Delay (d2), s/veh	0.4
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	3.3
LnGrp Delay(d),s/veh	7.9
LnGrp LOS	A
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer	

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection

Int Delay, s/veh 7.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	140	207	78	122	184	63
Future Vol, veh/h	140	207	78	122	184	63
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	154	227	86	134	202	69

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	381
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1177
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1177
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.2	20.6
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	497	-	-	1177	-
HCM Lane V/C Ratio	0.546	-	-	0.073	-
HCM Control Delay (s)	20.6	-	-	8.3	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	3.2	-	-	0.2	-

HCM 2010 Signalized Intersection Summary
 1: Mamalahoa Hwy & Leilani St

Existing PM
 Default

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↕			↕			↕	↑↑↑		↕	↑↑↑
Traffic Volume (veh/h)	27	130	33	50	69	193	52	50	1142	54	237	1347
Future Volume (veh/h)	27	130	33	50	69	193	52	50	1142	54	237	1347
Number	7	4	14	3	8	18		5	2	12	1	6
Initial Q (Qb), 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	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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900		1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	28	133	25	51	70	127		51	1165	48	242	1374
Adj No. of Lanes	0	1	0	0	1	0		1	3	0	1	3
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
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2	2	2
Cap, veh/h	63	237	41	83	97	151		66	2616	108	270	3336
Arrive On Green	0.18	0.18	0.18	0.18	0.18	0.18		0.04	0.52	0.52	0.15	0.64
Sat Flow, veh/h	156	1289	224	255	525	818		1774	5010	206	1774	5235
Grp Volume(v), veh/h	186	0	0	248	0	0		51	788	425	242	890
Grp Sat Flow(s),veh/h/ln	1670	0	0	1598	0	0		1774	1695	1826	1774	1695
Q Serve(g_s), s	0.0	0.0	0.0	6.0	0.0	0.0		3.4	17.4	17.4	16.1	15.5
Cycle Q Clear(g_c), s	11.8	0.0	0.0	17.9	0.0	0.0		3.4	17.4	17.4	16.1	15.5
Prop In Lane	0.15		0.13	0.21		0.51		1.00		0.11	1.00	
Lane Grp Cap(c), veh/h	342	0	0	330	0	0		66	1770	954	270	2161
V/C Ratio(X)	0.54	0.00	0.00	0.75	0.00	0.00		0.78	0.45	0.45	0.90	0.41
Avail Cap(c_a), veh/h	525	0	0	500	0	0		237	1770	954	355	2161
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
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00		1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.6	0.0	0.0	47.1	0.0	0.0		57.3	17.8	17.8	50.0	10.7
Incr Delay (d2), s/veh	1.2	0.0	0.0	3.1	0.0	0.0		7.2	0.8	1.5	17.5	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
%ile BackOfQ(50%),veh/ln	5.7	0.0	0.0	8.2	0.0	0.0		1.8	8.3	9.1	9.2	7.3
LnGrp Delay(d),s/veh	45.8	0.0	0.0	50.2	0.0	0.0		64.4	18.7	19.4	67.5	11.3
LnGrp LOS	D			D				E	B	B	E	B
Approach Vol, veh/h		186			248				1264			1620
Approach Delay, s/veh		45.8			50.2				20.7			19.8
Approach LOS		D			D				C			B
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	22.2	68.9		28.9	8.4	82.7		28.9				
Change Period (Y+Rc), s	* 4	* 6.2		* 6.8	* 4	* 6.2		* 6.8				
Max Green Setting (Gmax), s	* 24	* 44		* 35	* 16	* 52		* 35				
Max Q Clear Time (g_c+I1), s	18.1	19.4		13.8	5.4	17.5		19.9				
Green Ext Time (p_c), s	0.2	14.1		2.5	0.0	16.8		2.2				
Intersection Summary												
HCM 2010 Ctrl Delay				23.9								
HCM 2010 LOS				C								
Notes												
User approved ignoring U-Turning movement.												

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	4
Future Volume (veh/h)	4
Number	16
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1900
Adj Flow Rate, veh/h	4
Adj No. of Lanes	0
Peak Hour Factor	0.98
Percent Heavy Veh, %	2
Cap, veh/h	10
Arrive On Green	0.64
Sat Flow, veh/h	15
Grp Volume(v), veh/h	488
Grp Sat Flow(s),veh/h/ln	1860
Q Serve(g_s), s	15.5
Cycle Q Clear(g_c), s	15.5
Prop In Lane	0.01
Lane Grp Cap(c), veh/h	1185
V/C Ratio(X)	0.41
Avail Cap(c_a), veh/h	1185
HCM Platoon Ratio	1.00
Upstream Filter(l)	1.00
Uniform Delay (d), s/veh	10.7
Incr Delay (d2), s/veh	1.1
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	8.2
LnGrp Delay(d),s/veh	11.8
LnGrp LOS	B
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer	

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection

Int Delay, s/veh 7.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	102	293	84	105	167	51
Future Vol, veh/h	102	293	84	105	167	51
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	121	349	100	125	199	61

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	470
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1092
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1092
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.8	22.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	455	-	-	1092	-
HCM Lane V/C Ratio	0.57	-	-	0.092	-
HCM Control Delay (s)	22.9	-	-	8.6	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	3.5	-	-	0.3	-

APPENDIX C: NEAR TERM LOS WORKSHEETS



HCM 2010 Signalized Intersection Summary
 1: Mamalahoa Hwy & Leilani St

Near Term
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↕			↕			↕	↕↕↕		↕	↕↕↕
Traffic Volume (veh/h)	20	145	30	55	40	245	20	40	1270	55	205	700
Future Volume (veh/h)	20	145	30	55	40	245	20	40	1270	55	205	700
Number	7	4	14	3	8	18		5	2	12	1	6
Initial Q (Qb), 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	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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900		1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	21	153	24	58	42	146		42	1337	51	216	737
Adj No. of Lanes	0	1	0	0	1	0		1	3	0	1	3
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
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2	2	2
Cap, veh/h	53	270	40	92	64	173		54	2676	102	243	3339
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19		0.03	0.53	0.53	0.14	0.64
Sat Flow, veh/h	105	1428	211	289	335	911		1774	5027	192	1774	5228
Grp Volume(v), veh/h	198	0	0	246	0	0		42	902	486	216	478
Grp Sat Flow(s),veh/h/ln	1744	0	0	1535	0	0		1774	1695	1829	1774	1695
Q Serve(g_s), s	0.0	0.0	0.0	6.4	0.0	0.0		2.8	20.3	20.3	14.4	7.1
Cycle Q Clear(g_c), s	12.1	0.0	0.0	18.5	0.0	0.0		2.8	20.3	20.3	14.4	7.1
Prop In Lane	0.11		0.12	0.24		0.59		1.00		0.10	1.00	
Lane Grp Cap(c), veh/h	364	0	0	328	0	0		54	1804	973	243	2165
V/C Ratio(X)	0.54	0.00	0.00	0.75	0.00	0.00		0.78	0.50	0.50	0.89	0.22
Avail Cap(c_a), veh/h	543	0	0	485	0	0		266	1804	973	266	2165
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
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00		1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.2	0.0	0.0	46.7	0.0	0.0		57.8	17.9	17.9	50.9	9.1
Incr Delay (d2), s/veh	1.2	0.0	0.0	3.3	0.0	0.0		8.8	1.0	1.8	25.9	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	0.0	0.0	8.2	0.0	0.0		1.5	9.8	10.8	8.8	3.4
LnGrp Delay(d),s/veh	45.4	0.0	0.0	50.1	0.0	0.0		66.5	18.9	19.7	76.8	9.4
LnGrp LOS	D			D				E	B	B	E	A
Approach Vol, veh/h		198			246				1430			956
Approach Delay, s/veh		45.4			50.1				20.6			24.7
Approach LOS		D			D				C			C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	20.4	70.1		29.5	7.6	82.8		29.5				
Change Period (Y+Rc), s	* 4	* 6.2		* 6.8	* 4	* 6.2		* 6.8				
Max Green Setting (Gmax), s	* 18	* 50		* 35	* 18	* 50		* 35				
Max Q Clear Time (g_c+I1), s	16.4	22.3		14.1	4.8	9.1		20.5				
Green Ext Time (p_c), s	0.1	11.7		2.6	0.0	13.2		2.3				
Intersection Summary												
HCM 2010 Ctrl Delay				26.2								
HCM 2010 LOS				C								
Notes												
User approved ignoring U-Turning movement.												

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	5
Future Volume (veh/h)	5
Number	16
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1900
Adj Flow Rate, veh/h	3
Adj No. of Lanes	0
Peak Hour Factor	0.95
Percent Heavy Veh, %	2
Cap, veh/h	14
Arrive On Green	0.64
Sat Flow, veh/h	21
Grp Volume(v), veh/h	262
Grp Sat Flow(s),veh/h/ln	1859
Q Serve(g_s), s	7.1
Cycle Q Clear(g_c), s	7.1
Prop In Lane	0.01
Lane Grp Cap(c), veh/h	1187
V/C Ratio(X)	0.22
Avail Cap(c_a), veh/h	1187
HCM Platoon Ratio	1.00
Upstream Filter(l)	1.00
Uniform Delay (d), s/veh	9.1
Incr Delay (d2), s/veh	0.4
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	3.8
LnGrp Delay(d),s/veh	9.6
LnGrp LOS	A
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	

Timer

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection

Int Delay, s/veh 8.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	150	215	85	130	195	70
Future Vol, veh/h	150	215	85	130	195	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	163	234	92	141	212	76

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	397
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1162
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1162
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.3	23.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	476	-	-	1162	-
HCM Lane V/C Ratio	0.605	-	-	0.08	-
HCM Control Delay (s)	23.5	-	-	8.4	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	3.9	-	-	0.3	-

HCM 2010 Signalized Intersection Summary
 1: Mamalahoa Hwy & Leilani St

Near Term
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↕			↕			↕	↕↕↕		↕	↕↕↕
Traffic Volume (veh/h)	35	155	40	55	75	205	55	55	1195	60	250	1390
Future Volume (veh/h)	35	155	40	55	75	205	55	55	1195	60	250	1390
Number	7	4	14	3	8	18		5	2	12	1	6
Initial Q (Qb), 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	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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900		1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	36	158	32	56	77	144		56	1219	54	255	1418
Adj No. of Lanes	0	1	0	0	1	0		1	3	0	1	3
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
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2	2	2
Cap, veh/h	70	253	48	87	104	168		72	2440	108	282	3180
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21		0.04	0.49	0.49	0.16	0.61
Sat Flow, veh/h	167	1204	226	242	496	799		1774	4993	221	1774	5236
Grp Volume(v), veh/h	226	0	0	277	0	0		56	828	445	255	918
Grp Sat Flow(s),veh/h/ln	1597	0	0	1537	0	0		1774	1695	1824	1774	1695
Q Serve(g_s), s	0.0	0.0	0.0	5.6	0.0	0.0		3.8	19.8	19.8	16.9	17.5
Cycle Q Clear(g_c), s	15.2	0.0	0.0	20.9	0.0	0.0		3.8	19.8	19.8	16.9	17.5
Prop In Lane	0.16		0.14	0.20		0.52		1.00		0.12	1.00	
Lane Grp Cap(c), veh/h	371	0	0	360	0	0		72	1657	891	282	2059
V/C Ratio(X)	0.61	0.00	0.00	0.77	0.00	0.00		0.78	0.50	0.50	0.90	0.45
Avail Cap(c_a), veh/h	508	0	0	488	0	0		237	1657	891	355	2059
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
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00		1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.0	0.0	0.0	45.5	0.0	0.0		57.0	20.8	20.8	49.5	12.7
Incr Delay (d2), s/veh	1.5	0.0	0.0	4.9	0.0	0.0		6.6	1.1	2.0	19.7	0.7
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
%ile BackOfQ(50%),veh/ln	7.0	0.0	0.0	9.3	0.0	0.0		2.0	9.4	10.4	9.8	8.4
LnGrp Delay(d),s/veh	44.5	0.0	0.0	50.4	0.0	0.0		63.6	21.8	22.8	69.2	13.4
LnGrp LOS	D			D				E	C	C	E	B
Approach Vol, veh/h		226			277				1329			1677
Approach Delay, s/veh		44.5			50.4				23.9			22.1
Approach LOS		D			D				C			C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	23.1	64.8		32.1	8.9	79.1		32.1				
Change Period (Y+Rc), s	* 4	* 6.2		* 6.8	* 4	* 6.2		* 6.8				
Max Green Setting (Gmax), s	* 24	* 44		* 35	* 16	* 52		* 35				
Max Q Clear Time (g_c+I1), s	18.9	21.8		17.2	5.8	19.5		22.9				
Green Ext Time (p_c), s	0.2	13.8		2.8	0.0	17.2		2.4				
Intersection Summary												
HCM 2010 Ctrl Delay				26.4								
HCM 2010 LOS				C								
Notes												
User approved ignoring U-Turning movement.												

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	5
Future Volume (veh/h)	5
Number	16
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1900
Adj Flow Rate, veh/h	4
Adj No. of Lanes	0
Peak Hour Factor	0.98
Percent Heavy Veh, %	2
Cap, veh/h	9
Arrive On Green	0.61
Sat Flow, veh/h	15
Grp Volume(v), veh/h	504
Grp Sat Flow(s),veh/h/ln	1860
Q Serve(g_s), s	17.5
Cycle Q Clear(g_c), s	17.5
Prop In Lane	0.01
Lane Grp Cap(c), veh/h	1130
V/C Ratio(X)	0.45
Avail Cap(c_a), veh/h	1130
HCM Platoon Ratio	1.00
Upstream Filter(l)	1.00
Uniform Delay (d), s/veh	12.7
Incr Delay (d2), s/veh	1.3
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	9.4
LnGrp Delay(d),s/veh	14.0
LnGrp LOS	B
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	

Timer

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection

Int Delay, s/veh 6.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	110	305	90	115	180	55
Future Vol, veh/h	110	305	90	115	180	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	120	332	98	125	196	60

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	451
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1109
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1109
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.8	21.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	465	-	-	1109	-
HCM Lane V/C Ratio	0.549	-	-	0.088	-
HCM Control Delay (s)	21.8	-	-	8.6	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	3.3	-	-	0.3	-

HCM 2010 Signalized Intersection Summary
 1: Mamalahoa Hwy & Leilani St

Near Term + Project
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	20	157	30	66	47	259	20	40	1270	73	229	700
Future Volume (veh/h)	20	157	30	66	47	259	20	40	1270	73	229	700
Number	7	4	14	3	8	18		5	2	12	1	6
Initial Q (Qb), 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	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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900		1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	21	165	24	69	49	161		42	1337	70	241	737
Adj No. of Lanes	0	1	0	0	1	0		1	3	0	1	3
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
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2	2	2
Cap, veh/h	54	308	42	103	71	186		54	2448	128	266	3212
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21		0.03	0.49	0.49	0.15	0.61
Sat Flow, veh/h	96	1443	199	308	330	871		1774	4948	259	1774	5228
Grp Volume(v), veh/h	210	0	0	279	0	0		42	916	491	241	478
Grp Sat Flow(s),veh/h/ln	1738	0	0	1510	0	0		1774	1695	1817	1774	1695
Q Serve(g_s), s	0.0	0.0	0.0	8.9	0.0	0.0		2.8	22.4	22.4	16.0	7.6
Cycle Q Clear(g_c), s	12.4	0.0	0.0	21.4	0.0	0.0		2.8	22.4	22.4	16.0	7.6
Prop In Lane	0.10		0.11	0.25		0.58		1.00		0.14	1.00	
Lane Grp Cap(c), veh/h	404	0	0	360	0	0		54	1677	899	266	2083
V/C Ratio(X)	0.52	0.00	0.00	0.78	0.00	0.00		0.78	0.55	0.55	0.91	0.23
Avail Cap(c_a), veh/h	542	0	0	480	0	0		266	1677	899	266	2083
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
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00		1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.9	0.0	0.0	45.3	0.0	0.0		57.8	21.0	21.0	50.2	10.4
Incr Delay (d2), s/veh	0.9	0.0	0.0	5.4	0.0	0.0		8.8	1.3	2.4	31.0	0.3
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
%ile BackOfQ(50%),veh/ln	6.3	0.0	0.0	9.4	0.0	0.0		1.5	10.7	11.8	10.1	3.6
LnGrp Delay(d),s/veh	42.9	0.0	0.0	50.7	0.0	0.0		66.5	22.3	23.4	81.2	10.6
LnGrp LOS	D			D				E	C	C	F	B
Approach Vol, veh/h		210			279				1449			981
Approach Delay, s/veh		42.9			50.7				23.9			28.0
Approach LOS		D			D				C			C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	22.0	65.6		32.4	7.6	79.9		32.4				
Change Period (Y+Rc), s	* 4	* 6.2		* 6.8	* 4	* 6.2		* 6.8				
Max Green Setting (Gmax), s	* 18	* 50		* 35	* 18	* 50		* 35				
Max Q Clear Time (g_c+I1), s	18.0	24.4		14.4	4.8	9.6		23.4				
Green Ext Time (p_c), s	0.0	11.4		2.9	0.0	13.4		2.3				
Intersection Summary												
HCM 2010 Ctrl Delay				29.2								
HCM 2010 LOS				C								
Notes												
User approved ignoring U-Turning movement.												

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	5
Future Volume (veh/h)	5
Number	16
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1900
Adj Flow Rate, veh/h	3
Adj No. of Lanes	0
Peak Hour Factor	0.95
Percent Heavy Veh, %	2
Cap, veh/h	13
Arrive On Green	0.61
Sat Flow, veh/h	21
Grp Volume(v), veh/h	262
Grp Sat Flow(s),veh/h/ln	1859
Q Serve(g_s), s	7.6
Cycle Q Clear(g_c), s	7.6
Prop In Lane	0.01
Lane Grp Cap(c), veh/h	1142
V/C Ratio(X)	0.23
Avail Cap(c_a), veh/h	1142
HCM Platoon Ratio	1.00
Upstream Filter(l)	1.00
Uniform Delay (d), s/veh	10.4
Incr Delay (d2), s/veh	0.5
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	4.0
LnGrp Delay(d),s/veh	10.9
LnGrp LOS	B
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	

Timer

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
 1: Mamalahoa Hwy & Leilani St

Near Term + Project
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↕			↕			↕	↕↕↕		↕	↕↕↕
Traffic Volume (veh/h)	35	158	40	65	81	218	55	55	1195	64	256	1390
Future Volume (veh/h)	35	158	40	65	81	218	55	55	1195	64	256	1390
Number	7	4	14	3	8	18		5	2	12	1	6
Initial Q (Qb), 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	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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900		1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	36	161	32	66	83	157		56	1219	58	261	1418
Adj No. of Lanes	0	1	0	0	1	0		1	3	0	1	3
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
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2	2	2
Cap, veh/h	72	276	51	97	109	180		72	2318	110	288	3078
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23		0.04	0.47	0.47	0.16	0.59
Sat Flow, veh/h	161	1202	221	265	476	781		1774	4975	237	1774	5236
Grp Volume(v), veh/h	229	0	0	306	0	0		56	831	446	261	918
Grp Sat Flow(s),veh/h/ln	1585	0	0	1523	0	0		1774	1695	1821	1774	1695
Q Serve(g_s), s	0.0	0.0	0.0	8.4	0.0	0.0		3.8	20.8	20.8	17.3	18.4
Cycle Q Clear(g_c), s	14.9	0.0	0.0	23.3	0.0	0.0		3.8	20.8	20.8	17.3	18.4
Prop In Lane	0.16		0.14	0.22		0.51		1.00		0.13	1.00	
Lane Grp Cap(c), veh/h	399	0	0	386	0	0		72	1580	849	288	1993
V/C Ratio(X)	0.57	0.00	0.00	0.79	0.00	0.00		0.78	0.53	0.53	0.91	0.46
Avail Cap(c_a), veh/h	504	0	0	484	0	0		237	1580	849	355	1993
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
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	0.00		1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.9	0.0	0.0	44.4	0.0	0.0		57.0	22.7	22.7	49.3	14.0
Incr Delay (d2), s/veh	1.2	0.0	0.0	6.8	0.0	0.0		6.6	1.3	2.3	20.6	0.8
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
%ile BackOfQ(50%),veh/ln	6.9	0.0	0.0	10.5	0.0	0.0		2.0	10.0	11.0	10.1	8.8
LnGrp Delay(d),s/veh	42.1	0.0	0.0	51.2	0.0	0.0		63.6	23.9	25.0	70.0	14.7
LnGrp LOS	D			D				E	C	C	E	B
Approach Vol, veh/h		229			306				1333			1683
Approach Delay, s/veh		42.1			51.2				25.9			23.5
Approach LOS		D			D				C			C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	23.5	62.1		34.4	8.9	76.8		34.4				
Change Period (Y+Rc), s	* 4	* 6.2		* 6.8	* 4	* 6.2		* 6.8				
Max Green Setting (Gmax), s	* 24	* 44		* 35	* 16	* 52		* 35				
Max Q Clear Time (g_c+I1), s	19.3	22.8		16.9	5.8	20.4		25.3				
Green Ext Time (p_c), s	0.2	13.4		3.1	0.0	17.0		2.3				
Intersection Summary												
HCM 2010 Ctrl Delay				28.0								
HCM 2010 LOS				C								
Notes												
User approved ignoring U-Turning movement.												

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	5
Future Volume (veh/h)	5
Number	16
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Adj Sat Flow, veh/h/ln	1900
Adj Flow Rate, veh/h	4
Adj No. of Lanes	0
Peak Hour Factor	0.98
Percent Heavy Veh, %	2
Cap, veh/h	9
Arrive On Green	0.59
Sat Flow, veh/h	15
Grp Volume(v), veh/h	504
Grp Sat Flow(s),veh/h/ln	1860
Q Serve(g_s), s	18.4
Cycle Q Clear(g_c), s	18.4
Prop In Lane	0.01
Lane Grp Cap(c), veh/h	1094
V/C Ratio(X)	0.46
Avail Cap(c_a), veh/h	1094
HCM Platoon Ratio	1.00
Upstream Filter(l)	1.00
Uniform Delay (d), s/veh	14.0
Incr Delay (d2), s/veh	1.4
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	9.8
LnGrp Delay(d),s/veh	15.4
LnGrp LOS	B
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	

Timer

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection

Int Delay, s/veh 7.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	123	305	93	144	180	56
Future Vol, veh/h	123	305	93	144	180	56
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	134	332	101	157	196	61

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	465
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1096
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1096
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.4	24.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	436	-	-	1096	-
HCM Lane V/C Ratio	0.588	-	-	0.092	-
HCM Control Delay (s)	24.4	-	-	8.6	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	3.7	-	-	0.3	-

Appendix F

- State Plan (HRS Chapter 226)
- State Environmental Policy (HRS Chapter 344)
- Coastal Zone Management (HRS Chapter 205A)

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S = Supportive, N/S = Not Supportive, N/A = Not Applicable

HAWAII STATE PLAN, CHAPTER 226, HRS – PART I. OVERALL THEME, GOALS, OBJECTIVES AND POLICIES	S	N/S	N/A
HRS § 226-1: Findings and Purpose			
HRS § 226-2: Definitions			
HRS § 226-3: Overall Theme			
HRS § 226-4: State Goals. In order to guarantee, for the present and future generations, those elements of choice and mobility that insure that individuals and groups may approach their desired levels of self-reliance and self-determination, it shall be the goal of the State to achieve:			
(1) A strong, viable economy, characterized by stability, diversity and growth that enables fulfillment of the needs and expectations of Hawaii's present and future generations.	X		
(2) A desired physical environment, characterized by beauty, cleanliness, quiet, stable natural systems, and uniqueness, that enhances the mental and physical well-being of the people.	X		
(3) Physical, social and economic well-being, for individuals and families in Hawaii, that nourishes a sense of community responsibility, of caring and of participation in community life.	X		
<i>Discussion: The Project supports the agricultural economic sector by providing low-cost, high quality soil amendments; promotes reduction and conversion of waste to a usable asset; and is a model of community responsibility in handling solid waste and encouraging self-sufficiency.</i>			
HRS § 226-5: Objectives and policies for population.			
Objective: It shall be the objective in planning for the State's population to guide population growth to be consistent with the achievement of physical, economic and social objectives contained in this chapter.			
Policies:			
(1) Manage population growth statewide in a manner that provides increased opportunities for Hawaii's people to pursue their physical, social and economic aspirations while recognizing the unique needs of each County.			X
(2) Encourage an increase in economic activities and employment opportunities on the neighbor islands consistent with community needs and desires.			X
(3) Promote increased opportunities for Hawaii's people to pursue their socio-economic aspirations throughout the islands.			X
(4) Encourage research activities and public awareness programs to foster an understanding of Hawaii's limited capacity to accommodate population needs and to address concerns resulting from an increase in Hawaii's population.			X
(5) Encourage federal actions and coordination among major governmental agencies to promote a more balanced distribution of immigrants among the states, provided that such actions do not prevent the reunion of immediate family members.			X
(6) Pursue an increase in federal assistance for states with a greater proportion of foreign immigrants relative to their state's population.			X
(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.			X

HAWAII STATE PLAN, CHAPTER 226, HRS – PART I. OVERALL THEME, GOALS, OBJECTIVES AND POLICIES	S	N/S	N/A
<i>Discussion: The Project does not influence population growth patterns, but rather responds to population growth patterns.</i>			
HRS § 226-6: Objectives and policies for the economy in general.			
Objectives: Planning for the State's economy in general shall be directed toward achievement of the following objectives:			
(1) Increased and diversified employment opportunities to achieve full employment, increased income and job choice, and improved living standards for Hawaii's people, while at the same time stimulating the development and expansion of economic activities capitalizing on defense, dual-use, and science and technology assets, particularly on the neighbor islands where employment opportunities may be limited.			X
(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 the neighbor islands.			X
Policies:			
(1) Promote and encourage entrepreneurship within Hawaii by residents and nonresidents of the State.			X
(2) Expand Hawaii's national and international marketing, communication, and organizational ties, to increase the State's capacity to adjust to and capitalize upon economic changes and opportunities occurring outside the State.			X
(3) Promote Hawaii as an attractive market for environmentally and socially sound investment activities that benefit Hawaii's people.			X
(4) Transform and maintain Hawaii as a place that welcomes and facilitates innovative activity that may lead to commercial opportunities.			X
(5) Promote innovative activity that may pose initial risks, but ultimately contribute to the economy of Hawaii			X
(6) Seek broader outlets for new or expanded Hawaii business investments.			X
(7) Expand existing markets and penetrate new markets for Hawaii's products and services.			X
(8) Assure that the basic economic needs of Hawaii's people are maintained in the event of disruptions in overseas transportation.	X		
(9) Strive to achieve a level of construction activity responsive to, and consistent with, state growth objectives.			X
(10) Encourage the formation of cooperatives and other favorable marketing arrangements at the local or regional level to assist Hawaii's small scale producers, manufacturers, and distributors.			X
(11) Encourage labor-intensive activities that are economically satisfying and which offer opportunities for upward mobility.			X
(12) Encourage innovative activities that may not be labor-intensive, but may otherwise contribute to the economy of Hawaii.			X
(13) Foster greater cooperation and coordination between the government and private sectors in developing Hawaii's employment and economic growth opportunities.	X		
(14) Stimulate the development and expansion of economic activities which will benefit areas with substantial or expected employment problems.			X
(15) Maintain acceptable working conditions and standards for Hawaii's workers.			X
(16) Provide equal employment opportunities for all segments of Hawaii's population through affirmative action and nondiscrimination measures.			X

HAWAII STATE PLAN, CHAPTER 226, HRS – PART I. OVERALL THEME, GOALS, OBJECTIVES AND POLICIES	S	N/S	N/A
(17) Stimulate the development and expansion of economic activities capitalizing on defense, dual-use, and science and technology assets, particularly on the neighbor islands where employment opportunities may be limited.			X
(18) Encourage businesses that have favorable financial multiplier effects within Hawaii's economy, particularly with respect to emerging industries in science and technology.			X
(19) Promote and protect intangible resources in Hawaii, such as scenic beauty and the aloha spirit, which are vital to a healthy economy.			X
(20) Increase effective communication between the educational community and the private sector to develop relevant curricula and training programs to meet future employment needs in general, and requirements of new or innovative potential growth industries in particular.			X
(21) Foster a business climate in Hawaii--including attitudes, tax and regulatory policies, and financial and technical assistance programs--that is conducive to the expansion of existing enterprises and the creation and attraction of new business and industry.			X
<i>Discussion: The Project's mulch and compost localizes and reduces importation of soil amendments relied upon by the agricultural industry. The Project is a partnership with private industry through the design, build, and operate contractual relationship.</i>			
HRS § 226-7: Objectives and policies for the economy - agriculture			
Objectives: Planning for the State's economy with regard to agriculture shall be directed towards achievement of the following objectives:			
(1) Viability of Hawaii's sugar and pineapple industries.			X
(2) Growth and development of diversified agriculture throughout the State.	X		
(3) An agriculture industry that continues to constitute a dynamic and essential component of Hawaii's strategic, economic, and social well-being.			X
Policies:			
(1) Establish a clear direction for Hawaii's agriculture through stakeholder commitment and advocacy.			X
(2) Encourage agriculture by making best use of natural resources.	X		
(3) Provide the governor and the legislature with information and options needed for prudent decision making for the development of agriculture.			X
(4) Establish strong relationships between the agricultural and visitor industries for mutual marketing benefits.			X
(5) Foster increased public awareness and understanding of the contributions and benefits of agriculture as a major sector of Hawaii's economy.			X
(6) Seek the enactment and retention of federal and state legislation that benefits Hawaii's agricultural industries.			X
(7) Strengthen diversified agriculture by developing an effective promotion, marketing, and distribution system between Hawaii's producers and consumer markets locally, on the continental United States, and internationally.			X
(8) Support research and development activities that provide greater efficiency and economic productivity in agriculture.			X
(9) Enhance agricultural growth by providing public incentives and encouraging private initiatives.			X
(10) Assure the availability of agriculturally suitable lands with adequate water to accommodate present and future needs.			X

HAWAII STATE PLAN, CHAPTER 226, HRS – PART I. OVERALL THEME, GOALS, OBJECTIVES AND POLICIES	S	N/S	N/A
(11) Increase the attractiveness and opportunities for an agricultural education and livelihood.			X
(12) Expand Hawaii's agricultural base by promoting growth and development of flowers, tropical fruits and plants, livestock, feed grains, forestry, food crops, aquaculture, and other potential enterprises.	X		
(13) Promote economically competitive activities that increase Hawaii's agricultural self-sufficiency.	X		
(14) Promote and assist in the establishment of sound financial programs for diversified agriculture.			X
(15) Institute and support programs and activities to assist the entry of displaced agricultural workers into alternative agricultural or other employment.			X
(16) Facilitate the transition of agricultural lands in economically nonfeasible agricultural production to economically viable agricultural uses.			X
(17) Perpetuate, promote, and increase use of traditional Hawaiian farming systems, such as the use of loko i'a, māla, and irrigated lo'i, and growth of traditional Hawaiian crops, such as kalo, 'uala, and 'ulu.			X
(18) Increase and develop small-scale farms.			X
Discussion: <i>The Project supports local agriculture, especially the organic farming sector. The low-cost, quality compost and mulch promotes this island's food security movement towards self-sufficiency by relying less on imports of soil amendments and increasing food production.</i>			
HRS § 226-8: Objectives and policies for the economy – visitor industry			
Objectives: Planning for the State's economy with regard to the visitor industry shall be directed towards the achievement of the objective of a visitor industry that constitutes a major component of steady growth for Hawaii's economy.			
Policies:			
(1) Support and assist in the promotion of Hawaii's visitor attractions and facilities.			X
(2) Ensure that visitor industry activities are in keeping with the social, economic, and physical needs and aspirations of Hawaii's people.			X
(3) Improve the quality of existing visitor destination areas.			X
(4) Encourage cooperation and coordination between the government and private sectors in developing and maintaining well-designed, adequately serviced visitor industry and related developments which are sensitive to neighboring communities and activities.			X
(5) Develop the industry in a manner that will continue to provide new job opportunities and steady employment for Hawaii's people.			X
(6) Provide opportunities for Hawaii's people to obtain job training and education that will allow for upward mobility within the visitor industry.			X
(7) Foster a recognition of the contribution of the visitor industry to Hawaii's economy and the need to perpetuate the aloha spirit.			X
(8) Foster an understanding by visitors of the aloha spirit and of the unique and sensitive character of Hawaii's cultures and values.			X
Discussion: <i>The Project has no relationship to the visitor industry.</i>			
HRS § 226-9: Objective and policies for the economy – federal expenditures			
Objective: Planning for the State's economy with regard to federal expenditures shall be directed towards achievement of the objective of a stable federal investment base as an integral component of Hawaii's economy.			

HAWAII STATE PLAN, CHAPTER 226, HRS – PART I. OVERALL THEME, GOALS, OBJECTIVES AND POLICIES	S	N/S	N/A
<i>Policies:</i>			
(1) Encourage the sustained flow of federal expenditures in Hawaii that generates long-term government civilian employment.			X
(2) Promote Hawaii's supportive role in national defense.			X
(3) Promote the development of federally supported activities in Hawaii that respect state-wide economic concerns, are sensitive to community needs, and minimize adverse impacts on Hawaii's environment.			X
(4) Increase opportunities for entry and advancement of Hawaii's people into federal government service.			X
(5) Promote federal use of local commodities, services, and facilities available in Hawaii.			X
(6) Strengthen federal-state-county communication and coordination in all federal activities that affect Hawaii.			X
(7) Pursue the return of federally controlled lands in Hawaii that are not required for either the defense of the nation or for other purposes of national importance, and promote the mutually beneficial exchanges of land between federal agencies, the State, and the counties.			X
<i>Discussion: The Project will not use federal funds or land.</i>			
HRS § 226-10: Objectives and policies for the economy – potential growth and innovative activities.			
<i>Objective:</i> Planning for the State's economy with regard to potential growth activities shall be directed towards achievement of the objective of development and expansion of potential growth activities that serve to increase and diversify Hawaii's economic base.			
<i>Policies:</i>			
(1) Facilitate investment and employment growth in economic activities that have the potential to expand and diversify Hawaii's economy, including but not limited to diversified agriculture, aquaculture, renewable energy development, creative media, health care, and science and technology-based sectors.	X		
(2) Facilitate investment in innovative activity that may pose risks or be less labor-intensive than other traditional business activity, but if successful, will generate revenue in Hawaii through the export of services or products or substitution of imported services or products;			X
(3) Encourage entrepreneurship in innovative activity by academic researchers and instructors who may not have the background, skill, or initial inclination to commercially exploit their discoveries or achievements.			X
(4) Recognize that innovative activity is not exclusively dependent upon individuals with advanced formal education, but that many self-taught, motivated individuals are able, willing, sufficiently knowledgeable, and equipped with the attitude necessary to undertake innovative activity.			X
(5) Increase the opportunities for investors in innovative activity and talent engaged in innovative activity to personally meet and interact at cultural, art, entertainment, culinary, athletic, or visitor-oriented events without a business focus;			X
(6) Expand Hawaii's capacity to attract and service international programs and activities that generate employment for Hawaii's people.			X
(7) Enhance and promote Hawaii's role as a center for international relations, trade, finance, services, technology, education, culture, and the arts.			X

HAWAII STATE PLAN, CHAPTER 226, HRS – PART I. OVERALL THEME, GOALS, OBJECTIVES AND POLICIES	S	N/S	N/A
(8) Accelerate research and development of new energy-related industries based on wind, solar, ocean, underground resources, and solid waste.			X
(9) Promote Hawaii's geographic, environmental, social, and technological advantages to attract new or innovative economic activities into the State.			X
(10) Provide public incentives and encourage private initiative to attract new or innovative industries that best support Hawaii's social, economic, physical, and environmental objectives.			X
(11) Increase research and the development of ocean-related economic activities such as mining, food production, and scientific research.			X
(12) Develop, promote, and support research and educational and training programs that will enhance Hawaii's ability to attract and develop economic activities of benefit to Hawaii.			X
(13) Foster a broader public recognition and understanding of the potential benefits of new or innovative growth-oriented industry in Hawaii.			X
(14) Encourage the development and implementation of joint federal and state initiatives to attract federal programs and projects that will support Hawaii's social, economic, physical, and environmental objectives.			X
(15) Increase research and development of businesses and services in the telecommunications and information industries.			X
(16) Foster the research and development of nonfossil fuel and energy efficient modes of transportation.			X
(17) Recognize and promote health care and health care information technology as growth industries.			X
Discussion: <i>The Project's low-cost, high-quality soil amendments support the expansion of agriculture, particularly the organic farming sector. .</i>			
HRS § 226-10.5: Objectives and policies for the economy – information industry			
Objective: Planning for the State's economy with regard to telecommunications and information technology shall be directed toward recognizing that broadband and wireless communication capability and infrastructure are foundations for an innovative economy and positioning Hawaii as a leader in broadband and wireless communications and applications in the Pacific Region.			
Policies:			
(1) Encourage the continued development and expansion of the telecommunications infrastructure serving Hawaii to accommodate future growth in the information industry;			X
(2) Facilitate the development of new business and service ventures in the information industry which will provide employment opportunities for the people of Hawaii;			X
(3) Encourage greater cooperation between the public and private sectors in developing and maintaining a well- designed information industry;			X
(4) Ensure that the development of new businesses and services in the industry are in keeping with the social, economic, and physical needs and aspirations of Hawaii's people;			X
(5) Provide opportunities for Hawaii's people to obtain job training and education that will allow for upward mobility within the information industry;			X
(6) Foster a recognition of the contribution of the information industry to Hawaii's economy; and			X
(7) Assist in the promotion of Hawaii as a broker, creator, and processor of information in the Pacific.			X
Discussion: <i>The Project has no relationship to the information industry.</i>			

HAWAII STATE PLAN, CHAPTER 226, HRS – PART I. OVERALL THEME, GOALS, OBJECTIVES AND POLICIES	S	N/S	N/A
HRS § 226-11: Objectives and policies for the physical environment – land-based, shoreline, and marine resources.			
Objectives: Planning for the State's physical environment shall be directed towards achievement of the objective of enhancement of Hawaii's scenic assets, natural beauty, and multi-cultural/historical resources.			
(1) Prudent use of Hawaii's land-based, shoreline, and marine resources.	X		
(2) Effective protection of Hawaii's unique and fragile environmental resources.	X		
Policies:			
(1) Exercise an overall conservation ethic in the use of Hawaii's natural resources.			X
(2) Ensure compatibility between land-based and water-based activities and natural resources and ecological systems.			X
(3) Take into account the physical attributes of areas when planning and designing activities and facilities.	X		
(4) Manage natural resources and environs to encourage their beneficial and multiple use without generating costly or irreparable environmental damage.			X
(5) Consider multiple uses in watershed areas, provided such uses do not detrimentally affect water quality and recharge functions.			X
(6) Encourage the protection of rare or endangered plant and animal species and habitats native to Hawaii.	X		
(7) Provide public incentives that encourage private actions to protect significant natural resources from degradation or unnecessary depletion.			X
(8) Pursue compatible relationships among activities, facilities, and natural resources.	X		
(9) Promote increased accessibility and prudent use of inland and shoreline areas for public recreational, educational, and scientific purposes.			X
Discussion: <i>The site was selected in a previously disturbed quarry. This environmental assessment includes mitigation measures to enhance compatibility with natural resources and protect rare or endangered species.</i>			
HRS § 226-12: Objectives and policies for the physical environment – scenic, natural beauty, and historic resources.			
Objective: Planning for the State's physical environment shall be directed towards achievement of the objective of enhancement of Hawaii's scenic assets, natural beauty, and multi-cultural/historical resources.			
Policies:			
(1) Promote the preservation and restoration of significant natural and historic resources.			X
(2) Provide incentives to maintain and enhance historic, cultural, and scenic amenities.			X
(3) Promote the preservation of views and vistas to enhance the visual and aesthetic enjoyment of mountains, ocean, scenic landscapes, and other natural features.			X
(4) Protect those special areas, structures, and elements that are an integral and functional part of Hawaii's ethnic and cultural heritage.			X
(5) Encourage the design of developments and activities that complement the natural beauty of the islands.			X
Discussion: <i>The Project does not impact any scenic resources.</i>			

HAWAII STATE PLAN, CHAPTER 226, HRS – PART I. OVERALL THEME, GOALS, OBJECTIVES AND POLICIES	S	N/S	N/A
HRS § 226-13: Objectives and policies for the physical environment – land, air, and water quality.			
Objectives: Planning for the State’s physical environment with regard to land, air, and water quality shall be directed towards achievement of the following objectives:			
(1) Maintenance and pursuit of improved quality in Hawaii's land, air, and water resources.			X
(2) Greater public awareness and appreciation of Hawaii's environmental resources.			X
Policies:			
(1) Foster educational activities that promote a better understanding of Hawaii’s limited environmental resources.			X
(2) Promote the proper management of Hawaii’s land and water resources.			X
(3) Promote effective measures to achieve desired quality in Hawaii's surface, ground, and coastal waters.			X
(4) Encourage actions to maintain or improve aural and air quality levels to enhance the health and well-being of Hawaii's people.			X
(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.			X
(6) Encourage design and construction practices that enhance the physical qualities of Hawaii's communities.			X
(7) Encourage urban developments in close proximity to existing services and facilities.			X
(8) Foster recognition of the importance and value of the land, air, and water resources to Hawaii’s people, their cultures and visitors.			X
Discussion: <i>The Project indirectly supports the improvement of land, air, and water quality by diverting waste from the landfill.</i>			
HRS § 226-14: Objective and policies for facility systems – in general			
Objective: Planning for the State's facility systems in general shall be directed towards achievement of the objective of water, transportation, waste disposal, and energy and telecommunication systems that support statewide social, economic, and physical objectives.			
Policies:			
(1) Accommodate the needs of Hawaii's people through coordination of facility systems and capital improvement priorities in consonance with state and county plans.	X		
(2) Encourage flexibility in the design and development of facility systems to promote prudent use of resources and accommodate changing public demands and priorities.	X		
(3) Ensure that required facility systems can be supported within resource capacities and at reasonable cost to the user.	X		
(4) Pursue alternative methods of financing programs and projects and cost-saving techniques in the planning, construction, and maintenance of facility systems.	X		
Discussion: <i>The Project implements the County of Hawai'i's Zero Waste goal set forth in the County's Integrated Solid Waste Management Plan. The Project pursues an alternative method to finance the facility through a design, build, and operate contract with a private company.</i>			

HAWAII STATE PLAN, CHAPTER 226, HRS – PART I. OVERALL THEME, GOALS, OBJECTIVES AND POLICIES	S	N/S	N/A
HRS § 226-15: Objectives and policies for facility systems – solid and liquid wastes.			
Objectives: Planning for the State’s facility systems with regard to solid and liquid wastes shall be directed towards the achievement of the following objectives:			
(1) Maintenance of basic public health and sanitation standards relating to treatment and disposal of solid and liquid wastes.	X		
(2) Provision of adequate sewerage facilities for physical and economic activities that alleviate problems in housing, employment, mobility, and other areas.			X
Policies:			
(1) Encourage the adequate development of sewerage facilities that complement planned growth.			X
(2) Promote re-use and recycling to reduce solid and liquid wastes and employ a conservation ethic.	X		
(3) Promote research to develop more efficient and economical treatment and disposal of solid and liquid wastes.	X		
Discussion: <i>The in-vessel method of composting provides a sanitary method of composting food and other organic waste in manner that controls odor and pests. The Project promotes the ethic of re-use and recycling by diverting the organic waste stream that would otherwise be disposed in the landfill. The mulching and composting methods would be refined through practice and should advance the state of knowledge of in-vessel composting and fire ant treatment of mulch.</i>			
HRS § 226-16: Objectives and policies for facility systems – water.			
Objective: Planning for the State’s facility systems with regard to water shall be directed towards achievement of the objective of the provision of water to adequately accommodate domestic, agricultural, commercial, industrial, recreational, and other needs within resource capacities.			
Policies:			
(1) Coordinate development of land use activities with existing and potential water supply.			X
(2) Support research and development of alternative methods to meet future water requirements well in advance of anticipated needs.			X
(3) Reclaim and encourage the productive use of runoff water and wastewater discharges.	X		
(4) Assist in improving the quality, efficiency, service, and storage capabilities of water systems for domestic and agricultural use.			X
(5) Support water supply services to areas experiencing critical water problems.			X
(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.			X
Discussion: <i>The Project will recycle leachate to adjust moisture of the organic waste to conserve domestic water use.</i>			
HRS § 226-17: Objectives and policies for facility systems – transportation.			
Objective: Planning for the State's facility systems with regard to energy shall be directed toward the achievement of the following objectives, giving due consideration to all:			
(1) An integrated multi-modal transportation system that services statewide needs and promotes the efficient, economical, safe, and convenient movement of people and goods.			X
(2) A statewide transportation system that is consistent with and will accommodate planned growth objectives throughout the State.			X
Policies:			

HAWAII STATE PLAN, CHAPTER 226, HRS – PART I. OVERALL THEME, GOALS, OBJECTIVES AND POLICIES	S	N/S	N/A
(1) Design, program, and develop a multi-modal system in conformance with desired growth and physical development as stated in this chapter;			X
(2) Coordinate state, county, federal, and private transportation activities and programs toward the achievement of statewide objectives;			X
(3) Encourage a reasonable distribution of financial responsibilities for transportation among participating governmental and private parties;			X
(4) Provide for improved accessibility to shipping, docking, and storage facilities;			X
(5) Promote a reasonable level and variety of mass transportation services that adequately meet statewide and community needs;			X
(6) Encourage transportation systems that serve to accommodate present and future development needs of communities;			X
(7) Encourage a variety of carriers to offer increased opportunities and advantages to interisland movement of people and goods;			X
(8) Increase the capacities of airport and harbor systems and support facilities to effectively accommodate transshipment and storage needs;			X
(9) Encourage the development of transportation systems and programs which would assist statewide economic growth and diversification;			X
(10) Encourage the design and development of transportation systems sensitive to the needs of affected communities and the quality of Hawaii's natural environment;			X
(11) Encourage safe and convenient use of low-cost, energy-efficient, non-polluting means of transportation;			X
(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			X
(13) Encourage diversification of transportation modes and infrastructure to promote alternate fuels and energy efficiency.			X
Discussion: <i>The Project has no relationship to transportation.</i>			
HRS § 226-18: Objectives and policies for facility systems – energy.			
Objectives: Planning for the State's facility systems with regard to energy shall be directed toward the achievement of the following objectives, giving due consideration to all:			
(1) Dependable, efficient, and economical statewide energy systems capable of supporting the needs of the people;			X
(2) Increased energy self-sufficiency where the ratio of indigenous to imported energy use is increased;			X
(3) Greater energy security in the face of threats to Hawaii's energy supplies and systems; and			X
(4) Reduction, avoidance, or sequestration of greenhouse gas emissions from energy supply and use.			X
Policies:			
(1) Support research and development as well as promote the use of renewable energy sources;			X
(2) Ensure that the combination of energy supplies and energy-saving systems is sufficient to support the demands of growth;			X
(3) Base decisions of least-cost supply-side and demand-side energy resource options on a comparison of their total costs and benefits when a least-cost is determined by a reasonably comprehensive, quantitative, and qualitative accounting of their long-term, direct and indirect economic, environmental, social, cultural, and public health costs and benefits;			X

HAWAII STATE PLAN, CHAPTER 226, HRS – PART I. OVERALL THEME, GOALS, OBJECTIVES AND POLICIES	S	N/S	N/A
(4) Promote all cost-effective conservation of power and fuel supplies through measures including:			X
(A) Development of cost-effective demand-side management programs;			X
(B) Education; and			X
(C) Adoption of energy-efficient practices and technologies;			X
(5) Ensure to the extent that new supply-side resources are needed, the development or expansion of energy systems utilizes the least-cost energy supply option and maximizes efficient technologies;			X
(6) Support research, development, and demonstration of energy efficiency, load management, and other demand-side management programs, practices, and technologies;			X
(7) Promote alternate fuels and energy efficiency by encouraging diversification of transportation modes and infrastructure;			X
(8) Support actions that reduce, avoid, or sequester greenhouse gases in utility, transportation, and industrial sector applications; and			X
(9) Support actions that reduce, avoid, or sequester Hawaii's greenhouse gas emissions through agriculture and forestry initiatives.			X
Discussion: <i>The Project has no relationship to energy development.</i>			
HRS § 226-18.5: Objectives and policies for facility systems—telecommunications.			
Objective: Planning for the State's telecommunications facility systems shall be directed towards the achievement of dependable, efficient, and economical statewide telecommunications systems capable of supporting the needs of the people.			
Policies:			
(1) Facilitate research and development of telecommunications systems and resources;			X
(2) Encourage public and private sector efforts to develop means for adequate, ongoing telecommunications planning;			X
(3) Promote efficient management and use of existing telecommunications systems and services; and			X
(4) Facilitate the development of education and training of telecommunications personnel.			X
Discussion: <i>The Project has no relationship to telecommunications.</i>			
HRS § 226-19: Objectives and policies for socio-cultural advancement – housing.			
Objectives: Planning for the State's socio-cultural advancement with regard to housing shall be directed toward the achievement of the following objectives:			
(1) Greater opportunities for Hawaii's people to secure reasonably priced, safe, sanitary, and livable homes, located in suitable environments that satisfactorily accommodate the needs and desires of families and individuals, through collaboration and cooperation between government and nonprofit and for-profit developers to ensure that more affordable housing is made available to very low-, low- and moderate-income segments of Hawaii's population.			X
(2) The orderly development of residential areas sensitive to community needs and other land uses.			X
(3) The development and provision of affordable rental housing by the State to meet the housing needs of Hawaii's people.			X
Policies:			

HAWAII STATE PLAN, CHAPTER 226, HRS – PART I. OVERALL THEME, GOALS, OBJECTIVES AND POLICIES	S	N/S	N/A
(1) Effectively accommodate the housing needs of Hawaii's people.			X
(2) Stimulate and promote feasible approaches that increase housing choices for low-income, moderate-income, and gap-group households.			X
(3) Increase homeownership and rental opportunities and choices in terms of quality, location, cost, densities, style, and size of housing.			X
(4) Promote appropriate improvement, rehabilitation, and maintenance of existing housing units and residential areas.			X
(5) Promote design and location of housing developments taking into account the physical setting, accessibility to public facilities and services, and other concerns of existing communities and surrounding areas.			X
(6) Facilitate the use of available vacant, developable, and underutilized urban lands for housing.			X
(7) Foster a variety of lifestyles traditional to Hawaii through the design and maintenance of neighborhoods that reflect the culture and values of the community.			X
(8) Promote research and development of methods to reduce the cost of housing construction in Hawaii.			X
Discussion: <i>The Project has no relationship to housing.</i>			
HRS § 226-20: Objectives and policies for socio-cultural advancement – health			
Objectives: Planning for the State's socio-cultural advancement with regard to health shall be directed towards achievement of the following objectives:			
(1) Fulfillment of basic individual health needs of the general public.			X
(2) Maintenance of sanitary and environmentally healthful conditions in Hawaii's communities.			X
Policies:			
(1) Provide adequate and accessible services and facilities for prevention and treatment of physical and mental health problems, including substance abuse.			X
(2) Encourage improved cooperation among public and private sectors in the provision of health care to accommodate the total health needs of individuals throughout the State.			X
(3) Encourage public and private efforts to develop and promote statewide and local strategies to reduce health care and related insurance costs.			X
(4) Foster an awareness of the need for personal health maintenance and preventive health care through education and other measures.			X
(5) Provide programs, services, and activities that ensure environmentally healthful and sanitary conditions.			X
(6) Improve the State's capabilities in preventing contamination by pesticides and other potentially hazardous substances through increased coordination, education, monitoring, and enforcement.			X
(7) Prioritize programs, services, interventions, and activities that address identified social determinants of health to improve native Hawaiian health and well-being consistent with the United States Congress' declaration of policy as codified in title 42 United States Code section 11702, and to reduce health disparities of disproportionately affected demographics, including native Hawaiians, other Pacific Islanders, and Filipinos. The prioritization of affected demographic groups other than native Hawaiians may be reviewed every ten years and revised based on the best available epidemiological and public health data.			X
Discussion: <i>The Project indirectly reduces pesticide use by supporting organic methods of farming.</i>			

HAWAII STATE PLAN, CHAPTER 226, HRS – PART I. OVERALL THEME, GOALS, OBJECTIVES AND POLICIES	S	N/S	N/A
HRS § 226-21: Objectives and policies for socio-cultural advancement – education.			
Objectives: Planning for the State's socio-cultural advancement with regard to education shall be directed towards achievement of the objective of the provision of a variety of educational opportunities to enable individuals to fulfill their needs, responsibilities, and aspirations.			
Policies:			
(1) Support educational programs and activities that enhance personal development, physical fitness, recreation, and cultural pursuits of all groups.			X
(2) Ensure the provision of adequate and accessible educational services and facilities that are designed to meet individual and community needs.			X
(3) Provide appropriate educational opportunities for groups with special needs.			X
(4) Promote educational programs which enhance understanding of Hawaii's cultural heritage.			X
(5) Provide higher educational opportunities that enable Hawaii's people to adapt to changing employment demands.			X
(6) Assist individuals, especially those experiencing critical employment problems or barriers, or undergoing employment transitions, by providing appropriate employment training programs and other related educational opportunities.			X
(7) Promote programs and activities that facilitate the acquisition of basic skills, such as reading, writing, computing, listening, speaking, and reasoning.			X
(8) Emphasize quality educational programs in Hawaii's institutions to promote academic excellence.			X
(9) Support research programs and activities that enhance the education programs of the State.			X
Discussion: <i>The facility will be open for educational tours.</i>			
HRS § 226-22: Objective and policies for socio-cultural advancement – social services			
Objective: Planning for the State's socio-cultural advancement with regard to social services shall be directed towards the achievement of the objective of improved public and private social services and activities that enable individuals, families, and groups to become more self-reliant and confident to improve their well-being.			
Policies:			
(1) Assist individuals, especially those in need of attaining a minimally adequate standard of living and those confronted by social and economic hardship conditions, through social services and activities within the State's fiscal capacities.			X
(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.			X
(3) Facilitate the adjustment of new residents, especially recently arrived immigrants, into Hawaii's communities.			X
(4) Promote alternatives to institutional care in the provision of long-term care for elder and disabled populations.			X
(5) Support public and private efforts to prevent domestic abuse and child molestation, and assist victims of abuse and neglect.			X

HAWAII STATE PLAN, CHAPTER 226, HRS – PART I. OVERALL THEME, GOALS, OBJECTIVES AND POLICIES	S	N/S	N/A
(6) Promote programs which assist people in need of family planning services to enable them to meet their needs.			X
<i>Discussion: The Project has no relationship to social services.</i>			
HRS § 226-23: Objectives and policies for socio-cultural advancement – leisure.			
Objective: Planning for the State’s socio-cultural advancement with regard to leisure shall be directed towards the achievement of the objective of the adequate provision of resources to accommodate diverse cultural, artistic, and recreational needs for present and future generations.			
Policies:			
(1) Foster and preserve Hawaii's multi-cultural heritage through supportive cultural, artistic, recreational, and humanities-oriented programs and activities.			X
(2) Provide a wide range of activities and facilities to fulfill the cultural, artistic, and recreational needs of all diverse and special groups effectively and efficiently.			X
(3) Enhance the enjoyment of recreational experiences through safety and security measures, educational opportunities, and improved facility design and maintenance.			X
(4) Promote the recreational and educational potential of natural resources having scenic, open space, cultural, historical, geological, or biological values while ensuring that their inherent values are preserved.			X
(5) Ensure opportunities for everyone to use and enjoy Hawaii's recreational resources.			X
(6) Assure the availability of sufficient resources to provide for future cultural, artistic, and recreational needs.			X
(7) Provide adequate and accessible physical fitness programs to promote the physical and mental well-being of Hawaii's people.			X
(8) Increase opportunities for appreciation and participation in the creative arts, including the literary, theatrical, visual, musical, folk, and traditional art forms.			X
(9) Encourage the development of creative expression in the artistic disciplines to enable all segments of Hawaii's population to participate in the creative arts.			X
(10) Assure adequate access to significant natural and cultural resources in public ownership.			X
<i>Discussion: The Project has no relationship to the provision of leisure or cultural resources.</i>			
HRS § 226-24: Objective and policies for socio-cultural advancement – individual rights and personal well-being.			
Objective: Planning for the State's socio-cultural advancement with regard to individual rights and personal well-being shall be directed towards achievement of the objective of increased opportunities and protection of individual rights to enable individuals to fulfill their socio-economic needs and aspirations.			
Policies:			
(1) Provide effective services and activities that protect individuals from criminal acts and unfair practices and that alleviate the consequences of criminal acts in order to foster a safe and secure environment.			X
(2) Uphold and protect the national and state constitutional rights of every individual.			X

HAWAII STATE PLAN, CHAPTER 226, HRS – PART I. OVERALL THEME, GOALS, OBJECTIVES AND POLICIES	S	N/S	N/A
(3) Assure access to, and availability of, legal assistance, consumer protection, and other public services which strive to attain social justice.			X
(4) Ensure equal opportunities for individual participation in society.			X
Discussion: <i>The Project has no relationship to the protection of individual rights.</i>			
HRS § 226-25: Objectives and policies for socio-cultural advancement – culture.			
Objective: Planning for the State’s socio-cultural advancement with regard to culture shall be directed toward the achievement of the objective of enhancement of cultural identities, traditions, values, customs, and arts of Hawaii's people.			
Policies:			
(1) Foster increased knowledge and understanding of Hawaii's ethnic and cultural heritages and the history of Hawaii.			X
(2) Support activities and conditions that promote cultural values, customs, and arts that enrich the lifestyles of Hawaii's people and which are sensitive and responsive to family and community needs.			X
(3) Encourage increased awareness of the effects of proposed public and private actions on the integrity and quality of cultural and community lifestyles in Hawaii.			X
(4) Encourage the essence of the aloha spirit in people's daily activities to promote harmonious relationships among Hawaii's people and visitors.			X
Discussion: <i>The Project has no relationship to the enhancement of cultural traditions.</i>			
HRS § 226-26: Objectives and policies for socio-cultural advancement – public safety.			
Objectives: Planning for the State's socio-cultural advancement with regard to public safety shall be directed towards the achievement of the following objectives:			
(1) Assurance of public safety and adequate protection of life and property for all people.			X
(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.			X
(3) Promotion of a sense of community responsibility for the welfare and safety of Hawaii's people.			X
Policies related to public safety:			
(1) Ensure that public safety programs are effective and responsive to community needs.			X
(2) Encourage increased community awareness and participation in public safety programs.			X
Policies related to criminal justice:			
(1) Support criminal justice programs aimed at preventing and curtailing criminal activities.			X
(2) Develop a coordinated, systematic approach to criminal justice administration among all criminal justice agencies.			X
(3) Provide a range of correctional resources which may include facilities and alternatives to traditional incarceration in order to address the varied security needs of the community and successfully reintegrate offenders into the community.			X
Policies related to emergency management:			

HAWAII STATE PLAN, CHAPTER 226, HRS – PART I. OVERALL THEME, GOALS, OBJECTIVES AND POLICIES	S	N/S	N/A
(1) Ensure that responsible organizations are in a proper state of readiness to respond to major war-related, natural, or technological disasters and civil disturbances at all times.	X		
(2) Enhance the coordination between emergency management programs throughout the State.			X
<i>Discussion: The Project could accommodate a post-event disaster debris disposal in coordination with Civil Defense.</i>			
HRS § 226-27: Objectives and policies for socio-cultural advancement – government.			
<i>Objectives: Planning the State's socio-cultural advancement with regard to government shall be directed towards the achievement of the following objectives:</i>			
(1) Efficient, effective, and responsive government services at all levels in the State.			X
(2) Fiscal integrity, responsibility, and efficiency in the state government and county governments.			X
<i>Policies:</i>			
(1) Provide for necessary public goods and services not assumed by the private sector.			X
(2) Pursue an openness and responsiveness in government that permits the flow of public information, interaction, and response.			X
(3) Minimize the size of government to that necessary to be effective.			X
(4) Stimulate the responsibility in citizens to productively participate in government for a better Hawaii.			X
(5) Assure that government attitudes, actions, and services are sensitive to community needs and concerns.			X
(6) Provide for a balanced fiscal budget.			X
(7) Improve the fiscal budgeting and management system of the State.			X
(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.			X
<i>Discussion: The Project is a prudent use of government funds.</i>			
HAWAI'I STATE PLAN, CHAPTER 226, HRS – PART III. PRIORITY GUIDELINES			
HRS § 226-101: Purpose. The purpose of this part is to establish overall priority guidelines to address areas of statewide concern.			
HRS § 226-102: Overall direction. The State shall strive to improve the quality of life for Hawaii's present and future present and future population through the pursuit of desirable courses of action in five major areas of statewide concern which merit priority attention: economic development, population growth and land resource management, affordable housing, crime and criminal justice, and quality education.			
HRS § 226-103: Economic priority guidelines.			
(a) Priority guidelines to stimulate economic growth and encourage business expansion and development to provide needed jobs for Hawaii's people and achieve a stable and diversified economy:			
(1) Seek a variety of means to increase the availability of investment capital for new and expanding enterprises.			X
(A) Encourage investments which:			X

HAWAII STATE PLAN, CHAPTER 226, HRS – PART I. OVERALL THEME, GOALS, OBJECTIVES AND POLICIES	S	N/S	N/A
(i) Reflect long term commitments to the State;			X
(ii) Rely on economic linkages within the local economy;			X
(iii) Diversify the economy;			X
(iv) Reinvest in the local economy;			X
(v) Are sensitive to community needs and priorities; and			X
(vi) Demonstrate a commitment to provide management opportunities to Hawaii residents.			X
(B) Encourage investments in innovative activities that have a nexus to the State, such as:			X
(i) Present or former residents acting as entrepreneurs or principals;			X
(ii) Academic support from an institution of higher education in Hawaii;			X
(iii) Investment interest from Hawaii residents;			X
(iv) Resources unique to Hawaii that are required for innovative activity; and			X
(v) Complementary or supportive industries or government programs or projects.			X
(2) Encourage the expansion of technological research to assist industry development and support the development and commercialization of technological advancements.			X
(3) Improve the quality, accessibility, and range of services provided by government to business, including data and reference services and assistance in complying with governmental regulations.			X
(4) Seek to ensure that state business tax and labor laws and administrative policies are equitable, rational, and predictable.			X
(5) Streamline the building and development permit and review process, and eliminate or consolidate other burdensome or duplicative governmental requirements imposed on business, where public health, safety and welfare would not be adversely affected.			X
(6) Encourage the formation of cooperatives and other favorable marketing or distribution arrangements at the regional or local level to assist Hawaii's small-scale producers, manufacturers, and distributors.			X
(7) Continue to seek legislation to protect Hawaii from transportation interruptions between Hawaii and the continental United States.			X
(8) Provide public incentives and encourage private initiative to develop and attract industries which promise long-term growth potentials and which have the following characteristics:			X
(A) An industry that can take advantage of Hawaii's unique location and available physical and human resources.			X
(B) A clean industry that would have minimal adverse effects on Hawaii's environment.			X
(C) An industry that is willing to hire and train Hawaii's people to meet the industry's labor needs at all levels of employment.			X
(D) An industry that would provide reasonable income and steady employment.			X
(9) Support and encourage, through educational and technical assistance programs and other means, expanded opportunities for employee ownership and participation in Hawaii business.			X
(10) Enhance the quality of Hawaii's labor force and develop and maintain career opportunities for Hawaii's people through the following actions:			X

HAWAII STATE PLAN, CHAPTER 226, HRS – PART I. OVERALL THEME, GOALS, OBJECTIVES AND POLICIES	S	N/S	N/A
(A) Expand vocational training in diversified agriculture, aquaculture, information industry, and other areas where growth is desired and feasible.			X
(B) Encourage more effective career counseling and guidance in high schools and post-secondary institutions to inform students of present and future career opportunities.			X
(C) Allocate educational resources to career areas where high employment is expected and where growth of new industries is desired.			X
(D) Promote career opportunities in all industries for Hawaii's people by encouraging firms doing business in the State to hire residents.			X
(E) Promote greater public and private sector cooperation in determining industrial training needs and in developing relevant curricula and on-the-job training opportunities.			X
(F) Provide retraining programs and other support services to assist entry of displaced workers into alternative employment.			X
(b) Priority guidelines to promote the economic health and quality of the visitor industry:			
(1) Promote visitor satisfaction by fostering an environment which enhances the Aloha Spirit and minimizes inconveniences to Hawaii's residents and visitors.			X
(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.			X
(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.			X
(4) Encourage visitor industry practices and activities which respect, preserve, and enhance Hawaii's significant natural, scenic, historic, and cultural resources.			X
(5) Develop and maintain career opportunities in the visitor industry for Hawaii's people, with emphasis on managerial positions.			X
(6) Support and coordinate tourism promotion abroad to enhance Hawaii's share of existing and potential visitor markets.			X
(7) Maintain and encourage a more favorable resort investment climate consistent with the objectives of this chapter.			X
(8) Support law enforcement activities that provide a safer environment for both visitors and residents alike.			X
(9) Coordinate visitor industry activities and promotions to business visitors through the state network of advanced data communication techniques.			X
(c) Priority guidelines to promote the continued viability of the sugar and pineapple industries:			
(1) Provide adequate agricultural lands to support the economic viability of the sugar and pineapple industries.			X
(2) Continue efforts to maintain federal support to provide stable sugar prices high enough to allow profitable operations in Hawaii.			X
(3) Support research and development, as appropriate, to improve the quality and production of sugar and pineapple crops.			X
(d) Priority guidelines to promote the growth and development of diversified agriculture and aquaculture:			
(1) Identify, conserve, and protect agricultural and aquacultural lands of importance and initiate affirmative and comprehensive programs to promote economically productive agricultural and aquacultural uses of such lands.			X

HAWAII STATE PLAN, CHAPTER 226, HRS – PART I. OVERALL THEME, GOALS, OBJECTIVES AND POLICIES	S	N/S	N/A
(2) Assist in providing adequate, reasonably priced water for agricultural activities.			X
(3) Encourage public and private investment to increase water supply and to improve transmission, storage, and irrigation facilities in support of diversified agriculture and aquaculture.			X
(4) Assist in the formation and operation of production and marketing associations and cooperatives to reduce production and marketing costs.			X
(5) Encourage and assist with the development of a waterborne and airborne freight and cargo system capable of meeting the needs of Hawaii's agricultural community.			X
(6) Seek favorable freight rates for Hawaii's agricultural products from interisland and overseas transportation operators.			X
(7) Encourage the development and expansion of agricultural and aquacultural activities which offer long-term economic growth potential and employment opportunities.			X
(8) Continue the development of agricultural parks and other programs to assist small independent farmers in securing agricultural lands and loans.			X
(9) Require agricultural uses in agricultural subdivisions and closely monitor the uses in these subdivisions.			X
(10) Support the continuation of land currently in use for diversified agriculture.			X
(11) Encourage residents and visitors to support Hawaii's farmers by purchasing locally grown food and food products.			X
(e) Priority guidelines for water use and development:			
(1) Maintain and improve water conservation programs to reduce the overall water consumption rate.			X
(2) Encourage the improvement of irrigation technology and promote the use of nonpotable water for agricultural and landscaping purposes.			X
(3) Increase the support for research and development of economically feasible alternative water sources.			X
(4) Explore alternative funding sources and approaches to support future water development programs and water system improvements.			X
(f) Priority guidelines for energy use and development:			
(1) Encourage the development, demonstration, and commercialization of renewable energy sources.			X
(2) Initiate, maintain, and improve energy conservation programs aimed at reducing energy waste and increasing public awareness of the need to conserve energy.			X
(3) Provide incentives to encourage the use of energy conserving technology in residential, industrial, and other buildings.			X
(4) Encourage the development and use of energy conserving and cost-efficient transportation systems.			X
(g) Priority guidelines to promote the development of the information industry:			
(1) Establish an information network that will serve as the catalyst for establishing a viable information industry in Hawaii.			X
(2) Encourage the development of services such as financial data processing, a products and services exchange, foreign language translations, telemarketing, teleconferencing, a twenty-four-hour international stock exchange, international banking, and a Pacific Rim management center.			X

HAWAII STATE PLAN, CHAPTER 226, HRS – PART I. OVERALL THEME, GOALS, OBJECTIVES AND POLICIES	S	N/S	N/A
(3) Encourage the development of small businesses in the information field such as software development, the development of new information systems and peripherals, data conversion and data entry services, and home or cottage services such as computer programming, secretarial, and accounting services.			X
(4) Encourage the development or expansion of educational and training opportunities for residents in the information and telecommunications fields.			X
(5) Encourage research activities, including legal research in the information and telecommunications fields.			X
(6) Support promotional activities to market Hawaii's information industry services.			X
(7) Encourage the location or co-location of telecommunication or wireless information relay facilities in the community, including public areas, where scientific evidence indicates that the public health safety, and welfare would not be adversely affected.			X
<i>Discussion: The Project has no direct relationship with economic development; it has an indirect benefit to support diversified agriculture by providing a local source of low-cost, high-quality soil amendment.</i>			
HRS § 226-104: Population growth and land resources priority guidelines.			
(a) Priority guidelines to effect desired statewide growth and distribution:			
(1) Encourage planning and resource management to insure that population growth rates throughout the State are consistent with available and planned resource capacities and reflect the needs and desires of Hawaii's people.			X
(2) Manage a growth rate for Hawaii's economy that will parallel future employment needs for Hawaii's people.			X
(3) Ensure that adequate support services and facilities are provided to accommodate the desired distribution of future growth throughout the State.			X
(4) Encourage major state and federal investments and services to promote economic development and private investment to the neighbor islands, as appropriate.			X
(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.			X
(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.			X
(7) Support the development of high technology parks on the neighbor islands.			X
(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.			X
(2) Make available marginal or nonessential agricultural lands for appropriate urban uses while maintaining agricultural lands of importance in the agricultural district.	X		
(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.			X

HAWAII STATE PLAN, CHAPTER 226, HRS – PART I. OVERALL THEME, GOALS, OBJECTIVES AND POLICIES	S	N/S	N/A
(4) Encourage restriction of new urban development in areas where water is insufficient from any source for both agricultural and domestic use.			X
(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.			X
(6) Seek participation from the private sector for the cost of building infrastructure and utilities, and maintaining open spaces.			X
(7) Pursue rehabilitation of appropriate urban areas.			X
(8) Support the redevelopment of Kakaako into a viable residential, industrial, and commercial community.			X
(9) Direct future urban development away from critical environmental areas or impose mitigating measures so that negative impacts on the environment would be minimized.			X
(10) Identify critical environmental areas in Hawaii to include but not be limited to the following: watershed and recharge areas; wildlife habitats (on land and in the ocean); areas with endangered species of plants and wildlife; natural streams and water bodies; scenic and recreational shoreline resources; open space and natural areas; historic and cultural sites; areas particularly sensitive to reduction in water and air quality; and scenic resources.			X
(11) Identify all areas where priority should be given to preserving rural character and lifestyle.			X
(12) Utilize Hawaii's limited land resources wisely, providing adequate land to accommodate projected population and economic growth needs while ensuring the protection of the environment and the availability of the shoreline, conservation lands, and other limited resources for future generations.			X
(13) Protect and enhance Hawaii's shoreline, open spaces, and scenic resources.			X
Discussion: The Project Site is marginal agricultural land.			
HRS § 226-105: Crime and criminal justice.			
Priority guidelines in the area of crime and criminal justice:			
(1) Support law enforcement activities and other criminal justice efforts that are directed to provide a safer environment.			X
(2) Target state and local resources on efforts to reduce the incidence of violent crime and on programs relating to the apprehension and prosecution of repeat offenders.			X
(3) Support community and neighborhood program initiatives that enable residents to assist law enforcement agencies in preventing criminal activities.			X
(4) Reduce overcrowding or substandard conditions in correctional facilities through a comprehensive approach among all criminal justice agencies which may include sentencing law revisions and use of alternative sanctions other than incarceration for persons who pose no danger to their community.			X
(5) Provide a range of appropriate sanctions for juvenile offenders, including community-based programs and other alternative sanctions.			X
(6) Increase public and private efforts to assist witnesses and victims of crimes and to minimize the costs of victimization.			X
Discussion: The Project has no relationship to criminal justice.			
HRS § 226-106: Affordable housing.			

HAWAII STATE PLAN, CHAPTER 226, HRS – PART I. OVERALL THEME, GOALS, OBJECTIVES AND POLICIES	S	N/S	N/A
Priority guidelines for the provision of affordable housing:			
(1) Seek to use marginal or nonessential agricultural land and public land to meet housing needs of low- and moderate-income and gap-group households.			X
(2) Encourage the use of alternative construction and development methods as a means of reducing production costs.			X
(3) Improve information and analysis relative to land availability and suitability for housing.			X
(4) Create incentives for development which would increase home ownership and rental opportunities for Hawaii's low- and moderate-income households, gap-group households, and residents with special needs.			X
(5) Encourage continued support for government or private housing programs that provide low interest mortgages to Hawaii's people for the purchase of initial owner- occupied housing.			X
(6) Encourage public and private sector cooperation in the development of rental housing alternatives.			X
(7) Encourage improved coordination between various agencies and levels of government to deal with housing policies and regulations.			X
(8) Give higher priority to the provision of quality housing that is affordable for Hawaii's residents and less priority to development of housing intended primarily for individuals outside of Hawaii.			X
Discussion: <i>The Project has no relationship to affordable housing.</i>			
HRS § 226-107: Quality education.			
Priority guidelines to promote quality education:			
(1) Pursue effective programs which reflect the varied district, school, and student needs to strengthen basic skills achievement;			X
(2) Continue emphasis on general education "core" requirements to provide common background to students and essential support to other university programs;			X
(3) Initiate efforts to improve the quality of education by improving the capabilities of the education work force;			X
(4) Promote increased opportunities for greater autonomy and flexibility of educational institutions in their decision-making responsibilities;			X
(5) Increase and improve the use of information technology in education by the availability of telecommunications equipment for:			X
(A) The electronic exchange of information;			X
(B) Statewide electronic mail; and			X
(C) Access to the Internet.			X
Encourage programs that increase the public's awareness and understanding of the impact of information technologies on our lives;			X
(6) Pursue the establishment of Hawaii's public and private universities and colleges as research and training centers of the Pacific;			X
(7) Develop resources and programs for early childhood education;			X
(8) Explore alternatives for funding and delivery of educational services to improve the overall quality of education; and			X
(9) Strengthen and expand educational programs and services for students with special needs.			X
Discussion: <i>The Project has no relationship to education.</i>			

Hawai'i State Environmental Policy (HRS Chapter 344)

S = Supportive, N/S = Not Supportive, N/A = Not Applicable

State Environmental Policy, Chapter 344, Hawaii Revised Statutes (Key: S = Supportive, N/S = Not Supportive, N/A = Not Applicable)	S	N/S	N/A
STATE ENVIRONMENTAL POLICY			
§344-3 Environmental policy. It shall be the policy of the State, through its programs, authorities, and resources to:			
(1) Conserve the natural resources, so that land, water, mineral, visual, air and other natural resources are protected by controlling pollution, by preserving or augmenting natural resources, and by safeguarding the State's unique natural environmental characteristics in a manner which will foster and promote the general welfare, create and maintain conditions under which humanity and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of the people of Hawaii.	X		
(2) Enhance the quality of life by:			
(A) Setting population limits so that the interaction between the natural and artificial environments and the population is mutually beneficial;			X
(B) Creating opportunities for the residents of Hawaii to improve their quality of life through diverse economic activities which are stable and in balance with the physical and social environments;			X
(C) Establishing communities which provide a sense of identity, wise use of land, efficient transportation, and aesthetic and social satisfaction in harmony with the natural environment which is uniquely Hawaiian; and			X
(D) Establishing a commitment on the part of each person to protect and enhance Hawaii's environment and reduce the drain on nonrenewable resources.	X		
Discussion: By turning would-be pollution into a valuable and environmentally-friendly product, this project is supportive of the State's goal for resource augmentation and a more harmonious relationship between nature and residents of Hawaii. Diverting organic waste from landfills also allows individual residents to have less of an impact on the environment through their sorting of solid waste into organic, and inorganic, as well as allowing them to purchase reclaimed agricultural products. This allows individuals to commit to enhancing the environment and reducing nonrenewable resource drain.			
GUIDELINES			
§344-4 Guidelines. In pursuance of the state policy to conserve the natural resources and enhance the quality of life, all agencies, in the development of programs, shall, insofar as practicable, consider the following guidelines:			
(1) Population.			
(A) Recognize population impact as a major factor in environmental degradation and adopt guidelines to alleviate this impact and minimize future degradation;			X
(B) Recognize optimum population levels for counties and districts within the State, keeping in mind that these will change with technology and circumstance, and adopt guidelines to limit population to the levels determined.			X
(2) Land, water, mineral, visual, air, and other natural resources.			
(A) Encourage management practices which conserve and fully utilize all natural resources;	X		

State Environmental Policy, Chapter 344, Hawaii Revised Statutes (Key: S = Supportive, N/S = Not Supportive, N/A = Not Applicable)	S	N/S	N/A
(B) Promote irrigation and waste water management practices which conserve and fully utilize vital water resources;			X
(C) Promote the recycling of waste water;			X
(D) Encourage management practices which conserve and protect watersheds and water sources, forest, and open space areas;			X
(E) Establish and maintain natural area preserves, wildlife preserves, forest reserves, marine preserves, and unique ecological preserves;			
(F) Maintain an integrated system of state land use planning which coordinates the state and county general plans;			X
(G) Promote the optimal use of solid wastes through programs of waste prevention, energy resource recovery, and recycling so that all our wastes become utilized.	X		
(3) Flora and fauna.			
(A) Protect endangered species of indigenous plants and animals and introduce new plants or animals only upon assurance of negligible ecological hazard;			X
(B) Foster the planting of native as well as other trees, shrubs, and flowering plants compatible to the enhancement of our environment.			X
(4) Parks, recreation, and open space.			
(A) Establish, preserve and maintain scenic, historic, cultural, park and recreation areas, including the shorelines, for public recreational, educational, and scientific uses;			X
(B) Protect the shorelines of the State from encroachment of artificial improvements, structures, and activities;			X
(C) Promote open space in view of its natural beauty not only as a natural resource but as an ennobling, living environment for its people.			X
(5) Economic development.			
(A) Encourage industries in Hawaii which would be in harmony with our environment;	X		
(B) Promote and foster the agricultural industry of the State; and preserve and conserve productive agricultural lands;	X		
(C) Encourage federal activities in Hawaii to protect the environment;			X
(D) Encourage all industries including the fishing, aquaculture, oceanography, recreation, and forest products industries to protect the environment;			X
(E) Establish visitor destination areas with planning controls which shall include but not be limited to the number of rooms;			X
(F) Promote and foster the aquaculture industry of the State; and preserve and conserve productive aquacultural lands.			X
(6) Transportation.			
(A) Encourage transportation systems in harmony with the lifestyle of the people and environment of the State;			X
(B) Adopt guidelines to alleviate environmental degradation caused by motor vehicles;			X
(C) Encourage public and private vehicles and transportation systems to conserve energy, reduce pollution emission, including noise, and provide safe and convenient accommodations for their users.			X
(7) Energy.			
(A) Encourage the efficient use of energy resources.			X

State Environmental Policy, Chapter 344, Hawaii Revised Statutes (Key: S = Supportive, N/S = Not Supportive, N/A = Not Applicable)	S	N/S	N/A
(8) Community life and housing.			
(A) Foster lifestyles compatible with the environment; preserve the variety of lifestyles traditional to Hawaii through the design and maintenance of neighborhoods which reflect the culture and mores of the community;			X
(B) Develop communities which provide a sense of identity and social satisfaction in harmony with the environment and provide internal opportunities for shopping, employment, education, and recreation;			X
(C) Encourage the reduction of environmental pollution which may degrade a community;			X
(D) Foster safe, sanitary, and decent homes;			X
(E) Recognize community appearances as major economic and aesthetic assets of the counties and the State; encourage green belts, plantings, and landscape plans and designs in urban areas; and preserve and promote mountain-to-ocean vistas.			X
(9) Education and culture.			
(A) Foster culture and the arts and promote their linkage to the enhancement of the environment;			X
(B) Encourage both formal and informal environmental education to all age groups.			X
(10) Citizen participation.			
(A) Encourage all individuals in the State to adopt a moral ethic to respect the natural environment; to reduce waste and excessive consumption; and to fulfill the responsibility as trustees of the environment for the present and succeeding generations; and			X
(B) Provide for expanding citizen participation in the decision making process so it continually embraces more citizens and more issues.			X
Discussion: The Project will divert greenwaste and other designated organic materials from the Hilo landfill, recycling solid organic wastes by recovering usable resources through a composting process, providing important fertilizers to agriculture statewide. Diverting this waste will reduce the impact the landfill has on the natural environment, preserving the land and bringing the state and county closer to zero waste.			

Coastal Zone Management Act (HRS Chapter 205A)

S = Supportive, N/S = Not Supportive, N/A = Not Applicable

COASTAL ZONE MANAGEMENT ACT, CHAPTER 205A, HRS	S	N/S	N/A
RECREATIONAL RESOURCES			
Objective: (A) Provide coastal recreational opportunities accessible to the public.			
Policies:			
(A) Improve coordination and funding of coastal recreational planning and management; and			X
(B) Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:			
(i) Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;			X
(ii) Requiring replacement of coastal resources having significant recreational value including, but not limited to, surfing sites, fishponds, and sand beaches, when such resources will be unavoidably damaged by development; or requiring reasonable monetary compensation to the State for recreation when replacement is not feasible or desirable;			X
(iii) Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;			X
(iv) Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;			X
(v) Ensuring public recreational uses of county, state, and federally owned or controlled shoreline lands and waters having recreational value consistent with public safety standards and conservation of natural resources;			X
(vi) Adopting water quality standards and regulating point and nonpoint sources of pollution to protect, and where feasible, restore the recreational value of coastal waters;	X		
(vii) Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches, and artificial reefs for surfing and fishing; and			X
(viii) Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use commission, board of land and natural resources, and county authorities; and crediting such dedication against the requirements of section 46-6.			X
Discussion: The proposed Project is not a coastal development, is not located on the coastline, and is not in the SMA. Therefore, policies regarding shoreline recreation resources and shoreline public access are not applicable. The water quality standards are discussed under the Coastal Ecosystems objectives and policies.			
HISTORIC RESOURCES			
Objective: (A) Protect, preserve, and, where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.			

COASTAL ZONE MANAGEMENT ACT, CHAPTER 205A, HRS	S	N/S	N/A
Policies:			
(A) Identify and analyze significant archaeological resources;	X		
(B) Maximize information retention through preservation of remains and artifacts or salvage operations; and	X		
(C) Support state goals for protection, restoration, interpretation, and display of historic resources.	X		
<p>Discussion: Scientific Consultant Services, Inc. (SCS) conducted an Archaeological Assessment (AA) for the Project Site (Appendix C). The AA was conducted in compliance with Section 6E-8, HRS "Historic Preservation" to determine the presence/absence of archaeological sites. The AA found that almost the entire Project Site has been altered by quarrying activities, and that no sites or features are present in the Project Site. Due to the absence of sites, the Project Site was documented in an AA pursuant to Title 13, Subtitle 13, Chapter 284-5(5A), HAR. The County of Hawai'i and its contractors will comply with all state and county laws and rules regarding the preservation of archaeological and historic sites. The construction documents will include a provision that should historic sites such as walls, platforms, pavements and mounds, or remains such as artifacts, burials, concentrations of shell or charcoal or artifacts be inadvertently encountered during construction activities, work will cease immediately in the immediate vicinity of the find and the find will be protected. The contractor will immediately contact the State Historic Preservation Division, which will assess the significance of the find and recommend appropriate mitigation measures, if necessary.</p>			
SCENIC AND OPEN SPACE RESOURCES			
Objective: (A) Protect, preserve, and, where desirable, restore or improve the quality of coastal scenic and open space resources.			
Policies:			
(A) Identify valued scenic resources in the coastal zone management area;	X		
(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;			X
(C) Preserve, maintain, and, where desirable, improve and restore shoreline open space and scenic resources; and			X
(D) Encourage those developments that are not coastal dependent to locate in inland areas.			X
<p>Discussion: There are no Natural Beauty sites or scenic view planes on the Project Site nor in the vicinity identified in the General Plan. There are no exceptional trees identified on the Project Site (see §4.7).</p>			
COASTAL ECOSYSTEMS			
Objective: (A) Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse			

COASTAL ZONE MANAGEMENT ACT, CHAPTER 205A, HRS	S	N/S	N/A
impacts on all coastal ecosystems.			
Policies:			
(A) Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;			X
(B) Improve the technical basis for natural resource management;			X
(C) Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance;			X
(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			X
(E) Promote water quantity and quality planning and management practices that reflect the tolerance of fresh water and marine ecosystems and maintain and enhance water quality through the development and implementation of point and nonpoint source water pollution control measures.	X		
<p>Discussion: Due to the inland location, there would be direct impact on coastal ecosystems. However, to protect coastal ecosystems from nonpoint source pollution, the State of Hawai'i has adopted water quality standards. Generally, these standards will require the submittal and adherence to a NPDES permit. As required for projects on land greater than one acre in size, a NPDES NGPC for Storm Water Associated with Construction Activity will be necessary for the Project. Construction will follow erosion control and water quality BMPs as prescribed in the NPDES Permit. The contractor will submit a site-specific construction BMP plan to the State of Hawai'i DOH.</p> <p>The State Office of Planning has created the Hawai'i Watershed Guidance to provide direction on methods to safeguard Hawai'i's watersheds and implement watershed plans. This guidance provides a number of management measures that address polluted runoff from urban activities, and summary and links to management measures that may be implemented to minimize coastal nonpoint pollution impact. As requested by the State Office of Planning (in its Draft EA Early Consultation comments), the following sections of the Hawai'i Watershed Guidance were examined:</p>			
<p>Urban Runoff – New Development Management Measure</p>			
<p><i>1. By design or performance:</i></p> <p><i>a. construction has been completed and the site is permanently stabilized, reduce the average annual total suspended solid (TSS) loadings by 80%. For the purposes of this measure, an 80% TSS reduction is to be determined on an average annual basis,* or</i></p> <p><i>b. Reduce the postdevelopment loadings of TSS so that the average annual TSS loadings are no greater than predevelopment loadings, and</i></p> <p><i>2. To the extent practicable, maintain postdevelopment peak runoff rate and average volume at levels that are similar to predevelopment levels.</i></p>			
<p>To the extent practicable, the Project will be designed to maintain post-development peak runoff rate and average volume at levels that are similar to pre-development levels. By adhering to the BMPs required under an NPDES permit, the Project will ensure that it is meeting the TSS loading standards in this measure. In accord with</p>			

COASTAL ZONE MANAGEMENT ACT, CHAPTER 205A, HRS	S	N/S	N/A
<p>the NPDES BMPs, the Project will utilize several practice categories, including infiltration practices, vegetated open channel practices, and filtering practices, defined in the Environmental Protection Agency's (EPA) guidance document entitled <i>National Management Measures to Control Nonpoint Source Pollution from Urban Areas</i> (November 2005, EPA-841-B-05-004). EPA has found these practices to be representative of the types of practices that can be applied successfully to achieve the above new development management measures.</p>			
<p>ECONOMIC USES</p>			
<p>Objective: (A) Provide public or private facilities and improvements important to the State's economy in suitable locations.</p>			
<p>Policies:</p>			
(A) Concentrate coastal dependent development in appropriate areas;			X
(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			X
(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:			X
(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.			
<p>Discussion: The proposed Project is not a coastal dependent development, is not located on the coastline, and is not in the SMA; therefore, these policies are not applicable.</p>			
<p>COASTAL HAZARDS</p>			
<p>Objective: (A) Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence, and pollution.</p>			
<p>Policies:</p>			
(A) Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and nonpoint source pollution hazards;			X
(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			

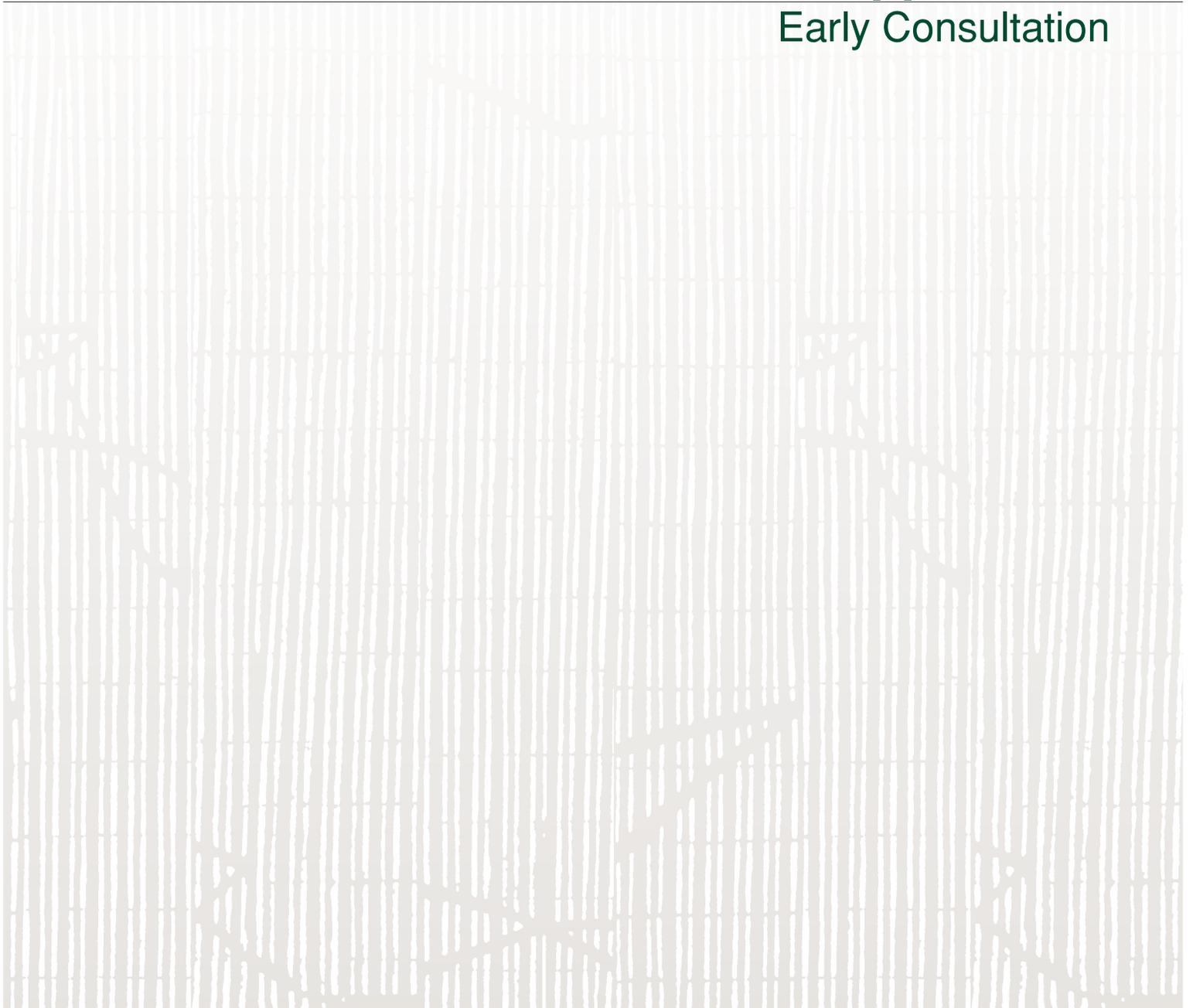
COASTAL ZONE MANAGEMENT ACT, CHAPTER 205A, HRS	S	N/S	N/A
(D) Prevent coastal flooding from inland projects.			
Discussion: The proposed Project Site is located far inland from the coastline and will not exacerbate any coastal hazards.			
MANAGING DEVELOPMENT			
Objective: (A) Improve the development review process, communication, and public participation in the management of coastal resources and hazards.			
Policies:			
(A) Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development;			X
(B) Facilitate timely processing of applications for development permits and resolve overlapping or conflicting permit requirements; and			X
(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.	X		
Discussion: The proposed Project is not a coastal development, is not located on the coastline, and is not in the SMA; however, this EA, will provide opportunity for public input during the Draft EA Public Comment period. Early consultation comments were obtained and are reproduced in Appendix G . In addition, this EA discusses potential impacts and mitigation measures of the proposed Project and will provide an opportunity for input during the Draft EA Public Comment period.			
PUBLIC PARTICIPATION			
Objective: (A) Stimulate public awareness, education, and participation in coastal management.			
Policies:			
(A) Promote public involvement in coastal zone management processes;	X		
(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			X
(C) Organize workshops, policy dialogues, and site-specific mediations to respond to coastal issues and conflicts.			X
Discussion: The proposed Project is not a coastal development, is not located on the coastline, and is not in the SMA; however, this EA, will provide opportunity for public input during the Draft EA Public Comment period. Early consultation comments were obtained and are reproduced in Appendix G . In addition, this EA discusses potential impacts and mitigation measures of the proposed Project and will provide an opportunity for input during the Draft EA Public Comment period.			

COASTAL ZONE MANAGEMENT ACT, CHAPTER 205A, HRS	S	N/S	N/A
BEACH PROTECTION			
Objective: (A) Protect beaches for public use and recreation.			
Policies:			
(A) Locate new structures inland from the shoreline setback to conserve open space, minimize interference with natural shoreline processes, and minimize loss of improvements due to erosion;			X
(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; and			X
(C) Minimize the construction of public erosion-protection structures seaward of the shoreline.			X
Discussion: The proposed Project is not a coastal dependent development, is not located on the coastline, and is not in the SMA; therefore, these policies are not applicable.			
MARINE RESOURCES			
Objective: (A) Promote the protection, use, and development of marine and coastal resources to assure their sustainability.			
Policies:			
(A) Ensure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;			X
(B) Coordinate the management of marine and coastal resources and activities to improve effectiveness and efficiency;			X
(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;			X
(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			X
(E) Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.			X
Discussion: The Project has no relationship to the use, development, management, research, or protection of marine resources.			

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Appendix G

Early Consultation



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DAVID Y. IGE
GOVERNOR



DOUGLAS MURDOCK
COMPTROLLER
AUDREY HIDANO
Deputy Comptroller

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES

P.O. BOX 119, HONOLULU, HAWAII 96810-0119

(P)1156.6

JUN 13 2016

Mr. Roy Takemoto
PBR Hawaii & Assoc., Inc.
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813-3484

Dear Mr. Takemoto:

Subject: Pre-Assessment Consultation for an Environmental Assessment
East Hawaii Organics Facility
Waiakea Homesteads, Waiakea, South Hilo, Island of Hawaii
TMK: (3) 2-1-013:142, 160, 161, and 163

Thank you for the opportunity to provide comments for the subject project. The proposed project does not impact any of the Department of Accounting and General Services' projects or existing facilities, and we have no comments to offer at this time.

If you have any questions, your staff may call Mr. David DePonte of the Planning Branch at 586-0492.

Sincerely,

DOUGLAS MURDOCK
Comptroller

c: Mr. Jerry Watanabe, DAGS Hawaii District



August 22, 2016

PRINCIPALS
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Chairman

R. SHANDANANASHA
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Senior Associate

ROY TAKEMOTO
Managing Director - Hilo

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Associate

DACHUNG DONG, LEED AP
Associate

MARC SHIMAZU, ASIA
Associate

Mr. Douglas Murdock
Comptroller
Department of Accounting and General Services
State of Hawaii
P.O. Box 119
Honolulu, Hawaii 96810

ATTN: Mr. David DePonte, Planning Branch

SUBJECT: PRE-ASSESSMENT CONSULTATION FOR AN ENVIRONMENTAL ASSESSMENT FOR THE EAST HAWAII ORGANICS FACILITY, WAIAKEA HOMESTEADS, WAIAKEA, SOUTH HILO, HAWAII, TMK (3) 2-1-013: 142, 160, 161, and 163

Dear Mr. Murdock:

Thank you for your letter dated June 13, 2016 (reference number P1156.6), regarding the subject project. As the planning consultant for the County of Hawaii, we appreciate your participation in the environmental review process, and your input that there are no anticipated impacts to DAGS projects or facilities in the vicinity of the proposed East Hawaii Organics Facility. Your letter will be included in the Draft Environmental Assessment (EA).

Sincerely,

PBR HAWAII

Roy Takemoto
Managing Director, Hilo

Cc: Department of Environmental Management

HONOLULU OFFICE
1001 Bishop Street, Suite 650
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Hilo, Hawaii 96720-5153
Tel: (808) 935-6878

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O:\AR\23267\01 County of Hawaii Composting Facility\EA Pre-Consultation\Pre-Consultation Responses\State DAGS - response.docx



**OFFICE OF PLANNING
STATE OF HAWAII**

235 South Beretania Street, 6th Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

DAVID Y. IGE
GOVERNOR
LEO R. ASUNCION
COMMISSIONER
OFFICE OF PLANNING

Telephone: (808) 587-2848
Fax: (808) 587-2824
Web: <http://planning.hawaii.gov/>

Ref. No. P-15177

June 1, 2016

PBR HAWAII & Associates, Inc.
Attn: Roy Takemoto
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813-3484

Dear Mr. Takemoto:

Subject: Pre-assessment Consultation for an Environmental Assessment for the East Hawaii Organics Facility
Waiakea Homesteads, Waiakea, South Hilo, Hawaii
TMK: (3) 2-1-013: 142, 160, 161, and 163

The Office of Planning (OP) has reviewed the pre-assessment consultation request for the East Hawaii Organics Facility. The County of Hawaii plans to establish a compost facility for greenwaste and wood pallets in the first year of operation, and to expand the operation in the future years to compost additional organic materials. OP has the following comments.

1. The proposed site is within the State Agricultural District. The site is rated "E" by the Land Study Bureau, and is proposed on approximately 95 acres of land. The proposed use will require a State Special Permit to be approved by the Land Use Commission.
2. Pursuant to the Hawaii Administrative Rules (HAR) § 11-200-10(4) – general description of the action's technical, economic, social, and environmental characteristics; this project must demonstrate that it is consistent with a number of State environmental, social policies, economic goals, and policies for land use. OP provides technical assistance to State and county agencies in administering the statewide planning system in Hawaii Revised Statutes (HRS) Chapter 226, the Hawaii State Plan. The Hawaii State Plan provides goals, objectives, policies, and priority guidelines for growth, development, and the allocation of resources throughout the State in areas of state interest including but not limited to the economy, agriculture, the visitor industry, federal expenditure, the physical environment, facility systems, socio-cultural advancement, climate change adaptation, and sustainability.

Mr. Roy Takemoto
June 1, 2016
Page 2

The Draft Environmental Assessment (Draft EA) should include an analysis that addresses whether the proposed project conforms to or is in conflict with the goals, objectives, policies, and priority guidelines listed in the Hawaii State Plan. This analysis should address all of these themes. If any of these are not applicable, the Draft EA should state that these are "not applicable." Listing these in tabular form is often the most efficient method to do so.

3. The coastal zone management (CZM) area is defined as "all lands of the State and the area extending seaward from the shoreline to the limit of the State's police power and management authority, including the U.S. territorial sea" see HRS § 205A-1 (definition of "coastal zone management area").

HRS § 205A-5(b) requires all State and county agencies to enforce the CZM objectives and policies. The Draft EA should include an assessment as to how the proposed project conforms to the CZM objectives and its supporting policies set forth in HRS § 205A-2. The assessment on compliance with HRS § 205A-2 is an important component for satisfying the requirements of HRS Chapter 343. These objectives and policies include recreational resources, historic resources, scenic and open space resources, coastal ecosystems, economic uses, coastal hazards, managing development, public participation, beach protection, and marine resources.

4. Pursuant to HAR § 11-200-10(6) – identification and summary of impacts and alternatives considered; the intent of the project is to utilize County of Hawaii lands to establish a municipal composting operation, in Waiakea, South Hilo. In order to ensure that the coastline and water resources within the East Hawaii County remain protected, the Draft EA should examine the cumulative effects on water quality resulting from the construction and presence of this facility, as well as its cumulative effect on sediment loss and erosion concerns within the project area and the adjacent marine environment.

The area in question is classified within the State Land Use Agricultural District, and zoned as A-20a by the County of Hawaii. During heavy storm events, the natural contours of the land and drainage infrastructure may transport upslope sediment, land-based pollutants, and toxicant-load contributions into nearby the nearshore environment of South Hilo. Furthermore, it is unclear what level of drainage infrastructure is present within the project site.

The Draft EA should examine potential benefits and/or negative impacts resulting from this project on coastal and marine resources. Issues that may be examined in the Draft EA include, but are not limited to, project site characteristics in relation to erosion controls on flood prone areas, undeveloped open spaces, and the absorption characteristics of the soil. Furthermore, it should differentiate between the existing permeable surfaces versus hardened surfaces in the area. These items, as well as the marine water quality classification, should be considered when developing mitigation measures to protect the coastal ecosystem.

Due to the limited information provided by the review material, it is unclear what will be built on these parcels to support this composting operation. OP recommend that the applicant consider proven flood mitigation strategies to mitigate the negative effects of stormwater runoff and erosion control methods. Proven storm runoff strategies that should be considered in the Draft EA include the reduction of impervious surfaces, diverting stormwater to vegetated areas or wetlands to take advantage of their natural filtration process, collecting runoff in bio-detention basins, or possibly re-purposing the collected stormwater for irrigation purposes.

OP has a number of resources available to assist in the development of projects which ensure sediment and stormwater control on land, thus protecting the nearshore environment. OP recommends consulting these guidance documents and stormwater evaluative tools when developing strategies to address polluted runoff. They offer useful techniques to keep land-based pollutants and sediment in place and prevent contaminating nearshore waters, while considering the practices best suited for this project. These three evaluative tools that should be used during the design process include:

- Hawaii Watershed Guidance provides direction on mitigation strategies in urban areas that will safeguard Hawaii's watersheds and implement watershed plans http://files.hawaii.gov/dbedt/op/czm/initiative/nonpoint/HI_Watershed_Guidance_Final.pdf
- Stormwater Impact Assessments can be used to identify and evaluate information on hydrology, stressors, sensitivity of aquatic and riparian resources, and management measures to control runoff, as well as consider secondary and cumulative impacts to the area http://files.hawaii.gov/dbedt/op/czm/initiative/stormwater_impact/final_storm_water_impact_assessments_guidance.pdf

- Low Impact Development (LID). A Practitioners Guide covers a range of structural best management practices (BMP's) for stormwater control management, roadway development, and urban layout that minimizes negative environmental impacts http://files.hawaii.gov/dbedt/op/czm/initiative/lid/lid_guide_2006.pdf

OP reserves the right to make additional comments in the future. If you have any questions, please contact Lorene Maki of our Land Use Division at (808) 587-2888 or Josh Hekekeaia of the Coastal Zone Management Program at (808) 587-2845.

Sincerely,


Leo R. Asuncion
Director

c: Land Use Commission



August 22, 2016

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Hilo, Hawaii 96720
Tel/Cel: (808) 315-0878

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Mr. Leo R. Asuncion, Director
Office of Planning
State of Hawai'i
Department of Business, Economic Development and Tourism
235 South Beretania Street, 6th Floor
Honolulu, Hawai'i 96813

SUBJECT: PRE-ASSESSMENT CONSULTATION FOR AN ENVIRONMENTAL ASSESSMENT FOR THE EAST HAWAII ORGANICS FACILITY, WAIĀKEA HOMESTEADS, WAIĀKEA, SOUTH HILO, HAWAII, TMK (3) 2-1-013: 142, 160, 161, and 163

Dear Mr. Asuncion:

Thank you for your letter dated June 1, 2016 (reference number P-15177), regarding the East Hawai'i Organics Facility. As the planning consultant for the County of Hawai'i, we appreciate your participation in the environmental review process. The Draft Environmental Assessment (EA) will:

1. Describe the operations and its relationship to agriculture for your review as a permitted use within the Agricultural District;
2. As a composting facility that is a sustainable means to transform solid waste into agricultural assets, discuss the level of consistency with HRS Chapter 226, the Hawai'i State Plan policies on the environment, sociology, economics, and land use;
3. Acknowledging the inland location outside of the Special Management Area, discuss the pertinent Coastal Zone Management objectives and the various requirements in HRS §205A-2;
4. Include a site plan and project description and highlight stormwater control features, and discuss the effectiveness and impacts of these features pursuant to HAR §11-200-10(6); and
5. Examine the potential for erosion and flooding, and discuss any necessary mitigation measures to protect flood prone areas and the coastal ecosystem.

Additionally, the resources provided in your letter regarding Hawai'i watersheds, stormwater impact assessments, and low impact development (LID) will be consulted during the design process. Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII

Roy Takemoto
Managing Director, Hilo

Cc: Department of Environmental Management

O:\0823287-01 County of Hawai'i Composting Facility\EAP\Pre-Consultation Pre-Consultation Responses\State OP - response.docx



DAVID Y. IRE
GOVERNOR
STATE OF HAWAII

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COMMISSIONER
STATE OF HAWAII

JOBIE M. K. MASAGATANI
CHAIRMAN
HAWAIIAN HOMES COMMISSION

WILLIAM J. LAJALA, JR.
CHAIRMAN
HAWAIIAN HOMES COMMISSION

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS

P.O. BOX 1078
HONOLULU, HAWAII 96813

June 3, 2016

Mr. Roy Takemoto
PBR Hawaii & Associates
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813

Dear Mr. Takemoto:

Subject: Pre-Assessment Consultation for County of Hawaii
East Hawaii Organics Facility, Waiakea, Hawaii
Island, TMK: 3-2-1-013:142, 160, 161, and 163
(portion)

Thank you for the opportunity to provide comments during the
pre-assessment period for the above project. DHHL offers the
following comments at this time.

- The draft environmental assessment (DEA) should assess the proposed project's potential impacts on Hawaiian Home Lands in the DHHL Panaewa tract and existing lessees;
- DEA should assess how the proposed project will impact DHHL's ability to implement its Panaewa Regional Plan and Hawaii Island Plan;
- The Panaewa Hawaiian Home Lands Community Association and the Keaukaha-Panaewa Farmers' Alliance should also be consulted as a part of this process.

If you have further questions, please contact Andrew Choy at
(808) 620-9279 or email him at andrew.h.choy@hawaii.gov.

Aloha,

Jobie M. K. Masagatani, Chairman
Hawaiian Homes Commission

c: DHHL East Hawaii District Office



PBR HAWAII
& ASSOCIATES, INC.

May 4, 2016

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Vice President

FRANCIS L. HOP
Principal

KUONIKAMA YVES, H.D., P.A.P., P.E.
Principal

W. HANSEN SUNDLINA
Chairman Emeritus

Aloha,

PBR HAWAII & Associates, Inc., has been contracted by the County of Hawaii to prepare a
Hawaii Revised Statutes (HRS) Chapter 343 Environmental Assessment (EA) for the proposed
East Hawaii Organics Facility on portions of TMK (3) 2-1-013: 142, 160, 161, and 163 in
Waiakea, South Hilo (see enclosed location map). The use of County lands and/or funds triggers
the need to prepare an EA subject to the HRS Chapter 343 requirements.

The objective of this project is to divert greenhouse and designated organic materials from
landfills by establishing Hawaii County's first municipal composting operation at the East
Hawaii Organics Facility (EHOF). In the first year of operation, the program at EHOF will
include acceptance of greenhouse and untreated wood pallets, which will be processed and
treated before distribution to the public as mulch. In year two or upon completion of the
compost facility, the goal is to expand the EHOF operation to accept additional organic materials
for composting, including food, paper, and compostable plastics. The facility will feature an in-
vessel compost operation that will minimize the environmental impacts regarding odor, pests,
etc., and will decrease the time required to make compost. In addition, EHOF will accept and
process compostable organic materials from the West Hawaii Organic Facility (WHOF)
Pu'uamahulu, which is currently unsuitable for composting due to its dry climate and lack of
water resources.

Mulch and compost will then be made available for sale at EHOF. Some may be transported
from EHOF to various locations island-wide for distribution or sale, and a minimum volume of
mulch will be made available for free to residents of Hawaii County. Through this project, it is
the County's intent that organic materials will be diverted from the landfills, processed into
products with economic value, and that said products are either distributed free or sold by the
selected contractor, to the greatest extent feasible, creating a sustainable solution to this portion
of the County's solid waste.

We seek your input as to whether the proposed composting facility may have an impact on any
of your existing or proposed projects, plans, policies, or programs that we should consider when
preparing the EA. Please address your written comments by **June 6, 2016**, with your full name
and return mailing U.S. postal address to:

PBR HAWAII & Associates, Inc.
Attn: Roy Takemoto
1001 Bishop Street, Suite 650
Honolulu, HI 96813-3484

HONOLULU OFFICE
1001 Bishop Street, Suite 650
Honolulu, HI 96813-3484
Tel: (808) 521-5511
Fax: (808) 523-1892
E-mail: systems@pbrhawaii.com

HILTONAHI OFFICE
1217 Hialeah Street
Hialeah, FL 33010
Tel: (305) 886-1523
Fax: (305) 886-1523

www.pbrhawaii.com



August 22, 2016

Jobie M. K. Masagatani, Chairman
 Hawaiian Homes Commission
 State of Hawai'i, Department of Hawaiian Home Lands
 P.O. Box 1879
 Honolulu, Hawai'i 96805

SUBJECT: PRE-ASSESSMENT CONSULTATION FOR AN ENVIRONMENTAL ASSESSMENT FOR THE EAST HAWAII ORGANICS FACILITY, WAIAKEA HOMESTEADS, WAIAKEA, SOUTH HILO, HAWAII, TMK (3) 2-1-013: 142, 160, 161, and 163

Dear Chairman Masagatani:

Thank you for your letter dated June 3, 2016, regarding the subject project. As the planning consultant for the County of Hawai'i, we appreciate your participation in the environmental review process, and provide the following responses:

1. The Draft Environmental Assessment (EA) will address the subject project's potential impacts on nearby Hawaiian Home Lands in the Department of Hawaiian Home Lands (DHHL) Pana'ewa tract and existing lessees;
2. The Draft EA will include an assessment on the subject project's impact on DHHL's implementation of the Pana'ewa Regional Plan and Hawai'i Island Plan;
3. We will include the Pana'ewa Hawaiian Home Lands Community Association and the Keaukaha-Pana'ewa Farmers' Alliance on the distribution list for the Draft EA.

Your letter will be included in the Draft EA.

Sincerely,

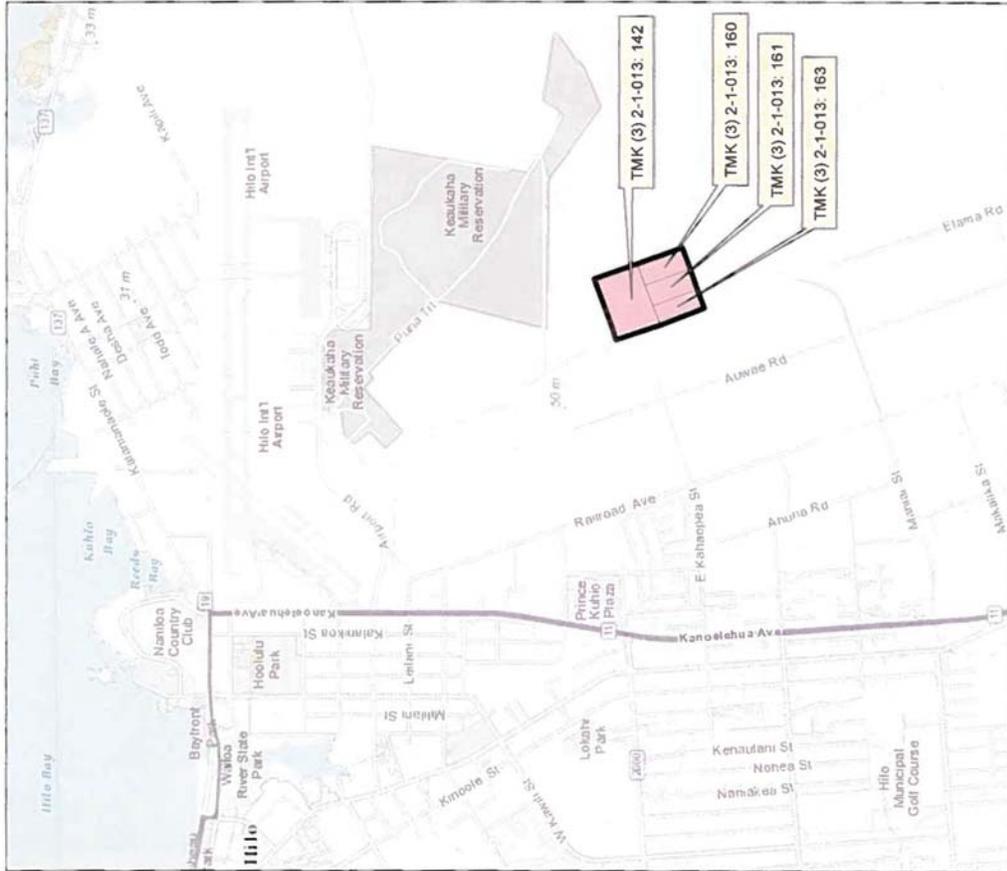
PBR HAWAII

Roy Takemoto
 Managing Director, Hilo

Cc: Department of Environmental Management

0:\06\23267\01 County of Hawaii\Composting Facility\EA Pre-Consultation Pre-Consultation Response\State DHHL - response.docx

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DATE: 5/4/2015

- LEGEND**
- Project Site
 - Tax Map Key Parcels



FIGURE 1:
 Regional Location

HAWAII COUNTY COMPOSTING FACILITY

Source: County of Hawai'i, City & EDR Base Maps, MapInfo and Associates, Ltd.
 Disclaimer: This graphic has been prepared for general planning purposes only and should not be used for boundary interpretation or other legal analysis.



STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HI 96801-3378

June 2, 2016

In reply, please refer to:
File:
EPO 16-177

Mr. Roy Takemoto
Managing Director, Hilo
PBR Hawaii & Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813-3484
Email: sysadmin@pbrhawaii.com

Dear Mr. Takemoto:

SUBJECT: Pre-Assessment Consultation for an Environmental Assessment (PAC EA) for East Hawaii
Organics Facility, Waiakea Homesteads, Waiakea, Hilo, Hawaii
TMK: (3) 2-1-013: 142, 160, 161, and 163

The Department of Health (DOH), Environmental Planning Office (EPO), acknowledges receipt of your PAC EA to our office on May 13, 2016.

EPO strongly recommends that you review the standard comments and available strategies to support sustainable and healthy design provided at: <http://health.hawaii.gov/epo/landuse>. Projects are required to adhere to all applicable standard comments. EPO has recently updated the environmental Geographic Information System (GIS) website page. It now compiles various maps and viewers from our environmental health programs. The eGIS website page will be continually updated so please visit it regularly at: <http://health.hawaii.gov/epo/legis>.

EPO also encourages you to examine and utilize the Hawaii Environmental Health Portal at: <https://eha-cloud.doh.hawaii.gov>. This site provides links to our e-Permitting Portal, Environmental Health Warehouse, Groundwater Contamination Viewer, Hawaii Emergency Response Exchange, Hawaii State and Local Emission Inventory System, Water Pollution Control Viewer, Water Quality Data, Warnings, Advisories and Postings.

You may also wish to review the draft Office of Environmental Quality Control (OEQC) viewer at: <http://eha-web.doh.hawaii.gov/oeqc-viewer>. This viewer geographically shows where some previous Hawaii Environmental Policy Act (HEPA) (Hawaii Revised Statutes, Chapter 343) documents have been prepared.

In order to better protect public health and the environment, the U.S. Environmental Protection Agency (EPA) has developed a new environmental justice (EJ) mapping and screening tool called EJSCREEN. It is based on nationally consistent data and combines environmental and demographic indicators in maps and reports. EPO encourages you to explore, launch and utilize this powerful tool in planning your project. The EPA EJSCREEN tool is available at: <http://www.epa.gov/ejscreen>.

Mr. Roy Takemoto
Page 2
June 2, 2016

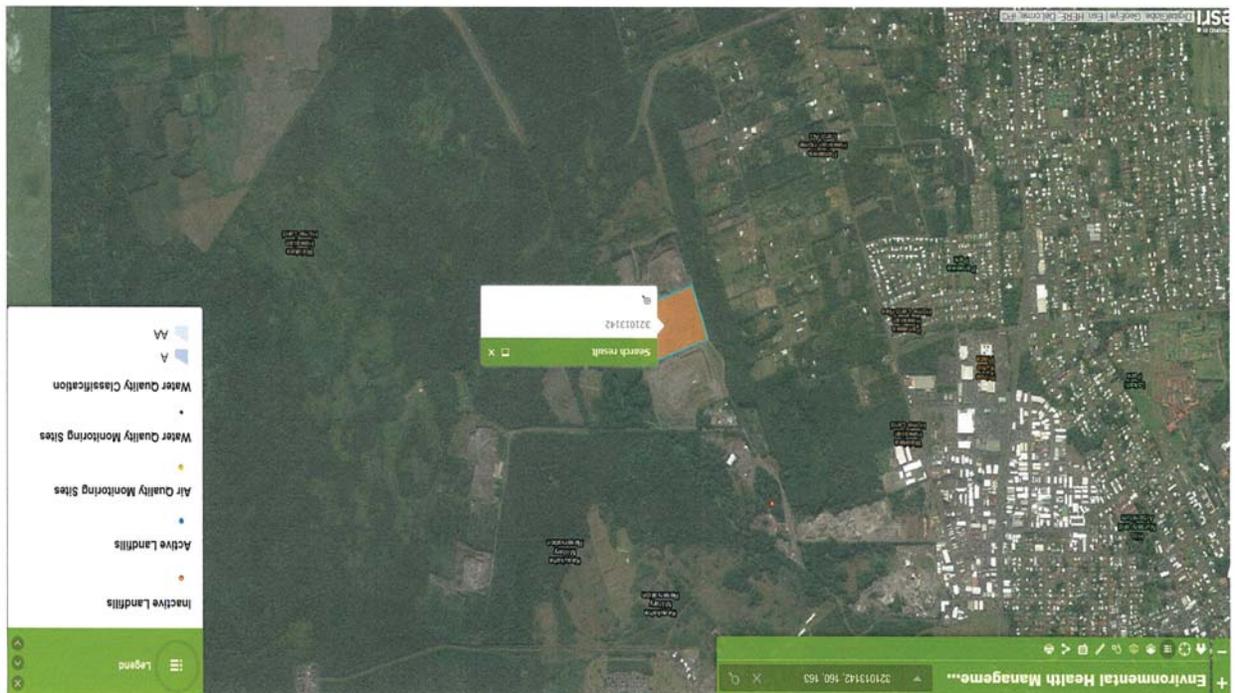
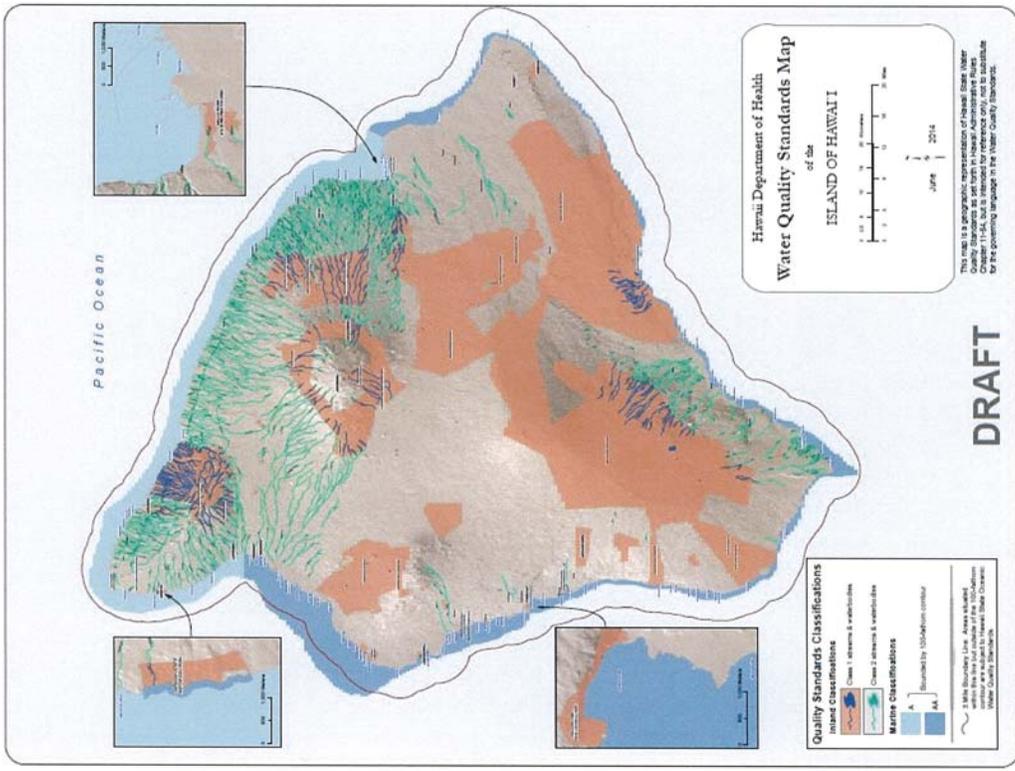
We request that you utilize all of this information on your proposed project to increase sustainable, innovative, inspirational, transparent and healthy design. Thank you for the opportunity to comment.

Mahalo nui loa,

Laura Leialoha Phillips McInyre, AICP
Program Manager, Environmental Planning Office

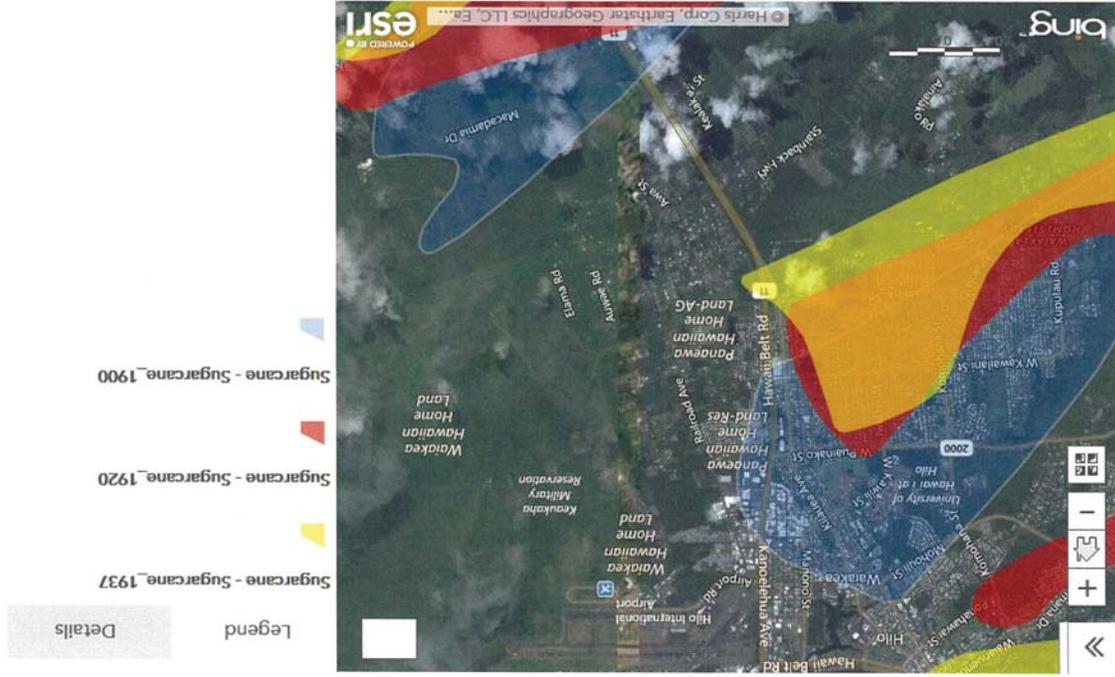
LM:nn

Attachment 1: Environmental Health Management Web App Snipit of Project Area : <http://health.hawaii.gov/epo/legis>
Attachment 2: Clean Water Branch: Water Quality Standards Map - Hawaii
Attachment 3: Wastewater Branch: Recycled Water Use Map of Project Area
Attachment 4: Historic Sugarcane Map of Project Area
Attachment 5: OEQC Viewer Map of Project Area
Attachment 6: U.S. EPA EJSCREEN Report for Project Area
c: DOH: DHO HI, SHWB (via email only)





HISTORIC SUGARCANE LANDS MAP VIEWER



Environmental Planning Office

SUBJECT: PRE-ASSESSMENT CONSULTATION FOR AN ENVIRONMENTAL ASSESSMENT FOR THE EAST HAWAII ORGANICS FACILITY, WAIĀKEA HOMESTEADS, WAIĀKEA, SOUTH HILO, HAWAII, TMK (3) 2-1-013: 142, 160, 161, and 163

August 22, 2016

Page 2

- iii. **Clean Water Act.** Pursuant to the "Clean Water Act," a Section 401 Water Quality Certification from the State Department of Health, Clean Water Branch will be obtained if it is determined that the project may result in any discharge into navigable waters or as otherwise triggered.
- iv. **State Water Quality Standards (Chapter 11-54 and 11-55, HAR).** All discharges related to the construction and operation of the proposed project will comply with the State's Water Quality requirements contained in Chapters 11-54 and 11-55, HAR.

Hazard Evaluation and Emergency Response Office

We have reviewed the HEER website for releases in the area, and will contact the HEER Office if hazardous substances, pollutants, or contaminants are present at the project site.

Indoor and Radiological Health (IRH) Branch

The proposed project will comply with the following Hawaii's Administrative Rules:

- Chapter 11-46 Community Noise Control

In addition, the proposed project will most likely not trigger the need to comply with HAR Chapter 11-39 regarding air conditioning and ventilating, HAR Chapter 11-45 regarding radiation control, as well as HAR Chapters 11-501 through 11-504 regarding asbestos.

Safe Drinking Water Branch

We note that the Safe Drinking Water Branch administers programs to protect drinking water sources from contamination. The subject project will comply with the standards set by this Branch, and its compliance will be outlined in the environmental assessment.

Solid and Hazardous Waste Branch

The proposed project will comply with the provisions of Section 11-260 to 11-280, Hawaii Administrative Rules, relating to hazardous waste.

Wastewater Branch

The proposed project will comply with the standards set forth by the Wastewater Branch. The specifics of this compliance will be outlined in the environmental assessment.

As recommended, we have also reviewed the Hawaii's Environmental Health Portal and its links to various sources of state environmental data, as well as the Office of Environmental Quality Control (OEQC) viewer and the U.S. Environmental Protection Agency (EPA) environmental justice mapping and screening tool, EJSCREEN. The Draft EA will include any relevant information from these sources.

Environmental Planning Office

SUBJECT: PRE-ASSESSMENT CONSULTATION FOR AN ENVIRONMENTAL ASSESSMENT FOR THE EAST HAWAII ORGANICS FACILITY, WAIĀKEA HOMESTEADS, WAIĀKEA, SOUTH HILO, HAWAII, TMK (3) 2-1-013: 142, 160, 161, and 163

August 22, 2016

Page 3

Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII



Roy Takemoto
Managing Director, Hilo

Cc: Department of Environmental Management

DAVID Y. IGE
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF HUMAN SERVICES
Benefit, Employment & Support Services Division
820 Millilani Street, Suite 606
Honolulu, Hawaii 96813

RACHAEL WONG, DPH
DIRECTOR
PANKAJ BHANOT
DEPUTY DIRECTOR

May 20, 2016

Re: 16-0255

PBR Hawaii and Associates, Inc.
Attn: Roy Takemoto
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813-3484

Subject: Pre-assessment consultation for an environmental assessment for the East
Hawaii Organics Facility, Waiakea Homesteads, Waiakea, South Hilo,
Hawaii, TMK (3) 2-1-013: 142, 160, 161, and 163

Dear Mr. Takemoto:

This is in response to your letter dated May 4, 2016 seeking the Department of
Human Services (DHS) input on the possible impact the proposed facility may have on
current or future policies, projects, programs and plans.

Upon extensive search of the DHS computer system and Google maps, we find
that currently there are no licensed or registered child care facilities in the near vicinity of
the East Hawaii Organics Facility.

If you have any questions or need further information, please contact Ms. Jill
Arizumi, Child Care Program Specialist, at (808) 586-5240.

Sincerely,

Scott Nakasone
Assistant Division Administrator



August 22, 2016

PRINCIPALS
THOMAS WITTENLASHA
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Managing Director - Hilo

SCOTT MURAKAMI, ASIA, LEED AP
Associate

DACHENG DONG, LEED AP
Associate

MARC SHIMAMURA, ASIA
Associate

Mr. Scott Nakasone
Assistant Division Administrator
State of Hawaii
Department of Human Services
Benefit, Employment & Support Services Division
820 Millilani Street, Suite 606
Honolulu, Hawaii 96813

ATTN: Ms. Jill Arizumi, Child Care Program Specialist

SUBJECT: PRE-ASSESSMENT CONSULTATION FOR AN
ENVIRONMENTAL ASSESSMENT FOR THE EAST
HAWAII ORGANICS FACILITY, WAIAKEA
HOMESTEADS, WAIAKEA, SOUTH HILO, HAWAII,
TMK (3) 2-1-013: 142, 160, 161, and 163

Dear Mr. Nakasone:

Thank you for your letter dated May 20, 2016 (your reference number 16-0255),
regarding the subject project. As the planning consultant for the County of
Hawaii, we appreciate your participation in the environmental review process,
and your input that your Department finds that there are no licensed or
registered child care facilities in the near vicinity of the proposed East Hawaii
Organics Facility. Your letter will be included in the Draft Environmental
Assessment (EA).

Sincerely,

PBR HAWAII

Roy Takemoto
Managing Director, Hilo

Cc: Department of Environmental Management

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AN EQUAL OPPORTUNITY AGENCY



Figure 2. Mortality on the right fork of an 'Ōhi'a tree infected with *Ceratocystis*.

(*Polystichas* spp.), strawberry guava (*Pithecellobium* spp.), and Koster's curse (*Clidemia hirta*) are not affected by the disease.

Ceratocystis manifests itself as dark, nearly black, staining in the sapwood along the outer margin of the trunks of affected trees. The stain is often radially distributed through the wood (Figures 3, 4, and 5). Wood samples incubated under moist conditions in plastic bags for a week produce characteristic fruiting bodies of *Ceratocystis* called perithecia (Figure 6). These fruiting bodies produce large numbers of spores whose transport accounts for subsequent infection of previously healthy 'Ōhi'a trees.

Methods of Transmission

It is not yet known how the disease spreads from tree to tree or from forest stand to forest stand. In other *Ceratocystis* plant hosts such as sweet potato, cacao, mango, and



Top: Figure 3. Cross-section of an infected 'Ōhi'a showing the characteristic dark staining of sapwood caused by *Ceratocystis*. Above: Figure 4. Close-up of characteristic dark staining of sapwood from *Ceratocystis*.

eucalyptus, the fungus is moved by insects, soil, water, infected cuttings, pruning wounds, or tools, and these modes of transmission may also be involved in infections of 'Ōhi'a trees and stands (Harrington n.d.). *Ceratocystis* has been found in soils under infected stands in Hawai'i, as well as in frass (sawdust) produced by wood-boring beetles in infected trees. Contaminated soil, windblown frass, and infected wood may all transmit the disease.

What to Do

As of early 2015 the disease was confined to Hilo and the Puna district on Hawai'i Island. Landowners who suspect *Ceratocystis* infection of 'Ōhi'a trees outside these areas are encouraged to contact Drs. Friday, Hughes, or Keith at the above addresses with reports and locations of infected areas. Digital photographs of crowns of infected trees and wood showing the characteristic staining will help in assessing likelihood of an infection.



Figure 5. Bark slash of an 'Ōhi'a tree showing tangential view of dark staining of sapwood from *Ceratocystis* infection.

Currently, there is no known method of protecting 'Ōhi'a trees from becoming infected with *Ceratocystis* nor an effective treatment to cure trees that exhibit symptoms of the disease. To reduce the spread of *Ceratocystis*, landowners should not transport wood of affected 'Ōhi'a trees to other areas. The pathogen may remain viable for over a year in dead wood. Tools used for cutting infected 'Ōhi'a trees should be cleaned either with LysoTM or a 70% rubbing alcohol solution. A freshly prepared 10% solution of chlorine bleach and water can be used as long as tools are oiled afterwards, as chlorine bleach will corrode metal tools. Chainsaw blades should be brushed clean, sprayed with cleaning solution, and run briefly to lubricate the chain. Vehicles used off-road in infected forest areas should be thoroughly cleaned underneath so as not to carry contaminated soil to healthy forests. Shoes, tools, and clothing used in infected forests should also be cleaned, especially before being used in healthy forests.

For more information and updates on research on *Ceratocystis* wilt of 'Ōhi'a, see <http://www.ohiawilt.org> or scan the QR code.



References

- Brown, A.C., and M. Matsumura. 1941. Black rot of sweet potato. Agricultural Extension Circular #134, University of Hawai'i.
- Harrington, T. n.d. Diseases caused by *Ceratocystis* species. <http://www.public.iastate.edu/~charrin/CeratoDis.html> (accessed April 27, 2015)
- Keith, L.M., R.F. Hughes, L.S. Sugiyama, W.P. Heller, B.C. Bushe, and J.B. Friday. 2015. First report of *Ceratocystis* wilt on 'Ōhi'a. *Plant Disease*. <http://dx.doi.org/10.1094/PDIS-12-14-1293-PDN>



August 22, 2016

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Suzanne D. Case, Chairperson
State of Hawai'i
Department of Land and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96809

SUBJECT: PRE-ASSESSMENT CONSULTATION FOR AN ENVIRONMENTAL ASSESSMENT FOR THE EAST HAWAII ORGANICS FACILITY, WAIAKEA HOMESTEADS, WAIAKEA, SOUTH HILO, HAWAII-1, TMK (3) 2-1-013: 142, 160, 161, and 163

Dear Ms. Case:

Thank you for your letter dated July 6, 2016, regarding the subject project. As the planning consultant for the County of Hawai'i, we welcome your Department's input, and provide the following responses to your comments:

The Draft Environmental Assessment (EA) will indicate that the subject project is not located within federally designated critical habitat for either plant species or the Blackburn's sphinx moth (*Manduca blackburni*), and that there are no known records of endangered plant species locations within the proposed project area. The Draft EA will summarize the findings of the full biological survey that has been conducted, and will include a discussion of potential impacts and mitigation measures regarding the federally endangered Hawaiian hawk or 'io (*Buteo solitarius*), the Hawaiian hoary bat (*Lasiurus cinereus semotus*), and other listed species.

The Draft EA will also address the threat of spreading Rapid 'Ōhi'a Death (ROD), and will include a discussion of avoidance and impact minimization measures in order to avoid the spread of this disease.

We thank you again for your letter and your participation in the environmental review process. Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII

Roy Takemoto
Managing Director, Hilo

Cc: Department of Environmental Management

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
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DIRECTOR

Deputy Directors
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EDWIN H. SNIFFEN
DARRELL T. YOUNG

IN REPLY REFER TO:
STP 8,1987

Mr. Roy Takemoto
July 5, 2016
Page 2

STP 8,1987

4. We recommend that the proposed facility be designed and operated or otherwise conditioned or mitigated to meet the requirements of FAA Advisory Circular *Hazardous Wildlife Attractants On or Near Airports* 150/5200-33B. If these requirements cannot be met, then the proposed facility should be sited beyond five (5) statute miles from Hilo International Airport.

5. We are coordinating our review with the Hawaii County Airport District Manager, Chauncey Wong, and his staff and we will monitor the situation into the future.

Highways Division (DOT-HWY)

DOT-HWY would like to review the Draft Environmental Assessment for the project's impacts and mitigation, if any, to the State highway system, especially, Kanoolehua Avenue.

If there are any questions, please contact Mr. Norren Kato of the DOT Statewide Transportation Planning Office at telephone number (808) 831-7976.

Sincerely,


FORD N. FUCHIGAMI
Director of Transportation

Mr. Roy Takemoto
PBR HAWAII & Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813-3484

Dear Mr. Takemoto:

Subject: East Hawaii Organics Facility
Pre-Assessment Consultation for Environmental Assessment
Waiakea, South Hilo, Hawaii
TMK: (3)2-1-013:142, 160, 161 and 163

Our Department of Transportation's (DOT) comments on the subject project are as follows:

Airports Division (DOT-AIR)

1. The proposed project appears to be within 1-2 miles of the south side of the Air Operations Area (AOA) of the Hilo International Airport (ITO).
2. Federal Aviation Administration (FAA) Advisory Circular 150/5200-33B, *Hazardous Wildlife Attractants On or Near Airports*, recommends a distance of five (5) statute miles between the farthest edge of the AOA and the hazardous wildlife attractant if the attractant could cause hazardous wildlife movement into or across the approach or departure space. Though FAA Advisory Circular is termed "advisory," it is a requirement for certificated airports such as ITO.
3. State Law (Hawaii Revised Statutes, Chapter 262 – Airport Zoning Act) requires that the State and the State Department of Transportation – Airports Division act to prevent hazards and not allow proposed non-conforming uses that are in conflict with the FAA Hazardous Wildlife Attractants requirements. While it may not be well understood by the general public that wildlife hazards near airports can lead to catastrophic event causing loss of life and property the state is working with all governing agencies and the public to minimize wildlife hazards around airports and coordinate the establishment of compatible land uses (reference the May 23, 2016 Environmental Notice, OEQC).



August 22, 2016

PRINCIPALS

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Executive Vice-President

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Mr. Ford Fuchigami, Director
State of Hawai'i, Department of Transportation
869 Punchbown Street
Honolulu, Hawai'i 96813

ATTN: Mr. Norren Kato

SUBJECT: PRE-ASSESSMENT CONSULTATION FOR AN ENVIRONMENTAL ASSESSMENT FOR THE EAST HAWAII ORGANICS FACILITY, WAIAKEA HOMESTEADS, WAIAKEA, SOUTH HILO, HAWAII, TMK (3) 2-1-013; 142, 160, 161, and 163

Dear Mr. Fuchigami:

Thank you for your letter dated July 5, 2016, (reference number STP 8.1987) regarding the subject project. The environmental assessment will review the project location and its compliance with FAA Advisory Circular 150/5200-33b, *Hazardous Wildlife Attractants On Or Near Airports*. The environmental assessment will cite the federal as well as State (HRS chapter 262) requirements to minimize wildlife hazards around airports. Mitigation measures, as necessary, will be proposed for your review. The environmental assessment will also include project impacts and mitigation measures, if any, to Kanoelehua Avenue and the State highway system.

Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII

Roy Takemoto
Managing Director, Hilo

Cc: Department of Environmental Management

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DAVID Y. IGE
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
AIRPORTS DIVISION
400 RODGERS BOULEVARD, SUITE 700
HONOLULU, HAWAII 96819-1880

June 6, 2016

FORD N. FUCHIGAMI
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EDWIN H. SNIFFEN
DARRELL T. YOUNG

IN REPLY REFER TO:
AIR-EP
16.0037

Mr. Roy Takemoto
June 6, 2016
Page 2

AIR-EP
16.0037

4. We recommend that the proposed facility be designed and operated or otherwise conditioned or mitigated to meet the requirements of FAA Advisory Circular *Hazardous Wildlife Attractants On Or Near Airports* 150/5200-33B. If these requirements cannot be met, then the proposed facility should be sited beyond five (5) statute miles from Hilo International Airport.

5. We are coordinating our review with the Hawaii County Airport District Manager, Mr. Chauncey Wong, and his staff and we will monitor the situation into the future.

Should you have any questions, please contact Mr. Ray Severn, Planner at (808) 838-8817.

Sincerely,

ROSS M. HIGASHI
Deputy Director – Airports

Attachments: HRS 262
OEQC except on HDOTA Technical Advisory Memo

Mr. Roy Takemoto
Managing Director
PBR Hawaii & Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813-3484

Dear Mr. Takemoto:

Subject: Pre-Assessment Consultation for an Environmental Assessment for the East Hawai'i Organics Facility, Waiakea Homesteads, Waiakea, South Hilo, Hawai'i, TMK (3) 2-1-013: 142, 160, 161, and 163

Thank you for the opportunity to review and comment on the subject plan.

1. The proposed project appears to be within 1-2 miles of the south side of the Air Operations Area of the Hilo International Airport (ITO).
2. Federal Aviation Administration (FAA) Advisory Circular 150/5200-33B, *Hazardous Wildlife Attractants On Or Near Airports*, recommends a distance of five (5) statute miles between the farthest edge of the Air Operations Area (AOA) and the hazardous wildlife attractant if the attractant could cause hazardous wildlife movement into or across the approach or departure space. Though FAA Advisory Circular is termed "advisory," it is a requirement for certificated airports such as ITO.
3. State Law (Hawaii Revised Statutes, Chapter 262 – Airport Zoning Act) requires that the State and the State Department of Transportation – Airports Division (HDOTA) act to prevent hazards and not allow proposed non-conforming uses that are in conflict with the FAA Hazardous Wildlife Attractants requirements. While it may not be well understood by the general public that wildlife hazards near airports can lead to catastrophic event causing loss of life and property the state is working with all governing agencies and the public to minimize wildlife hazards around airports and coordinate the establishment of compatible land uses (reference the May 23, 2016 Environmental Notice, OEQC).

HAWAII REVISED STATUTES, CHAPTER 262 - Abbreviated
AIRPORT ZONING ACT

"Airport hazard" means any structure or tree which obstructs the air space required for the flight of aircraft in landing or taking-off at an airport, or any use of land which creates a dangerous condition, including the placement of strong lights which blind pilots during such operations;

"Airport hazard area" means any area of land or water upon which an airport hazard might be established if not prevented as provided in this chapter;

"Airport protection" means protection against an airport hazard;

\$262-2. Airport hazards contrary to public interest. An airport hazard endangers the lives and property of users of an airport and of occupants of land in its vicinity, and in effect reduces the size of the area available for the landing, taking-off, and maneuvering of aircraft, thus tending to destroy or impair the utility of an airport and the public investment therein. Accordingly, it is declared:

(1) That the creation, maintenance, or establishment of an airport hazard is a public nuisance and an injury to the community served by the airport in question; therefore, it is necessary in the interest of the public health, public safety, and general welfare that the creation, maintenance, or establishment of airport hazards be prevented; and

(2) That the prevention of the creation, maintenance, or establishment of airport hazards should be accomplished, to the extent legally possible, by exercise of the police power, without compensation.

It is further declared that both the prevention of the creation, maintenance, or establishment of airport hazards and the elimination, removal, alteration, mitigation, or marking and lighting of existing airport hazards are public purposes. [L 1965, c 140, pt of §1; Supp. §17A-2; HRS §262-2]

\$262-3. Power to adopt airport zoning regulations. To prevent the creation or establishment of airport hazards, the director of transportation may adopt, amend, repeal, administer, and enforce, under the police power and in the manner and upon the conditions prescribed in this chapter, airport zoning regulations for an airport hazard area in the State, which regulations may divide each area into zones, and, within such zones, specify the land uses permitted and regulate and restrict the height to which structures may be erected and trees allowed to grow, subject to section 262-6. [L 1965, c 140, pt of §1; Supp. §17A-3; HRS §262-3]

\$262-4. Relation to comprehensive zoning regulations. In the event of conflict between any airport zoning regulations adopted under this chapter and any ordinances or other regulations applicable to the same area, whether the conflict be with respect to the height of structures or trees, the use of land, or any other matter, and whether other regulations were adopted by or under the authority of the State or by or under the authority of a county, the more stringent limitation or requirement shall govern and prevail. [L 1965, c 140, pt of §1; Supp. §17A-4; HRS §262-4]

\$262-5. Procedure for adoption of zoning regulations. (a) The director of transportation shall adopt airport zoning regulations in accordance with chapter 91.

(b) At least ninety days before the public hearing on the initial zoning of any airport hazard area, the director shall notify the appropriate state and county planning agencies and any boards or commissions of a similar nature which may be concerned, and thirty days before the public hearing such agencies, boards, and commissions may file with the director their recommendations as to the boundaries of the various zones to be established and the regulations to be adopted therefor. The director shall give due consideration to recommendations so filed. [L 1965, c 140, pt of §1; Supp. §17A-5; HRS §262-5]

\$262-6. Airport zoning regulations. (a) All airport zoning regulations adopted under this chapter shall have the force and effect of law. The regulations shall be reasonable and none shall impose any

HRS Chapter 262 - Abbreviated

requirement or restriction which is not reasonably necessary to effectuate the purposes of this chapter. In determining what regulations the director may adopt, the director of transportation shall consider, among other things, the character of the flying operations expected to be conducted at the airport, the nature of the terrain within the airport hazard area, the character of the neighborhood, and the uses to which the property to be zoned is put and adaptable.

(b) Nonconforming uses. No airport zoning regulations adopted under this chapter shall require the removal, lowering, or other change or alteration of any structure or tree not conforming to the regulations when adopted or amended, or otherwise interfere with the continuance of any nonconforming use, except as provided in section 262-7. [L 1965, c 140, pt of §1; Supp. §17A-6; HRS §262-6; gen ch 1985]

\$262-7. Permits, hazard markings, and lighting. (a) Permits. Any airport zoning regulations adopted under this chapter may require that before any new structure, tree, or use may be constructed, planted, or established, and before any existing use, tree, or structure may be substantially changed, replanted, or substantially altered or repaired, a permit be obtained authorizing such construction, planting, establishment, change, replanting, alteration, or repair. In any event, all the regulations shall provide that before any nonconforming structure or tree may be replaced, substantially altered or repaired, rebuilt, or replanted, a permit must be secured from the department of transportation authorizing the replacement, alteration, repair, rebuilding, or replanting. No permit shall be granted that would allow the establishment, maintenance, or creation of an airport hazard. Except as provided herein, all applications for permits shall be granted.

(b) Hazard markings and lighting. In granting any permit under this section, the director may, if the director deems such action advisable to effectuate the purposes of this chapter and reasonable under the circumstances, so condition such permit as to require the owner of the structure or tree in question to permit the State, at its own expense, to install, operate, and maintain thereon such markers and lights as may be necessary to indicate to operators of aircraft the presence of an airport hazard. [L 1965, c 140, pt of §1; Supp. §17A-7; HRS §262-7; gen ch 1985]

\$262-10. Enforcement and remedies. Any person who willfully violates section 262-7(a) or any regulations, orders, or rulings promulgated or made pursuant to this chapter, shall for each violation, be fined not more than \$1,000 or imprisoned not more than ninety days, or both. In addition the director of transportation may institute, in any court of competent jurisdiction, an action in the name of the State to prevent, restrain, correct, or abate any violation of this chapter, or of airport zoning regulations adopted under this chapter, or of any order or ruling made in connection with their administration or enforcement, and the court shall adjudge to the State such relief, by way of injunction (which may be mandatory) or otherwise, as may be proper under all the facts and circumstances of the case, to effectuate the purposes of this chapter and of the regulations adopted and orders and rulings made pursuant thereto. [L 1965, c 140, pt of §1; Supp. §17A-10; HRS §262-10]

\$262-11. Acquisition of air rights. When (1) it is desired to remove, lower, or otherwise terminate a nonconforming structure or use; or (2) the approach protection necessary cannot, because of constitutional limitations, be provided by airport zoning regulations under this chapter; or (3) it appears advisable that the necessary approach protection be provided by acquisition of property rights rather than by airport zoning regulations, the director of transportation on behalf of the State may acquire, by purchase, grant, or condemnation in the manner provided by chapter 101, such air right, aviation easement, or other estate or interest in the property or nonconforming structure or use in question as may be necessary or proper to effectuate the purposes of this chapter, including acquisition of a fee simple estate. [L 1965, c 140, pt of §1; Supp. §17A-11; HRS §262-11]

STATE OF HAWAII OFFICE OF PLANNING
TECHNICAL ASSISTANCE MEMORANDUM

TAM – 2016 – 1

ISSUED: 05-02-2016

AUTHORITIES: State Planning, HRS Chapter 225M; Hawaii State Planning Act, HRS Chapter 226; Hawaii Land Use Law, HRS Chapter 205; Aeronautics, HRS Chapter 261; Airport Zoning Act, HRS Chapter 262

SUBJECT: Federal Aviation Administration (FAA) Order 5190.6B

The Office of Planning provides technical assistance to state and county agencies in administering the statewide planning system.¹ This technical advisory discusses an FAA Order which may impact the use of land adjacent to or in the immediate vicinity of Hawaii's airports.

Background

Pursuant to FAA Order 5190.6B²:

"20.1. Background. Land use planning is an important tool in ensuring that land adjacent to, or in the immediate vicinity of, the airport is consistent with activities and purposes compatible with normal airport operations, including aircraft landing and takeoff. Ensuring compatible land use near federally obligated airports is an important responsibility and an issue of federal interest. In effect since 1964, Grant Assurance 21, Compatible Land Use, implementing Title 49 United States Code (U.S.C.) § 47107(a)(10), requires, in part, that the sponsor:"

"...take appropriate action, to the extent reasonable, including the adoption of zoning laws, to restrict the use of land adjacent to or in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations, including landing and takeoff of aircraft. In addition, if the project is for noise compatibility program implementation, it will not cause or permit any change in land use, within its jurisdiction, that will reduce its compatibility, with respect to the airport, of the noise compatibility program measures upon which federal funds have been expended."

¹ HRS §§ 225M-2(b), 226-53(10).

² https://www.faa.gov/airports/resources/publications/orders/compliance_5190_6/media/5190_6b_chap20.pdf

There are a number of sources that can assist an airport sponsor in dealing with noise, obstructions, and other incompatible land uses. These include, but are not limited to:

- a. Hazardous Wildlife Attractants on or Near Airports, AC 150/5200-33B, August 28, 2007.³
- b. Construction or Establishment of Landfills near Public Airports, AC 150/5200-34A, January 26, 2006.
- c. Federal and State Coordination of Environmental Reviews for Airport Improvement Projects. (RTF format) – Joint Review by Federal Aviation Administration and National Association of State Aviation Officials (NASAO), issued March 2002.⁴
- d. Land Use Compatibility and Airports, a Guide for Effective Land Use Planning (PDF format), issued by the FAA Office of Environment and Energy.⁵
- e. Compatible Land Use Planning Initiative (PDF format), 63 Fed. Reg. 27876, May 21, 1998.⁶
- f. A Model Zoning Ordinance to Limit Height of Objects Around Airports, Advisory Circular (AC) 150/5190-4A.
- g. Glint/Glare Hazards, Airport Airspace Analysis (IOE/AAA), Combined Federal Regulation CFR Part 77 (e-CFR format) – Current as of December 15, 2015 (same as obstruction process below).
- i. Obstruction Evaluation/Airport Airspace Analysis (IOE/AAA), Combined Federal Regulation CFR Part 77 (e-CFR format) – Current as of December 15, 2015.
- j. Aviation and Noise Easements – Permitting agencies shall ensure that all permits issued to projects near airports are compatible with aviation easement agreements between the State of Hawaii Department of Transportation, Airports Division (DOT-A) and property owners. These easements grant the DOT-A the right of flight of aircrafts, the safe operations of airports, and acceptance of certain noise levels and other phenomena associated with the airport. The right to flight includes the prevention of wildlife hazard through appropriate mitigation and monitoring. In all land-use zone changes, this easement is required and must satisfy DOT-A requirements.

Pertinent information from FAA's Land-Use Practices on or near Airports That Potentially Attract Hazardous Wildlife, Glint/Glare Hazards and Obstruction Hazards:

³ http://www.faa.gov/documentlibrary/media/advisory_circular/150-5200-33B/150_5200_33b.pdf

⁴ <https://www.faa.gov/airports/resources/publications/reports/environmental/media/eis-faa-nasao-report.pdf>

⁵ http://www.faa.gov/about/office_org/headquarters_offices/ap/noise_e-missions/planning_toolkit/media/III.B.pdf

⁶ <https://www.gpo.gov/fdsys/pkg/FR-1998-05-21/pdf/98-13577.pdf>

2-1. General. The wildlife attracted to the airport environment vary considerably, depending on several factors, including land-use practices on or near the airport. Other hazards that attract wildlife include glint/glare hazards, certain street and property lighting designs, and aerial obstruction hazards, all of which threaten aviation safety. In addition to the specific considerations outlined below, airport operators should refer to Wildlife Hazard Management at Airports, Glint/Glare, and Obstruction guidance materials prepared by the FAA.

Pertinent information from FAA Order 5190.6B Compatible Land Use and Airspace Protection:

4-3. Other Land-Use Practice Changes. As a matter of policy, the FAA encourages operators of public-use airports who become aware of proposed land use practice changes that may attract hazardous wildlife within 5 statute miles of their airports, to include glint/glare hazards and aerial obstructions to promptly notify the FAA. The FAA also encourages proponents of such land use changes to notify the FAA as early in the planning process as possible. Advanced notice affords the FAA an opportunity (1) to evaluate the effect of a particular land-use change on aviation safety and (2) to support efforts by the airport sponsor to restrict the use of land next to or near the airport to uses that are compatible with the airport.

Land use practices that may attract hazardous wildlife, and may also be a glint/glare hazard or an aerial obstruction hazard to existing flight paths include, but are not limited to:

- Underwater waste discharges
- Aquaculture activities conducted outside of fully enclosed buildings
- Water features on properties such as fountains or ponds, areas of permanent or temporary standing water, and furrow irrigation and drainage systems
- Landfills and material recycling/processing facilities
- Photovoltaic/Solar panels
- Utility poles and lines
- Wind turbines
- Antenna towers
- High rise building structures
- Cranes
- Tethered Air Balloon Devices
- Street and exterior property lights
- Certain landscape, trees, and ground cover

4-3.a. Airports that have received Federal grant-in-aid assistance are required by their grant assurances to take appropriate actions to restrict the use of land next to or near

the airport to uses that are compatible with normal airport operations. The FAA recommends that airport operators to the extent practicable oppose off-airport land-use changes or practices within the separations identified in Sections 1-2 through 1-4 that may attract hazardous wildlife, and/or be glint/glare, and/or obstruction hazards. Failure to do so may lead to noncompliance with applicable grant assurances. The FAA will not approve the placement of airport development projects pertaining to aircraft movement in the vicinity of hazardous wildlife attractants, or where glint/glare and/or obstruction hazards exist without appropriate mitigating measures. Increasing the intensity of wildlife control efforts is not a substitute for eliminating or reducing a proposed wildlife hazard, nor is the placement adjustments to mitigate glint/glare and obstruction hazards. Airport operators should identify hazardous wildlife, glint/glare, and obstruction hazards during any planning process for new airport development projects.

Application

The State of Hawai'i Department of Transportation, Airports Division (DOT-A) discourages such land uses that may attract hazardous wildlife within five (5) statute miles of airport boundaries, pursuant to FAA Advisory Circular 150/5200-33B, (August 28, 2007). Attached are maps depicting the five (5) statute miles from airports in the State of Hawai'i, including glint/glare hazards pursuant to Federal Aviation Administration Notice Of Interim Policy dated October 23, 2013 and aerial obstruction to existing flight paths pursuant to Combined Federal Regulation CFR Part 77 (e-CFR format) – Current as of December 15, 2015.

State, county, and federal agencies who have jurisdiction over areas within five (5) statute miles of airport boundaries and have permit authority over future land uses that may attract hazardous wildlife shall consider FAA Advisory Circular 150/5200-33B, including glint/glare hazards and aerial obstruction(s) to existing flight paths in accordance with the FAA Obstruction Evaluation/Airport Airspace Analysis (IOE/AAA), Combined Federal Regulation CFR Part 77 in their decision making on plans and permits,

Consultation with the DOT-A (Airport Operations) shall be performed at the most earliest time where a future land use that may attract hazardous wildlife, glint/glare hazard or aerial obstruction(s) is proposed. Agencies should inform applicants of permits or approvals of such proposed land uses to consult with the DOT-A (Airport Operations) as soon as possible.

Where applicable, when a land-owner petitions the State of Hawaii Land Use Commission (LUC) with a request for a land use district boundary amendment, the State will propose an LUC condition requiring an avigation and noise easement be granted to DOT-A and the terms of the easement must meet the requirements of the DOT-A, including mitigation to minimize potential wildlife hazards to aircrafts and airport operations.

In cases where the respective counties are the authority for land use district boundary amendments (petitions under fifteen (15) acres), the respective counties should contact DOT-A for any requirements of an avigation and noise easement.

When a landowner in the vicinity of the airport pursues redevelopment of a property, the landowner must grant an avigation and noise easement to the DOT-A to ensure compatible land use in the vicinity of the airport. The terms of the easement must satisfy DOT-A requirements.

Grant of avigation and noise easements to DOT-A is necessary for the safety of air transportation which is a public benefit. State, County, and Federal regulatory and service agencies that work with any aspect of the conditions identified in an avigation and noise easement must take appropriate actions and incorporate the DOT-A avigation easement requirements in their decisions.

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 State of Hawai'i
 P.O. Box 2359
 Honolulu, HI 96804
 Phone: (808) 587-2846
 Web: planning.hawaii.gov

Department of Transportation
 Airports Division
 State of Hawai'i
 400 Rodgers Boulevard, Suite 700
 Honolulu, HI 96819-1880
 Phone: (808) 838-8810

Note: A Technical Assistance Memorandum (TAM) is an informational statement of the law, regulations, or policies. It is accurate on the date issued. Subsequent changes in the law or regulations, judicial decisions, or changes in policies could affect the validity of the information presented in a TAM.

THE ENVIRONMENTAL NOTICE

A Semi-Monthly Bulletin published pursuant to Section 343-3, Hawaii Revised Statutes

David Y. Ige, Governor
 Scott Glenn, Director

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May 23, 2016

The Environmental Notice provides public notice for projects undergoing environmental review in Hawaii. This is mandated under Section 343-3, Hawaii Revised Statutes (HRS), the Environmental Impact Statement Law. Along with publishing Environmental Assessments (EAs) and Environmental Impact Statements (EISs) for projects in Hawaii, The Environmental Notice also includes other items related to the shoreline, coastal zone, and federal activities.



As an advocate for a safe aviation industry, the Airports Division (State of Hawaii Department of Transportation), in conjunction with the Office of Planning (Department of Business, Economic Development, and Tourism), and the Federal Aviation Administration (FAA), is developing a technical assistance memorandum to mitigate the potential vulnerabilities to flight paths from wildlife, glint/glare and aerial obstruction hazards. Accordingly, on a continuing basis, the Airports Division and FAA seek to consult with proponents of various land use proposals within 5 miles of State airports to evaluate the effect of proposed land uses on aviation safety. As a reminder, Hawaii's environmental review process established pursuant to Chapter 343, HRS requires pre-consultation with relevant agencies early in the preparation or environmental assessments, so there already is an established protocol for relevant projects to be brought to the attention of the Airports Division and the FAA. Land use practices that may attract hazardous wildlife, or may be a glint/glare or aerial obstruction hazard to existing flight paths may include, but are not limited to:

- Underwater waste discharges
- Aquaculture activities conducted outside of fully enclosed buildings
- Water features on properties such as fountains or ponds, areas of permanent or temporary standing water, and furrow irrigation and drainage systems
- Landfills and material recycling/processing facilities
- Photovoltaic/Solar panels
- Utility poles and lines
- Wind turbines
- Antenna towers
- High rise building structures
- Cranes
- Tethered Air Balloon Devices
- Street and exterior property lights
- Certain landscape, trees, and ground cover

Even when not subject to Chapter 343, HRS, relevant proposed land uses shall be routed to the Airports Division and the FAA for evaluation and review regarding aviation safety.



Bird vs. Plane

In the war of bird vs. plane, will a compost factory near an airport increase bird strikes?

Less than five years after Montreal's international airport lobbied against a plan to build a compost factory at the end of its runway, a similar facility is being planned near another Canadian airport.

In 2011, officials at the Montréal-Pierre Elliott Trudeau International Airport argued that a compost factory should not be built on

kilometers away from the end of the runway. Airplanes would have passed above the factory," says Christiane Beaulieu, the Montréal airport's vice president of public affairs.

The airport, which employs five trained falcons to chase away the less educated birds from the skies, refused to rent its land to the City of Montreal for the construction of the factory.

But now a similar facility is being planned near a smaller airport nearby, The Saint-Hubert Airport, which is located south of Montréal, is the ninth busiest airport in Canada, handling

"It was (supposed to be built) less than a



Compost and garbage laying around attracts birds which can contribute to plane crashes. Photo taken at an indoor compost facility in the province of Ontario.

approximately 150,000 flights per year within the province of Québec. The airport has a flight school and welcomes airplanes with as many as 42 passengers.

In the next five years, an indoor biometabion compost plant is scheduled to be built, less than a mile away from the runway used by its flight school—transforming leftover food, grass and leaves into compost and biogas that will be used to produce electricity. The factory will cost \$85 million to build, and will have the capacity to treat 70,000 tons of organic material per year, produce 30,000 tons of compost and 6.5 million cubic meters of biogas. The biogas generated by the plant can be used as fuel for buses or as electricity to heat homes. It will be one of the largest—and most advanced—electricity-generated compost factories in North America.

"I never saw a bird following a garbage truck."

CHRISTIANE BEAULIEU,
VICE PRESIDENT OF PUBLIC AFFAIRS,
MONTREAL-PIERRE ELLIOTT TRUDEAU
INTERNATIONAL AIRPORT

All together, the treatment plant will help to decrease greenhouse gases by approximately 10,000 tons annually by reducing the transportation of waste to landfills and by cutting down on the consumption of fossil fuels, according to a fact sheet on the facility.

The spokesman for the City of Longueuil, where the government-subsidized compost plant will be built, says the facility will not attract wildlife because all the garbage will be inside the building.

Since it will be a closed building, and since none of the garbage or edible waste will be accessible, the biometabion facility will not attract birds and other animals," the city's spokesman Renaud Beuchemin wrote in an email. "The construction of the plant should not lead to any increase in the number of birds near the airport."

The factory will install odor-reducing filters and devices that use negative pressure to keep the smell of rotting food from escaping, according to Beuchemin. There will be no ponds for ducks, herons or seagulls to swim in, and coniferous trees will be planted rather than other

MONTREAL AIRPORT'S FOX PROBLEM



In addition to birds, Montréal-Pierre Elliott Trudeau International Airport has a fox problem.

While an airplane that runs over a fox on the runway does not usually sustain serious damage, a second airplane can slip on the carcass of the dead fox, says the airport's Vice President of Public Affairs Christiane Beaulieu.

To keep foxes away, airport workers make sure the vegetation near the airport does not harbor insects or animals that foxes can eat.

"We take a lot of measures," Beaulieu says. "We have to be vigilant all the time." To keep birds away, the airport camouflages ponds with floating balls and works with biologists to capture, sterilize and relocate birds and their eggs. Trained falcons remain an important part of the bird-control program, because other birds don't stick around when falcons are in the air, Beaulieu says.

By the way, San Jose International Airport also had a fox problem years ago. In 1991, the Los Angeles Times reported that three foxes were crushed under the wheels of airplanes within a half hour. In response, the airport took measures to trap and hunt the animals.

REGULATIONS CONCERNING COMPOST FACILITIES NEAR AIRPORTS IN THE UNITED STATES

According to the FAA's guidelines, composting facilities near airports should not contain any food.

"Composting operations that accept only yard waste (e.g., leaves, lawn clippings, or branches) generally do not attract hazardous wildlife," says the FAA Advisory Circular on the subject of Hazardous Wildlife Attractants on or near airports. "The compost, however, must never include food or other municipal solid waste."

The FAA guidelines also state that composting operations should not be located on airport property. However, these are only recommendations, not requirements. The FAA reviews composting facilities near airports on a case-by-case basis, according to FAA Spokesman Hank Price. "It depends on what the material is, how far it is from the airport, and what is currently located in the location where the composting facility is proposed," Price wrote in an email. "It may be that the land use it is replacing may be more of an attractant for wildlife than the type of composting facility, thus potentially reducing the wildlife hazard."

The FAA recommends that airports monitor wildlife activities near composting facilities.



MANAGING AIRPORTS TODAY

types of trees because coniferous trees provide fewer places for birds to land. In addition, "any external structures that produce heat or can serve as shelters also will be designed to be inaccessible to birds," Beaulieu writes. The doors of the factory will be shut while garbage trucks unload their cargo inside the factory, and the trucks' wheels will be washed before they are permitted to exit.

FLOCKING TO THE AIRPORT

But Montreal airport officials say that even with all these measures, birds might still flock to the area.

Back in 2011, the Montreal airport hired consultants to visit two similar indoor compost factories in the province of Ontario and take photographs. "You can see [on the photos] that birds fly around there," Beaulieu says.

Garbage trucks that will bring food to the factory are another concern, she says.

"Have you seen a garbage truck before? There is always some garbage that falls out of it," Beaulieu says. "They would have trucks waiting in line to get into the factory. Garbage trucks that wait for 15, 20, 30 minutes—for the airport that could be a risk."

According to plans for the compost facility near the Shino-Hubert airport, there will be 20 trucks per day bringing organic waste



region of Transport Canada. The Shino-Hubert airport already put such a plan in place, she says.

The Shino-Hubert airport occasionally has birds colliding with airplanes. There are generally between two and three bird strikes per year, according to General Director Michel Beaulieu—but most of these are not serious, he says, because the bird hits an airplane's wing rather than the engine. The seagull is the species that causes the most problems for the airport, Beaulieu says.

Airport officials use whistles and shoot blanks into the air to scare away birds with noise.

"Some weeks we do nothing. Some days it's three or four times per day," Beaulieu says.

Beaulieu says he is not particularly concerned about an indoor compost factory near the runway.

"It changes nothing. They could have put a company there or an apartment block or condo," he says. "But if it had been an open-air dump—that would have been a different story."

When asked about the possibility that some food might fall off the garbage trucks, he laughed.

"I never saw a bird following a garbage truck," he says.

ABOUT THE AUTHOR

Julie Massé is a freelance journalist. Her stories have been published in the *Globe and Mail*, the *Montreal Gazette*, the *Guardian*, the *Boston Globe*, the *Christian Science Monitor* and *Newsweek*. In addition to Canada and the United States, she has reported from Cambodia, Vietnam and Myanmar.



MONTREAL-PIERRE ELLIOTT TRUDEAU INTERNATIONAL AIRPORT COMPOSTS LEFT-OVER FOOD FROM ITS RESTAURANTS

WHILE THE Montreal airport opposed an industrial compost factory near its runway, the airport does compost the leftover food from its own restaurants.

Two years ago, the airport began sorting the garbage generated inside its terminals into organic waste and other types of rubbish. About half of all the garbage produced at the airport is organic.

"We sort it—just as we sort plastic, glass and paper for recycling," says Anne Marcotte, the director of communications at the airport. "It goes to another place where it's treated." The leftover food from airplanes that land in Montreal is not composted, however, she says.

August 22, 2016

Ross M. Higashi, Deputy Director
Airports Division
State of Hawai'i, Department of Transportation
400 Rodgers Boulevard, Suite 700
Honolulu, Hawai'i 96819

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Associate

SUBJECT: PRE-ASSESSMENT CONSULTATION FOR AN ENVIRONMENTAL ASSESSMENT FOR THE EAST HAWAII ORGANICS FACILITY, WAIAKEA HOMESTEADS, WAIAKEA, SOUTH HILO, HAWAII, TMK (3) 2-1-013: 142, 160, 161, and 163

Dear Mr. Higashi:

Thank you for your letter dated June 6, 2016, (reference number AIR-EP 16,0037) and your letter dated July 5, 2016 (Reference regarding the subject project. The environmental assessment will review the project location and its compliance with FAA Advisory Circular 150/5200-33b, *Hazardous Wildlife Attractants On Or Near Airports*. The environmental assessment will cite the federal as well as State (HRS chapter 262) requirements to minimize wildlife hazards around airports. Mitigation measures, as necessary, will be proposed for your review. Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII

Roy Takemoto
Managing Director, Hilo

Cc: Department of Environmental Management

O:\h03\23267\0 County of Hawaii Composting Facility EA\Pre-Consultation Pre-Consultation Responses\State DOT Airports Div - response.docx

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DAVID Y. IGE
GOVERNOR
SCOTT GLENN
DIRECTOR
(808) 586-4185

May 26, 2016

Roy Takemoto
PBR Hawaii & Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813-3484

Dear Roy Takemoto,

SUBJECT: Pre-assessment Consultation for an Environmental Assessment (EA) for the East Hawaii Organics Facility, Waiakea Homesteads, Waiakea, South Hilo, Hawaii

The Office of Environmental Quality Control (OEQC) has reviewed your May 4, 2016 request for pre-assessment consultation for the proposed action and offers the following comments for your consideration:

1. The proposal claims the operation will minimize environmental impacts regarding odor and pests. The EA should thoroughly detail these potential impacts and the mitigation measures to be employed.
2. The facility will be accepting materials from west Hawaii, and mulch and compost may be transported around the island. The EA should define the scope of these transportation operations and their effects.
3. The EA should consider how this industrial operation will fit within the context of its surroundings. Potential impacts regarding noise, air and water quality, and the local land use regime and ecosystem should be considered.

Thank you for the opportunity to comment at this early stage of this project. If you have questions, please contact our office at (808) 586-4185.

Sincerely,

Tom Eisen
Scott Glenn, Director

for



August 22, 2016

Mr. Scott Glenn, Director
Office of Environmental Quality Control
State of Hawaii, Department of Health
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

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16-350

SUBJECT: PRE-ASSESSMENT CONSULTATION FOR AN ENVIRONMENTAL ASSESSMENT FOR THE EAST HAWAII ORGANICS FACILITY, WAIAKEA HOMESTEADS, WAIAKEA, SOUTH HILO, HAWAII, TMK (3) 2-1-013: 142, 160, 161, and 163

Dear Mr. Glenn:

Thank you for your letter dated May 26, 2016, regarding the subject project. As the planning consultant for the County of Hawaii, we appreciate your participation in the environmental review process, and provide the following responses:

1. The Draft Environmental Assessment (EA) will detail the features of the proposed project designed to minimize the impacts of odor and pest.
2. The Draft EA will define the scope and effects of the transportation operations involving both the acceptance of materials from the West Hawaii Organic Facility (WHOF) and the transport of mulch and compost to various locations across Hawaii Island.
3. The Draft EA will describe the surrounding uses and impacts of the proposed use.

Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII

Roy Takemoto

Roy Takemoto
Managing Director, Hilo

Cc: Department of Environmental Management

PHONE (808) 594-1888

FAX (808) 594-1938



STATE OF HAWAII
OFFICE OF HAWAIIAN AFFAIRS
560 N. NIMITZ HWY., SUITE 200
HONOLULU, HAWAII 96817

May 10, 2016

Roy Takemoto
Managing Director, Hilo
PBR HAWAII & Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813-3484

Re: Pre-Assessment Consultation for an Environmental Assessment for the East Hawaii
Organics Facility, Waiākea Homesteads, Waiākea, South Hilo, Hawaii
Waiākea Ahupua'a, Hilo Moku, Hawaii, Mokupuni
TMK: (3) 2-1-013:142, 160, 161 and 163

Aloha Mr. Takemoto:

The Office of Hawaiian Affairs (OHA) received your letter dated May 4, 2016, on the above-titled project. Given the project descriptions provided, our agency has no comments at this time. Should you have any questions, please contact Everett Ohta at 594-0231 or everetto@oha.org.

'O wau iho nō me ka 'oia 'i'o,

Kamana'opono M. Crabbe, Ph.D.
Ka Poughana, Chief Executive Officer

KC:acm

*Please address replies and similar, future correspondence to our agency:

Dr. Kamana'opono Crabbe
Attn: OHA Compliance Enforcement
560 N. Nimitz Hwy., Ste. 200
Honolulu, Hawaii 96817



August 22, 2016

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Dr. Kamana'opono M. Crabbe
Ka Poughana, Chief Executive Officer
State of Hawaii
Office of Hawaiian Affairs
OHA Compliance Enforcement
560 N. Nimitz Highway, Suite 200
Honolulu, Hawaii 96817

ATTN: Mr. Everett Ohta

SUBJECT: PRE-ASSESSMENT CONSULTATION FOR AN ENVIRONMENTAL ASSESSMENT FOR THE EAST HAWAII ORGANICS FACILITY, WAIĀKEA HOMESTEADS, WAIĀKEA, SOUTH HILO, HAWAII, TMK (3) 2-1-013: 142, 160, 161, and 163

Dear Dr. Crabbe:

Thank you for your letter dated May 10, 2016 (your reference number HRD 16-7862), regarding the subject project. As the planning consultant for the County of Hawaii, we appreciate your participation in the environmental review process, and your input that your agency has no comments at this time. Your letter will be included in the Draft Environmental Assessment (EA).

Sincerely,

PBR HAWAII

Roy Takemoto
Managing Director, Hilo

Cc: Department of Environmental Management

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O:\08323267\01 County of Hawaii Composting Facility\EA\Pre-Consultation\Pre-Consultation Responses\State OHA - response.docx



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122
Honolulu, Hawaii 96850



In Reply Refer To:
01EPIF00-2016-TA-0323

Mr. Roy Takemoto
PBR Hawaii & Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813-3484

JUN 2 2 2016

Subject: Technical Assistance for the Proposed East Hawaii Organics Facility in Waiakea, Hawaii Island

Dear Mr. Takemoto:

The U.S. Fish and Wildlife Service (Service) received your letter on May 6, 2016, requesting pre-assessment technical assistance for the environmental assessment for the proposed East Hawaii Organics Facility Project in Waiakea, Hawaii [TMK (3) 2-1-013:142, 160, 161, and 163]. The Project would include construction of a compost facility that will accept greenwaste and untreated wood pallets that will be processed and treated for distribution as mulch. The objective of the proposed project is to divert greenwaste and designated organic materials from landfills to distribute for sale to the public and businesses.

Based on information you provided and pertinent information in our files, including data compiled by the Hawaii Biodiversity and Mapping Project, there are five federally listed species in the vicinity of the project area: the endangered Hawaiian hawk (*Buteo solitarius*), Hawaiian hoary bat (*Lasiurus cinereus semotus*), Hawaiian goose or nene (*Branta sandvicensis*), Hawaiian petrel (*Pterodroma sandvicensis*), the threatened Newell's shearwater (*Puffinus newelli*), and a species proposed for listing as endangered, the band-rumped storm-petrel (*Oceanodroma castro*). There is no proposed or final critical habitat within the vicinity of the project area. The Service recommends the following measures to avoid and minimize project impacts to listed species:

Hawaiian hawk

The Hawaiian hawk is known to occur across a broad range of forest habitats throughout the Island of Hawaii. Loud, irregular and unpredictable activities, such as using heavy equipment or building a structure, near an endangered Hawaiian hawk nest may cause nest failure. Harassment of Hawaiian hawk nesting sites can alter feeding and breeding patterns or result in nest or chick abandonment. Nest disturbance can also increase exposure of chicks and juveniles to inclement weather or predators. If any ground clearing or construction will occur during the Hawaiian hawk breeding season (March through September), we recommend a nest search of the project footprint and surrounding areas be conducted by a qualified ornithologist immediately prior to the start of construction activities. Pre-disturbance surveys for Hawaiian hawks are only valid for 14 days. If disturbance for the specific location does not occur within 14 days of the survey, another survey will be required. Surveys should ensure that construction activity will not

Mr. Roy Takemoto

2

occur within 1,600 feet of any Hawaiian hawk nest. If nesting Hawaiian hawks are present in the action area or within 1,600 feet of the action area, we recommend you coordinate with the Service to develop appropriate avoidance and minimization measures dependent upon the site specific information.

Hawaiian hoary bat

The Hawaiian hoary bat is known to occur across a broad range of habitats throughout the State of Hawaii. This bat roosts in both exotic and native woody vegetation and, while foraging, leaves young unattended in "nursery" trees and shrubs. If trees or shrubs suitable for bat roosting are cleared during the Hawaiian hoary bat breeding season (June 1 to September 15), there is a risk that young bats that cannot yet fly on their own could inadvertently be harmed or killed. The Service recommends that woody plants greater than 15 feet tall should not be removed or trimmed during the Hawaiian hoary bat breeding season. Additionally, Hawaiian hoary bats forage for insects from as low as three feet to higher than 500 feet above the ground. When barbed wire is used in fencing, Hawaiian hoary bats can become entangled. The Service therefore recommends that barbed wire not be used for fencing as part of this proposed action.

Nene

Nene are known to occupy various habitat and vegetation community types ranging from coastal dune vegetation and nonnative grasslands (such as golf courses, pastures, and rural areas) to sparsely vegetated low- and high-elevation lava flows, mid-elevation native and non-native shrubland, cinder deserts, native alpine grasslands and shrublands, and nonnative alpine shrubland-woodland community habitats. There is the potential for disturbance activities, including noise, to reduce the reproductive success or survival of nene. Nene have an extended breeding season with eggs reported from all months except May, June, and July, although the majority of nene in the wild nest during the wet (winter) season between October and March. Nesting peaks in December and most goslings hatch from December to January. Nene nest on the ground in a shallow scrape in the dense shade of a shrub or other vegetation. In order to avoid impacts to nene, the Service recommends that a qualified biologist survey the project area prior to the initiation of any work and conduct nest searches for nene if the project will occur during the breeding season. If a nest is discovered, work should cease immediately and our office be contacted for further guidance. A 100-foot (30m) buffer should be established and maintained around all active nests and broods until the goslings have fledged. No disruptive activities should occur within this buffer. If a nene appears during ongoing work, all activity should be temporarily suspended until the animal leaves on its own accord.

Seabirds

Hawaiian petrels, Newell's shearwaters, and band-rumped storm-petrels (collectively known as seabirds) may transit over the project area when flying between the ocean and nesting sites in the mountains during their breeding season (March through November). Seabird fatalities resulting from collisions with artificial structures that extend above the surrounding vegetation have been documented in Hawaii where high densities of transiting seabirds occur. Additionally, artificial lighting such as flood lighting or for construction work and site security, can adversely impact seabirds by causing disorientation which may result in collision with utility lines, buildings, fences and vehicles. Fledging seabirds are especially affected by artificial lighting and may exhaust themselves while circling the light sources and become grounded. Too weak to fly, these birds become vulnerable to predation by feral predators such as small Indian mongoose (*Herpestes auripunctatus*), cats (*Felis catus*), and dogs (*Canis familiaris*). We therefore recommend that night work requiring artificial illumination be avoided during the seabird

fledging season (September 15 through December 15). Additionally, any external lights associated with the facility should be full cut-off, equipped with a motion sensor, or fully shielded so that the light cannot be seen from above.

Technical Assistance Regarding Rapid Ohia Death
 Rapid Ohia Death (ROD), a newly identified disease, has killed large numbers of mature ohia trees (*Metrosideros polymorpha*) in forests and residential areas of Hawaii Island. The disease is caused by a vascular wilt fungus (*Ceratocystis fimbriata*). Crowns of affected trees turn yellowish or brown within days to weeks and dead leaves typically remain on branches for some time. All ages of ohia trees can be affected and can have symptoms of browning of branches or leaves. As of early 2015 the disease was confined to Hilo and the Puna district on Hawaii Island, but has since been confirmed in Volcano, South Kona, and Hamakua districts. Additional information on ROD can be found at <http://www2.ctahr.hawaii.edu/forestry/downloads/ROD-trifold-03-2016.pdf> and http://www2.ctahr.hawaii.edu/forestry/disease/ohia_wilt.html.

Many of our listed species are reliant on native ohia forest. The following avoidance and minimization measures should be followed for projects working in ohia forests or at sites with ohia trees on Hawaii Island:

- A survey of the proposed project site should be conducted within two weeks prior to any tree cutting to determine if there are any infected ohia trees. If infected ohia are suspected at the site, the following agencies should be contacted for further guidance.
 - USFWS – please contact the name at the bottom of this letter
 - Dr. J.B. Friday, University of Hawaii Cooperative Extension Service, 808-969-8254 or jbfriday@hawaii.edu
 - Dr. Flint Hughes, USDA Forest Service, 808-854-2617, fhughes@fs.fed.us
 - Dr. Lisa Keith, USDA Agriculture Research Service, 808-959-4357, Lisa.Keith@ars.usda.gov
- Both prior to cutting ohia and after the project is complete:
 - Tools used for cutting infected ohia trees should be cleaned with a 70 percent rubbing alcohol solution. A freshly prepared 10 percent solution of chlorine bleach and water can be used as long as tools are oiled afterwards, as chlorine bleach will corrode metal tools. Chainsaw blades should be brushed clean, sprayed with cleaning solution, and run briefly to lubricate the chain.
 - Vehicles used off-road in infected forest areas should be thoroughly cleaned. The tires and undercarriage of the vehicle should be cleaned with detergent if they have travelled from an area with ROD or travelled off-road.
 - Shoes and clothing used in infected forests should also be cleaned. Shoes should be decontaminated by dipping the soles in 10 percent bleach or 70 percent rubbing alcohol to kill the ROD Fungus. Other gear can be sprayed with the same cleaning solutions. Clothing can be washed in hot water and detergent.
- Wood of affected ohia trees should not be transported to other areas of Hawaii Island or interisland. All cut wood should be left on-site to avoid spreading the disease. The pathogen may remain viable for over a year in dead wood. The HDOA has passed a new quarantine rule that prohibits interisland movement, except by permit, of all ohia plant or plant parts.

Implementation of these measures will minimize but does not ensure that take of listed species associated with this proposed action will be fully avoided. If there is a federal action agency funding, permitting, or assisting in the implementation of this project, we recommend that agency consult with the Service to address potential project impacts to listed species pursuant to section 7 (a)(2) of the Endangered Species Act. If there is no federal action agency associated with the project, but impacts to listed species cannot be fully avoided, the project should coordinate with the Service directly pursuant to section 10 (a)(1)(B) of the Endangered Species Act.

Thank you for your efforts to conserve listed species and native habitats. Please contact Fish and Wildlife Biologist William O'Neill (phone: 808-792-9451, email: william_oneill@fws.gov) if you have any questions or for further guidance.

Sincerely,



Michelle Bogardus
 Island Team Leader
 Maui Nui and Hawaii Island



U.S. Fish and Wildlife Service
 SUBJECT: PRE-ASSESSMENT CONSULTATION FOR AN ENVIRONMENTAL ASSESSMENT
 FOR THE EAST HAWAII ORGANICS FACILITY, WAI'AKEA HOMESTEADS, WAI'AKEA,
 SOUTH HILO, HAWAII, TMK (3) 2-1-013: 142, 160, 161, and 163
 August 22, 2016
 Page 2

August 22, 2016

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- MARC SHIMAMATSU, ASLA
Associate

Michelle Bogardus
 Island Team Leader, Maui Nui and Hawai'i Island
 Pacific Islands Fish and Wildlife Office
 Fish and Wildlife Service
 United States Department of the Interior
 300 Ala Moana Boulevard, Room 3-122
 Honolulu, Hawaii 96850

Attn: William O'Neill, Fish and Wildlife Biologist

SUBJECT: PRE-ASSESSMENT CONSULTATION FOR AN ENVIRONMENTAL ASSESSMENT FOR THE EAST HAWAII ORGANICS FACILITY, WAI'AKEA HOMESTEADS, WAI'AKEA, SOUTH HILO, HAWAII, TMK (3) 2-1-013: 142, 160, 161, and 163

Dear Ms. Bogardus:

Thank you for the US Fish and Wildlife Service's (USFWS) letter dated June 22, 2016, Reference No. 01EPIF00-2016-TA-0323, regarding the East Hawai'i Organics Facility. As the planning consultant for the County of Hawai'i, we welcome your Department's input, and provide the following responses to your comments:

The environmental assessment will document the absence of proposed or final critical habitat within the vicinity of the project area based on the confirmation in your letter. We appreciate the information provided on the federally endangered Hawaiian hawk ('io, or *Buteo solitarius*), Hawaiian hoary bat (ope'ape'a, or *Lasiorus cinereus semotus*), Hawaiian goose (nēnē, or *Brania sandvicensis*), Hawaiian petrel ('ua'u, or *Pterodroma sandvicensis*), the threatened Newell's shearwater ('a'o, or *Puffinus newelli*), and a species proposed for listing as endangered, the band-rumped storm petrel ('ake'ake, or *Oceanodroma castro*), as well as information on Rapid 'Ohi'a Death (ROD).

The environmental assessment will include mitigation measures that incorporate your comments as follows:

1. *Hawaiian Hawk*. Include a requirement in the construction contract to retain a biologist to check for nests if grubbing trees during March through September. If nesting Hawaiian hawks are present within 1,600 feet of the action area, coordinate with the USFWS to develop appropriate avoidance and minimization measures.
2. *Hawaiian Hoary Bat*. Include a requirement in the construction contract that should construction occur during the Hawaiian hoary bat breeding

- season (June 1 to September 15), woody plants greater than 15 feet tall should not be removed or trimmed. Mitigation measures will also prohibit the use of barbed wire for fencing.
3. *Nene*. Include a requirement in the construction contract to retain a biologist to survey the project area for the presence of any nene, and check for nests if grubbing during August through April. If nests are discovered, coordinate with the USFWS to develop appropriate avoidance and minimization measures.
4. *Seabirds*. The design will specify shielded outdoor lights in conformance with County Code outdoor lighting requirements. Night work requiring artificial illumination during the construction and operational phases should be avoided during the fledging season (September 15 through December 15).
5. *Rapid Ohia Death*. The site plan will avoid disturbing the known cluster of ohia trees within the project site. If cutting is necessary, DEM will consult with the USDA Forest Service for guidance to minimize spreading this disease.

We thank you again for your letter and your participation in the environmental review process. Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII

Roy Takemoto
 Managing Director, Hilo

Cc: Department of Environmental Management

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DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAII
 345 KEKUAŌ'A STREET, SUITE 20 • HILO, HAWAII 96720
 TELEPHONE (808) 961-8050 • FAX (808) 961-8657

June 3, 2016

Mr. Roy Takemoto
 PBR Hawaii & Associates, Inc.
 1001 Bishop Street, Suite 650
 Honolulu, HI 96813-3484

Dear Mr. Takemoto:

**Subject: Pre-Environmental Assessment for the East Hawaii Organics Facility
 Waiākea Homesteads, Waiākea, South Hilo, Hawaii
 Tax Map Key 2-1-013:142, 160, 161 and 163**

This is in response to your Pre-Environmental Assessment letter dated May 4, 2016.

Please be informed that the subject parcels do not have an existing water service with the Department as the parcels are beyond the service limits of the Department's existing water system.

However, water could be made available after the completion and dedication of a 12-inch waterline currently being installed along Ho'olaulima Road that will front Parcel Nos. 142 and 163 by the Department of Public Works for the Mass Transit Agency Baseyard.

The Department would request estimated maximum daily water usage calculations, prepared by a professional engineer, licensed in the State of Hawaii for review. After review of the calculations, the Department will determine if a water commitment can be issued, a water commitment deposit amount, facilities charges due, water system improvements, and other conditions for final approval.

Please also be informed that any meter(s) serving the proposed project will require the installation of a reduced principle type backflow prevention assembly within five feet of the meter on private property. The Department must inspect and approve the installation prior to commencement of water service.

Should there be any questions, please contact Mr. Ryan Quitoriano of our Water Resources and Planning Branch at 961-8070, extension 256.

Sincerely yours,


 Keith K. Okamoto, P.E.
 Manager-Chief Engineer

RQ-dfg

... *Water, Our Most Precious Resource* ... *Ka Wai A Kāne* ...
 The Department of Water Supply is an Equal Opportunity provider and employer.



August 22, 2016

Keith K. Okamoto
 Manager-Chief Engineer
 County of Hawaii, Department of Water Supply
 345 KekuaŌ'a Street, Suite 20
 Hilo, Hawaii 96720

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SUBJECT: PRE-ASSESSMENT CONSULTATION FOR AN ENVIRONMENTAL ASSESSMENT FOR THE EAST HAWAII ORGANICS FACILITY, WAIĀKEA HOMESTEADS, WAIĀKEA, SOUTH HILO, HAWAII, TMK (3) 2-1-013: 142, 160, 161, and 163

Dear Mr. Okamoto:

Thank you for your letter dated June 3, 2016, regarding the subject project. As the planning consultant for the County of Hawaii, we appreciate your participation in the environmental review process.

The Draft Environmental Assessment (EA) will address your comments as follows:

- assess the capacity and timing of the 12-inch waterline being installed along Ho'olaulima Road for the Mass Transit Agency Baseyard, in relation to the requirements of the subject project;
- include a mitigation measure requiring the installation of a reduced principle type backflow prevention assembly within five feet of the meter within the project property; and
- include the need for DWS water commitment approval in the list of permits and approvals.

Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII



Roy Takemoto
 Managing Director, Hilo

Cc: Department of Environmental Management

William P. Kenoi
Mayor



County of Hawaii
HAWAII FIRE DEPARTMENT
25 Aupuni Street • Suite 2501 • Hilo, Hawaii 96720
(808) 932-2900 • Fax (808) 932-2928

Darren J. Rosario
Fire Chief
Renwick J. Victorino
Deputy Fire Chief

May 25, 2016

Roy Takemoto, Managing Director Hilo
PBR Hawaii & Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813-3484

Dear Mr. Takemoto,

SUBJECT: Pre-assessment consultation for an environmental assessment for the East Hawaii Organics Facility, Waiākea Homesteads, Waiākea, South Hilo, Hawaii.
TMK (3) 2-1-013:142, 160, 161, and 163

In regards to the above-referenced Pre-assessment Consultation for an Environmental Assessment, the following shall be in accordance:

NFPA 1, UNIFORM FIRE CODE, 2006 EDITION

Note: Hawaii State Fire Code, National Fire Protection Association 2006 version, with County of Hawaii amendments. County amendments are identified with a preceding "C~" of the reference code.

Chapter 18 Fire Department Access and Water Supply

18.1 General. Fire department access and water supplies shall comply with this chapter.

For occupancies of an especially hazardous nature, or where special hazards exist in addition to the normal hazard of the occupancy, or where access for fire apparatus is unduly difficult, or areas where there is an inadequate fire flow, or inadequate fire hydrant spacing, and the AHJ may require additional safeguards including, but not limited to, additional fire appliance units, more than one type of appliance, or special systems suitable for the protection of the hazard involved.

18.1.1 Plans.

18.1.1.1 Fire Apparatus Access. Plans for fire apparatus access roads shall be submitted to the fire department for review and approval prior to construction.



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Roy Takemoto
May 25, 2016
Page 2

18.1.1.2 Fire Hydrant Systems. Plans and specifications for fire hydrant systems shall be submitted to the fire department for review and approval prior to construction.

C~ 18.1.1.2.1 Fire Hydrant use and Restrictions. No unauthorized person shall use or operate any Fire hydrant unless such person first secures permission or a permit from the owner or representative of the department, or company that owns or governs that water supply or system. Exception: Fire Department personnel conducting firefighting operations, hydrant testing, and/or maintenance, and the flushing and acceptance of hydrants witnessed by Fire Prevention Bureau personnel.

18.2 Fire Department Access.

18.2.1 Fire department access and fire department access roads shall be provided and maintained in accordance with Section 18.2.

18.2.2* Access to Structures or Areas.

18.2.2.1 Access Box(es). The AHJ shall have the authority to require an access box(es) to be installed in an accessible location where access to or within a structure or area is difficult because of security.

18.2.2.2 Access to Gated Subdivisions or Developments. The AHJ shall have the authority to require fire department access be provided to gated subdivisions or developments through the use of an approved device or system.

18.2.2.3 Access Maintenance. The owner or occupant of a structure or area, with required fire department access as specified in 18.2.2.1 or 18.2.2.2, shall notify the AHJ when the access is modified in a manner that could prevent fire department access.

18.2.3 Fire Department Access Roads. (*may be referred as FDAR)

18.2.3.1 Required Access.

18.2.3.1.1 Approved fire department access roads shall be provided for every facility, building, or portion of a building hereafter constructed or relocated.

18.2.3.1.2 Fire Department access roads shall consist of roadways, fire lanes, parking lots lanes, or a combination thereof.

18.2.3.1.3* When not more than two one- and two-family dwellings or private garages, carports, sheds, agricultural buildings, and detached buildings or structures $400R^2$ ($37 m^2$) or less are present, the requirements of 18.2.3.1 through 18.2.3.2.1 shall be permitted to be modified by the AHJ.

18.2.3.1.4 When fire department access roads cannot be installed due to location on property, topography, waterways, nonnegotiable grades, or other similar conditions, the AHJ shall be authorized to require additional fire protection features.

18.2.3.2 Access to Building.

18.2.3.2.1 A fire department access road shall extend to within in 50 ft (15 m) of at least one exterior door that can be opened from the outside that provides access to the interior of the building. Exception: 1 and 2 single-family dwellings.

18.2.3.2.1.1 When buildings are protected throughout with an approved automatic sprinkler system that is installed in accordance with NFPA 13, NFPA 13D, or NFPA 13R, the distance in 18.2.3.2.1 shall be permitted to be increased to 300 feet.

18.2.3.2.2 Fire department access roads shall be provided such that any portion of the facility or any portion of an exterior wall of the first story of the building is located not more than 150 ft (46 m) from fire department access roads as measured by an approved route around the exterior of the building or facility.

18.2.3.2.2.1 When buildings are protected throughout with an approved automatic sprinkler system that is installed in accordance with NFPA 13, NFPA 13D, or NFPA 13R, the distance in 18.2.3.2.2 shall be permitted to be increased to 450 ft (137 m).

18.2.3.3 Multiple Access Roads. More than one fire department access road shall be provided when it is determined by the AHJ that access by a single road could be impaired by vehicle congestion, condition of terrain, climatic conditions, or other factors that could limit access.

18.2.3.4 Specifications.

18.2.3.4.1 Dimensions.

C~ 18.2.3.4.1.1 FDAR shall have an unobstructed width of not less than 20ft with an approved turn around area if the FDAR exceeds 150 feet. **Exception:** FDAR for one and two family dwellings shall have an unobstructed width of not less than 15 feet, with an area of not less than 20 feet wide within 150 feet of the structure being protected. An approved turn around area shall be provided if the FDAR exceeds 250 feet.

C~ 18.2.3.4.1.2 FDAR shall have an unobstructed vertical clearance of not less than 13ft 6 in.

C~ 18.2.3.4.1.2.1 Vertical clearances may be increased or reduced by the AHJ, provided such increase or reduction does not impair access by the fire apparatus, and approved signs are installed and maintained indicating such approved changes.

18.2.3.4.1.2.2 Vertical clearances shall be increased when vertical clearances or widths are not adequate to accommodate fire apparatus.

C~ 18.2.3.4.2 Surface. Fire department access roads and bridges shall be designed and maintained to support the imposed loads (25 Tons) of the fire apparatus. Such FDAR and shall be comprised of an all-weather driving surface.

18.2.3.4.3 Turning Radius.

C~ 18.2.3.4.3.1 Fire department access roads shall have a minimum inside turning radius of 30 feet, and a minimum outside turning radius of 60 feet.

18.2.3.4.3.2 Turns in fire department access road shall maintain the minimum road width.

18.2.3.4.4 Dead Ends. Dead-end fire department access roads in excess of 150 ft (46 m) in length shall be provided with approved provisions for the fire apparatus to turn around.

18.2.3.4.5 Bridges.

18.2.3.4.5.1 When a bridge is required to be used as part of a fire department access road, it shall be constructed and maintained in accordance with county requirements.

18.2.3.4.5.2 The bridge shall be designed for a live load sufficient to carry the imposed loads of fire apparatus.

18.2.3.4.5.3 Vehicle load limits shall be posted at both entrances to bridges where required by the AHJ.

18.2.3.4.6 Grade.

C~ 18.2.3.4.6.1 The maximum gradient of a Fire department access road shall not exceed 12 percent for unpaved surfaces and 15 percent for paved surfaces. In areas of the FDAR where a Fire apparatus would connect to a Fire hydrant or Fire Department Connection, the maximum gradient of such area(s) shall not exceed 10 percent.

18.2.3.4.6.2.* The angle of approach and departure for any means of fire department access road shall not exceed 1 ft drop in 20 ft (0.3 m drop in 6 m) or the design limitations of the fire apparatus of the fire department, and shall be subject to approval by the AHJ.

18.2.3.4.6.3 Fire department access roads connecting to roadways shall be provided with curbs extending at least 2 ft (0.61 m) beyond each edge of the fire lane.

18.2.3.4.7 Traffic Calming Devices. The design and use of traffic calming devices shall be approved the AHJ.

18.2.3.5 Marking of Fire Apparatus Access Road.

18.2.3.5.1 Where required by the AHJ, approved signs or other approved notices shall be provided and maintained to identify fire department access roads or to prohibit the obstruction thereof of both.

18.2.3.5.2 A marked fire apparatus access road shall also be known as a fire lane.

18.2.4* Obstruction and Control of Fire Department Access Road.

18.2.4.1 General.

18.2.4.1.1 The required width of a fire department access road shall not be obstructed in any manner, including by the parking of vehicles.

18.2.4.1.2 Minimum required widths and clearances established under 18.2.3.4 shall be maintained at all times.

18.2.4.1.3* Facilities and structures shall be maintained in a manner that does not impair or impede accessibility for fire department operations.

18.2.4.1.4 Entrances to fire departments access roads that have been closed with gates and barriers in accordance with 18.2.4.2.1 shall not be obstructed by parked vehicles.

18.2.4.2 Closure of Accessways.

18.2.4.2.1 The AHJ shall be authorized to require the installation and maintenance of gates or other approved barricades across roads, trails, or other accessways not including public streets, alleys, or highways.

18.2.4.2.2 Where required, gates and barricades shall be secured in an approved manner.

18.2.4.2.3 Roads, trails, and other access ways that have been closed and obstructed in the manner prescribed by 18.2.4.2.1 shall not be trespassed upon or used unless authorized by the owner and the AHJ.

18.2.4.2.4 Public officers acting within their scope of duty shall be permitted to access restricted property identified in 18.2.4.2.1.

18.2.4.2.5 Locks, gates, doors, barricades, chains, enclosures, signs, tags, or seals that have been installed by the fire department or by its order or under its control shall not be removed, unlocked, destroyed, tampered with, or otherwise vandalized in any manner.

18.3 Water Supplies and Fire Hydrants

18.3.1* A water supply approved by the county, capable of supplying the required fire flow for fire protection shall be provided to all premises upon which facilities or buildings, or portions thereof, are hereafter constructed, or moved into or within the county. When any portion of the facility or building is in excess of 150 feet (45 720 mm) from a water supply on a fire apparatus access road, as measured by an approved route around the exterior of the facility or building, on-site fire hydrants and mains capable of supplying the required fire flow shall be provided when required by the AHJ. For on-site fire hydrant requirements see section 18.3.3.

EXCEPTIONS:

1. When facilities or buildings, or portions thereof, are completely protected with an approved automatic fire sprinkler system the provisions of section 18.3.1 may be modified by the AHJ.
2. When water supply requirements cannot be installed due to topography or other conditions, the AHJ may require additional fire protection as specified in section 18.3.2 as amended in the code.
3. When there are not more than two dwellings, or two private garage, carports, sheds and agricultural. Occupancies, the requirements of section 18.3.1 may be modified by AHJ.

18.3.2* Where no adequate or reliable water distribution system exists, approved reservoirs, pressure tanks, elevated tanks, fire department tanker shuttles, or other approved systems capable of providing the required fire flow shall be permitted.

18.3.3* The location, number and type of fire hydrants connected to a water supply capable of delivering the required fire flow shall be provided on a fire apparatus access road on the site of the premises or both, in accordance with the appropriate county water requirements.

18.3.4 Fire Hydrants and connections to other approved water supplies shall be accessible to the fire department.

18.3.5 Private water supply systems shall be tested and maintained in accordance with NFPA 25 or county requirements as determined by the AHJ.

18.3.6 Where required by the AHJ, fire hydrants subject to vehicular damage shall be protected unless located within a public right of way.

18.3.7 The AHJ shall be notified whenever any fire hydrant is placed out of service or returned to service. Owners of private property required to have hydrants shall maintain hydrant records of approval, testing, and maintenance, in accordance with the respective county water requirements. Records shall be made available for review by the AHJ upon request.

C~ 18.3.8 Minimum water supply for buildings that do not meet the minimum County water standards:

Buildings up to 2000 square feet, shall have a minimum of 3,000 gallons of water available for Firefighting.

Buildings 2001- 3000 square feet, shall have a minimum of 6,000 gallons of water available for Firefighting.

Buildings, 3001 - 6000 square feet, shall have a minimum of 12,000 gallons of water available for Firefighting.

Buildings, greater than 6000 square feet, shall meet the minimum County water and fire flow requirements.

Multiple story buildings shall multiply the square feet by the amount of stories when determining the minimum water supply.

Commercial buildings requiring a minimum fire flow of 2000gpm per the Department of Water standards shall double the minimum water supply reserved for firefighting.

Fire Department Connections (FDC) to alternative water supplies shall comply with 18.3.8 (1)-(6) of *this code*.

NOTE: In that water catchment systems are being used as a means of water supply for firefighting, such systems shall meet the following requirements:

- 1) In that a single water tank is used for both domestic and firefighting water, the water for domestic use shall not be capable of being drawn from the water reserved for firefighting;
- 2) Minimum pipe diameter sizes from the water supply to the Fire Department Connection (FDC) shall be as follows:
 - a) 4" for C900 PVC pipe;
 - b) 4" for C906 PE pipe;
 - c) 3" for ductile iron;
 - d) 3" for galvanized steel.
- 3) The Fire Department Connection (FDC) shall:
 - a) be made of galvanized steel;
 - b) have a gated valve with 2-1/2 inch, National Standard Thread male fitting and cap;
 - c) be located between 8 ft and 16 ft from the Fire department access. The location shall be approved by the AHJ;
 - d) not be located less than 24 inches, and no higher than 36 inches from finish grade, as measured from the center of the FDC orifice;
 - e) be secure and capable of withstanding drafting operations. Engineered stamped plans may be required;
 - f) not be located more than 150 feet of the most remote part, but not less than 20 feet, of the structure being protected;
 - g) also comply with section 13.1.1.3 and 18.2.3.4.6.1 of *this code*.
- 4) Commercial buildings requiring a fire flow of 2000gpm shall be provided with a second FDC. Each FDC shall be independent of each other, with each FDC being capable of flowing 500gpm by engineered design standards. The second FDC shall be located in an area approved by the AHJ with the idea of multiple Fire apparatus conducting drafting operations at once, in mind.
- 5) Inspection and maintenance shall be in accordance to NFPA 25.
- 6) The owner or lessee of the property shall be responsible for maintaining the water level, quality, and appurtenances of the system.

EXCEPTIONS TO SECTION 18.3.8:

- 1) Agricultural buildings, storage sheds, and shade houses with no combustible or equipment storage.
- 2) Buildings less than 800 square feet in size that meets the minimum Fire Department Access Road requirements.

Roy Takemoto
May 25, 2016
Page 9

- 3) For one and two family dwellings, agricultural buildings, storage sheds, and detached garages 800 to 2000 square feet in size, and meets the minimum Fire Department Access Road requirements, the distance to the Fire Department Connection may be increased to 1000 feet.
- 4) For one and two family dwellings, agricultural buildings, and storage sheds greater than 2000square feet, but less than 3000 square feet and meets the minimum Fire Department Access Road requirements, the distance to the Fire Department Connection may be increased to 500 feet.
- 5) For buildings with an approved automatic sprinkler system, the minimum water supply required may be modified.

If there are any questions regarding these requirements, please contact the Fire Prevention Bureau at (808) 932-2911.



DARREN J. ROSARIO
Fire Chief

KV:ds



August 22, 2016

PRINCIPALS

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President

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Executive Vice-President

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Tel: (808) 932-1453
Tel: (808) 315-6878

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Darren J. Rosario
Fire Chief
County of Hawai'i
Fire Department
25 Aupuni Street Suite 2501
Hilo, Hawai'i 96720

SUBJECT: PRE-ASSESSMENT CONSULTATION FOR AN ENVIRONMENTAL ASSESSMENT FOR THE EAST HAWAII ORGANICS FACILITY, WAIAKEA HOMESTEADS, WAIAKEA, SOUTH HILO, HAWAII, TMK (3) 2-1-013: 142, 160, 161, and 163

Dear Chief Rosario:

Thank you for your letter dated May 25, 2016, regarding the pre-assessment consultation for the East Hawai'i Organics Facility. As the planning consultant for the County of Hawai'i, we appreciate your participation in the environmental review process. The Draft EA will clarify that the project's water source will be the County water system and not water catchments. It will also require your review of a fire suppression plan due to the unique operations of the project and to ensure compliance with the Hawai'i State Fire Code, as amended.

Your letter will be included in the Draft Environmental Assessment (EA).

Sincerely,

PBR HAWAII



Roy Takemoto
Managing Director, Hilo

Cc: Department of Environmental Management

O:\0823257\01 County of Hawaii Composting Facility\EA\Pre-Consultation Responses\HI County Fire Dept - response.docx

William P. Kenoi
Mayor



West Hawaii's Office
74-504, Aiea Kioholale Hwy
Kailua, Hawaii 96740
Phone (808) 323-4770
Fax (808) 323-5365

County of Hawaii

PLANNING DEPARTMENT

Duane Kanuha
Director
Joaquin Gansiao-Kunkel
Deputy Director

East Hawaii's Office
101 Puuahi Street, Suite 3
Hilo, Hawaii 96720
Phone (808) 961-8288
Fax (808) 961-8742

June 16, 2016

Mr. Roy Takemoto
PBR Hawai'i & Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, HI 96813-3484

Dear Mr. Takemoto:

SUBJECT: Pre-Environmental Assessment Consultation
Applicant: County of Hawai'i
Land Owner: State of Hawai'i
Project: East Hawai'i Organics Facility (EHOF)
TMK: (3)2-1-013:142, 160, 161 & 163, Waiakea, Hilo, Hawai'i

This is to acknowledge receipt of your May 4, 2016, letter requesting comments from this office regarding the proposed East Hawai'i Organics Facility on the subject parcels.

According to your submittal, the County of Hawai'i is proposing to establish a municipal composting operation at the EHOF. In the first year of operation, it will include acceptance of green waste and untreated wood pallets which will be processed and treated before distribution to the public as mulch. In a year or two of completion of the compost facility, the goal is to accept additional organic materials for composting, including food, paper and compostable plastics. In addition, EHOF will accept and process compostable organic materials from the West Hawai'i Organic Facility (WHOF). Mulch and compost will then be distributed free or sold by the selected contractor, to the greatest extent feasible.

Parcel 142, consisting of 40 acres, is under the control of the County of Hawai'i by State of Hawai'i Executive Order No. 3975 for Sanitary Landfill Purposes. Parcels 160, 161 and 163, each consisting of 13,333 acres, are owned by the State of Hawai'i. All four parcels are designated Agricultural by the State Land Use Commission and zoned Agricultural (A-20a) by the County of Hawai'i. The Hawai'i County General Plan Land Use Pattern Allocation Guide (LUPAG) Map designates the parcels as Important Agricultural Land. Finally, they are not in the Special Management Area (SMA).

www.co.hi/planningdept.com

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planning@hawaii-county.gov

JUN 17 2016

Mr. Roy Takemoto
PBR Hawai'i & Associates, Inc.
June 16, 2016
Page 2

We have the following comments to offer:

1. Identify the Hawai'i County department that is the proposing agency.
2. In the DEA, describe how the proposed use is consistent with the policies, standards, and courses of action of the County of Hawai'i General Plan, as amended in 2005, which includes, in part:
 - a. Environmental Quality, 4.3 Policies (d) "Encourage the concept of recycling agricultural, industrial, and municipal waste material."
 - b. Public Facilities – Health and Sanitation 10.5.2 Policies (h) "Encourage the full development and implementation of a green waste recycling program."
 - c. Land Use – Agriculture 14.2.2. Goals (a) "Identify, protect and maintain important agricultural lands on the island of Hawai'i"; and 14.2.3 Policies (i) "Ensure that development of important agricultural land be primarily for agricultural use."
3. According to the Hawai'i County Code, Chapter 25, Section 25-5-72, the proposed project, as presented, is not listed as a permitted use in the Agricultural District. Therefore, a Special Permit issued by the Windward Planning Commission is required for the proposed use. Also, Hawai'i Revised Statutes, Chapter 205-6(d) states that "Special permits for land the area of which is greater than fifteen acres or for lands designated as important agricultural lands shall be subject to approval by the land use commission." As the total area of the four parcels is 79.99 acres, a recommendation from the Windward Planning Commission would be forwarded to the State Land Use Commission for their consideration. Please note, however, that as operational details are provided, it could be determined to be a permitted use in the Agricultural District.
4. Special Permits (SPP) were issued for 3 of the subject parcels. SPP No. 929 for Parcel 160, SPP No. 930 for Parcel 161 and SPP No. 928 for Parcel 163 were approved to establish a quarry, stockpile and rock crushing operation. Condition No. 6 of each permit stated that "The life of this Special Permit shall be coterminous with the State Department of Land and Natural Resources Land License." According to our records, since Parcel 163's DLNR land license expired, SPP No. 928 has also expired. Therefore, describe how the proposed project will impact SPP No. 929 and SPP No. 930.

5. Also, discuss the impact of the proposed project on Executive Order No. 3975 for Sanitary Landfill Purposes on Parcel 142.

6. Plan Approval will be required for this project. According to Hawai'i County Code, Chapter 25, Zoning, Section 25-5-76(a), the minimum yards (setback) is 30 feet for front and rear yards, and 20 feet for side yards. Structures and buildings are not allowed to be constructed across the property lines.

Mr. Roy Takemoto
PBR Hawai'i & Associates, Inc.
June 16, 2016
Page 3

7. We note that the subject parcel is located within the 5-mile airport radius of the Hilo International Airport. As such, please contact the Hawai'i Department of Transportation, Airport Division for their review and comment, and include a discussion of airport hazards that may be related to the proposed development.

8. There is a possibility that the project site provides a potential habitat for the Hawaiian hoary bat, the Hawaiian hawk, the Hawaiian petrel, the Newell's shearwater, and the nēnē. As such, please contact the U.S. Fish and Wildlife Services for their comments.

Thank you for the opportunity to provide preliminary comments on the proposed project. Please provide our department with a copy of the DEA for our review and comment.

If you have questions, please feel free to contact Esther Imamura at (808) 961-8139.

Sincerely,


DUANE KANUHA
Planning Department

ETI:ja

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August 22, 2016

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Mr. Duane Kanuha, Director
County of Hawai'i, Planning Department
101 Pauahi Street, Suite 3
Hilo, Hawai'i 96720

SUBJECT: PRE-ASSESSMENT CONSULTATION FOR AN ENVIRONMENTAL ASSESSMENT FOR THE EAST HAWAII ORGANICS FACILITY, WAIAKEA HOMESTEADS, WAIAKEA, SOUTH HILO, HAWAII, TMK (3) 2-1-013: 142, 160, 161, and 163

Dear Mr. Kanuha:

Thank you for your letter dated June 16, 2016 regarding the East Hawai'i Organics Facility. As the planning consultant for the County of Hawai'i, we appreciate your participation in the environmental review process, and provide the following responses:

1. The proposing agency for this project is the County of Hawai'i Department of Environmental Management, Solid Waste Division. This information will be included in the environmental assessment.
2. The environmental assessment will describe how the proposed use is consistent with the County of Hawai'i General Plan's policies, standards and courses of action, including the policies and goals for Environmental Quality, Public Facilities for Health and Sanitation, and Agricultural Land Use.
3. The environmental assessment will describe the operations of the proposed facility as a public institution that is necessary for agricultural practices, and therefore a permitted use in the Agricultural District.
4. The environmental assessment will confirm that the licenses for the former quarries on parcels 160, 161, and 163 have all expired, consequently terminating the respective Special Permits for those parcels that are coterminous with the licenses.
5. The environmental assessment will discuss the status of E.O. No. 3975 for parcel 142, as well as the authorizations for the other parcels.
6. The environmental assessment will include a site plan, and assess whether a consolidation and resubdivision will be necessary to meet setback requirements. Plan Approval will be included in the list of required permits, as well as consolidation/resubdivision if necessary.
7. The Hawai'i Department of Transportation, Airports Division has been contacted. Their comments and requests will be included in the environmental assessment, as will our discussion of the relevant hazards and mitigation measures taken to minimize them.
8. We have contacted the U.S. Fish and Wildlife Service (USFWS). The

County of Hawai'i Planning Department
SUBJECT: PRE-ASSESSMENT CONSULTATION FOR AN ENVIRONMENTAL ASSESSMENT
FOR THE EAST HAWAII ORGANICS FACILITY, WAI'AKEA HOMESTEADS, WAI'AKEA,
SOUTH HILO, HAWAII, TMK (3) 2-1-013: 142, 160, 161, and 163
August 22, 2016
Page 2

USEFWS comment letter and a description of any planned mitigation
measures will be included in the environmental assessment.

Thank you again for your comments on this proposed project. Your letter will
be included in the Draft EA.

Sincerely,

PBR HAWAII



Roy Takemoto
Managing Director, Hilo

Cc: Department of Environmental Management

William P. Kenoi
Mayor



County of Hawai'i
POLICE DEPARTMENT
349 Kapi'olani Street • Hilo, Hawai'i 96720-3998
(808) 933-5311 • Fax (808) 961-2389

Harry S. Kubojiri
Police Chief

Paul K. Ferreira
Deputy Police Chief

May 19, 2016

PBR Hawai'i & Associates, Inc.
Attention: Mr. Roy Takemoto
1001 Bishop Street, Suite 650
Honolulu, HI 96813-3484

Dear Mr. Takemoto:

SUBJECT: PRE-ASSESSMENT CONSULTATION FOR AN ENVIRONMENTAL ASSESSMENT FOR THE EAST HAWAII ORGANICS FACILITY, WAIAKEA HOMESTEADS, WAIAKEA, SOUTH HILO, HAWAII, TMK: (3) 2-1-013: 142, 160, 161, AND 163

Staff, upon reviewing the provided documents, does not anticipate any significant impact to traffic and/or public safety concerns.

Thank you for allowing us the opportunity to comment.

If you have any questions, please contact Captain Richard Sherlock, S. Hilo District, at 961-2214.

Sincerely,

HENRY J. TAVARES, JR.
ASSISTANT POLICE CHIEF
AREA I OPERATIONS

RS:jjf
160321



August 22, 2016

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DACHENG DONG, LEED AP
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Associate

ATTN: Captain Richard Sherlock, South Hilo District

SUBJECT: PRE-ASSESSMENT CONSULTATION FOR AN ENVIRONMENTAL ASSESSMENT FOR THE EAST HAWAII ORGANICS FACILITY, WAIAKEA HOMESTEADS, WAIAKEA, SOUTH HILO, HAWAII, TMK (3) 2-1-013: 142, 160, 161, and 163

Dear Assistant Chief Tavares:

Thank you for your letter dated May 19, 2016, regarding the subject project. The environmental assessment will incorporate your input that your Department does not anticipate any significant impact to traffic and/or public safety concerns. Your letter will be included in the Draft Environmental Assessment (EA).

Sincerely,

PBR HAWAII

Roy Takemoto
Managing Director, Hilo

Cc: Department of Environmental Management

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August 22, 2016

Gerry Sagucio, Neighbor Island Section Manager
Network Engineering & Planning
Hawaiian Telcom
P.O. Box 2200
Honolulu, Hawaii'i 96841

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May 26, 2016

PBR HAWAII & Associates, Inc.
Attn: Roy Takemoto
1001 Bishop Street, Suite 650
Honolulu, HI 96813-3484

SUBJECT: PRE-ASSESSMENT CONSULTATION FOR AN ENVIRONMENTAL ASSESSMENT FOR THE EAST HAWAII ORGANICS FACILITY, WAIAKEA HOMESTEADS, WAIAKEA, SOUTH HILO, HAWAII, TMK (3) 2-1-013: 142, 160, 161 and 163

Dear Mr. Takemoto:

Thank you for providing Hawaiian Telcom Incorporated, the opportunity to comment on the Pre-Assessment Consultation for an Environmental Assessment for the East Hawaii Organics Facility in the district of Waiakea on the Island of Hawaii.

Hawaiian Telcom currently has a proposed project to place facilities on a future pole line that will pass to the west of this location to serve the County of Hawaii Mass Transit Agency Baseyard and Maintenance Facility located on TMK (3) 2-1-013: 148. Please include this into the assessment and advise us of any impacts to this project.

If there are any questions, please call Kelvin Watanabe at (808) 933-6413.

Sincerely,

Gerry Sagucio
Neighbor Island Section Manager
Network Engineering & Planning

C: K. Watanabe

Always on.™

PO Box 2200, Honolulu, HI 96841 hawaiiantel.com



August 22, 2016

Gerry Sagucio, Neighbor Island Section Manager
Network Engineering & Planning
Hawaiian Telcom
P.O. Box 2200
Honolulu, Hawaii'i 96841

SUBJECT: PRE-ASSESSMENT CONSULTATION FOR AN ENVIRONMENTAL ASSESSMENT FOR THE EAST HAWAII ORGANICS FACILITY, WAIAKEA HOMESTEADS, WAIAKEA, SOUTH HILO, HAWAII, TMK (3) 2-1-013: 142, 160, 161, and 163

Thank you for your letter dated May 26, 2016, regarding the subject project. As the planning consultant for the County of Hawaii'i, we appreciate your participation in the environmental review process.

The environmental assessment will include the information you provided that Hawaiian Telcom currently has a proposed project to place facilities on a future pole line that will pass to the west of the subject project to serve the County of Hawaii'i Mass Transit Agency (MTA) Baseyard and Maintenance Facility located on TMK (3) 2-1-013: 148. The Draft Environmental Assessment (EA) that we will send to you will note anticipated impacts and you will have an opportunity to comment. Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII

Roy Takemoto
Managing Director, Hilo

Cc: Department of Environmental Management