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STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
Ka 'Oihana 'Āina Ho'opulapula Hawai'i
P. O. BOX 1879
HONOLULU, HAWAII 96805

March 29, 2023

Mary Alice Evans, Director
State of Hawai'i
Office of Planning and Sustainable Development
Environmental Review Program (ERP)
235 S. Beretania Street, Room 702
Honolulu, Hawai'i 96813

ref: PO-23-058

SUBJECT: Draft Environmental Assessment and
Anticipated Finding of No Significant Impact (DEA-AFNSI)
Keaukaha Pana'ewa Farmers Association (KPFA)
Resiliency and Agricultural Innovation Hub Project
TMK: (3) 2-1-025:091

Dear Director Evans:

With this letter, the Department of Hawaiian Home Lands (DHHL) hereby transmits the DEA-AFNSI for the KPFA Resiliency and Agricultural Innovation Hub Project, located in Hilo, on the Island of Hawai'i, for publication in the March 31, 2023 edition of *The Environmental Notice*.

The Applicant's agent, G70, has uploaded an electronic copy of this letter and the DEA-AFNSI via the ERP's online submittal form.

Should you have any questions, please contact Kawika McKeague, AICP, G70 Principal through email at RAIH@g70.design or on the phone at 808-523-5866 if you have any questions.

Aloha,

Kali Watson

Kali Watson
Chairman

From: webmaster@hawaii.gov
To: DBEDT OPSD Environmental Review Program
Subject: New online submission for The Environmental Notice
Date: Friday, March 31, 2023 2:52:32 PM

Action Name

Keaukaha Panaʻewa Farmers Association - Resiliency and Agricultural Innovation Hub

Type of Document/Determination

Draft environmental assessment and anticipated finding of no significant impact (DEA-AFNSI)

HRS §343-5(a) Trigger(s)

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

Judicial district

South Hilo, Hawaiʻi

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

(3) 2-1-025:091

Action type

Applicant

Other required permits and approvals

State Historic Preservation Division Chapter 6E-42 and 6E-08; Various Site, Grading, Building and Infrastructure Permits

Discretionary consent required

To seek approval long-term lease with DHHL

Approving agency

Department of Hawaiian Home Lands

Agency contact name

Andrew Choy

Agency contact email (for info about the action)

andrew.h.choy@hawaii.gov

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Map It

Applicant

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Was this submittal prepared by a consultant?

Yes

Consultant

G70

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United States
Map It

Action summary

To further support local agricultural education and build community resilience, the Keaukaha Panaʻewa Farmers Association (KPFA) is developing the Resilience and Agriculture Innovation Hub project in Hilo, Hawaiʻi. This project involves the construction of six ADA accessible pavilions complete with one certified kitchen. The improvements proposed in this Environmental Assessment provide the community an opportunity to engage in sustainable farming practices, keiki and kūpuna care, and resilience before, during and after natural disasters. The project will also house farming, and debris removal equipment as well as educational materials to support KPFA's operations in agricultural education, and community resiliency.

Reasons supporting determination

For reasons supporting determination, please see the Significance Criteria discussion located in "Chapter 6: Findings Supporting the Anticipated Determination" of the Draft Environmental Assessment.

Attached documents (signed agency letter & EA/EIS)

- DHHL-Signed-Agency-Letter-PO-23-058-DEA-AFNSI-KPFA-Resiliency-and-Agricultural-Innovation-Hub-Project.pdf
- DEA-AFNSI_KPFA-RAIH_032023_Compiled.pdf

Action location map

- Keaukaha-Panaewa-Farmers-Association_Resiliency-and-Agricultural-Innovation-Hub_ProjectSiteandActionMap.zip

Authorized individual

Kialoa Mossman

Authorization

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

KEAUKAHA PANAʻEWA FARMERS ASSOCIATION RESILIENCY AND AGRICULTURAL INNOVATION HUB

PRELIMINARY DRAFT ENVIRONMENTAL ASSESSMENT

Waiākea, Island of Hawaiʻi, Hawaiʻi

Tax Map Key: (3) 2-1-025:091

PETITIONER/APPLICANT:

KPFA

KEAUKAHA PANAʻEWA FARMERS ASSOCIATION

PREPARED BY:

G70
111 S. King Street, Suite 170
Honolulu, Hawaiʻi 96813

March 2023

KEAUKAHA PANAʻEWA FARMERS ASSOCIATION RESILIENCY AND AGRICULTURAL INNOVATION HUB

Waiākea, Island of Hawaiʻi, Hawaiʻi

Tax Map Key: (3) 2-1-025:091

Preliminary Draft Environmental Assessment

Applicant:

Keaukaha-Panaʻewa Farmers Association
P.O. Box 6844
Hilo, HI 96720

Approving Agency:

HAWAIIAN HOME LANDS
HAWAIIAN HOMES COMMISSION · DEPARTMENT OF HAWAIIAN HOME LANDS

Department Of Hawaiian Home Lands
91-5420 Kapolei Pkwy,
Kapolei, HI 96707

Prepared By:

111 S. King Street, Suite 170
Honolulu, Hawaiʻi 96813

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

March 2023

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Acronyms and Abbreviations

AEC	Alternate Emergency Coordinator
ARS	Archaeological Reconnaissance Survey
BMPs	Best Management Practices
CARW	Communities at risk from wildfires
CIA	Cultural Impact Assessment
CO	Carbon Monoxide
CoH-DWS	Department of Water Supply, County of Hawai‘i
CoH-FD	Hawai‘i County Fire Department
CoH-Planning	Planning Department, County of Hawai‘i
CoH-PD	Hawai‘i County Police Department
County	County of Hawai‘i
CTAHR	College of Tropical Agriculture and Human Resources
CWRM	Commission on Water Resource Management
dBA	Decibels
DBEDT	Department of Business, Economic Development & Tourism
DHHL	Department of Hawaiian Home Lands
DLNR	Department of Land and Natural Resources, State
DoD	Department of Defense, State
DOE	Department of Education, State
DOH	Department of Health, State
DOH-CAB	Clean Air Branch
DOI	Department of Interior
DOT	Department of Transportation, State
DPG	Disaster Preparedness Group
DPW	Department of Public Works
DPW-TD	Department of Public Works Traffic Division
DTS	Department of Transportation Services. City
EA	Environmental Assessment
EAS	Emergency Alert System
EMS	Emergency Medical Services, City
EOC	Emergency Operations Center

EPA	U.S. Environmental Protection Agency
ESCP	Erosion and Sediment Control Plan
FEMA	Federal Emergency Management Agency
FH	Fire Hydrants
FIRM	Floor Rate Insurance Map
FONSI	Finding of No Significant Impact
GAT	Great Aleutian Tsunami
GHG	Greenhouse gas
GPD	Gallons Per Day
HAR	Hawai‘i Administrative Rules
HCCA	Hawaiian Homes Commission Act
HCCDA	Hawai‘i County Civil Defense Agency
HCL	Hydrochloric Acid
HDOA	Hawai‘i Department of Agriculture
HDOT	Hawai‘i Department of Transportation
HELCO	Hawaiian Electric Company
HEPA	Hawai‘i’s Environmental Protection Act
HI-EMA	Hawai‘i Emergency Management Agency, State
HRS	Hawai‘i Revised Statutes
HVO	Hawai‘i Volcano Observatory
IAM	Infrastructure Assessment Memo
IBC	International Building Code
ICAC	Interagency Climate Adaptation Committee
IWS	Individual Wastewater System
KMR	Keaukaha Military Reserve
KPCA	Keaukaha-Pana‘ewa Community Alliance
KPFA	Keaukaha-Pana‘ewa Farmers Association
LCA	Land Commission Awards
LFA	Little Fire Ant
LUO	Land Use Ordinance
MGD	Million gallons per day
Mph	Miles per hour
MSL	Mean Sea Level
NCSS	National Cooperative Soil Survey

NIMS	National Incident Management System
NO_2	Nitrogen Dioxide
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NWS	National Weather Service
OEQC	Office of Environmental Quality Control, State
PCS	Public Charter School
PGA	Peak ground acceleration
PM	Particulate Matter
Project	Resiliency and Agriculutral Inovation Hub
PTAR	Preliminary Traffic Assessment Report
PTWC	Pacific Tsunami Warning Center
RAIH	Resiliency and Agriculutral Inovation Hub
ROD	Rapid ʻŌhiʻa Death
ROW	Right of Way
SAAQS	Station Ambient Air Quality Standards
SDC	Seismic Design Category
SDWB	Safe Drinking Water Branch
Sea Grant	UH Sea Grant College Program
sf	Square feet
SFHA	Special Flood Hazard Area
SHPD	State Historic Preservation Division
SLR	Sea level rise
SLRXA	SLR Exposure Area
SMA	Special Management Area
SO_2	Sulfur dioxide
SO_4	Sulfate
State	State of Hawaiʻi
SWP	State Warning Point
SWMP	Solid Waste Management Plan
TMK	Tax Map Key
UHH	University of Hawaiʻi at Hilo
UIC	Underground injection control
USDA	United Stateds Department of Agriculture

USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VOG	Volcanic Gasses
VPH	Vehicles Per Hour
WMD	Weapons of Mass Destruction
WUI	Wildland Urban Interface
WWB	Wastewater Branch
WWTP	Wastewater Treatment Plant
XTEZ	Extreme Tsunami Evacuation Zone

Chapter 1

Introduction

Chapter 1

Introduction

1.1 Project Information Summary

Type of Document:	Draft Environmental Assessment
Project Name:	KPFA Resiliency and Agricultural Innovation Hub
Applicant:	Keaukaha Pana‘ewa Farmers Association P.O. Box 6844 Hilo, HI 96720 Contact: Maile Lu‘uwai
Approving Agency:	State of Hawai‘i (State) Department of Hawaiian Home Lands (DHHL) 91-5420 Kapolei Parkway Kapolei, Hawai‘i 96707
Agent:	G70 111 S. King St., Suite 170 Honolulu, HI 96813 Contact: Mark Kawika McKeague, AICP, Principal Email: raih@g70.design
Ch. 343, HRS Trigger:	HRS §343-5(a)(1), Use of State Lands and/or Funds
Project Address:	363 Railroad Ave. Hilo, Hawai‘i 96720
Tax Map Key (TMK) and Record Fee Owner:	(3) 2-1-025:091; DHHL *(Figure 1.1)*
TMK/Project Area:	10.633 acres
DHHL Land Use:	Commercial *(Figure 1.2)*
State Land Use District:	Urban District (U) *(Figure 1.3)*
County of Hawaii Zoning:	MG-1a, General Industrial District (*Figure 1.4*)
Special Management Area (SMA):	Not located in SMA
FEMA Flood Zone:	FIRM Zone X *(Figure 1.5)*

Tsunami Zone:	Not within Tsunami Zone *(Figure 3.4)*
Determination:	Anticipated Finding of No Significant Impact (AFONSI)

1.2 Project Overview

The Keaukaha Pana'ewa Farmer's Association (KPFA) is proposing to undertake the "KPFA Resiliency and Agricultural Innovation Hub" (Project/Proposed Action), which involves the construction of a new Resiliency and Agricultural Innovation Hub (RAIH).

The Project is proposed to be developed on an approximately 10.63-acre parcel (Project Site/Site) identified by Tax Map Key (TMK): (3) 2-1-025:091, located at 363 Railroad Avenue in Hilo on the island of Hawai'i. The parcel is owned by the DHHL. See *Figure 1.1.*

1.3 Executive Summary

The RAIH will be situated on land that KPFA currently has an ROE for. KPFA is a group formed by Native Hawaiians in Keaukaha who lost their homes in Keaukaha and were forced to relocate from Keaukaha to Pana'ewa due to the construction of the Hilo International Airport. The organization represents over 1,000 native Hawaiian farmers that reside on Hawaiian Homes Trust Lands and their mission is to support, motivate, and educate area farmers and lessees to establish a viable and sustainable farm community; preserve Hawaiian culture; achieve self-sufficiency, pono management, and respect for 'āina. In October of 2021, a design charrette was conducted for the area of the RAIH project (Project) to better understand KPFA's collective vision for the structure. The Project will serve as a community gathering space that will have the capacity to hold a certified kitchen for processing & storing produce and other farm products, and a space for kūpuna care (adult care) complete with accessible bathrooms and facilities. This Project will serve as an agri-educational facility that would use the the built structures to gather, teach and learn about agriculture and how to grow in a polyforest system. Lastly, the Project will serve as a reseliency hub and shelter for community members before, during and after natural disasters. The space and programs that could be offered through the Project could allow for training during natural disaster and emergency events, and the large clearing machinery that will be housed at the Project Site will assist in clearing debris from roadways and residences, and could help community members through the recovery process by creating spaces for home gardening and food self-sufficiency.

1.4 Basis for Environmental Review

This Project triggers a need for an environmental review under Hawai'i Revised Statutes (HRS) §343-5(a)(1), as it proposes the use of State land and funds due to the need to acquisition a lease with DHHL Therefore, this Draft Environmental Assessment (EA) has been prepared in accordance with the requirements of HRS Chapter 343, and Hawai'i Administrative Rules (HAR) Chapter 11-200.1.

This Draft EA is presented in eight chapters and includes the following: a description of the Project; a list of necessary permits/approvals; a description of the existing environment, potential impacts and proposed mitigation measures on identified natural, cultural, and socioeconomic resources; a description of alternatives; a discussion of the Project's relationship to land use plans and policies; findings supporting the determination; a list of stakeholders who participated in the consultation of the Final EA; and a list of references.

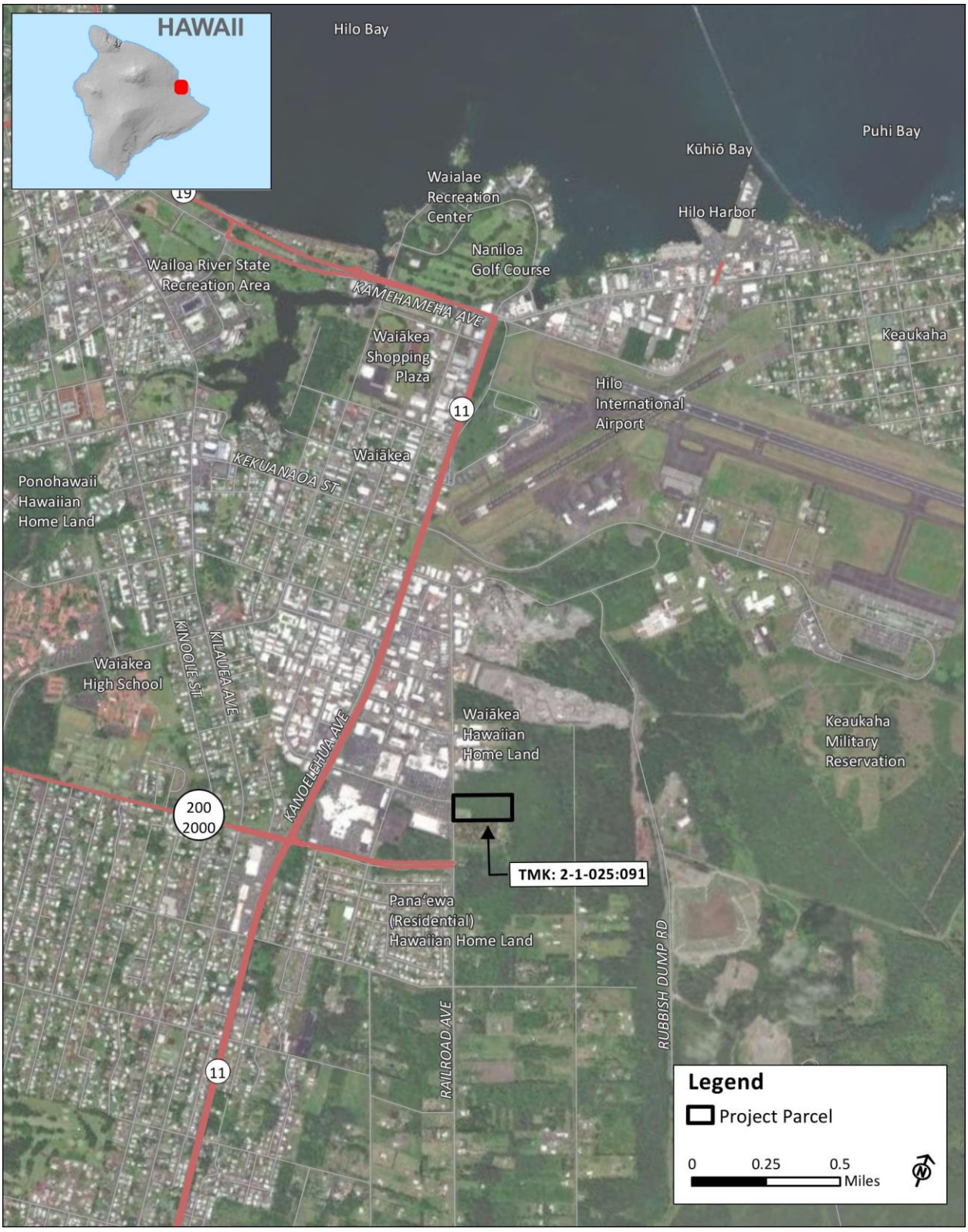

Figure 1.1 **Project Location and Tax Map Key**

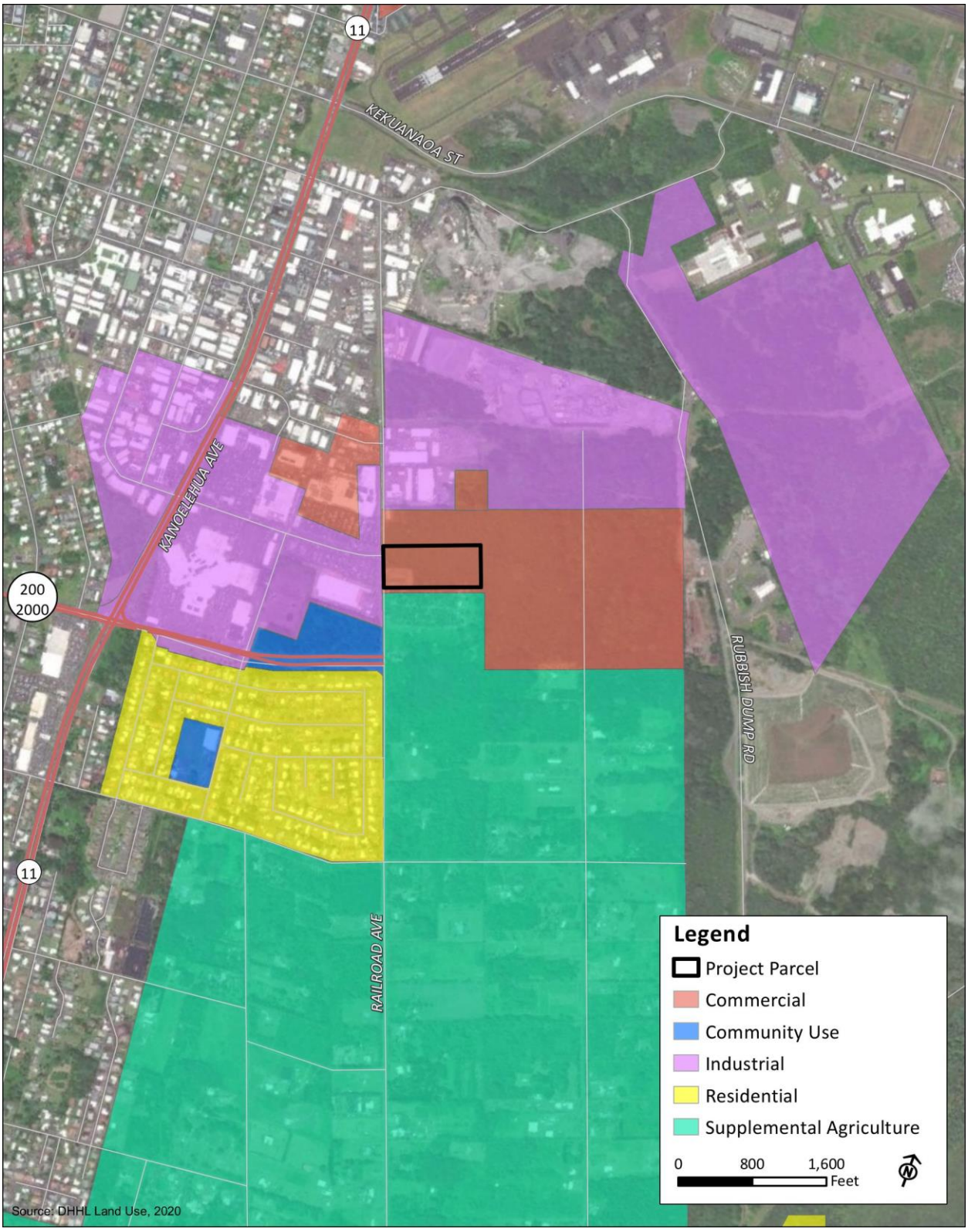

Figure 1.2 **DHHL Land Use Districts**

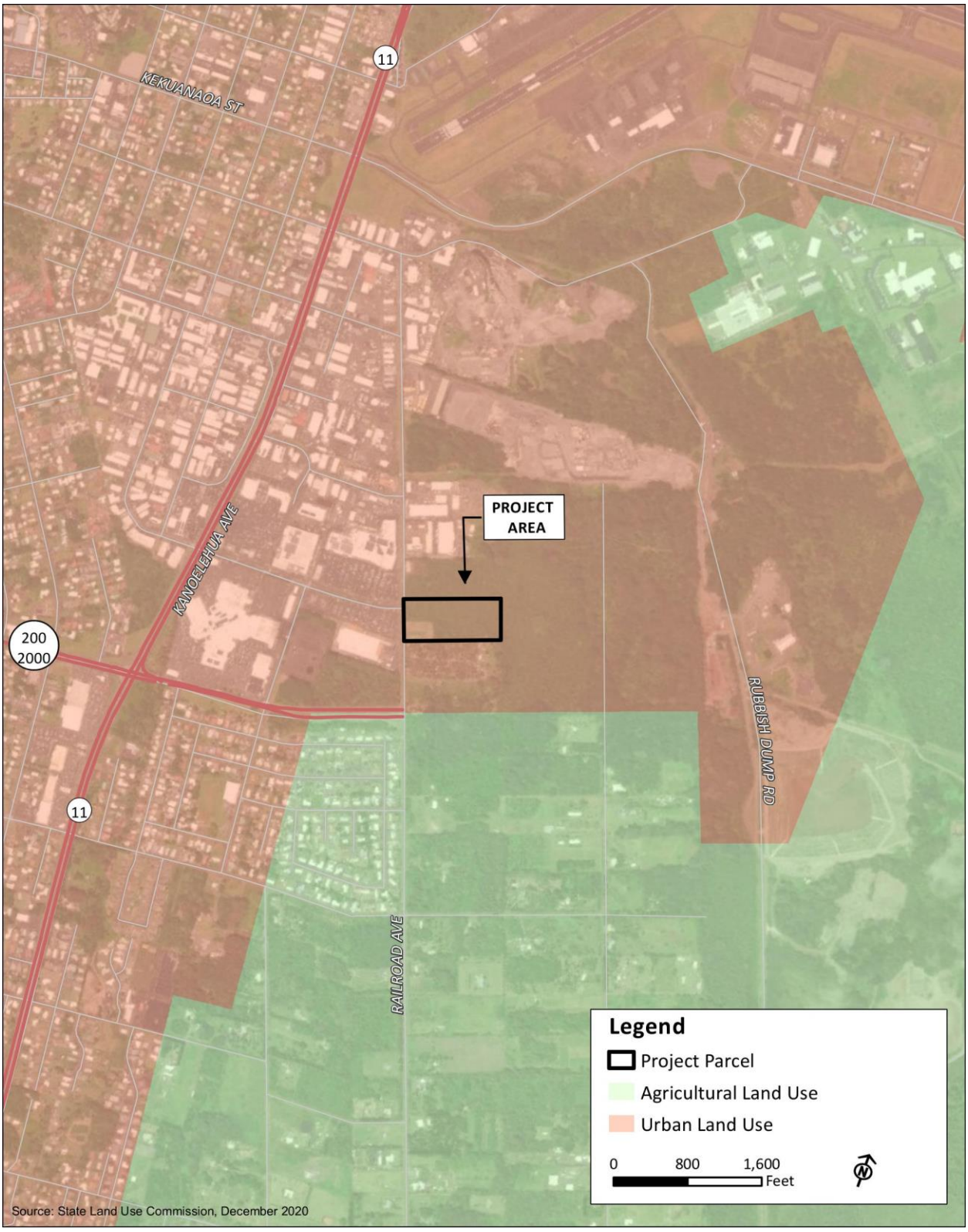

Figure 1.3 **State Land Use District Classification**

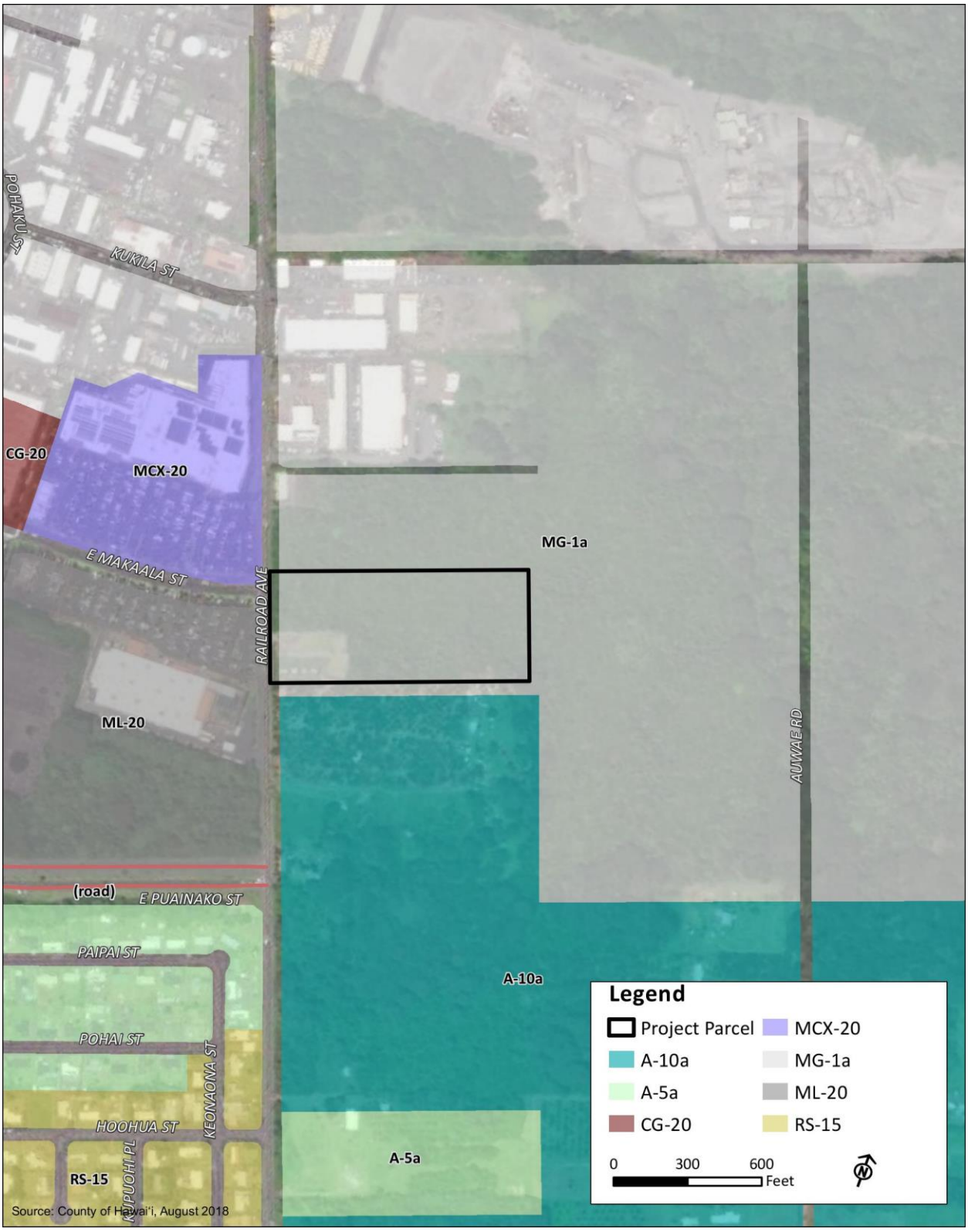

Figure 1.4 **Hawai'i County Zoning Districts**

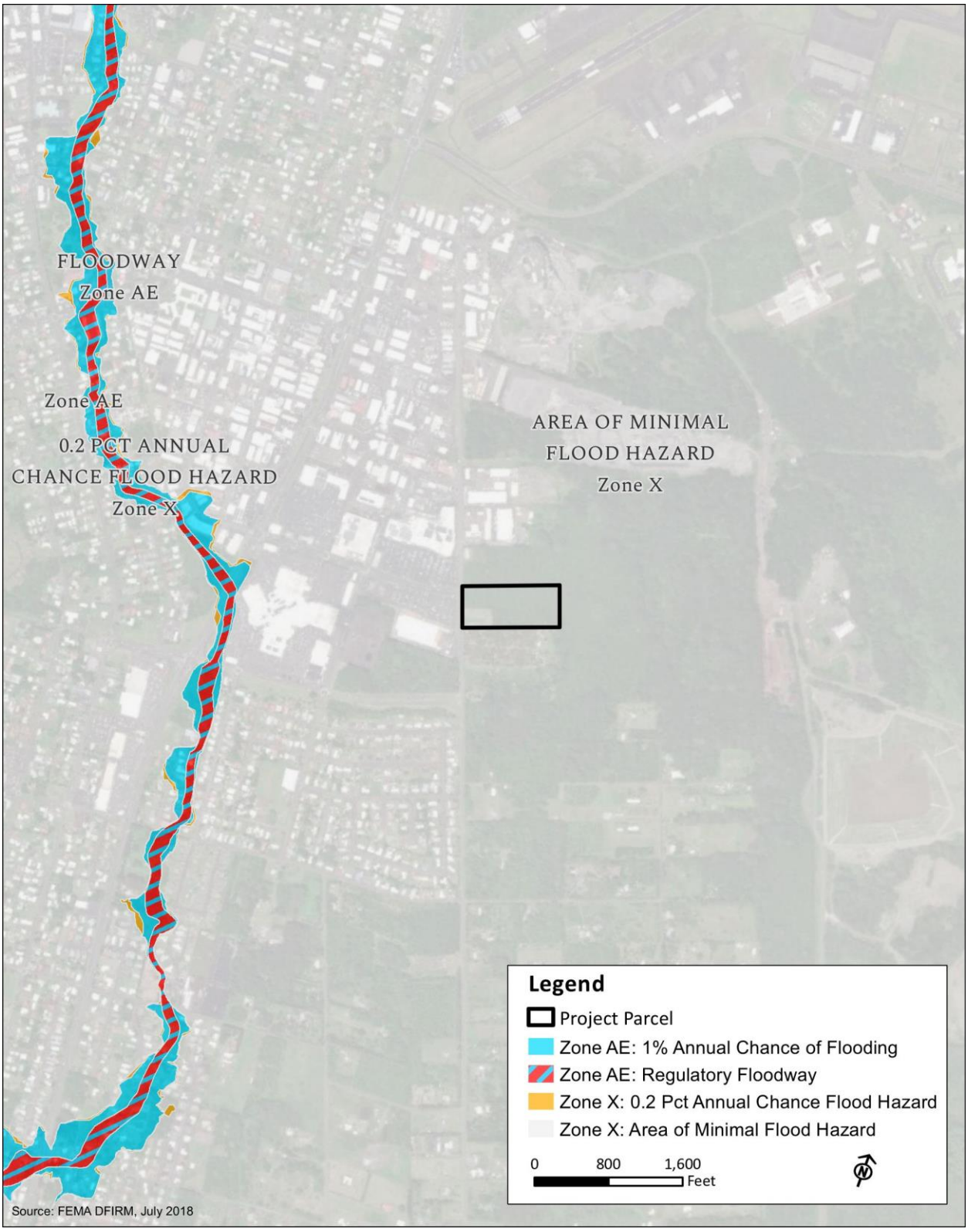

Figure 1.5 **Flood Zones**

Chapter 2

Description of the Proposed Action

Chapter 2

Description of the Proposed Action

This chapter provides the history and existing uses of the property and surrounding areas. An overview of the planned programs and facilities is provided in further detail.

2.1 Project Background

The Keaukaha Hawaiian Homestead was the first residential homestead developed on Hawai‘i Island in 1921. In 1976, the Keaukaha Pana‘ewa Homestead was established. The first agricultural land awards for this homestead were awarded to fifty Keaukaha Native Hawaiians, who were forced to relinquish their homes and relocate due to the construction of the Hilo International Airport.

The Keaukaha Pana‘ewa Farmers Alliance (KPFA) was established to serve Keaukaha Pana‘ewa Homestead lessees on State of Hawai‘i Department of Hawaiian Home Lands (DHHL) agricultural Hawaiian Home Lands in Pana‘ewa. KPFA is a Hawaiian Homes Commission Act (HHCA) Beneficiary Association managed by beneficiaries, as defined by the Hawaiian Home Land Recovery Act, 109 §537, and is registered with the U.S. Department of the Interior (DOI), per 43 CFR §47.10 and 48.6.

KPFA’s mission is to “support, motivate, and educate Keaukaha Pana‘ewa agricultural lessees to establish a viable, sustainable farm community; preserve Hawaiian culture; achieve self-sufficiency; and strengthen pono management and respect for the ‘āina.” KPFA is organized to encourage, promote, and support all agricultural activities pertinent to the Pana‘ewa farm lot homestead lessees and their ‘ohana, and all other Hawaiians on the waiting list for Pana‘ewa agricultural homestead leases.

In 2012, KPFA incorporated the Keaukaha Pana‘ewa Community Alliance (KPCA) to serve as KPFA’s non-profit 501(c)(3) partner and fiscal sponsor, for DHHL community benefit funds, private, state, and federal grants. KPCA is operated exclusively for the exempt purposes set forth in its articles of incorporation.

KPFA provides programs for beneficiaries at the Project site. KPFA has secured grants and established partnerships to provide agricultural and community workshops and resources, to beneficiaries and their ‘ohana. *Table 2.1* lists and describes the expanded KPFA programs offered during 2017-2022. For a complete list of KPFA programs offered since 2017, see *Appendix D*.

Table 2.1 KPFA Programming (2017-2022)	
Program	**Description**
Pana‘ewa Farmers Market	Provides local vendors an opportunity to sell locally grown produce and products to the community. Held every Saturday throughout the year from 6am-10am.
Hydroponics	Growing in and maintaining KPFA hydroponic system. Held on every Wednesday and Saturday throughout the year.
Ho‘oulu ‘Āina Project (HACP)	Supported by the Pawanka Fund, an Indigenous Ways of Learning and Knowing Fund, HACP was created by members of KPFA to address strategic needs of the Keaukaha and Pana‘ewa farming community. It encourages Native Hawaiian homesteaders in Keaukaha and Pana‘ewa to actively farm for the cultural, economic, health, and self-sufficiency benefits that farming provides for individuals and families. It also aims to document oral histories and farming practices of Hawaiian homesteaders. Topics include, but are not limited to: agroforesty systems, ‘awa propogation, composting, grafting, grow your own la‘au lapa‘au (medicine), history of DHHL, moon phases, as well as conversations with kūpuna (elders) in the area.
Community Food and Care Distribution	Kūpuna food and hygiene bags, 1,624 COVID kits, meals, hydroponic products and pot systems, pots and seedling trays, and plants (‘uala, huli, kalo, kou, kupukupu, leafy green starts, lemongrass, ma‘o hau hele, māmaki, niu, uhi, ‘ala‘alawainui, green onion, chives, miniature pomegranate, peace lily, cilantro).
Workshops (Various)	In addition to workshops provided by HACP, additional workshops include CPR training, mural painting, and forums regarding plants and farming practices.
Volunteer Work Days	Days specialized for beneficiaries and community members to engage with the ‘āina on KPFA land. Work can range from distributing plants, weeding and caring of KPFA grounds, general maintenance, trash collection, and construction of nursery tables.
Huaka‘i	Travel to various on- and off-island farms and cherished places, such as Humu‘ula, Hawai‘i and Moloka‘i.

2.2 Project Site Location and Existing Land Use

The Project site is on a 10.63 acre property, identified as Tax Map Key (TMK) parcel (3) 2-1-025:091, owned by the DHHL. The Project is located on 363 Railroad Avenue in Hilo, within the Pana‘ewa ‘ili, the Waiākea ahupua‘a, on the island of Hawai‘i. See *Figure 2.1*.

The parcel is bordered by forested lands to the north, south, and east, and by industrial uses to the west. The Project site is near Home Depot, Target, Safeway, and the Prince Kūhio Plaza. The parcel is located within the “Urban” State Land Use District and is zoned as MG-1a General Industrial District by the County of Hawai‘i. The DHHL land use designation is “Commercial,” which are lands suitable for a concentration of commercial activities. The Project is not located within the Special Management Area (SMA) or within the Tsunami Evacuation Zone.

The KPFA currently manages the Pana‘ewa Farmers Market on one acre of the Project area; the remainder of the parcel is forested. The Project site currently has a grassy parking lot, three metal tents under which house three to four planter boxes. The Project site is operated under a Right-Of-Entry Permit No. 482 between fiscal sponsor KPCA and DHHL.

Figure 2.1 **Ahupuaʻa Map**

2.3 Description of the Proposed Action

The proposed Project involves the construction of the Resiliency and Agricultural Innovation Hub (RAIH), in accordance with the KPFA Conceptual Master Plan (See *Figure 2.2*). The RAIH will consist of six modular, open pavilions, designed as flexible spaces that will accommodate a range of KPFA programming:

- The first pavilion will serve as a central gathering place for kūpuna/keiki engagement activities, ʻohana gatherings, and workshops.
- The second pavilion will contain a commercial certified kitchen, restrooms, storage, office, and conference rooms. An outdoor imu facility will be located in close proximity to this pavilion.
- The third and fourth pavilion will be warehouses used for farm equipment storage.
- The fifth and sixth pavilions will be used as spaces for educators to host programming.

The pavilions will be connected by an elevated lanai, a protected indoor-outdoor deck, that provides additional programming space and mobility between the pavilions. The pavilions will be centered around a central piko, or mound. The piko will function as an open space for amphitheater and stepped seating and will serve as a central location for demonstration activities such as hula, kilo hōkū, kilo honua, lāʻau lapaʻau, and hoʻokani pila. The grounds surrounding the RAIH will be utilized for a playground, parking and circulation, and agricultural demonstration areas. The Project components will be orientated to maximize views of Mauna Kea and Mauna Loa. The Project components and associated footprints are listed in *Table 2.2*.

Table 2.2 Project Components

Component	Footprint (sf)
Agriculture	152,460
Central Mound	700
Lifted Lanai (Covered, Open-Air)	8,000
Parking #1 • 70 Stalls (Standard + ADA) • Two (2) Drop-Offs	30,000
Parking #2	3,000
Gathering Pavilion	3,570
Commercial Certified Kitchen	3,630
Imu Facility (Outdoor)	1,300
Restrooms	1,160
Office	950
Conference Room	835
Storage (Energy and Water Storage)	1,110
Equipment Storage/Warehouse	2,200
2nd Equipment Storage	835
Kipuka Pavilion	1,900
Total	*211,650 (4.8 acres)*

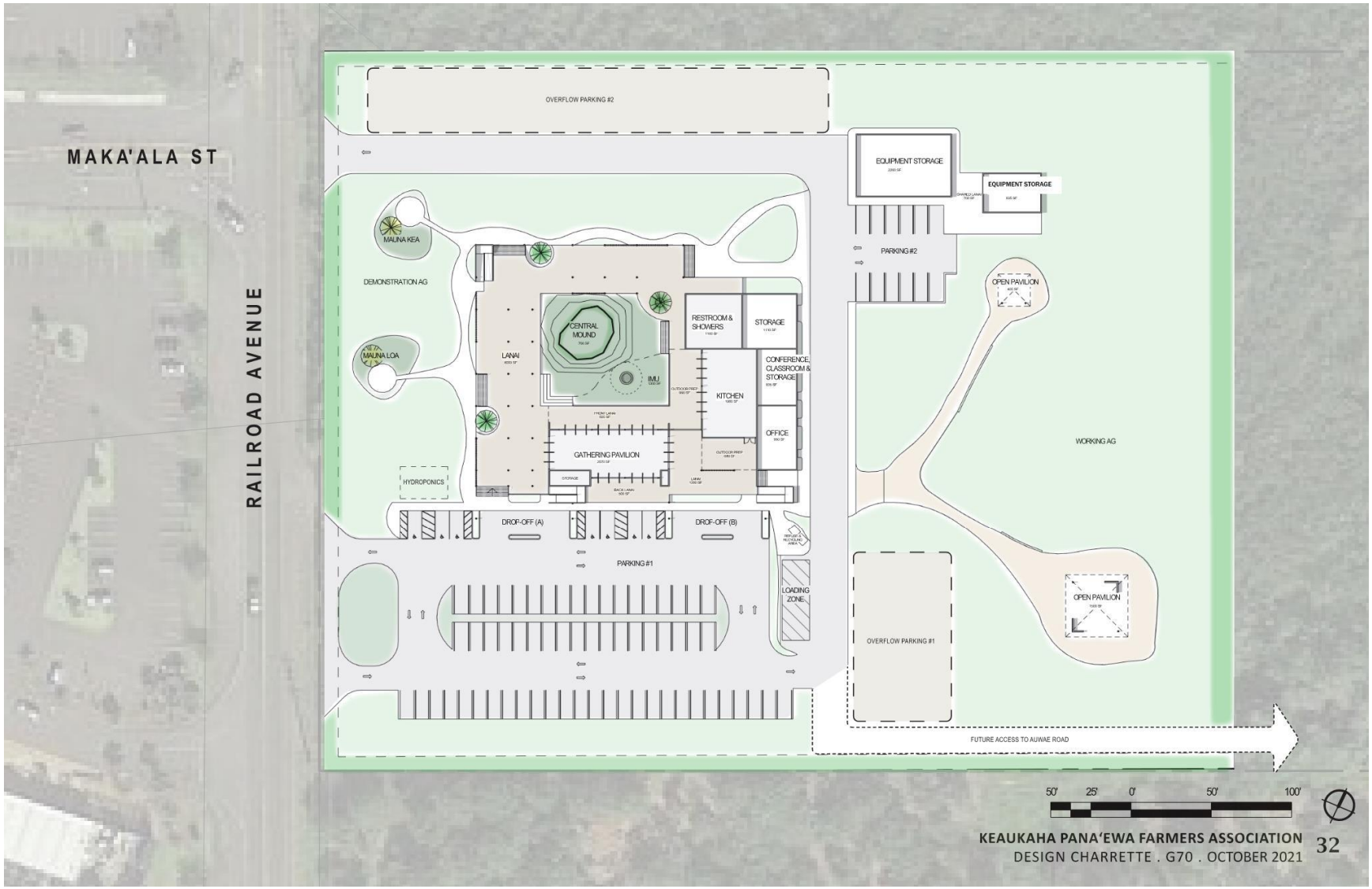

Figure 2.2 **RAIH Conceptual Plan**

2.4 Project Purpose and Need

The RAIH will serve two purposes. First, in accordance with KPFA's community-driven strategic plan, the RAIH will be their own "space and place;" a community-serving facility with a commercial kitchen and facilities for keiki to kūpuna programming, agricultural training; and include an agricultural demonstration area to support 'ohana enrichment, community economic sustainability, and economic food security. Second, the RAIH will support the community, coordinate communication and resources, and ensure that the physical and social needs will be met in preparation of, during, and post-recovery of a natural disaster or pandemic-related event.

The Hawaiian Islands have historically been subjected to a variety of environmental hazards. Changes in the Earth's climate are predicted to increase the intensity and frequency of extreme weather events in the future, further increasing the risks of a major disaster event. As an isolated island in the Pacific, evacuation to a neighboring state to escape impact or seek shelter is not an option. If Hawai'i's airports or harbors are significantly damaged, access to assistance and supplies could be delayed. In this event, it is projected that individuals and families must rely on a minimum of two weeks of their own emergencies supplies and resources. A high hazard exposure, coupled with physical and social vulnerabilities, underscores the necessity to anticipate and prepare for future disaster events.

Vulnerability, in the disaster context, is a person's or group's capacity to anticipate, cope with, resist, and recover from the impact of a hazard. The elderly and the least advantaged often suffer the greatest disaster losses and have the most limited access to public and private recovery assets. Socioeconomically disadvantaged individuals often lack access to the knowledge and resources to engage in self-protective activities. Education and literacy can also influence access to information on disaster risks and risk-education measures. Considering the historic marginalization of Native Hawaiians, the KPFA must take proactive measures to protect vulnerable individuals and strengthen community resilience.

As defined by the Urban Sustainability Directors Network (USDN), Resilience Hubs are community-serving facilities that coordinate resource distribution and services before, during, or after a hazard event. They are intended to equitably enhance community resilience while improving local quality of life. They are a smart local investment with the potential to reduce burden on local emergency response teams, improve access to health improvement initiatives, foster greater community cohesion, and increase the effectiveness of community-centered institutions and programs. Services that resilience hubs offer include:

- Community center and gathering space
- Off-grid solar power
- Clean water (storage and access)
- Energy Storage (batteries/fuel tanks)
- Storage for emergency equipment (food, water, ice, medical supplies, generators, fuel, maps, tools, portable water tanks)
- Community gardens and farming resources
- Emergency communication systems (HAM radio)
- Temporary medical center
- Risk reduction and disaster training

Disaster management is comprised of four components: Preparation, Response, Recovery, and Mitigation. Resilience hubs provide community benefit during all four stages of disaster management. By building capacity before a disaster, resilience hubs prepare the community for quick response after an event, aid in the recovery process, and strengthen the community in mitigating future disasters.

2.5 Preliminary Schedule and Costs

The preliminary construction schedule and construction costs will be based on a phased construction plan after design plans are completed and reviewed by KPFA.

2.6 Required Permits and Approvals

The Federal, State and County permits and approvals that will likely be required for the Project are listed below in *Table 2.3.*

Table 2.3 List of Anticipated Government Permits and Approvals

Permit or Approval	Approving Agency
Clean Water Act, Informal Jurisdictional Determination	U.S. Army Corps of Engineers
HRS Chapter 343, Environmental Assessment	State of Hawai'i (State), Department of Hawaiian Home Lands, Hawaiian Homes Commission
HRS Chapter 6E Compliance	State, DLNR, State Historic Preservation Division
HAR Chapter 11-55, National Pollutant Discharge Elimination System Permits	State, Department of Health (DOH), Clean Water Branch
Construction Plan Review	State, DOH, Disability and Communication Access Board
HAR Chapter 11-46, Noise Permit	State, DOH, Indoor and Radiological Health Branch
Permit to Excavate Public Right-of-Way	State, Department of Transportation
Sewage Connection	County of Hawai'i
Building Permits for Building, Electrical, Plumbing, Sidewalk/Driveway, and Demolition Work	County of Hawai'i
Grubbing, Excavation, Grading, and Stockpiling	County of Hawai'i
Permit to Excavate Public Right-of-Way	County of Hawai'i
Water Use Permit	County of Hawai'i

2.7 Consultation Summary

Listed below are the Federal, State and County agencies, elected officials, organizations, community leaders and individuals who were engaged during the early consultation period and who will receive notification of the publication of the Draft EA. For more information, see *Chapter 7.*

Federal Agencies

- U.S. Department of the Interior, Geological Survey
- U.S. Fish and Wildlife Service (USFWS) – Pacific Islands Fish and Wildlife Office

- U.S. Department of the Interior, National Parks Service
- U.S Department of Agriculture, National Resources Conservations Service
- Federal Emergency Management Agency, Region 9 Office
- U.S. National Oceanic Atmospheric Administration

State of Hawai'i Agencies

- Department of Accounting and General Services
- Department of Business, Economic Development & Tourism (DBEDT) – Office of Planning
- Department of Agriculture
- Department of Business, Economic Development & Tourism (DBEDT)
- Department of Health (DOH)
- Department of Health (DOH) – Clean Water Branch
- Department of Health (DOH) – Wastewater Branch
- Department of Health (DOH) – Clean Air Branch
- Department of Land and Natural Resources (DLNR) – Land Division
- Department of Land and Natural Resources (DLNR) – Engineering Division
- Department of Land and Natural Resources (DLNR) – Land Division, Hawai'i District
- Department of Land and Natural Resources (DLNR) – State Historic Preservation Division
- Department of Transportation (DOT)
- Office of Hawaiian Affairs (OHA)
- Department of Defense (DoD)
- Hawai'i Emergency Management Agency
- Office of Planning and Sustainable Development

County of Hawai'i Agencies

- County of Hawai'i Department of Water Supply (DWS)
- Hawai'i County Civil Defense Agency (HCCDA)
- County of Hawai'i Environmental Management
- Department of Parks and Recreation
- Department of Parks and Recreation: Culture & Education
- Department of Parks and Recreation: Elderly Activities Division
- County of Hawai'i Planning Department
- Department of Transportation Services

- County of Hawai‘i Planning Department : Douglas Le (Recovery Officer)
- County of Hawai‘i Planning Department : Garrett Smith (Recovery & Redevelopment Manager)
- Department of Public Works: Building Division
- Department of Public Works: Traffic Division
- County of Hawai‘i Police Department (CoH-PD)
- County of Hawai‘i Fire Department (CoH-FD)
- Office of the Mayor

Elected Officials

- U.S. Representative Jill Tokuda, Second Congressional District
- Senator Lorraine R. Inouye – State Senate District
- Senator Joy A. San Buenaventura- State Senate District
- Representative Chris Todd – State House District
- Representative Richard H.K. Onishi- State House District
- County Councilmember Susan “Sue” L. K. Lee Loy- Hawai‘i County Council District 3
- OHA Hawai‘i Island Trustee Mililani Trask

Libraries

- Hawai‘i State Library Hawai‘i Documents Center
- Hilo Public Library

Utilities

- Hawaiian Electric Company

Medical Services

- Hilo Medical Center
- Queen’s Health Care: Hilo Specialty Care
- Maika‘i Health
- Hawai‘i Island Community Health Center: Hilo
- Big Island Healthcare
- Bay Clinic, Inc.: Hilo Clinic
- East Hawai‘i Health Clinic

Schools

- Kamehameha Schools
- Hilo High School
- Kea‘au High School
- Ke Kula ‘o Nāwahīokalani‘ōpu‘u Lab Public Charter School
- Kua o ka Lā Public Charter School
- Ka ‘Umeke Kā‘eo Public Charter School
- Waiākea High School
- University of Hawai‘i at Hilo (UHH): Environmental Health & Safety Office
- University of Hawai‘i at Hilo (UHH): College of Agriculture, Forestry & Natural Resource Management
- University of Hawai‘i at Hilo (UHH): Facilities Planning & Construction
- University of Hawai‘i at Hilo (UHH): Institutional Research Office
- Hawai‘i Community College: Tropical Forest Ecosystem and Agroforestry Management Program Faculty: Orlo Steele
- Hawai‘i Community College: Tropical Forest Ecosystem and Agroforestry Management Program Faculty:Pamela Scheffler
- Hawai‘i Community College: Agriculture Program Faculty: Lew Nakamura
- Keiki o ka ‘Āina

Chapter 3

Environmental Setting, Potential Impacts, and Mitigation Measures

Chapter 3

Environmental Setting, Potential Impacts, and Mitigation Measures

The environmental setting, potential impacts and mitigation measures for the KPFA RAIH serving East Hawai‘i are addressed in the sections below.

3.1 Climate, and Climate Change

Existing Conditions

Climate

The Project site is located in Pana‘ewa amongst low land rain forests and urban structures, in the ahupua‘a of Waiākea, South Hilo district, on the east side of Hawai‘i. The climate in the Project area is characterized as semi-tropical – influenced by Hawai‘i’s geographic location southwest of the Pacific High region – with consistent year-round temperatures, and moderate humidity. The Project site experiences an average annual rainfall of 135.05 inches, with the highest precipitation occurring between the months of November through April, see *Figure 3.1* (University of Hawaii, 2011). The Project area experiences an average temperature of 72.7 degrees Fahrenheit (Giambelluca et al., 2014). The prevailing northeasterly trade winds are persistent, and generally blow 10 to 20 miles per hour (Fletcher et. al., 2002). During Kona weather conditions in the summer, trade wind circulation breaks down and light and variable winds blow from a southerly direction.

Climate Change and Sea Level Rise

Rapid anthropogenic climate change is a well-established fact within the scientific community. As a result of climate change, oceans are warming and acidifying, ice sheets and glaciers are melting, and sea levels are rising (SLR), due to an increase of greenhouse gasses in Hawai‘i’s atmosphere that trap heat in the atmosphere (HCCDA, 2020). Rising sea levels and high-water levels caused by storms will leave developed areas near the coast vulnerable to coastal erosion and sea water innundation. Chronic coastal flooding is occurring now, and over the next 30 to 70 years the flooding is expected to increase with SLR and impact homes and businesses located near the shoreline (HCCMAC, 2017).

One of the most major effects of climate change is the impact it has on the occurrence and severity of natural hazards. An essential aspect of hazard mitigation is predicting the likelihood of hazard events in a planning area. However, due to the change in climate the predictability of natural hazards has changed also and what were known as 100-year floods or floods that were supposed to occur once every 100 years, could occur more often increasing the frequency of severe flooding and causing greater risks to communities. Other effects caused by global climate change include global temperature rise, warming oceans, glacial retreat, SLR, declining arctic sea ice, extreme events, and ocean acidification (HCCDA, 2020).

In Hawai‘i, the increase in temperature is three times as large as the global increase which in turn reduces the daily temperature rain. As temperatures rise, the State of Hawai‘i should continue to see a decrease of rainfall as Hawai‘i has already seen a 15-percent decrease in rainfall over the past 20 years. Other effects that Hawai‘i has seen due to global climate change is SLR eroding 70-percent of beaches and shoreline retreat averaging 1 foot lost per year, low coastal areas experiencing more frequent flooding due to SLR, higher temperatures causing more frequent tropical cyclones, an increase in flash flooding and infrequent rain conditions, increased risks of tsunami impacts on coastal areas, increased risk of wildfire and drought conditions, increased earthquake hazard due to shifting of plate tectonics and global ocean acidification which can negatively impact marine animals such as corals, shell fish, and plankton (HCCDA, 2020).

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

The proposed Project site is primarily flat, with elevations ranging from 80 to 89 feet above mean sea level (MSL) throughout the entire site and is located miles away from the shoreline and is therefore outside of the SLRXA, as indicated in the Hawai‘i Sea Level Rise Viewer (*Figure 3.2*) (HCCDA, 2020).

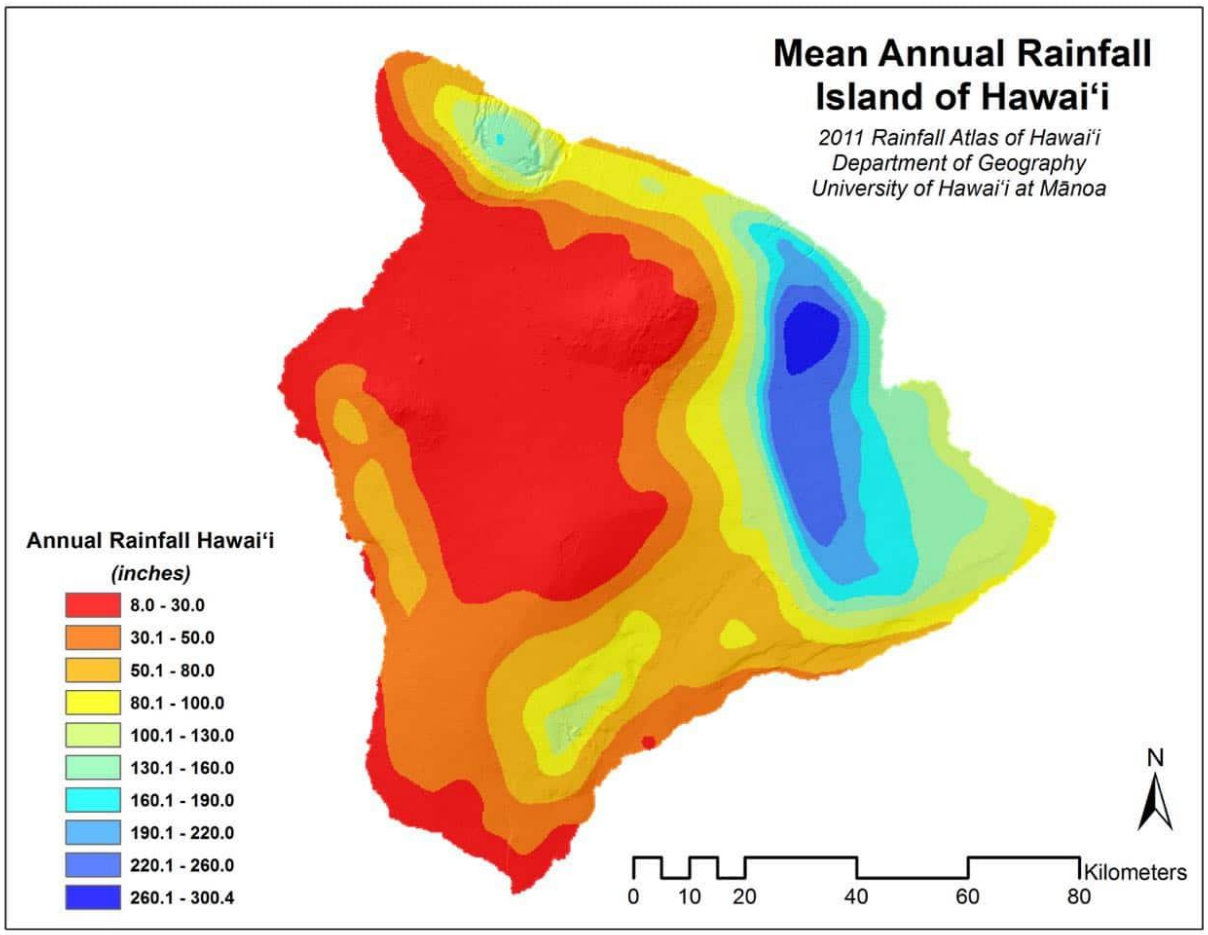

Figure 3.1 **Mean Annual Rainfall**

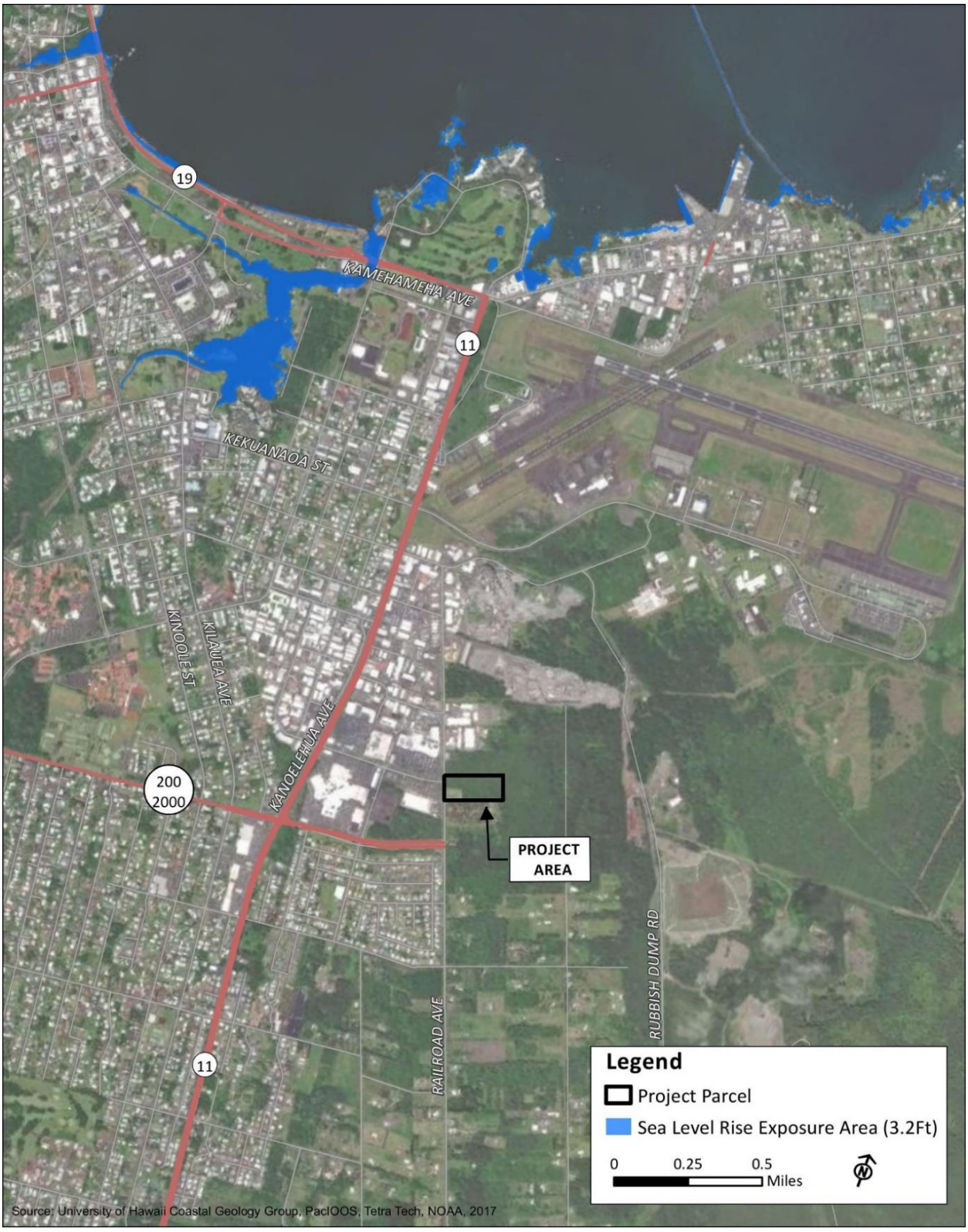

Figure 3.2 **Sea Level Rise Exposure Area (UHCGG et. al. 2017)**

Anticipated Impacts and Proposed Mitigation

Climate

The proposed Project is not anticipated to result in impacts to the climate near the Project area or region; therefore, no mitigation measures are required.

Climate Change and Sea Level Rise

Climate change and SLR and associated coastal impacts are a concern for the State of Hawai'i and the world and requires a global response. Construction of the Project would not result nor constitute a source of impact to the climate of the Project area or region and does not propose activities that will lead to an increase in the generation of GHGs. The Project site is furthermore located outside of a SLRXA (HCCDA, 2020).

As discussed in *Chapter 3.3*, the Project will include BMPs where practical and feasible to improve storm water quality and manage storm water quantity. The proposed Project will maximize pervious and landscaped areas within the site to the maximum extent practicable. Dry swales, rain gardens, and infiltration trenches will be utilized for agricultural practices. As a result, all storm runoff will be detained onsite to attenuate the peak runoff flow (HCCDA, 2020).

The new Project will accommodate an community need for agricultural practices and natural hazard response capacity as the frequency and severity of storms increases. On the long-term, the Project will improve the County's overall response and adaptation to climate change and SLR (HCCDA, 2020).

3.2 Topography, Soils and Agriculture

Existing Conditions

The Project site has a slight slope from the southwest corner of the Site towards the northeast corner of the Site for a total slope percentage of 1.8-percent. The parcel has been previously disturbed and altered by extensive grading to create a flat area. The Project site has an elevation ranging from 80 to 89 feet above MSL.

According to the U.S Department of Agriculture (USDA), Soil Conservation Service, the parcel and the surrounding area comprise of "Papai" or extremely cobbly, highly decomposed plant material with 2 to 10-percent slopes (soil code: 628) (*Figure 3.3*). This soil is characterized by moderately rapid permeability, with fragmental material, and very low permeability in the underlying bedrock, with negligible to low runoff. The soils in Pana'ewa are skeletal and come into contact with the underlying fragmented material 15 ¾ inches below the surface (USDA-NCSS, 2022).

Though the County of Hawai'i (County) has zoned this parcel as a part of the General Industrial District and DHHL zoned this area for Commercial use, the lands adjacent to the Project site are zoned for agriculture (see *Figure 1.3 - Figure 1.5*). Currently there are no agricultural plots or farms on the Project site; however, Railroad Avenue, which borders the parcel on the west, was part of the plantation's original railroad system. Historical accounts suggest that the lands in the vicinity of the parcel were once used for dairy cattle pastures, cattle ranching, timber harvesting, and "scattered vegetable gardens." The KPFA currently manages the Pana'ewa Farmers Market on one acre of the Project area; the remainder of the parcel is forested. The Project site currently has a grassy parking lot, three metal

tents under which house three to four planter boxes. A common crop used in agricultural activities in the area are macadamia nuts as shown by the abutting parcel.

Anticipated Impacts and Proposed Mitigation

The Project will incorporate agricultural practices into their everyday operations and programming. The design charrette with KPFA and G70, concluded that the program must include Agri-education programs to encourage the growth of more products. This program will include the planting of site-specific crops as mother crops for the community, the use of crops and facilities to educate and learn new agricultural practices, encourage crops that can be cultivated, and growing a forestry ecosystem. This program will also include the introduction of a polyforest system where plants can support each other, and a biochar facility to use unwanted plants to create energy as a biproduct for from the farm. The Project facility will also include a DOH certified kitchen to further support agricultural activities and businesses. This kitchen can then be used for processing and storing produce which can then be sold at farmers market activities held on-site as well. The kitchen will also be used in cases of emergency and will be able to operate off grid in case of power outages.

The existing topography will be altered to the extent necessary for construction of the proposed Project. Grading will be limited to less than one acre (approximately 17,490 Square feet) and will be determined during the Project design phase. A grading permit approved by the County of Hawai‘i (County) Planning Department (CoH-Planning) will be required for all grading activities. Site work will include limited grading and excavation for building the foundation and installation of utilities. Excavation at the site will be accomplished by using conventional excavating equipment. Detailed design will take into consideration the groundwater level.

For all ground disturbing activities, a Grading Plan, Erosion and Sediment Control Plan (ESCP), and Best Management Practices (BMPs) will be integrated into the construction plans. Construction BMPs may include, but are not limited to, stabilized construction entrances, stabilization of disturbed areas, silt-screens, re-vegetation, and maintenance of equipment. Grading, excavation, and other construction activities required for the Project will be in accordance with State and County regulatory requirements.

The Project is expected to increase agricultural use through programmatic activities that will occur when the RAIH is operational. The Project will include farms with site and place-specific crops, which will also act as mother-crops for the community, encourage specialty crops that can be cultivated in the area and promote a polyforest system with plants that can nurture each other. These crops will assist in providing more produce for the current farmers market and bringing in more revenue for the farmers. A certified kitchen will be incorporated into the Project design to offer a place where farmers can process & store their crops as well an area for vendors or fundraiser groups to make and distribute food. The pavilions in this Project will be used to educate community stakeholders, lessees and other educators on farming methods and

With the implementation of the proposed mitigation measures, the Project is not anticipated to result in a significant adverse impact on topography as the proposed improvements do not involve a substantial alteration of topographic conditions that adversely impact drainage patterns; or the excavation and/or disturbance of hazardous contaminants that compromise public health and safety. No additional mitigation is recommended.

Figure 3.3 **USDA Soil Conservation Service Land Capability Groupings**

3.3 Water Resources

Existing Conditions

Groundwater

DLNR, Commission on Water Resource Management (CWRM) is the primary steward of the State's water resources. CWRM has broad powers and responsibilities to protect and manage Hawai'i's water resources and administers the State Water Code (HRS §174C, 2008 amendment) and administrative rules. DHHL also has power over water on DHHL properties as deemed necessary to adequately supply livestock, aquaculture operations, agriculture operations or domestic needs of individuals upon any tract (HHCA, 1920). Other State agencies maintain responsibilities for water quality (DOH) and coastal zone management (DBEDT).

Groundwater units have been identified by CWRM to manage groundwater resources. Primarily determined by subsurface conditions, each island is divided into regions that reflect hydrogeological similarities within hydrographic, topographic, and historical boundaries. Sustainable yield estimates of aquifers have been developed by CWRM and are revised periodically based on recharge studies, groundwater models, other hydrogeologic studies, pumpage and deep monitor well data, and the identification of errors in previous models or studies. All revisions to the sustainable yields have taken place in accordance with statutory requirements. Revised sustainable yield estimates adopted by CWRM are official and are used for regulatory and planning purposes (CWRM, 2019).

The Project site lies within the Northeast Mauna Loa hydrological unit which consist of two aquifers, the Hilo aquifer, and the Keaau aquifer. The aquifer is characterized as predominantly high-level ground water. The sustainable yield estimate for the Hilo Aquifer Unit is 349 million gallons per day (MGD) (CWRM, 2018). The sustainable yield "…means the maximum rate at which water may be withdrawn from a water source without impairing the utility or quality of the water source as determined by the commission" (HRS §174C-3). Sustainable yield is based on reported water use subtracted from the estimated storage of the aquifer, estimated groundwater recharge, calculations based on ground and surface water interaction, and deep ground water well monitoring data.

DOH Safe Drinking Water Branch (SDWB) and Wastewater Branch (WWB) both work in accordance with each other to protect both surface and groundwater units for the people of Hawai'i. The SDWB administers underground injection control (UIC) program to prevent contamination from injection wells, which are used to dispose of water or other fluids into a groundwater aquifer. The boundary between exempted aquifers and underground sources of drinking water is generally referred to as the "UIC Line". Restrictions on injection wells differ, depending on whether the area is inland (mauka) or seaward (makai) of the UIC line (SDWB, 2019). The WWB, ensures wastewater is properly disposed without polluting waters to harm the health of people. The Project site lies above (mauka) of the UIC line, indicating that the underlying aquifer is considered a drinking water source. There are no water use wells or water monitoring wells on or near site.

Surface Waters

There are no surface waters, including streams or wetlands, within proximity to the Project area. Furthermore, there are no nearshore marine waters within the Project site. The subject property is located approximately 1.4 miles southeast of the Wailoa River, the nearest body of surface water. DOH classifies these waters as a "Class 1" stream, which according to HAR, Section 11-54-3 are protected

waters that should remain in their natural state as much as possible, with minimum pollution from human-caused sources for the protection and propagation of wildlife.

Anticipated Impacts and Proposed Mitigation

Groundwater

No short- or long-term significant impacts to groundwater resources are anticipated during construction or operation of the proposed Project. No additional mitigation is recommended.

Surface Waters

Appropriate mitigative measures and controls would be applied consistent with sound engineering and operating practices for the protection of groundwater and surface water resources. Storm water runoff from construction areas will be regulated through adherence to the County's Department of Public Works (DPW) Storm Drainage Standards. The Project will incorporate site-specific BMPs to prevent soil loss, storm water runoff, and sediment discharges from the site. BMPs may include the use of a stabilized construction ingress/egress, inlet protection, and temporary filter sock perimeter controls. Control measures will be in place and functional before construction activities begin and will be maintained throughout the construction period. Project activities will comply with DOH regulations as set forth in HAR, Title 11 Chapter 54, Water Quality Standards and Chapter 55, Water Pollution Controls. The Project will disturb an area less than one acre and less than one acre of land area; therefore, a National Pollutant Discharge Elimination System (NPDES) general permit coverage authorizing discharges of storm water associated with construction activities will not be required for the Project from the DOH, Environmental Management Division, Clean Water Branch.

3.4 Flora and Fauna

Existing Conditions

A biological assessment was prepared for the Project by G70 and Hui Kū Maoli Ola in September 2021. See *Appendix C: Biological Survey.* The Project site includes a newly landscaped area along with vegetated surroundings that likely evolved from coastal-lowland or submontane rainforest inito a semi-cultivated grassland or plain during the plantaiton era. Over time, the early coastal inhabitants of Hilo transformed the character of the inland forest through the introduction of agriculture. This area is located south east of Downtown Hilo. No plants or animals currently protected or proposed for protection under either the Federal or State of Hawai‘i endangered species programs (DLNR, 1997, 2015; UFWS, 2015) were detected during the survey at the Project site.

Flora

The biological assessment of the site identified 59 plant taxa and three fungi taxa. Seven species from these 59 plant taxa could be considered native (either indigenous to Hawaii, or Polynesian introduced.) A diversity of introduced species and several extremely invasive species in particular have established themselves to successfully crowd out native vegetation at the site. The most abundant vegetation found on the Project site are trumpet tree (*Cecropia obtusifolia*), bingabang (*Macaranga mappa*), maile pilau (*Paederia foetida*), and the gunpowder tree (*Trema orientalis*). The indigenous and Polynesian introduced plants that were found on site include moa or whisk fern (*Psilotum nudum*), ‘ōhi‘a lehua (*Metrosideros polymorpha*), Pōpolo (*Solanum americanum*) la‘ī or ti (*Cordyline fruticosa*), fimbristylis (*Fimbristylis dichotoma*), and Kō or sugarcane (*Saccharum officinarum*), and pepeiao, or Hawaiian

wood ear (*Auricularia cornea*). Aside from the ʻōhiʻa lehua which was commonly found in the area, indigenous and polynesian introduced plants are either rare or uncommon. There are 9 species of plants that were classified as "weedy plants of concern" that exist on site, three of which are listed as Plant Species Designated as Noxious Weeds for Eradication or control Purpose by the Hawaii Department of Agriculture (HAR, Title 4 chap 68; last updated on June 18, 1992). The "weedy plants of concern" include: Fiddlewood (*Citharexylum spinosum*), Gunpowder tree, Jamaican lilikoi/passion fruit (*Passiflora laurifolia*), Maile Pilau, Octopus tree (*Scheffia actinophylla*), and the trumpet tree. The three noxious weed plants identified by Department of Agriculture are Koster's curse (*Clidemia hirta*), Miconia (*Miconia calvescens*), and Strawberry guava (*Psidium cattleianum*). A full list of the plants that were found on the property are in *Table 3.1* below.

Table 3.1 Flora Species Found On Site

Scientific Name	Common/Hawaiian Name	Biogeographic Status	Abundance
BRYOPHYTES – MOSSES, LIVERWORTS, HORNWORTS			
Insomniella plumiformis		Nat	C
PTERIDOPHYTES - FERNS & FERN ALLIES			
DAVALLIACEAE			
Davallia tyermannii	white rabbit's foot fern	Nat	R
NEPHROLEPIS			
Nephrolepis sp.	sword fern	Nat	C
POLYPODIACEAE			
Phlebodium aureum	laua'e haole	Nat	C
PSILOTACEAE			
Psilotum nudum	moa, whisk fern	Ind	R
THELYPTERIDACEAE			
Christella dentata	downy wood fern	Nat	C
FLOWERING PLANTS (DICOTS)			
ACANTHACEAE			
Justicia betonica	white shrimp plant	Nat	R
ANACARDIACEAE			
Mangifera indica	mango	Nat	
Schinus terebinthifolius	Christmas berry	Nat	
ARACEAE			
Anthurium andreaeanum	flamingo lily	Nat	R
Colocasia esculenta	black magic taro	Nat	R
ARALIACEAE			
Schefflera actinophylla	octopus tree	Nat	C

Table 3.1 Flora Species Found On Site			
Scientific Name	**Common/Hawaiian Name**	**Biogeographic Status**	**Abundance**
ASTERACEAE			
Ageratina riparia	mistflower, Hamakua pamakani	Nat	U
Bidens pilosa	black jack	Nat	U
Sphagneticola trilobata	wedelia	Nat	C
BEGONIACEAE			
Begonia vitifolia	begonia	Nat	O
CECROPIACEAE			
Cecropia obtusifolia	trumpet tree	Nat	A
CLUSIACEAE			
Clusia rosea	autograph tree	Nat	O
CUCURBITACEAE			
Momordica charantia	bitter melon	Nat	C
EUPHORBIACEAE			
Codiaeum variegatum	croton	Nat	O
Macaranga mappa	bingabing	Nat	A
Macaranga tanarius	parsol leaf tree	Nat	C
FABACEAE			
Canavalia cathartica	*maunaloa*	Nat	O
Falcataria moluccana	Moluccan albizia	Nat	O
Mimosa pudica	sensitive plant	Nat	U
LAURACEAE			
Persea americana	avocado	Nat	U
MALVACEAE			
Heliocarpus americanus	white moho	Nat	C
Melochia umbellate	melochia	Nat	C
MELASTOMATACEAE			
Arthrostemma ciliatum	arthrostema	Nat	U
Clidemia hirta	Koster's curse	Nat	O
Melastoma sanguineum	fox-tongued melastome	Nat	C
Miconia calvescens	miconia	Nat	C
MORACEAE			
Ficus microcarpa	Chinese banyan tree	Nat	U

Table 3.1 Flora Species Found On Site			
Scientific Name	**Common/Hawaiian Name**	**Biogeographic Status**	**Abundance**
MYRTACEAE			
Metrosideros polymorpha	ʻŌhiʻa lehua	Ind	C
Psidium cattleianum	strawberry guava	Nat	C
PASSIFLORACEAE			
Passiflora laurifolia	Jamaican lilikoi, passion fruit	Nat	U
RUBIACEAE			
Oldenlandia corymbosa	diamond flower	Nat	O
Paederia foetida	maile pilau	Nat	A
Spermacoce exilis	Pacific false buttonweed	Nat	U
SAPINDACEAE			
Dimocarpus longan	longan	Nat	U
SOLANACEAE			
Solanum americanum	pōpolo	Ind	U?
ULMACEAE			
Trema orientalis	gunpowder tree	Nat	A
VERBENACEAE			
Citharexylum spinosum	fiddlewood	Nat	C
Stachytarpheta dichotoma	blue vervain	Nat	O
VERBENACEAE			
Citharexylum spinosum	fiddlewood	Nat	C
Stachytarpheta dichotoma	blue vervain	Nat	O
FLOWERING PLANTS (MONOCOTS)			
ASPARAGACEAE			
Cordyline fruticosa	ti, laʻī	Pol	
COMMELINACEAE			
Commelina diffusa	honohono	Nat	U
CYPERACEAE			
Cyprus polystachos	Manyspike flatsedge	Nat	U
Fimbristylis dichotoma	fimbristylis	Ind	U
Kyllinga brevifolia	green/white kyllinga	Nat	C

Table 3.1 Flora Species Found On Site			
Scientific Name	**Common/Hawaiian Name**	**Biogeographic Status**	**Abundance**
POACEAE			
Digitaria sp.	crab grass	Nat	C
Megathyrsus maximus	guinea grass	Nat	C
Melinis minutiflora	molasses grass	Nat	R
Paspalum conjugatum	Hilo grass	Nat	O
Paspalum sp.	paspalum	Nat	O
Saccharum officinarum	kō, sugarcane	Pol	R
Stenotaphrum secundatum	St. Augustine grass	Nat	C
Urchloa/Brachiaria mutica	California grass	Nat	C
GYMNOSPERMS			
PODOCARPACEAE			
Podocarpus gracilior	fern pine	Nat	R
FUNGI			
AURICULARIACEAE			
Auricularia cornea	pepeiao, Hawaiian wood ear	Ind	R
PHALLACEAE			
Dictyophora cinnabarina	veiled lady/ bridal veil stinkhorn	Nat	R
TREMELLACEAE			
Tremella fuciformis	snow fungus	Nat	R

Fauna

During the assessment, eight species of avifauna and four species of terrestrial fauna were observed at the Project site. None were indigenous or Polynesian introduced; however, the ‘ōpe‘ape‘a or the Hawaiian Hoary bat (*Lasiurus cinereus semotus*), which is listed as an endangered species under both the federal Endangered Species Act and Hawai‘i Endangered Species laws, could exist on the Site as the survey was done during mid-day when ‘ōpe‘ape‘a are typically inactive. The four terrestrial species observed include feral pigs (*Sus scrofa*), green anole lizards (*Anolis carolinensis*), little fire ants (*Wasmannia auropuntata*) and coqui frogs (*Eleutherodactylus coqui*). Though coqui frogs were not seen, they were heard in the area during the survey. The most abundant terrestrial animal observed at the Project site is the green anole lizard while both the feral pigs and the coqui frogs are naturalized and invasive. The eight avifauna species that were observed in the Project site were the cattle egret (*Bulbulcuz ibis*), northern red cardinal (*Cardinalis cardinalis*), zebra dove (*Geopelia striata*), spotted dove (*Spilopelia chinensis*), red-billed leiothrix (*Leiothrix lutea*), house sparrow (*Passer domesticus*), saffron finch (*Sicalis flaveola*), and the common myna (*Acridotheres tristis)*. The most common avifauna observed were the cattle egret, the red-billed leiothrix, and the saffron finch.

Anticipated Impacts and Proposed Mitigation

Flora

The proposed Project is not anticipated to impact endangered or threatened plant or animal species. One recommendation by the biological assessment is to retain some of the existing fruit trees such as mango, avocado, mountain apple and ʻōhiʻa trees. If possible, the Project would reintroduce native species which have historically been known to the area and could encourage the return of populations. Plant species recognized as invasive should be removed to the extent possible to prevent further spread; Straberry guava, miconia and bingabing pose the greatest challenge as they comprise the bulk of the vegetation on the parcel. The juvenile gunpowder trees at the edge of the maintained area have been identified as on priority for removal as the fast-seeding plant could disturb nearby areas and become the primary vegetative cover. Effective control methods will vary depending on the species and may include a combination of manual and chemical approaches. Clearing of large areas may reduce the population of one type of introduced species while allowing, possibly more dangerous species to take its place. Once an area is cleared of invasive vegetation it should be immediately re-planted and or continually monitored to prevent invasive plants from regaining. Existing trees may be relocated elsewhere on the Project site. Another recommendation put forth by the biological assessment is to cultivate crops that provide cultural significance to native Hawaiians including indigenous and Polynesian introduced trees and Root vegetables. New landscaping of the parcel will utilize indigenous species whenever possible, particularly those species which are best suited for the region's soil and climate conditions.

Rapid ʻŌhiʻa Death (ROD) is a fungal pathogen that threatens the life of ʻōhiʻa trees on almost every island in the state. This fungal pathogen began on Hawaiʻi Island in the district of Puna and has since spread to all corners of the Island. There is no cure for the trees infected with ROD nor is there any fungal treatments for the two species of *Cyratocystis* fungal pathogens known to cause ROD. The College of Tropical agriculture and Human Resources (CTAHR) recommends that infected trees be removed by contracting a certified arborist who is familiar with the sanitation protocol and necessary decontamination procedures. ROD remains a severe threat to ʻōhiʻa populations on Hawaiʻi Island and preventing further spread requires strict adherence to prescribed decontamination practices.

The following actions are recommended to prevent the spread of ROD:

- Avoid injuring ʻōhiʻa trees by keeping sharp objects (i.e., lawnmowers, saws) away from trees and stepping over and around roots. Wounds may serve as entry points for the fungus.
- Before entering a forested area brush all soil and debris off shoes, gear, and tools. Spray these objects with 70-percent isopropyl alcohol. Coat the sole of the shoe with the isopropyl alcohol and allow it to site for at least 15 seconds to avoid spread. Clean all shoes and gear again after use especially when used of infected ʻōhiʻa. Clothes should be cleaned before and after entering the forests using hot water and soap.
- Do not move ʻōhiʻa wood or ʻōhiʻa parts from the site and do not transport ʻōhiʻa inter-island.
- If using a vehicle off road or in an area known to be affected by ROD, the tires and undercarriage of the vehicle should be washed with a high-pressure water source and all soil and mud removed.

With the implementation of the proposed mitigation measures, the Project is not anticipated to have a significant adverse impact on Federally- or State-listed, threatened, or endangered flora species. No additional mitigation measures are recommended.

Fauna

Invasive fauna is an issue on the Project site and control measures should be put in place to lessen the impact these animals could have on the Project and the surrounding area. Feral pig populations should be managed, via fencing, hunting, trapping, and snaring, as pigs are one of the main vectors for the spread of invasive species. The Project site is in South Hilo where populations of Little Fire Ant (LFA) are known to occur and where surveyors frequently encountered such populations when moving through vegetation at the south end of the site. LFA infestations should be reported to Hawaii Department of Agriculture (HDOA) via the State Pest Hotline prior to the administration of any treatment to ascertain the of the infestation and pesticide suitability. Though the infestation in East Hawaii of LFA exceeds the HDOA resource, however, field staff can help identify LFA and provide advice on the most appropriate control methods. Treatment involves the use of prescribed pesticides designed to be carried to worker ants back to the nest where it will be fed to the other ants and queens resulting in the end of the colony as a whole. Specific chemicals are recommended to prevent contamination of food crops growing in the area. Sustained and consistent treatments are necessary to completely eradicate an infestation. Resources for the survey and treatment of LFA are available on the Hawaii ant lab.

Although not identified during the avian and terrestrial mammal surveys, the potential presence of the Hawaiian Hoary bat may require additional consideration and mitigation measures in accordance with the letter from DLNR-Division of forestry and Wildlife (dated: October 31st, 2022):

> Hawaiian Hoary Bat – It is possible that the Hawaiian hoary bat, or ʻōpeʻapeʻa (*Lasiuris cinereus semotus*), may overfly the area on occasion. Some trees on the property have potential value as roosting habitat for this listed species. The Hawaiian hoary bat has been documented to use coconut palms (*Cocos nucifera*), kukui (*Aleurites moluccana*), avocado (*Persea americana*), shower trees (*Cassia javanica*), and eucalyptus (*Eucalyptus spp.*); (USFWS, 1998). To avoid any potential negative impacts to roosting bats, woody vegetation taller than 15 ft will not be removed during pupping season (between June 1 and September 15). Additionally, barbed wire will not be utilized for fencing.

With the implementation of the proposed mitigation measures, the Project is not anticipated to have a significant adverse impact on fauna species, as the Project will not result in a substantial decline or take of a Federally- or State- listed, threatened, or endangered species. No additional mitigation is recommended.

3.5 Natural and Manmade Hazards

The island of Hawai‘i is susceptible to potential natural hazards, such as wildfires, earthquakes hurricanes, tropical storms and high winds, flooding and tsunami inundation, volcanic eruption, and manmade hazards. The island's unique geographical challenges, aging infrastructure, and fragile logistics system further highlight the importance of collaborative effort over time to manage complex emergency management issues. As such, the proposed Project will support the community, coordinate communication and resources, and ensure that the physical and social needs can be met in preparation of, during, and post-recovery of a natural disaster or pandemic related event. These hazards are ordered by their hazard risk rating for the County which was determined by multiplying the hazards probability factors by the sum of the hazards impact factors on people, property, and economy (HCCDA, 2020).

Existing Conditions

Wildfires

A wildfire is any uncontrolled fire occurring on undeveloped land that requires fire suppression. The Hawaiian Islands are vulnerable to wildfires, especially during the summer months from prolonged drought and/or high winds. Wildfire hazards present a great risk to vegetation and wildlife habitats. The greatest danger of fire is where developed, urbanized areas border densely vegetated areas or wildland (trees and brush), also known as the wildland-urban interface (WUI). Overgrown vegetation close to homes, pockets of open space within subdivisions, and an increase of non-native high fire-intensity plants around developed areas pose increasing threats to commercial, community, environmental, and residential resources. WUI fires tend to be more damaging than urban structural fires and are often difficult to control. Short-term losses caused by wildfire can include the destruction of timber, wildlife habitats, scenic vistas, and destruction of watersheds can increase the vulnerability of flooding. Long-term effects include smaller timber harvests, reduced access to affected recreational areas, destruction of cultural and economic resources, and community infrastructure. These types of hazard events could also cause contamination to reservoirs, destroy transmission lines, and strip slopes of vegetation which weakens soils and causes runoff contributing to future land slides and flooding. Wildfires can be ignited by lightning or any human activity such as smoking, campfires, equipment use, and arson (HCCDA, 2020).

According to the Hawai‘i Wildfire Management Organization data and the Communities at Risk from Wildfires (CARW) maps referenced in the *County of Hawai‘i Multi-Hazard Mitigation Plan,* the Project site's risk from wildfire is low, see *Figure 3.4*. The site is developed and is adjacent to overgrown vegetation, however this area receives a generous amount of rainfall annually and therefor does not provide great risk. Notably, climate change has the potential increase vulnerability to wildfire in the State due to longer droughts, an increase in consecutive dry days, and a decrease in days of intense rainfall (HCCDA, 2020).

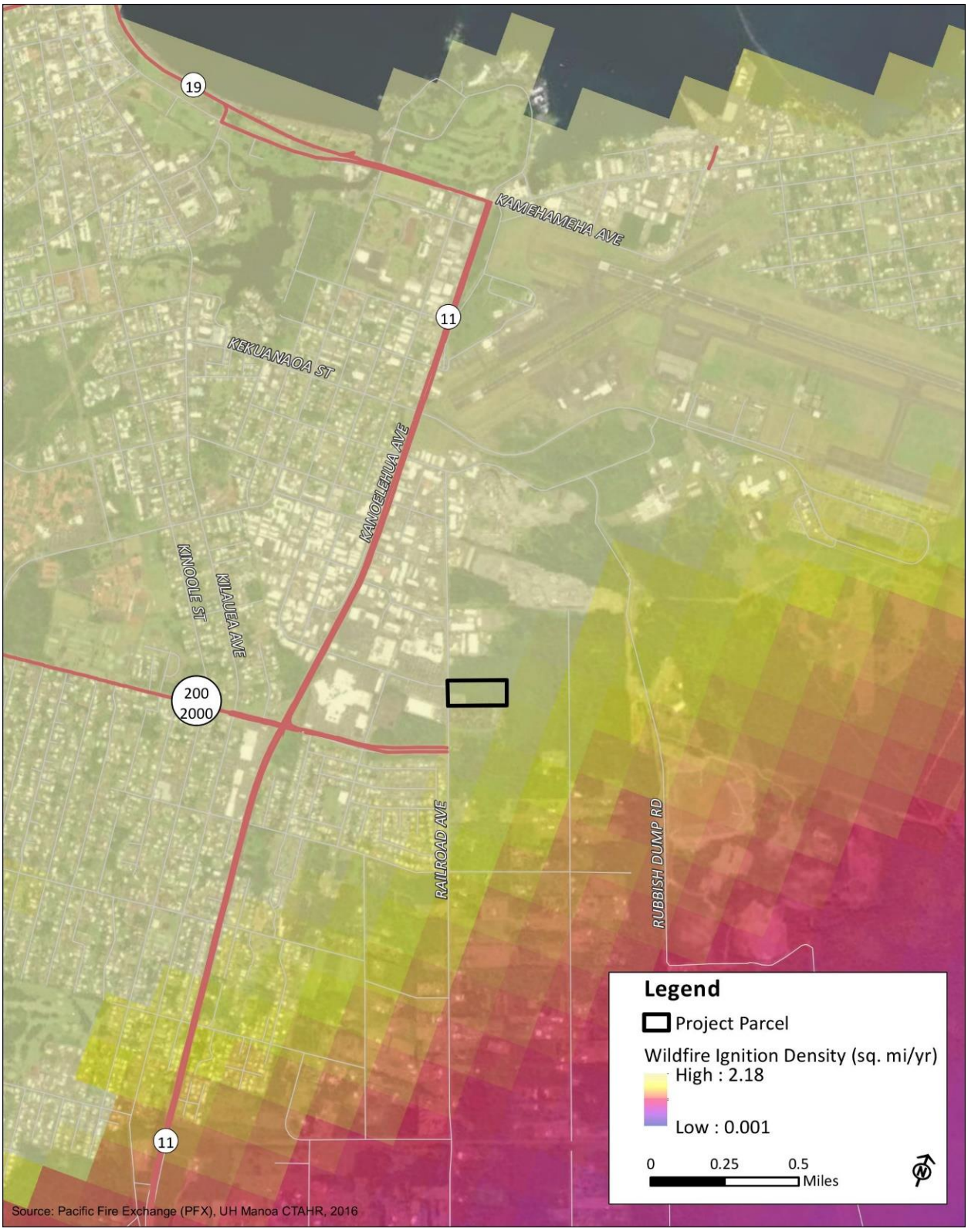

Figure 3.4 **Wildfire Risk map for Project Site**

Earthquakes

Earthquakes can be caused by the sudden dislocation of the crust or by a volcanic eruption with the former causing the most destructive quakes and are known to cause "seismic waves" which travel outward from the source of the earthquake at varying speeds. Moderate earthquakes occasionally occur in the islands; however, most cause little or no damage. The majority of earthquakes in Hawai'i occur on and around the Island of Hawai'i, especially in the southern districts of the island where the most active volcanoes in the State – Kilauea, Mauna Loa, and Lo'ihi – are located (HCCDA, 2020).

The severity of an earthquake is classified by magnitude and intensity. Magnitude is a measure of the amount of energy released during an earthquake, while intensity is a measure of the severity of ground shaking. Seismic hazard is typically characterized in terms of peak ground acceleration (PGA) measured as a percent of Earth's gravitational acceleration (%g). For example, areas with a PGA at less than 17-percent have a very small probability of experiencing damaging earthquake events, while areas with a PGA at over 100 %g would make it difficult to stand and could topple structures. Seismic Design Categories (SDC) reflect the likelihood of experiencing earthquakes of various intensities. Building design and construction professionals use SDCs to determine the level of seismic resistance required for new buildings (HCCDA, 2020).

Due to its ongoing volcanic activity, the County is expected to continue to experience thousands of earthquakes per year. Despite the number of earthquakes on Hawai'i Island, only a few of them will be felt. This is evident as only 17 earthquakes have had a magnitude 6 or greater between 1868 and 2019, which is equates to once every nine years on average. The United States Geologic Society (USGS) estimates a 50-percent probability that an earthquake with a magnitude of 6.5 or greater could occur on Hawai'i Island for in the next 10-years. The last major earthquake to be felt on Hawai'i Island was the Kiholo Bay Earthquake in 2006, which consisted of two significant earthquakes, the magnitude 6.7 earthquake in Kiholo Bay and the 6.0 magnitude earthquake in Mahukona. This event resulted in heavily damaged structures concentrated in Waimea and Hāwī, the south side of the island sustained very little damage and there were no reported injuries or deaths.

Figure 3.5 depicts the maximum PGA expected over the next 50 years in the State with at least a 2-percent chance of exceedance (HCCDA, 2020). Colors indicate shaking in PGA and the corresponding SDC. According to USGS, expected ground acceleration on Hawai'i is between 50%g and 125%g with an SDC of "D_0", "D_1", "D_2", and "E", which indicates an earthquake hazard of very strong intensity with considerable damage even to structures specifically designed to withstand earthquakes. The seismic hazard in the Project area is listed 83%g with SDC of "D_2" (HCCDA, 2020).

The potential impacts of global climate change on earthquake probability are unknown. For example, some scientists believe that melting glaciers could induce tectonic activity. Secondary impacts of earthquakes could be magnified by climate change, as rising air temperatures facilitate soil breakdown and intense rainstorms cause greater erosion or greater susceptibility to dam failure (HCCDA, 2020).

Source: USGS, https://volcanoes.usgs.gov/observatories/hvo/hazards_earthquakes.html

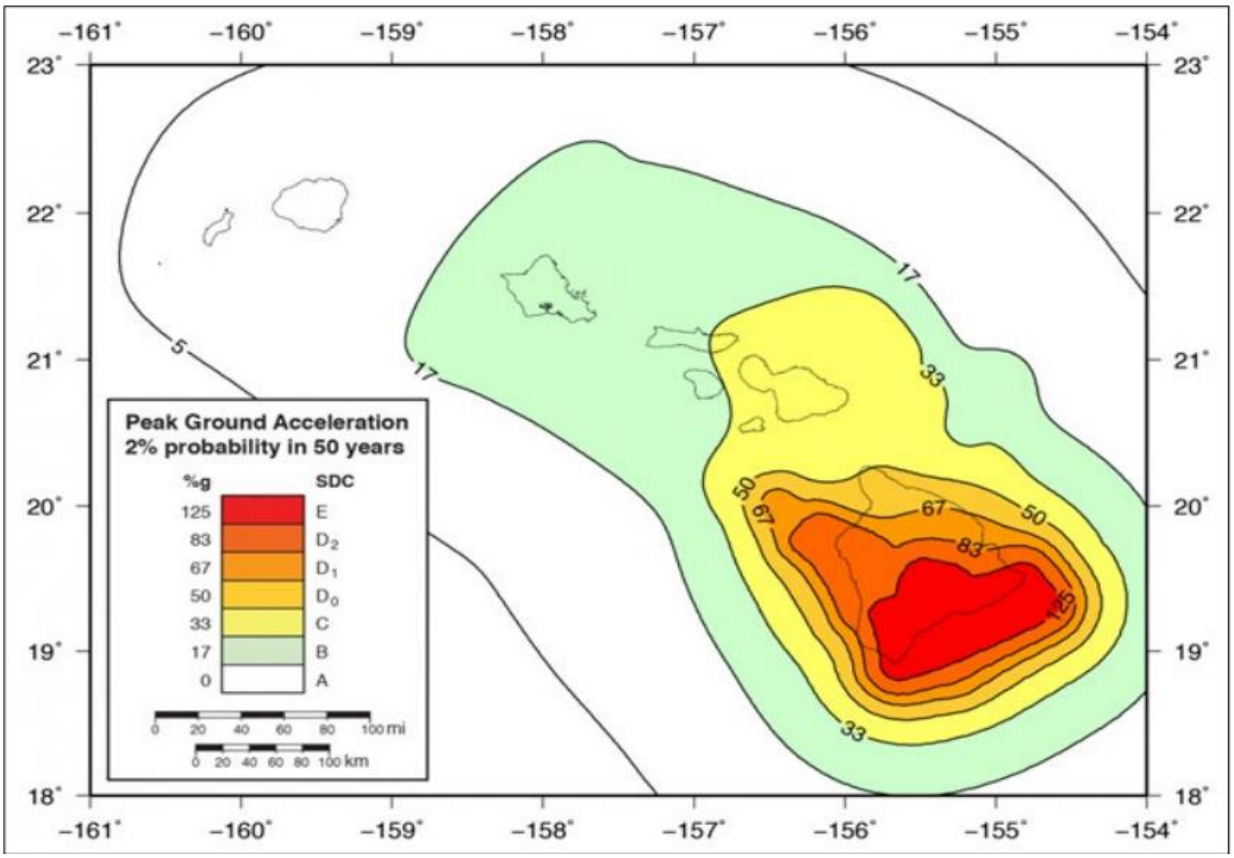

Figure 3.5 **Earthquake Hazard Map for State of Hawai'i**

Hurricanes, Tropical Storms, and High Winds

In Hawai'i, northeast trade winds predominate throughout most of the year blowing at about 70-percent of the time. These winds generally range in velocity between 10 and 25 miles per hour (mph) with trade winds of 40-50 mph periodically occurring. Monthly counts of high wind events that have impacted the County over a 10-year period indicate that winter months are the most active. The overall average for high wind events on Hawai'i Island is 0.2 events per month which doubles to 0.4 events per month during the winter months (December- April) Windstorms can cause damage to utilities, potential disruption of energy resources, and disrupted services as a result of downed Debris. High winds can also contribute to strong surf and coastal erosion (HCCDA, 2020).

Tropical cyclones are the most dramatic, damaging, and potentially deadly events that occur in the State of Hawai'i with Hurricanes being the most damaging. The Central Pacific experiences for to five tropical cyclones a year between the months of June and November with peak formations occurring between August and September. This time frame is known as hurricane season. A weak tropical cyclone with wind speeds less than 38 mph is categorized as a tropical depression while a tropical cyclone with sustained winds between 39 mph and 73 mph are categorized as tropical storms. Hurricanes are characterized by strong sustained winds with speeds greater than 74 mph and by widespread heavy rains more than six inches. All three categories of tropical cyclones can cause storm surge, which can cause the mean water level to increase by 15 feet or more and has been responsible for nearly 90-percent of all hurricane-related deaths and injuries. These tropical cyclones can also

cause wind damage which can decimate tree populations, down power lines and utility poles, damage signs and damage or destroy homes and buildings. Flying debris can also harm both structures and peoples. Strong winds can also produce microbursts and small tornadoes, which are small, localized wind bursts that can reach speeds of greater than 200 mph. Depending on the wind speeds, hurricanes can damage onshore buildings and structures and vessels within the harbor. The last thing these cyclones could cause is heavy rainfall which can extend for hundreds of miles and may last several days affecting areas after the hurricane has passed. Heavy rains may result in deadly and destructive flooding. The weather associated with hurricanes, tropical storms, and tropical depressions typically lasts between 12 to 18 hours, with a slow-moving storm lasting around 24 hours. Hurricanes are classified according to "Category", according to wind speeds as follows: Category 1 hurricanes have wind speeds between 74 to 95 mph; Category 2 hurricanes have winds between 96 to 110 mph; Category 3 (major) have wind speeds of 111 to 129 mph; Category 4 (major) have wind speeds from 130 to 156 mph; and, Category 5 hurricanes have wind speeds exceeding 157 mph Category 1 and 2 storms are still dangerous and require preventative measures (HCCDA, 2020).

Hurricanes occasionally approach the Hawaiian Islands, but rarely reach the islands with hurricane force wind speeds. Records show that strong windstorms have struck all major Hawaiian Islands. The first officially recognized hurricane in Hawaiian waters was Hurricane Hiki in August 1950. Since that time, five hurricanes have caused serious damage in Hawai'i: Nina (1957), Dot (1959), 'Iwa (1982), Estelle (1986), and 'Iniki (1992). The island of Hawai'i has never experienced a hurricane or tropical storm make direct landfall in modern history. However, the island has been subject to indirect effects when storms pass close to the islands, such as heavy rain, strong winds, and storm surge. Tropical Storm Iselle (2014) brought heavy rains along with 50 mph winds to Hilo and 60 mph winds to Puna which resulted in downed trees and wires, and widespread power outages leaving many Puna residents without power for several days. Storm surge induced by hurricanes pose a flooding risk to the island. There have been 14 storms between 1949 and 2008 of Category 1 or higher that have come within 200-nautical miles of the state. The Hilo coastline is especially susceptible (HCCDA, 2020).

It is difficult to predict when these natural events may occur, but it is reasonable to expect that future events will occur and may be increasing in frequency due to global climate change. The entire State of Hawai'i is vulnerable to the damaging impacts of hurricanes. The coastal areas of the State are more susceptible to damage caused by a combination of high winds and tidal surge. Inland areas, especially those in the 1-percent and 0.2-percent annual chance flood areas designated by FEMA are at risk due to heavy rains and flooding caused by storms. The Project area is, however, no more or less vulnerable than the rest of the County to the destructive winds and torrential rains associated with hurricanes (HCCDA, 2020).

Flooding and Tsunami Inundation

The Project site itself is primarily flat and level throughout, with an elevation ranging from 80 to 89 feet above MSL According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) map number 1551660910F, effective on September 29, 2017, the Project area is located in Zone "X", an area determined to be outside the 0.2-percent annual chance floodplain and outside of the 500-year floodplain and outside of the special flood hazard area *(Figure 1.6)*. There is a minimal to no threat of serious riverine or coastal flooding at the Project site, nor is the parcel subject to any flood regulations. The site is not located within a FEMA Special Flood Hazard Area (SFHA) (HCCDA, 2020).

Tsunamis consist of a series of high-energy waves that radiate outward like ripples in a pond, from an area where generating event occurs. The waves arrive at shorelines over an extended period. According to the *National Tsunami Hazard Assessment*, the State as a whole is classified as a "high hazard" area due to the number of run-ups, the frequency of occurrence, and a large number of earthquakes with magnitudes greater than 3.0. Tsunamis are induced in three ways on Hawai'i Island, earthquakes, landslides, and submarine volcanic explosions. Hawai'i has experienced the highest number of tsunami-associated deaths in the country. The most devastating tsunamis to hit the Island of Hawai'i in the past century occurred in 1946 and 1960. In both cases the worst damage was inflicted in Hilo and along the northeastern coast of the island. The 1946 tsunami originated in the Aleutian Islands and struck Hawai'i without warning killing over 170 people mainly in Laupahoehoe and Hilo where wave heights averaged 30-feet. The tsunami in 1960 originated in Chile and advanced upon the island from the southeast and its effects were once again greatest in Hilo. The arrival time of the tsunami was correctly predicted, but many people failed to heed the warnings, and evacuation efforts were insufficient. As a result, 61 lives were lost as waves up to 35 feet high crashed through homes. Entire county blocks were swept clean of buildings and 580 acres were flooded causing $23 million in damages (HCCDA, 2020).

Tsunami inundation area data was created in 2009 by the County and was computed using the inundation limit from the 1946 Aleutian, 1952 Kamchatka, 1957 Aleutian, 1960 Chile and 1964 Alaskan Tsunamis, the five most destructive tsunamis affecting Hawai'i in the last century, stimulated at both MSL and high tide conditions. This data and its interpretations are intended for emergency management reference and evacuation zone development. The updated inundation limits generally show more severe inundation in flat areas adjacent to steep slopes See *Figure 3.6*. Distant tsunamis have an annual probability of affecting Hawai'i of approximately 10-percent. Local tsunami events occur with an approximate of 2-percent probability in a year (HCCDA, 2020).

According to the National Tsunami Hazard Mitigation Program, tsunami events with run-ups of more than 1-meter are most likely to be dangerous to people and property. Tsunami's size and speed, as well as the coastal area's form and depth, affect the tsunami's impact. At some locations, the advancing wave front will be the most destructive and in other situations the greatest damage will be caused by the outflow of water back to the sea between crests. The outflow can carry enormous amounts of highly damaging debris resulting in further destruction. Typical signs of tsunami hazard are earthquakes and sudden unexpected rise or fall in coastal water levels. The Pacific Tsunami Warning Center (PTWC) is a cooperative effort involving 26 countries along with numerous seismic stations, water level stations and information distribution centers. National Oceanic and Atmospheric Administration's (NOAA) National Weather Service (NWS) operates two regional information distribution centers: One in Palmer Alaska and the other in 'Ewa Beach on O'ahu. The 'Ewa Beach distribution provides official tsunami warnings for the State depending on the level of seismic activity recorded and potential for a tsunami. Tsunami warning levels include Tsunami Warning, Watch, Advisory, or Information Bulletin/Statement in decreasing order of risk, PTWC is managed by NWS. The PTWC begins to function when a Pacific basin earthquake of magnitude 6.5 or greater triggers an earthquake alarm. From the PTWC, NWS disseminates interpretive information to emergency managers, and other officials, news media, and the public. For distant-source tsunamis, HCCDA coordinates the statewide sounding of the first tsunami warning siren. The HCCDA is responsible for emergency operations plan and subsequent siren soundings, disseminating public information on tsunami evacuations, and issuing the all-clear for the County (HCCDA, 2020).

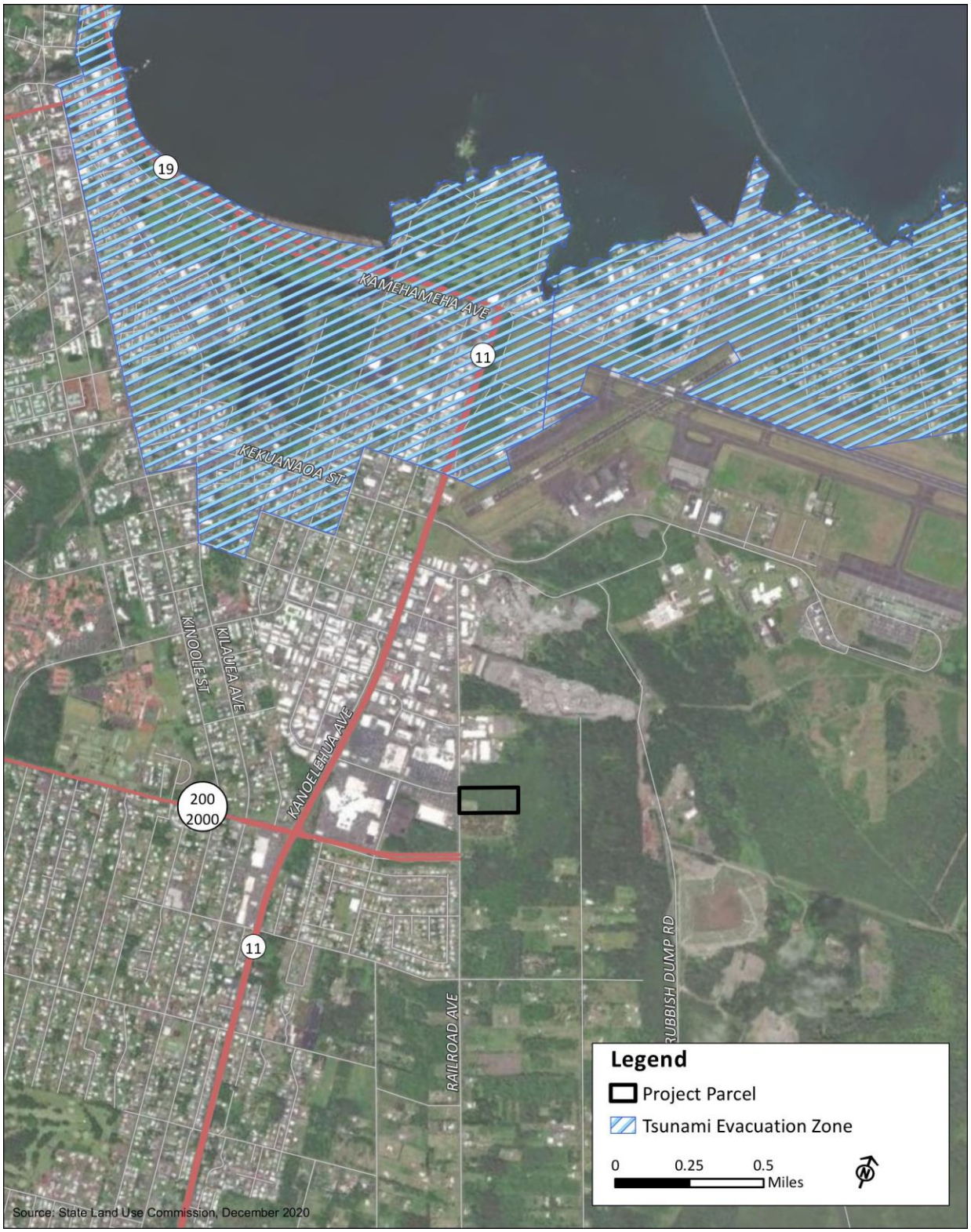

Figure 3.6 **Tsunami Evacuation Zone Map**

Volcanic Eruptions

The Hawaiian Islands are young land masses born from tectonic shifting and volcanic activity within the Pacific Ocean. The islands were created by a hotspot beneath the Earth's crust over which the County is currently located. Though the hotspot is stationary, the pacific tectonic plate has drifted in a northwesterly direction for millions of years moving approximately 9 centimeters a year. This movement over the hotspot has caused a chain of islands to be born with Kaua'i being the oldest of the main islands at about 5 million years old, and the island of Hawai'i is about 700,000 years old. The impacts that volcanoes have when erupting include lava flows, volcanic gasses (VOG), laze, explosive eruption, ashfall, seismic activity, tsunami, ground failure, volcanic glass, and acid rain (HCCDA, 2020).

Volcanic eruptions can lead to a few different hazards including lava flows, explosive eruptions, ground failure or subsidence and even volcanic glass. Explosive eruptions can eject debris and hazardous up to 35,000-feet reaching the subtropical Jetstream. These explosions can also create surges of pyroclastic flows consisting of hazardous products like hot ash, hot gas and hot lava that hug the ground and can travel at hurricane speeds. There are a variety of products that can be ejected from a volcano during an explosive eruption including tephra or fragments of rocks which can vary in size from large fragments to very fine-grained material. Lava flows are the main concern when it comes to volcanic eruptions. Lava flows present a potential threat to homes, infrastructure, natural and cultural resources, and entire communities. This hazard travels downslope toward the ocean, increasing in speed as it reaches steeper slopes and decreasing its speed on flatter areas, burning, and burying everything in its path. Lava entering the ocean can build new land known as lava deltas, which can be unstable and prone to sudden collapse which can cause local explosive activity that hurls hot rocks hundreds of yards. Lava flow hazard zones are developed based on location and frequency of historic and prehistoric eruptions. The two most recent lava flows that have affected communities occurred as include the 2018 Kīlauea lower east rift zone which consisted of 24 fissures that caused entire neighborhoods, including Kapoho, Leilani estates and Nanawale estates, to be covered in lava. The latest flow occurred as recently as December 2022 at Maunaloa where lava came across the Maunaloa access road hindering causing damage to powerlines as well as road infrastructure. The path of the lava flowed in a northwest direction and stopped before reaching the Daniel K Inouye Highway. No other damages were caused due to the lava flow This event was unprecedented as Maunaloa has not erupted since 1984. Underground magma injections and ground shaking from volcanic earthquakes can produce ground fractures and lead to subsidence which can impact the environment, human activity, and infrastructures. Subsidence is the gradual caving in or sinking of an area of land and occurs most commonly at the summits or rift zones of active volcanoes during magma intrusion and volcanic eruptions or at vents that have been drained of magma. The lack of support can create pit craters that are yards across. Volcanic glass also forms from the molten lava if it cools too quickly for crystals to form leaving a skin of glass. The molten lava that is ejected into the air from a volcanic eruption can be ejected into the air when cooled and spun in the air to form basaltic glass fibers called Pele's hair. Hawai'i Volcano Observatory (HVO) has issued warnings to avoid exposure because this type of glass can cause skin and eye irritation and walking along glassy surfaces can be deemed unstable (HCCDA, 2020).

The volcanic steam is another major concern caused by volcanic eruption as it can create VOG, laze, ashfall, and even acid rain. VOG is a hazy mixture of sulfur dioxide (SO_2) gas and aerosols (tiny particles or droplets) caused by SO_2 and other volcanic gases combining with and interacting chemically with oxygen, moisture, dust, and sunlight. The aerosols are primarily sulfuric acid and other sulfate (SO_4) compounds. The short-term effects of VOG can be irritation to the eyes, nose, throat, and respiratory tract causing inflammation, burning eyes, coughing and difficulty breathing. VOG can also be corrosive

which could cause severe economic loss on private and public property. Particularly severe occurrences of VOG can disrupt the tourism industry as visitors cut trips short or spend more time indoors causing a temporary dip in economy. Long-term effects of VOG include corrosion of steel structures. Laze is formed when molten lava enters the ocean, creating a cloud of steam that contains harmful components. The plume is an irritating mixture of gaseous hydrochloric acid (HCl), steam, and tiny volcanic glass particles. Those that are most vulnerable to VOG include people with asthma or respiratory conditions, people with cardiovascular disease, older adults, infants, and children, and new or expecting mothers. Ashfall is described as the volcanic ash which is hazardous and can affect structures, power facilities, water systems, ground and air transportation, agriculture, and human health. Volcanic ash is dispersed by wind and fall as a very wet and slick material that covers buildings and infrastructure. According to health experts, the public should be aware of ashfall locations to minimize exposure as fine ash particles can cause nasal irritation and discharge, throat irritation, sore throat, and airway irritation in people. Coarser ash can cause eye and skin irritation. Other effects ashfall can create are reduced visibility during driving, shutting down critical infrastructure that depends on power supply, contaminating water, damaging water supplies, disabling municipal sanitation systems, or collapsing roofs due to ashfall weight. The last hazard that accompanies volcanic eruptions exists in the form of acid rain. Acid rains contain high concentrations Of SO_2 and if concentration increases there is a higher chance that its acid will fall from these plumes. This hazard can cause a variety of problems for infrastructure including the corrosion of infrastructure, impacts to drinking water, leaching of lead from roofing and plumbing materials contaminating rainwater-catchment systems, damage to the eye, impacts to the mucous membrane and health impacts on the respiratory system. These hazards are still present today as the Kīlauea continues to show activity and its plumes continue to rise into the subtropical Jetstream which affects the entire State (HCCDA, 2020).

Volcanic monitoring and surveillance in the County is based on the movement of molten rock or magma and/or volcanic gas beneath a volcano that will precede any large eruption. HVO uses three primary techniques to detect magma and monitor its movements: Monitoring of volcanic earthquakes, Monitoring of ground deformation, and Monitoring of the chemistry of volcanic gases. HVO also has 65 seismic stations on the island of Hawai‘i to monitor volcanic earthquake activity. HVO aims to provide weeks to months of warning guidance radio signals of potential eruptions at Maunaloa and hours to days warning at Kīlauea. The USGS volcano-alert system is based on data analyzed by HVO monitoring networks. This alert system issues separate alerts for persons on the ground (normal, advisory, watch, and warning), and for aviators (green, yellow, orange, and red). The County DOH has also created a warning system to help the community take protection actions based on levels of volcanic SO_2 (green/trace, yellow/light, red/high, and purple/extreme). The color code is based on a forecast of data and uses volcanic emission levels, weather, wind, and historical data (HCCDA, 2020).

The U.S. Geological Survey first prepared maps showing volcanic hazard zones for the County in 1974. The most current revised map (1992) divides the island into zones that are ranked 1 through 9 based on the historic probability of coverage by lava flows, see *Figure 3.7*. This map shows the relative hazard of volcanic eruptions across the island and are meant to be used for general planning purposes instead of determining the absolute degree of danger that occurs at one site. The area between Pahoa and South Hilo stretching south toward Ka‘ū is all considered to be in zone 3 which is a fairly high severity rating and indicates that a lava flow could occur in Hilo if Maunaloa or Kīlauea were to have a big enough volcanic eruption. Comparatively, North Hilo, Hamakua, and Kohala all have very low probabilities of being inundated by a lava flow (HCCDA, 2020).

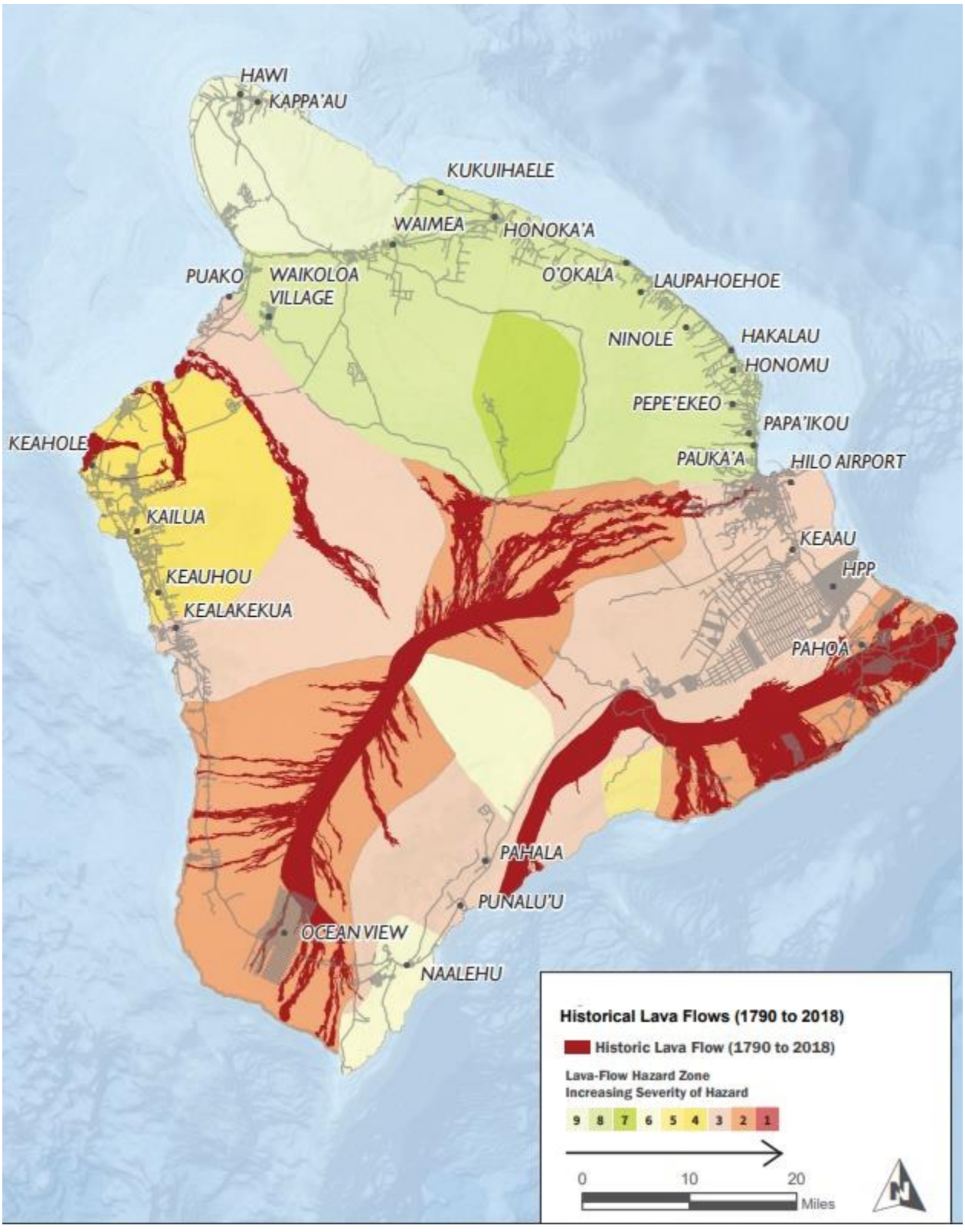

Figure 3.7 **Historical Lava flows and Lava-Flow Hazard Zone**

Manmade Events

According to FEMA, manmade hazards are distinct from natural hazards in that they originate from human activity (FEMA I, 2003). While the risks presented by natural hazards may be increased or decreased as a result of human activity, they are not inherently human-induced. Manmade hazards in Hawai'i includes global pandemics and terrorism. Global pandemics are worldwide spread of a disease, such as influenza (HI-DOH, 2023). Terrorism however, refers to the use of Weapons of Mass Destruction (WMD), including biological, chemical, nuclear and radiological weapons; arson, incendiary, explosive, and armed attacks; industrial sabotage and intentional hazardous materials releases; and "cyberterrorism." Within these general categories, however, there are many variations (FEMA II, 2003).

Tourism increases the risk of new infectious diseases in the islands. Hawaii residents are encouraged to maintain plans, communicate before, during and after a disaster. A good practice to use when preparing for disaster, including pandemics, is to use the acronym NOW, Necessities, Organization, and Wellness. Necessities include ways to stay clean, ways to stay warm, ways to stay hydrated, ways to stay fed, and ways to stay in touch. Organization should be shared with those sheltering with you by discussing and writing down emergency contact information and practicing how to reach out to others Everyone's contact information should be kept safe with emergency supplies. The wellness aspect of disaster preparedness is often overlooked, but it is important to take care of the mind and body everyday so recovery can be expedited. It is important to also exercise, eat healthy foods and to get enough sleep. The HI-DOH works alongside federal, state and local partners to protect the public's health through monitoring and responding to new and emerging outbreaks, such as COVID-19. HI-DOH has also worked with the Centers for Disease Control & Prevention to scale up prevention and education efforts (HI-DOH, 2023). During the height of the COVID-19 pandemic, the Project site acted as a Community Food and Care Distribution Center providing kūpuna with food and hygine bags, 1,624 COVID kits, meals, hydroponoic products, planting and gardening supplies along with a variety of plants to the community to support wellness and self sufficiency.

Terrorism threat prevention and protection is designated to the State Department of Defense (DOD), Homeland Security Division pursuant to HRS, Chapter 128A. Terrorism threat monitoring and detection is conducted at the State Fusion Center and the U.S. Pacific Command Joint Operations Center. In the event of a homeland security emergency in the State, Hawaii Emergency Management Agency (HI-EMA) is responsible for coordinating the State's government response to impacts of the incident in cooperation with other Federal, State, and County agencies responding to the event (HI-EMA, 2018). On Hawai'i, the County Civil Defense is responsible for coordinating with HI-EMA.

Anticipated Impacts and Proposed Mitigation

The Project will not increase the risk of human health or property damage due to natural hazards. The purpose of the Project is to construct a new structure for community members to shelter during natural and manmade hazard events and therefor assist in preparation, mitigation, and recovery efforts for those impacted by these events. The Project will serve as a resiliency hub supporting community and public safety as well as public awareness and community awareness during a wide range of natural hazard and emergency situations. The Project is a necessary and important component to County's overall natural hazard response and mitigation strategy.

Wildfire

The Project site is in a low-risk environment with an urban built environment, and a rain forest surrounding the Project site. No adverse impacts due to construction or long-term operation of the Project are anticipated, and no mitigation measures are required (HCCDA, 2020).

Earthquakes

Construction of the proposed Project is not expected to be adversely affected by seismic activity as the proposed new structure would be constructed for a long-term design life in accordance with the most current International Building Code (IBC) seismic design standards and County building code standards, which provides minimum design criteria to address potential for damage due to seismic disturbances. (HCCDA, 2020).

Hurricanes, Tropical Storms and High Winds

The effects of past storm events have caused minimal to no damage in the Project area. The future threat of hurricanes near the Project area cannot be calculated, although the frequency of hurricane threats may increase with climate change and warming ocean waters and the resulting rise in sea level. Waves generated by these storm events can cause coastal erosion and flooding, which will be worsened by SLR. According to research within the Hawai'i County Multi-Hazard Mitigation Plan, an estimated 20,166 households could be displaced 12,049 residents could require short-term sheltering during a Category 4 level hurricane event. The coastal shores are densely populated and therefor are vulnerable to storm surge. Downed trees, damaged buildings and debris carried by high winds can lead to injury or loss of life. This could also impact transportation lifelines both short-term (i.e., evacuation activities) and long-term (i.e., day to day commuting). Utilities could also suffer due to downed trees and damaged lines causing loss of power. The loss of power can impact business operations and can impact the heating or cooling for citizens. A category 4 hurricane may potentially cause over $11 billion in property loss or 1,025,972 tons of structural debris to be removed. Disruption to the island's critical facilities including airports, harbors, transportation and utility infrastructure, and other public services could occur, impacting resident and visitor travel and all forms of economic activity. The County has 134 critical facilities within a Category 4 hurricane inundation area (HCCDA, 2020).

Tropical cyclones can be closely monitored and tracked by agencies such as the NOAA who offers multiple watch, warning and resource tools through the National Hurricane Center. The tropical cyclone forecast, and advisories contains a list of all current watches and warnings of a tropical cyclone. Forecasts include current latitude and longitude, intensity and system motion. The advisory contains of the cyclone positions, intensities, and wind fields. The next closest potential hurricane evacuation shelter near the Project area is Target located approximately 0.1-mile southeast of the Project site (HCCDA, 2020).

If a hurricane, tropical storm, or high winds occur during construction, activities would cease, and equipment will be secured in work and support areas. To mitigate against long-term potential impacts from hurricanes, the proposed Project will be designed to meet the current IBC and County building code requirements. The Essential equipment may also be located on higher floors wherever feasible to avoid inundation from storm surges. Though direct, secondary, or cumulative impacts related to hurricanes, tropical storms, and high winds are not expected at the Project site, this Project aims to assist those who may need temporary sheltering at this time, especially those residents living along the coast in Keaukaha and Hilo (HCCDA, 2020).

Flooding and Tsunami Inundation

Short-term impacts due to flooding or tsunami inundation are not expected. During construction, activities would cease for the period that the flood or tsunami hazard exists. Equipment would be secured in work and support areas. No additional impacts related to construction are anticipated (HCCDA, 2020).

No long-term adverse impacts due to the Project are expected. Construction of the Project facility will adhere to the most current IBC, State, and County building code standards. Design of the building may also incorporate standards outlined in FEMA 543 Publication, Risk Management Series, Design Guidelines for Improving Critical Facilities from Flooding and High Winds (FEMA, 2007). The Project site is currently not in a Special Flood Hazard Area or high-risk areas and therefor is not subject to NFIP requirements as per the letter from DLNR-Engineering Division (dated: October 31st, 2022) (FHAR, 2017). Any increase in runoff caused by an increase in impervious surfaces will be mitigated on site as required to meet County standards. Onsite drainage will be designed to flow away from buildings towards landscaped and agricultural areas (HCCDA, 2020).

The proposed Project site is not located within the Tsunami Evacuation Zone. In the case of extreme tsunami, community members and facility users who reside in the evacuation zone will be able to take shelter at the proposed structure. The Project could be used to aid in coordinating County-wide response to flooding and tsunami events. The Project would have the ability to issue tsunami messages to facility users, community members, and other partners to notify about the potential for a tsunami following a possible tsunami-generating event. This Project will also have the capacity to disseminate public information on tsunami evacuations procedures (HCCDA, 2020).

Notably, climate change and SLR, as discussed *Chapter 3.1*, will exacerbate the extent of coastal inundation from tsunami. Inundation will reach further inland, putting more people and property at risk. Therefore, the Project will play an important role in public safety during flooding and tsunami events (HCCDA, 2020).

Volcanic Eruptions

The effects of past volcanic events have caused no damage in the Project area. The future threat of volcanic activity at the specific Project property is difficult to predict though the frequency of volcanic activity is constant on Hawai‘i Island. Extensive residential development continues at Maunaloa In the event of a volcanic eruption in the planning area, there could be great loss of property, especially in Lava Hazard Zones 1 and 2. The Project area is located in Lava hazard zone 3 and is relatively safe from lava flow events. A large area could be affected by VOG. Local hospitals may see an increase in respiratory -related acute illness potentially causing a surge event. This impact is dependent upon the prevailing wind direction during and after the VOG event. Severe VOG events may cause closure of Businesses and non-essential government agencies. Construction of the proposed Project is not expected to be adversely affected by volcanic activity (HCCDA, 2020).

Manmade Events

No short-term impacts related to construction or long-term impacts related to operation of the Project are anticipated. The Project site is no more threatened by manmade hazard events than other sites on the island. This site has provided a space for families to prepare and restock their food supply during the COVID-19 pandemic and with the improvements being made to the property, this site will continue to aid in any pandemic related emergencies. As a critical facility, the new building will adhere to Federal force protection guidelines requiring building hardening, building setbacks, perimeter protection and secured entry points, as outlined in the *FEMA 426 and 427 Publication, Risk Management Series, Reference Manual to Mitigate Potential Terrorist Attacks Against Buildings* and *FEMA 386-7 Publication, Risk Management Series, Integrating Manmade Hazards Into Mitigation Planning*. Construction of the Project will enable KPFA to support State response to manmade hazards during cases of emergency.

3.6 Archaeological and Historical Resources

Existing Conditions

An Archaeological Reconnaissance Survey (ARS) was prepared by Keala Pono Archaeological Consulting, LLC in September 2021. See *Appendix B: Archaeological Reconnaissance Survey.* The method used during this ARS was a Pedestrian survey three participants spaced 5-10-meters apart (depending on vegetation and visibility) walking along transects where archaeological sites were identified visually and were marked with pink flagging tape and recorded with a Garmin GPS map 62st with an accuracy of 3-meters. Nothing was curated as no materials were collected during the survey. All artifacts observed were left in place. The ARS documented one archaeological site (Site 1) with five features within the approximate 9.63-acre survey area defined as 91-percent of the 10.63-acre Project site. The 9-percent (1-acre) that was not covered in this survey was not included due to the access issues for the pedestrian survey caused by impenetrable bush.

Site 1 consists of five features located near the northwest corner of the Project area (See *Figure 3.8*). This site measures approximately 50 meters x 35 meters covering an area of roughly 350 meters squared and as a whole probably dates to the 1960s or later with cars and at least one artifact dating back to the 1950s. Site 1 is in poor to fair condition, with all features heavily deteriorated but likely to yield additional information. The features discovered at Site 1 are from old cars, the remains of an abandoned structures, and historic artifacts. The old cars (Features 1-3) appear to be trucks from the 1950's approximately. Feature 1 is located at the southwest side of Site 1, Feature 2 is on the northeast side of Site 1, and Feature 3 is located at the north end of Site 1. Feature 1-3 are all old car and truck chassis. Feature 4 are the remains from an old structure that is made up of a corrugated metal roofing remnant, machinery parts, and the other historic artifacts strewn across the ground surface. These items are located at the center of Site 1. A license plate was found between Feature 2 and Feature 4. Feature 5 consists of additional artifacts that were note at the southern end of Site 1. These artifacts include a metal barrel remnant and two glass jugs. One of the jugs could be identified as a 1956 Purex container. Site 1 is historic in age and may have functioned as a car dump associated with a structure of unidentified function. most common type of artifacts were bottles used for beverages, condiments, medicine, and perfume, or bottle glass fragments. Further work is recommended to document the site and more fully identify the cars and artifacts.

The ARS also included research on historic, cultural, and archaeological background. *Māhele* records show that certain lands in Pana'ewa, including the Project area, became Crown lands. These lands were quickly transferred over to DHHL during the creation of the 1920 Hawaiian Homes Commission Act. There have been 25 archaeological studies done for the district of Hilo spanning from the Late 1800s to 2016. Though this is the first study specifically done for the Project site, the archaeological studies done in the past have either focused on the entire district of Hilo or focused on specific areas within close proximity to the Project site (1-mile or less) and therefor has provided context on the history of the area. The Archaeological background research indicated that the area of Hilo could be described "…fertile lands, abundantly blessed with fresh water and other natural resources from mountain to sea…". Traditional and more recent post -contact accounts speak to the abundance provided by Hilo's forests, farmlands, and fishponds. During the pre-contact era, Hilo was an important place for royals, commoners, travelers, and navigators. There have been eight archaeological studies done within 1-mile of the Project sited (see *Figure 3.9*). A summary of these archaeological studies and their findings can be found in *Table 3.2*. The main archaeological finds in proximity to the Project site were found at the Keaukaha Military Reservation (KMR) and include a coral mound, a c-shaped military enclosure, the Puna trail, a modified lava blister and five ahu. The five ahu were seen as markers that were associated with the Puna trail. According to the Wilkinson et al. study, a pre-contact

modified outcrop complex used for temporary habitation, a pre-contact historic era lava tube shelter, as well as two agricultural features which indicates that at least part of the surrounding area was used for habitation and agriculture prior to the nineteenth century (Hammatt et al., 2012).

Table 3.2 Previous Archaeological Studies Conducted in the Vicinity of the Project Area

Author	Date	Location	Study	Findings
Bonk	1979	Pana'ewa Tract 1	Archaeological Survey	Identified a historic wall and an old road. No SIHP numbers were assigned.
Rosendahl & Talea	1988	Various sites throught South Hilo	Reconnaissance Survey	No archaeological sites identified; subsurface testing recommended.
Devereux et al.	1997	Keaukaha Military Reservation	Reconnaissance Survey	Recorded a military c-shaped enclosure and coral mound (deaccessioned by Hammatt and Bush 2000)
Hammatt and Bush	2000	Keaukaha Military Reservation	Archaeological Inventory Survey	De-accessioned the coral mound recorded by Devereux et al. (1997) and identified the Puna Trail (SIHP 18869), the previously -reco rded c-shape (21657) five ahu (21658) and a modified lava blister (21659)
Tolleson & Godby	2001	Keaukaha Military Reservation	Site Documentation	Recorded additional information for the Puna Trail and collected historic artifacts related to use of the trail.
Haun & Henry	2002	South of Keaukaha Military Reservation	Archaeological Inventory Survey	No archaeological sites identified.
Escott & Tolleson	2002	Keaukaha Military Reservation	Archaeological Inventory Survey	Idntified the previously recorded SIHP 18869, 21657, 21685, and 21659.
Rechtman	2003	West of Keaukaha Military Reservation	Archaeological and Limited Cultural Impact Assessment	No archaeological sites identified.
Rechtman	2006	Yamada & Sons and Quarry Site	Archaeological Survey	No archeoological sites idnetified
Tulchin & Hammatt	2007	Wal-Mart, Waiākea	Archaological Literature Review and Field Inspection	No archaeological sites identified.
Wilkinson et al.	2012	Hawai'i County Bus Maintenance Yard	Archaeological Literature Review and Field Inspection	No archaeological sites identified

Anticipated Impacts and Proposed Mitigation

Construction of the Project will require ground disturbing activities such as grubbing, grading, and minor excavations for utilities and installation of piles. Consultation with the State Historic Preservation Division (SHPD) is required by HRS Chapter 6E and is recommended by archaeological surveyors to outline measures needed for Site 1 prior and during the construction of the Project on TMK: (3)2-1-025:091. If the site will not be impacted, an AMP or preservation plan could be recommended to outline measures to protect the site during and after improvements to the parcel. If the site is impacted without an AMP or preservation plan in place, the construction of the Project result in adverse impacts to the historical resources found at Site 1 in the Project area. Due to the lack of information that can be provided by the features at Site 1, no adverse impacts are anticipated to archeological sites are anticipated during the construction of the Project. Consultation with SHPD will be undertaken to seek a Letter of Determination documenting SHPD's concurrence on the site designation. Pursuant to HAR, Chapter 13-279-4, the AMP specifies the following eight requirements in terms of the archaeological monitoring during construction: anticipated historic properties; locations of historic properties: fieldwork; archaeologists' role; coordination meeting; artifact collection, documentation, and laboratory work; report preparation; and, archiving of materials. No additional conditions were imposed by SHPD.

Figure 3.8 **Archaeological Reconnaissance Survey Project Area**

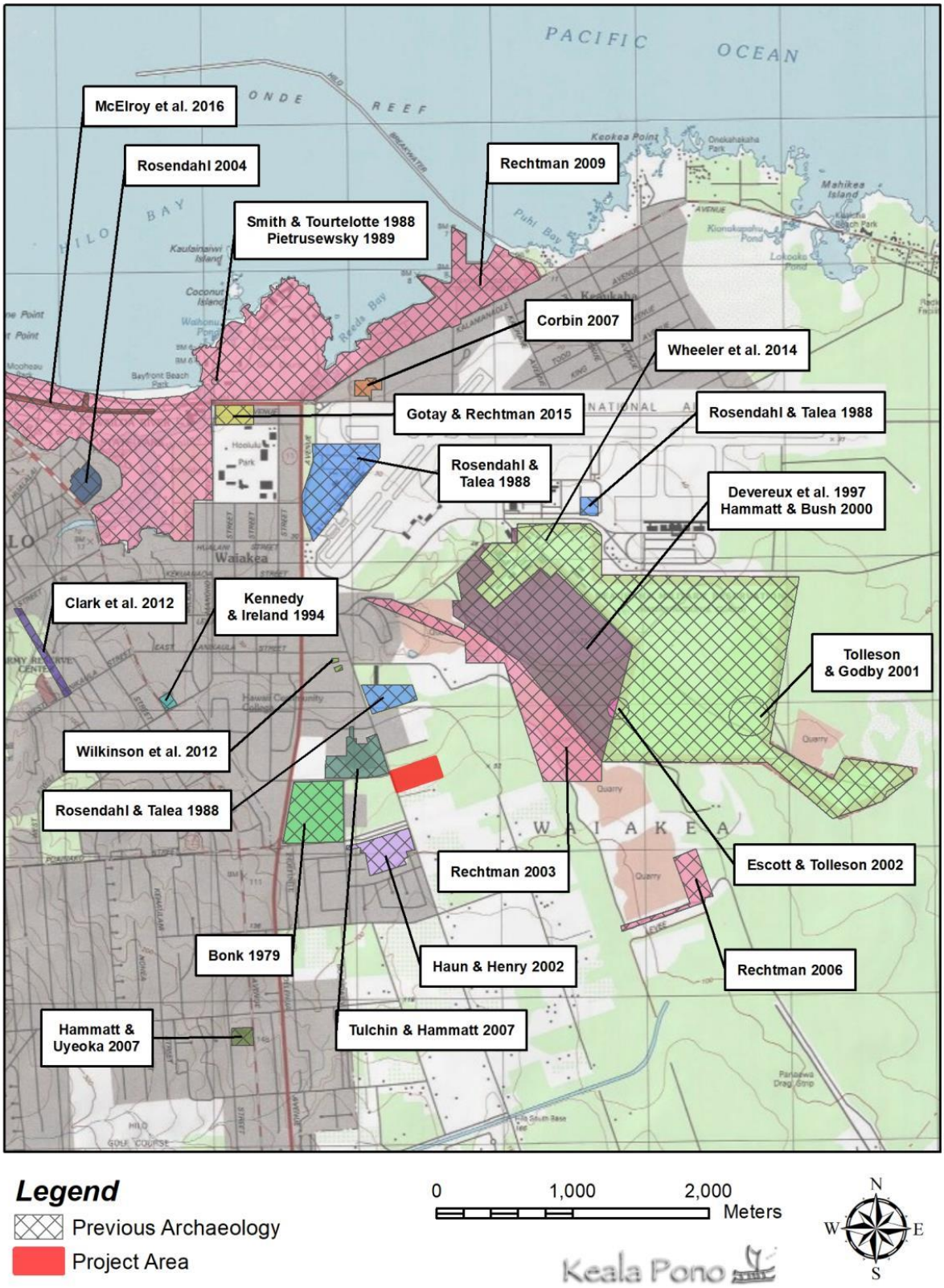

Figure 3.9 **Archaeological Reconnaissance Survey Project Area**

3.7 Cultural Resources and Practices

Existing Conditions

The area is understood to be used for community farmers markets. One historic site was identified within the area known as Site 1 discussed in *Section 3.6.* Site 1 is comprised of five features originating from the 1950's and later but are not regarded as cultural properties. There is no discernible evidence of a traditional Hawaiian practices within the immediate Project site, however, the surrounding area is still important for cultural use given historical evidence.

Context

Traditional cultural practices are based on a profound awareness concerning harmony between man and our natural resources. The Hawaiians depended on cultural practices for survival. Based on their familiarity with specific places, Hawaiian communities were able to devise systems that fostered sustainable use of nature's resources. Many of these cultural practices have been passed down from generation to generation and are still practiced in some of Hawai'i's communities today.

The areas surrounding the Project site includes the district or moku of Hilo and the Pana'ewa rain forest. These areas are culturally important to the surrounding community and to Native Hawaiians as a whole. From Kulukulu'ā to Kamehamea I, the moku of Hilo is well known for accommodating high ranking Native Hawaiians in times of war and in times of peace. Palila, Ka-miki, and 'Umi-a-Liloa are all prominant figures whose legends or ka'ao, and stories or mo'olelo, span the decades and persist in this present era. Though these figures were larger than life, parts of their ka'ao and mo'olelo bring them through the moku o Hilo. The *ka'ao of Ka-miki* n their journey, Ka-miki and his brother Maka-'iole travel to Hilo to visit the royal court of Waiākea-nui-kumu-honua, who was the brother of the chiefess Pana'ewa-nui-moku-lehua and the chief Pi'ihonua-a-ka-lani. The names of this royal court would later become famous placenames in the ahupua'a of Waiākea. The The mo'olelo of 'Umi-a-Liloa tells the story of a man who was once a commoner and through triumph and conquest, became the first chief of a island of Hawai'i. After becoming the chief of Hāmākua through the support of his people, 'Umi-a-Liloa traveled to Hilo in disguise. After he married a chiefess, he insulted her by breaking her symbol of power. 'Umi-a-Liloa was subsiquently punished by the chiefesses father, Kulukulu'ā, a famous chief of Hilo. In retaliation, 'Umi-a-Liloa summoned his armies and conqured the lands of Hilo, this later becomes the first step to 'Umi-a-Liloa uniting the island of Hawai'i (Kamakau, 1961).

The name Pana'ewa is famous for its connection to the *Ka'ao o Hi'iakaikapoliopele* where Hi'iakaikapoliopele, goddess of the forest, set off to find her sister's (Pele) lover and her first trial was to face the fearsome, man-eating mo'o (dragon, large lizard, reference to water systems) by the name of Pana'ewa. In his forest, all the elements, including the rains, winds, trees, and animals did his bidding. Hi'iakaikapoliopele was able to defeat him with the help of her family and her companions (Puku'i, 1996). Pana'ewa is also well known for the vegetative biodiversity. This includes a variation of Maile (*Alyxia stellata var.*) known as Pana'ewa maile lau nui, the long and tall 'ōhi'a (Pana'ewa 'ōhi'a loloa), and the big lehua blossoms that spand the land (Pana'ewa-nui-moku-lehua). These plants in turn become incredibly useful for cultural practitioners such as Hula dancers and Lāau Lapa'au. The stories and historical evidence gathered in the Draft , are culturally significant stories that define the character of Hilo and Pana'ewa and include recommendations on how the Project could incorporate the cultural significance of the surrounding area.

Community Consultation

Community consultation is an important aspect to understanding the context of a place. This community consultation occurred through the visioning portion of the Charrette Design created for KPFA and this Project, *see Appendix D: Keaukaha Panaewa Farmers Association Charrette*. This visioning portion was conducted with community members, with the purpose of identifying and understanding the importance of, and potential impacts to, traditional Hawaiian and/or historic cultural resources and traditional cultural practices within/near the Project area. During the charrette process, one individuals remark related to the area of the Project site mentions how it "…represents previous generations as first-generation farmers- a significance of the hard work, sweat and heart of the people." This quote speaks to the history community members have with their place and with their practice of farming. Another individual remarks that "[t]his new place needs to be humble, about the community, about the land. We must not forget how special it is." This quote speaks directly to the significance of the land and the community it resides in. Though this Project will be creating a new facility, it ultimately will have a responsibility to lift up the importance of ʻāina (land), and the community that work it. To be able to work on this parcel and to have a space for community is important to the members of KPFA, and one can attribute the character of the members to the practice of farming and the culture that comes with it. As one individual states "Farming was not just a job but a way of life."

Anticipated Impacts and Proposed Mitigation

The purpose of the Project is to provide the Keaukaha and Panaʻewa residents with a resiliency hub that can act as a community center that could also provide education on sustainable agricultural practices. This project also provides communities with tools on how to prepare for impending disasters and to better recover from disasters using sustainable agricultural practices. Connecting the community members to their homeland and to the ʻāina is critical to the perpetuation of native practices as well as native plants. This Project will involve the retention of indigenous plants such as the ʻōhiʻa, to protect the cultural importance of the Project site. The installation of landscaping and agriculture will also reflect community values by utilizing indigenous agricultural practices and indigenous species whenever possible, particularly those species which are best suited for the region's soil and climate conditions. If reintroduction native species historically known to the area is possible it could encourage the return of populations and return of traditional harvesting practices that historically used to occur in the Panaʻewa forest. KPFA recognizes the importance of placenames and will incorporate placenames that honor the areas that hold tremendous cultural value into the Project structure.

Public engagement will be conducted as part of the EA process and throughout the planning and design of the Project. The proposed Project will not result in short- or long-term adverse impacts to cultural resources and practices but would aim to incorporate cultural values and practices in the new Project. No other mitigation measures are proposed.

3.8 Socio-Economic Characteristics

Existing Conditions

The Project site is located on DHHL lands within the on the island of Hawai'i. *Table 3.3* below presents demographic information based on 2021 estimates provided by the U.S. Census for the County, and State. The County is home to almost 14 percent of the State's residential population. Median income in the County ($68,399) is lower than the State median ($88,005) (United States Census Bureau, 2021). *Table 3.4* below presents demographic information based on 2020 DHHL populations. The Median income for DHHL lessees in 2020 ($74,954) and the median income for Native Hawaiian households statewide ($63,236) were both below the State of Hawai'i median income ($83,102) (American Community Survey, 2019).

Table 3.3 Demographic Information for County of Hawai'i, and State of Hawai'i, July 2021 Estimates

Indicator	County of Hawai'i	State of Hawai'i
	Number / Percent	Number / Percent
Population Estimates, July 1, 2021	202,906	1,447,154
Population Estimates base, April 1, 2020	200,629	1,455,273
Population, Percent Change – April 1, 2020 to July 1, 2022	1.1	-0.6
Race		
White	34.3	25.3
Black/African American	0.9	2.2
Amer Indian/Alaskan Native	0.6	0.4
Asian alone	20.1	36.8
Nat Hawn/Other Pac Islander	13.0	10.5
Hispanic or Latino	13.8	11.1
Two or more Races	31.2	25.0
Family & Living Arrangements		
Avg household size	2.77	2.95
Median household income (In 2017 dollars)	$68,399	$88,005
Households with One or more People Under 18 Years of Age	21.2	21.1

Source: DBEDT, U.S Census Bureau – American Fact Finder

Table 3.4 Demographic Information for DHHL Lands	
Population of Survey (Total)	**8,959**
Age (Percentage)	
18 to 24	0.3
25 to 34	2.3
35 to 44	11.3
45 to 54	16.6
55 to 64	25.4
65 to 74	25.8
75 and older	18.2
Children (Percentage)	
No Children	44.9
One Child	17.6
Two Children	19.1
Three Children	9.6
Four or more	8.9
Household Size (Percentage)	
1 to 2 People	30.2
3 to 4 People	31.8
5 to 6 People	22.5
7 or more People	15.5

Source: DHHL, Beneficiaries Study Lessee Report, 2020

Anticipated Impacts and Proposed Mitigation

In the short-term, the Project will create a limited number of temporary construction-related jobs with direct and indirect benefit during the duration of construction.

The Project will provide increased farming and community space for KPFA members; however, the daily commuting population onto the proposed site will likely stay relatively constant. The Project will not result in any increase in the residential population at the site. The Project will serve DHHL beneficiaries, the Native Hawaiian population, and the larger community through the offering of resilience and agricultural programs and educational resources.

The anticipated socio-economic impacts of the Project for the local community are overall positive. The new facility will accommodate an increase in community use, training, and farming operations. The Project will also result in a beneficial impact on the quality of County response to emergency hazard situations. The proposed Project will be important to the protection of the community in cases of natural hazards.

3.9 Visual and Scenic Resources

Existing Conditions

The County General Plan (2019) considers and prioritizes the preservation of panoramic views of natural features and landmarks applicable to the project area. Maunaloa and Maunakea are able to be viewed from the Project site, see *Figure 3.10*. The existing surrounding buildings are also visible from this perspective. Within the Hilo district, commercial building heights are limited to 45 feet due to Hawaii County Code height limits.

The existing Project site is mostly vacant with the exception of KPFA's Farmers Market. The Project site is partially landscaped with gravel and young trees, the rest of the parcel is forested with a mix of native and non-native vegetation. See *Figure 3.10* The surrounding visual environment of the Project site is characterized by commercial buildings typical of an urban and mixed-use environment, as well as the mountains of Maunaloa and Maunakea. The Project is immediately bounded by forested areas to the north, east, and south, and Railroad Avenue to the west.

See *Figures 3.11 through 3.14* for views of the Project site from different perspectives.

Anticipated Impacts and Proposed Mitigation

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

The Site is not within a designated historic district and will not adversely impact protected views or scenic corridors. The Project is not anticipated to have a significant adverse impact on visual, scenic, and open space resources in the vicinity of the Site. No additional mitigation is recommended.

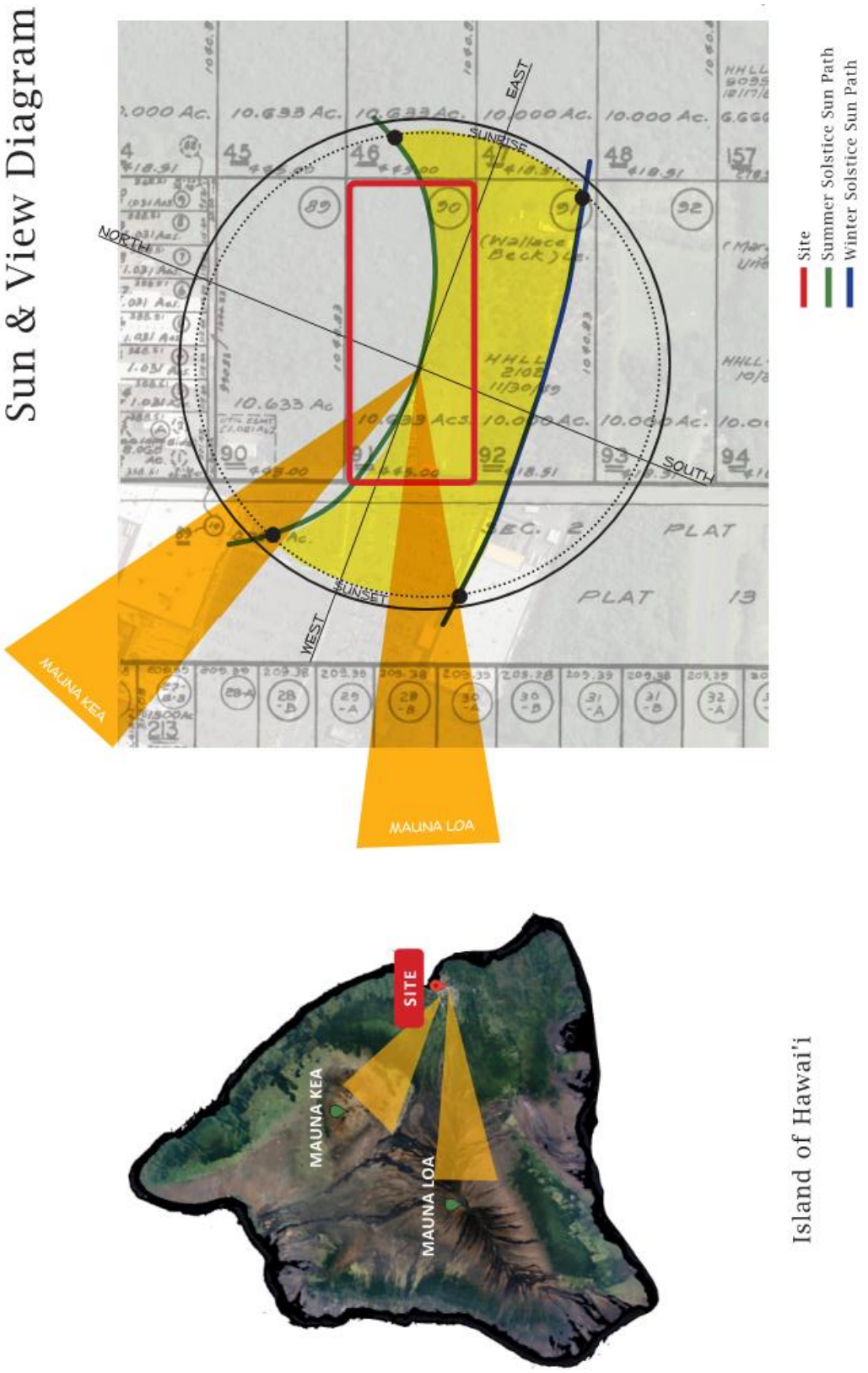

Figure 3.10 **Views from the Existing Project Site**

Figure 3.11 **Existing Project Site View from Railroad Avenue**

Figure 3.12 **Existing Project Site View from the Southwestern Corner of the Project Site**

Figure 3.13 **Existing Project Site View from the Southeastern Corner of the Project Site**

Figure 3.14 **Existing Project Site View at end of Landscaped area Looking Northeast**

Upon completion of construction, the Project will be a one-story, no more than 30-foot-tall structure situated adjacent to Railroad Avenue (see *Figure 3.14,* for the conceptual plan). The building height will not exceed the Hawai'i County 45-foot height limit. The Project will adhere to the Building Code guidelines articulated in the Land Use ordinance (LUO). The Project will be visible along Railroad Avenue and Maka'ala Street. The building will be located behind Home Depot, obscured from view along Puainako Street and Ohuohu Street. The new building will also be located behind heavy vegetation and the Hilo transfer stationand there fore cannot be seen from the Hilo International Airport. Existing buildings surrounding the Project site already exceed the proposed building's height; therefore, the Project is not anticipated to further impact views in its area. Final design treatments to minimize the impact of the structure on the surrounding neighborhood may include screening such as landscaping comparable to the existing or historical vegetation of the area. Once mature, landscaped trees may obscure view of the Project building from Railroad Avenue from the street level.

3.10 Utilities and Infrastructure

Existing Conditions

An Infrastructure Assessment Memo (IAM) was prepared for the Project by G70 on October 28th, 2021. This study can be found in *Appendix F: Infrastructure Assessment*. The IAM prepared for the Project site included the following studies: parking and safety, water infrastructure, wastewater infrastructure, drainage infrastructure, and electrical and telecommunication. The parking and safety study has been included in the in *Chapter 3.11 Roadways, Access and Traffic Control* and *Chapter 3.13 Public Services and Facilities.*

Water

The property is currently served by the County of Hawai'i Department of Water Supply (CoH-DWS). The existing DWS water system provides both domestic and fire protection water through an existing 12-inch waterline within the east shoulder of Railroad Avenue. DWS has indicated that the property is currently served through a 1-inch domestic water meter (Meter No. 17223245) and 1.5-inch service lateral. The current service is limited to 1,000 gallons per day (gpd).

Fire Hydrants (FH) are located along Railroad Ave and appear to meet the 300-foot minimum spacing required by DWS. The nearest Fire Hydrant is fronting the property along Railroad Ave, approximately 92 ft north of the southwest corner of the property. See *Figure 3.15* for a map of the existing waterlines.

Drainage

The Project site is relatively flat with elevations ranging from approximately 83 to 89 feet above MSL. The site appears to gently slope from the southern property line towards the north side of the parcel, parallel to the fronting street across established vegetation.

There are currently no drainage systems that exist onsite. Existing offsite drainage infrastructure is provided along Railroad Avenue and East Maka'ala Street (see *Figure 3.15).* A 3.75-foot by 2.5-foot County-owned square catch basin is located along Railroad Avenue just over 1,000 feet north of the Project site and a drywell drainage basin on East Maka'ala Street under 200 ft east of the Project site.

Wastewater

Based on correspondence with the State of Hawaii Department of Health Wastewater Branch, the site has no record of an onsite wastewater treatment system such as a cesspool, septic tank, or individual wastewater system (IWS).

The County of Hawai'i Wastewater Division has confirmed that they currently do not have service available to this property.

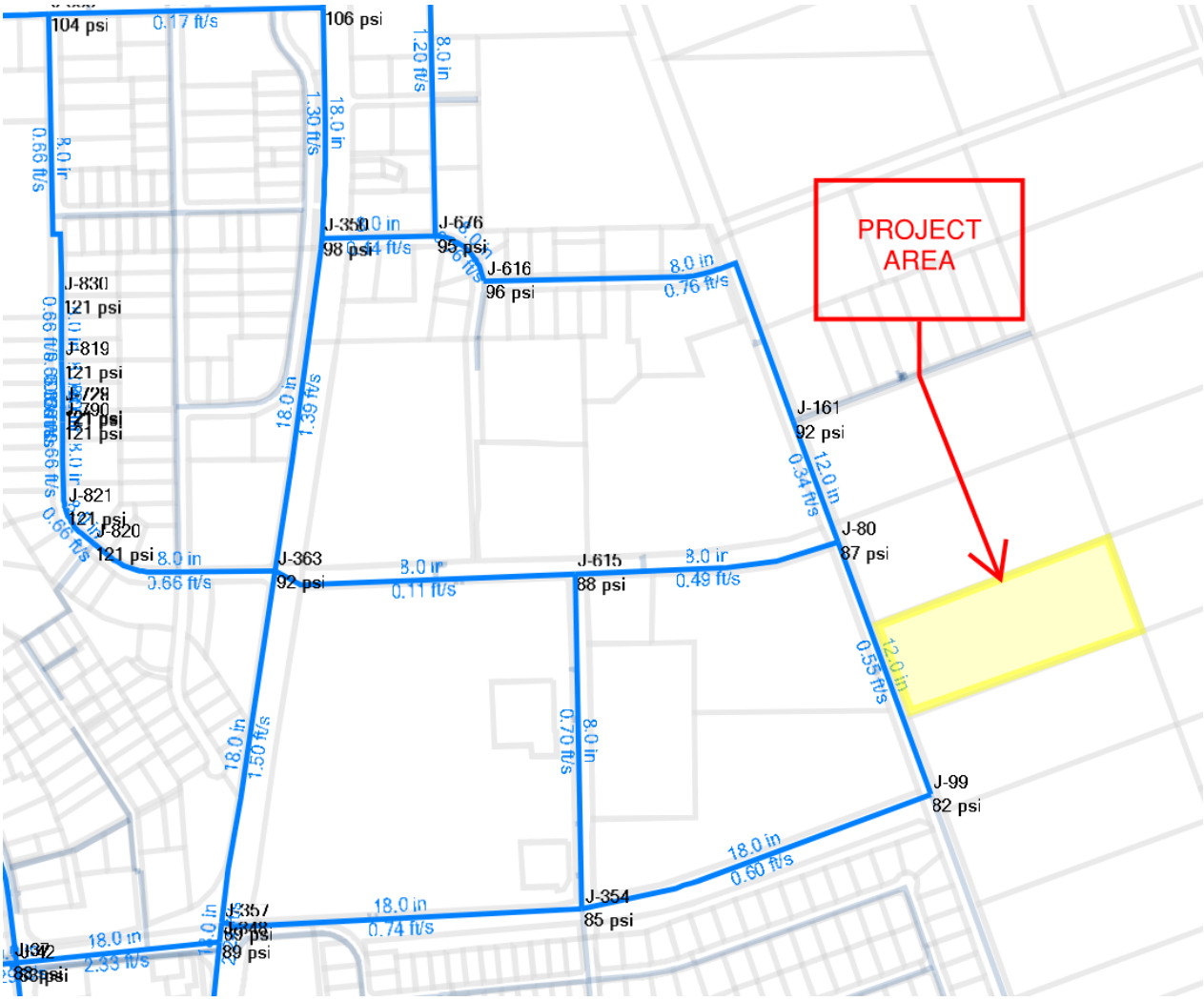

Figure 3.15 **Existing Water Lines Map**

Electrical Power and Telecommunications

There are existing overhead electrical and tele-communication (telcom) lines along Railroad Ave fronting the property. However, the property does not currently appear to have electrical or telcom service.

Anticipated Impacts and Proposed Mitigation

Water

The property is currently served by the CoH-DWS. The existing 1-inch domestic water meter and lateral would likely be replaced with a larger service to meet the needs of the facility. In addition, it is expected that the building may need to have a fire sprinkler, which will require a new fire service lateral and backflow preventor to be installed off the existing 12" public water main on Railroad Avenue. A water availability request including estimated maximum daily water usage calculations and construction plans will be submitted to DWS for review and approval per the request of CoH-DWS (dated: November 3rd, 2022). Upon acceptance, CoH will determine if water is available, the water commitment deposit amount, facilities charge due, and necessary water systems improvements to support the Project.

Drainage

The Project site generally slopes from south to north and is heavily vegetated except in the area currently cleared for the 1.5-acre farmer's market. There is no existing onsite drainage infrastructure onsite.

The proposed drainage infrastructure for the Project will be limited to swales, culverts, rain gardens and drainage sumps. Runoff will flow overland to swales and through culverts and into landscape areas or farm areas. Rain gardens and sumps will be created in these areas to manage the runoff allow runoff to evaporate and infiltrate into the ground. Improvements will be designed and constructed as required by County Standards to mitigate any adverse impacts to adjacent properties.

Wastewater

Since municipal wastewater service is not available from the County, onsite wastewater treatment systems are required and will need to be design and constructed as required by State regulations.

Due to the anticipated amount of wastewater generated it is likely that a wastewater treatment plant (WWTP) would be required. Some form of aerobic treatment would be used along with disposal of effluent in a large absorption field to be located somewhere on the property. Due to the variable flow expected as well as redundancy requirements an equalization tank and emergency generator are recommended. Construction plans and calculations for an Onsite Wastewater System will be prepared and submitted to the State of Hawaii Department of Health Wastewater Branch for review and approval for the private onsite system.

Electrical Power and Telecommunications

The property does not currently have electrical or telcom service. As a result, a service request including design drawings and estimated loads, will be prepared and submitted to the utilities to request service installation for the Project in accordance with the letter from Hawaiian Electric (date: October 26th, 2022). It is anticipated that both electric and telcom service would likely be provided overhead from the existing utilities on Railroad Avenue. It is also likely that the Project will include renewable energy and redundancy systems including photovoltaic, battery energy storage systems and possibly generators as necessary to support the facility and the onsite wastewater treatment systems.

3.11 Roadways, Access, and Traffic Conditions

Existing Conditions

A Preliminary Traffic Assessment Report (PTAR) was prepared for the Project by TMC on September 20, 2021. See *Appendix G: Preliminary Traffic Assessment Report*

Traffic conditions were observed at the following three study intersections adjacent to the site during the AM peak period (7:15 am to 8:15 am), the PM peak period (3:15 pm to 4:15 pm) and the Saturday or weekend peak period on August 12, 2021 and August 14, 2021:

- Puʻāinakō Street/ Railroad Avenue
- Home Depot Driveway / Railroad Avenue
- Makaʻala Street / Railroad Avenue

The below provides a summary of existing roadway, pedestrian, and transit facilities and observed activity in the vicinity of the proposed Project, see *Figures 3.16 to 3.18*.

Roadways

1. Railroad Avenue is a two-way, two-lane roadway, in the adjacent to the Project site. This avenue is under the jurisdiction of the County (TMC, 2021). Railroad Avenue stretches from Leilani Street located 0.71-miles north of the Project site to Cinder Road located in the Puna district approximately 18.65-miles southeast of the Project. This road has multiple breaks in between and follows the tracks from the old Hilo Railroad that was financed by B.F. Dillingham for the transportation of sugar cane from his Olaʻa sugar mill to the Hilo Harbor. This railroad was later extended to Pahoa to service the Pahoa Lumber.
2. Home Depot Driveway, a stop-controlled road adjacent to and accessible from Railroad Avenue, provides access to parking lot.
3. Makaʻala Street is a two-way, four-lane divided roadway between Railroad Avenue and Kanoelehua Avenue that intersects Railroad Avenue at a stop-controlled Tee- intersection. This Tee-intersection is located at the opposite end of Railroad Avenue from the Project site with a separate left-turn and right-turn lane. The aforementioned Home Depot Parking Lot can also be accessed on Makaʻala Street.
4. Puainako Street is a two-way, four-lane divided roadway between Railroad Avenue and Kanoelehua Avenue. Puʻāinakō Street intersects Railroad Avenue at a stop-controlled Tee-intersection with separate left-turn and right-turn lanes.
5. Local streets in the vicinity of the Project site include Kukila Street, Pohaku Street, Hoʻohua Street, and Ohuohu Street.

During traffic observations conducted on August 12, 2021 and August 14, 2021, the following conditions were observed:

1. Puʻāinakō Street / Railroad Avenue: Puʻāinakō Street carried over 200 vehicles per hour (vph) total for both directions at Railroad Avenue during AM Peak hours for weekday traffic. This includes 80 vph turning on to Puʻāinakō Street from Railroad Avenue from the direction of the Project site and 78 vph turning onto Railroad Avenue from Puʻāinakō Street in the direction of the Project site. During the AM peak hour for weekdays, operations were stable, and queuing begins to occur at Puʻāinakō Street / Railroad Avenue. During PM peak hours, weekday traffic

at Puʻāinakō Street carried about 350 vph for both directions at Railroad Avenue. This included 170 vph turning on to Puʻāinakō Street from Railroad Avenue from the direction of the Project site and 76 vph turning onto Railroad Avenue from Puʻāinakō Street in the direction of the Project site. Operations were stable and queuing begins just as it did in the AM peak hours despite the volume difference. During Saturday peak hours Puʻāinakō Street carried approximately 400 vph which included 66 vph turning on to Puʻāinakō Street from Railroad Avenue from the direction of the Project site and 24 vph turning onto Railroad Avenue from Puʻāinakō Street in the direction of the Project site. Operations were stable and queuing begins to occur at Puʻāinakō Street / Railroad Avenue.

2. Home Depot Driveway / Railroad Avenue: In the AM peak hour for weekday traffic, the Home Depot Driveway carried less than 100 vph at Railroad Avenue with 26 vph coming from the direction of the Project site and 7 vph turning towards the Project site. Conditions of operation at the Home Depot Driveway and Railroad Avenue intersection were less stable and there was an increase in delays and decrease in travel speeds. In the PM peak hour weekday traffic, the Home Depot Driveway carried 150 vph at Railroad Avenue with 51 vph coming from the direction of the Project on to Home Depot Driveway and 12 vph going toward the direction of the Project from Home Depot Driveway. Operations were stable and queues began at Home Depot Driveway and Railroad Avenue. The Saturday peak hour traffic carried over 200 vph at Railroad Avenue with 66 vph coming from the direction of the Project site on to Home Depot Driveway and 24 vph going towards the Project site from Home Depot Driveway. Operations had a control delay but it was insignificant during weekend hours.
3. Makaʻala Street / Railroad Avenue: In the AM peak hours of weekday traffic Makaʻala Street carried about 300 vph for both directions at Railroad Avenue including 36 vph from Makaʻala Street toward the Project site, and 124 vph from Railroad Avenue to Makaʻala Street. Operations were less stable and delays increased while travel speeds decreased. In the PM peak hours of weekday traffic, Makaʻala Street carried over 400 vph for both directions with 105 vph going toward the Project site from Makaʻala Street, and 70 vph turning onto Makaʻala from the direction of the Project site. Like the AM peak hours, operations were less than stable causing delays in travel speeds and a decrease in travel speeds. In the Saturday Peak hour traffic, Makaʻala Street carried about 400 vph for both directions at Railroad Avenue with 90 vph going toward the Project site from Makaʻala Street and 97 vph turning on Makaʻala Street from the direction of the Project site. Operations at Makaʻala Street. Operations were stable though queuing began to occur at Makaʻala Street and Railroad Avenue.

All the intersections in the study area operated at satisfactory Levels of Service, during the weekends. No severe safety conflicts between vehicles and pedestrians were observed during filed observations.

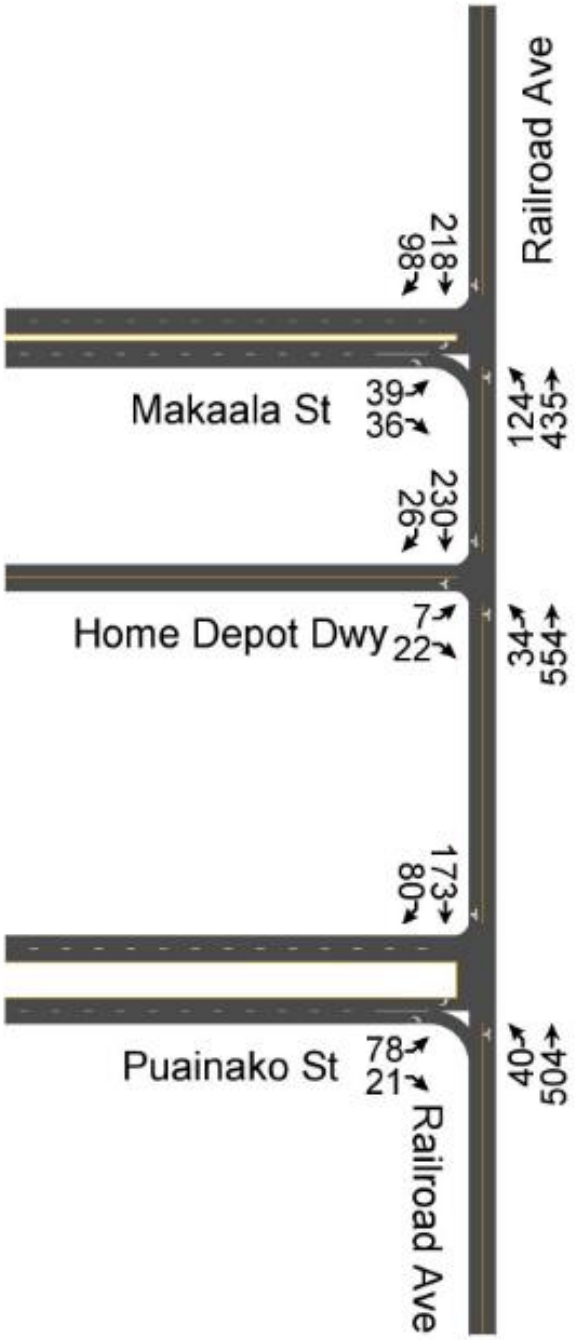

Figure 3.16 **Existing Weekday AM Peak Hour Traffic**

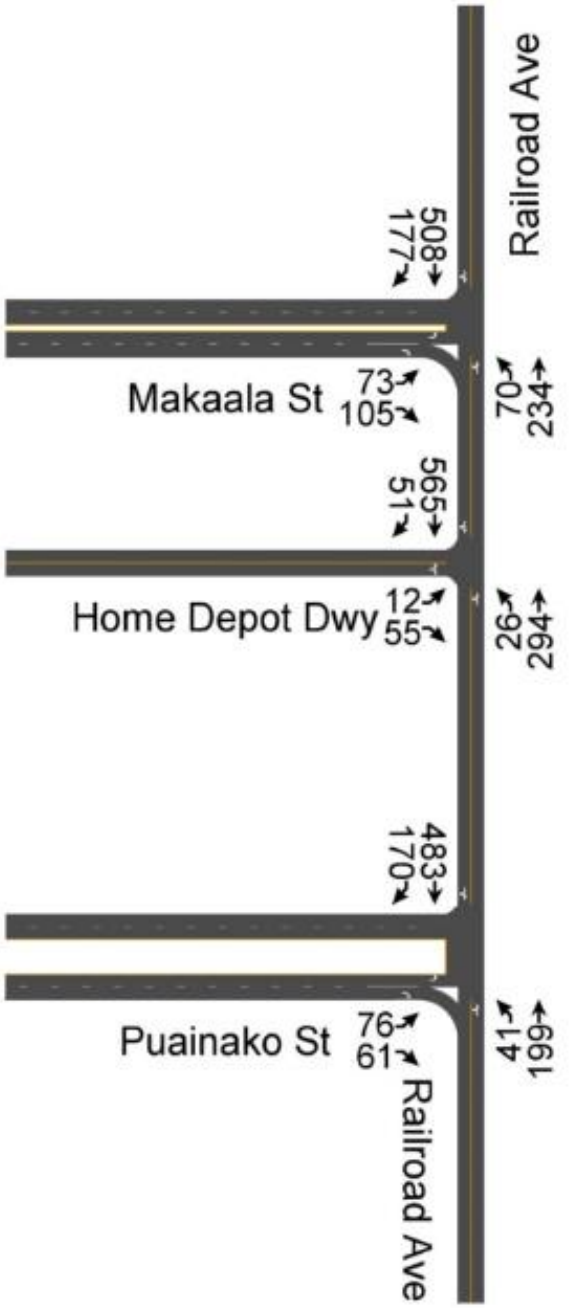

Figure 3.17 **Existing Weekday PM Peak Hour Traffic**

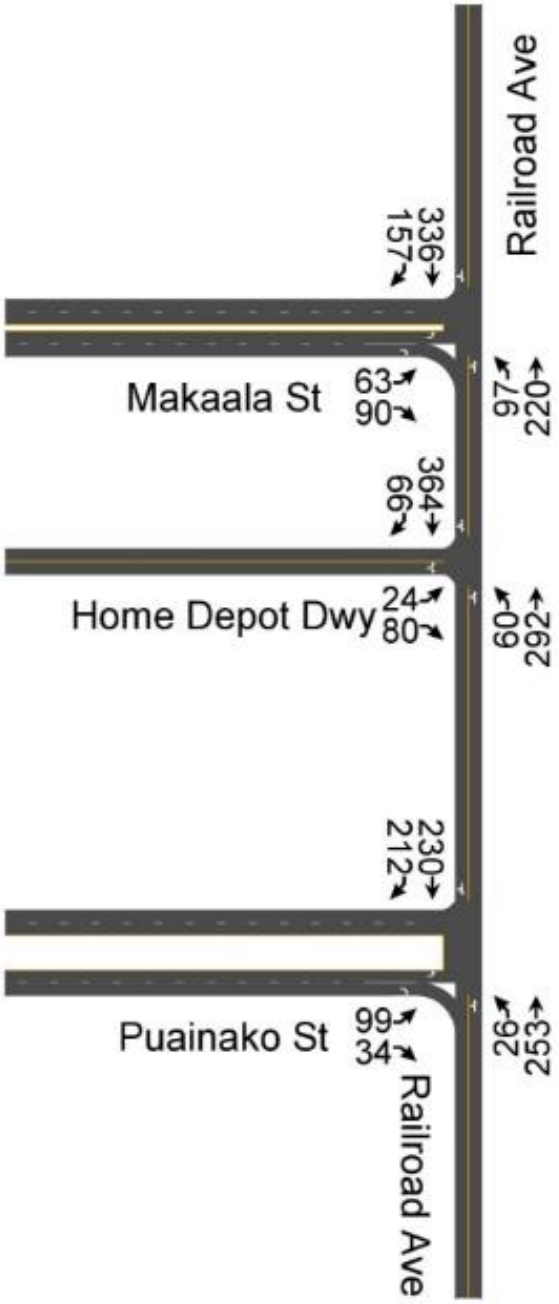

Figure 3.18 **Existing Saturday Peak Hour Traffic**

Pedestrian

Sidewalks are provided on both sides of both sides of Maka'ala Street. All sidewalks meet the minimum 6-foot-wide County standard, and in most cases exceed the minimum and are very wide. Sidewalks were observed to provide adequate width for the volume of pedestrians observed. All pedestrians observed in the study area utilized the sidewalks and crosswalks surrounding the Project area.

Transit

The Hele-On bus service is the main public transportation service on the island of Hawai'i. Hele-on bus services served over 473,083 Passenger rides in Fiscal Year 2022. There are 23 bus routes around the island of Hawai'i. The nearest bus stops to the Project site are the Target at Safeway bus stop located approximately 775-feet away to the west of the Project site on Maka'ala Street, and the Ohuohu Street at Prince Kuhio Plaza bus stop located approximately 1,300-feet southwest of the Project site on Ohuohu street. Currently 5 bus routes serve these bus stops: Route 10 Ka'ū- Hilo, Route 11 Redline Hilo-Volcano, Route 40 Pahoa, Route 101 Intra Hilo-Keaukaha, and Route 103 Intra Hilo-Waiakea Uka. Each route typically operates seven days a week primarily between 3:15 AM-2:30 AM. some operate only from Monday through Saturday. Overall, the Project site is well-served by public transit (Hele-on, 2023).

Anticipated Impacts and Proposed Mitigation

Construction-related traffic will be temporarily noticeable, but it will not significantly increase traffic on surrounding streets. The following mitigation measures are recommended during the construction phase of the Project to promote optimal traffic conditions:

- Trucks delivering construction material and disposing of construction waste should be scheduled on weekdays during non-peak commuter periods (8:30 AM to 3:00 AM);
- All construction vehicles will be kept in proper operating condition to prevent adverse impacts on public roadways; and
- Construction plans and drainage/discharge/connection permit applications for work done within a Hawaii Departmen t of Transportation (HDOT) Right of Way (ROW) will be submitted to the HDOT, Highway Division for review and approval. Similarly, construction plans and drainage/discharge/connection permit applications for work done within the Department of Public Works Traffic Division (DPW-TD) ROW will be submitted to DPW-TD.

Potential short-term impacts to traffic and circulation on site are related to temporary construction activities. Disruptions to normal traffic flow to the site may be minimized through the use of traffic control barricades, cones, and signage to delineate construction boundaries. Staging areas will be located on site. As recommended by County of Hawai'i Police Department (CoH-PD) during the Draft EA comment period, temporary loading and unloading zones may be established by the contractor to accommodate for construction deliveries and other vendors without impeding or disrupting existing traffic patterns. Designated parking areas will be established for contractors and construction personnel. Approach signs and a flag person may be positioned to direct traffic through temporary traffic control zones as necessary. Additionally, the contractor will inform area businesses and residents whenever construction-related work may impede on daily activities. However, all impacts would be short-term and last only the duration of construction.

The Project is not anticipated to generate additional traffic to the area during AM or PM peak hours of operation (entering/exiting) at the Project site. Vehicular access to the proposed Project will be accessed by community members for keiki to kūpuna programming; agricultural training; and agricultural demenstration areas to support ‘ohana enrichment, community economic sustainability, and economic food security. This Project will also be accessed by the community before, during and after hazardous events. There will be a parking lot for users with a drop-off/pick-up area complete with an ADA-accessible entrance to the facility to service everyone in the community and to meet DOH compliance standards. There will also be a separate parking lot for employees on the east side and north side of the Project facility. Service trucks will be able to access the site using the service driveway which wraps around the property for easy pick-up/drop-off. The existing entrance to and exit from the Project site located on the northwest side of the property will remain during and after construction phase. If needed, overflow parking by employees or users during Project activation may be provided at the Home Depot Parking Lot.

Further, any turning movement generated by the Project, or the number of vehicles making left or right turns at the study intersections will be no less and no greater than the amount of making these turns at the study intersections at present. As this number is small, especially when compared to the large volumes of observed traffic in the area, the proposed Project is not expected to affect the operations of the roadways in the vicinity of the Project in the long-term. Furthermore, the proposed Project site is situated on a portion of Railroad Avenue that is currently landscaped and is not expected to conflict with the space needed for transit vehicles to maneuver throughout the area.

Additionally, pedestrian access to the Project will be provided at the main entrance on the northwest side of the property. A crosswalk will be installed connecting the sidewalk at Maka‘ala Street to the Project site. No substantial long-term impacts to existing pedestrian facilities are anticipated from construction of the Project. The Project building will be appropriately set back from adjacent streets and the existing sidewalks and paths are expected to be adequate to serve Project demand and site access.

3.12 Air Quality and Noise

Existing Conditions

Air Quality

DOH, Clean Air Branch (CAB) has established the State Ambient Air Quality Standards (SAAQS). The DOH-CAB regularly samples ambient air quality at monitoring stations throughout the State, and annually publishes this information. On Hawai‘i Island, there are ten monitoring stations which measure the following pollutants: carbon monoxide (CO), nitrogen dioxide (NO_2), particulate matter (PM) of 10 micrometers or smaller (PM_{10}), PM of 2.5 micrometers and smaller ($PM_{2.5}$), and sulfur dioxide (SO_2). Readings at the Hilo monitoring station located approximately 3.5-mile northwest of the Project site at 2-198 Rainbow Dr, Hilo, HI 96720 at the Wailuku River State Park, show that air quality is considered “good” and confirm that criteria pollutants were below state and federal ambient air quality standards (DOH-CAB, 2022).

Air quality in the State of Hawai‘i continues to be one of the best in the nation, and criteria pollutant levels remain well below SAAQS. According to the *Annual Summary 2021 Hawai‘i Air Quality Data,* air quality monitoring data compiled by the DOH indicates that the established air quality standards for all monitored parameters are consistently met throughout the State and on the island of Hawai‘i. Hawai‘i has relatively clean air, low in pollution, due in part to prevailing northeasterly trade winds. The

relative absence of stationary pollutant sources in the area presumably keeps air quality in the Project area at levels considered good (i.e., well within the air quality standards). Present air quality in the Project area is primarily affected by emissions from vehicular traffic, with carbon monoxide being the most abundant of the pollutants emitted. There is potential for Hawai'i carbon monoxide criteria, which are more stringent than the Federal standards, to be exceeded on occasion near high-volume intersections during periods when traffic congestion and poor dispersion conditions coincide.

Noise

Major contributors to the existing background ambient noise levels within the Project area are the Hilo International Airport located less than a mile away and traffic along Railroad Avenue, and Maka'ala Street.

HAR §11-46, "Community Noise Control", defines maximum permissible sound levels which are intended to protect, control, and abate noise pollution from stationary sources and construction, industrial, and agricultural equipment. As detailed below, maximum permissible sound levels in various zoning districts are set for excessive noise sources during the day (7 am to 10 pm) and night (10 pm to 7 am) at the property line where the activity occurs.

- Class A – Residential, conservation, preservation, public space, open space, or similar type zones – 55 decibel (dBA) (day) and 45 dBA (night)
- Class B – Multi-family dwellings, apartment, business, commercial, hotel, resort, or similar type zones – 60 dBa (day) and 50 dBa (night)
- Class C – Agriculture, country, industrial, or similar type zones – 70 dBa (day) and 70 dBA (night)

Noise generated by operations at the Project Site are relatively minimal. Noises in the surrounding area are associated with neighborhood traffic along Railroad Avenue. Dense vegetation surrounding the Project site provide a natural barrier from noises produced by Project operations.

Based on the MCX zoning of the area, the Project is located in the Class C zoning district for noise control purposes. The maximum permissible daytime sound level in the district is 70 dBA during daytime hours and nighttime hours. The noise from the nearby airport is currently be more in line with the noise produced in Class A areas and therefor is deemed an acceptable amount of noise that will have little to no affect on the Project site. The main source of noise in the surrounding area is caused by industrial and commercial operations as well as traffic.

Anticipated Impacts and Proposed Mitigation

Air Quality

The proposed Project will result in short-term impacts during the construction period in the form of exhaust from increased traffic and fugitive dust from construction activity.

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

- Using water to control fugitive dust in construction operations, the grading of roads, or the clearing of land;

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

Additional BMPs proposed by the Department of Health, Clean Air Branch (DOH-CAB) will also be incorporated during construction of the Project, as applicable:

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

With the implementation of the proposed mitigation measures, the Project is not anticipated to have a significant adverse impact on air quality, as the proposed improvements do not involve permanent activities that will impair the State's ability to meet Federal or State air quality standards. No additional mitigation is recommended.

Noise

Potential noise impacts to the surrounding environment are related to construction activities. Construction noise is not expected to be significant, as there will be limited grading and facilities development. The general contractor will be responsible for obtaining a Noise Permit from DOH and complying with conditions attached to the permit. Under current procedures, noisy construction activities are restricted to hours between 7:00 am and 6:00 pm, Monday through Friday, excluding certain holidays, and 9:00 am and 6:00 pm on Saturdays. Construction is not permitted on Sundays. Construction will be performed during the day to ensure minimal nighttime noise impacts on surrounding land uses. The contractor will also ensure that construction equipment with motors are properly equipped with mufflers in good operating condition. Delivery and construction related noise is not expected to be significant.

In the long-term, operation of the Project is not anticipated to significantly increase noise levels in the surrounding area. Traffic noise from the surrounding roadways, along with the noise produced by the airport will continue to control background ambient noise levels. As discussed in *Chapter 3.11*, the Project is not expected to generate substantial traffic to the site. Therefore, increases in traffic noise levels attributable to the Project is not expected to result in a substantial increase in noise in the area. The noise generated from the nearby airport is under 55 DBL and therefor will not affect the Project area.

With the implementation of the proposed mitigation measures, the Project is not anticipated to result in a significant adverse impact on existing noise conditions. Dense vegetation will provide a natural vegetative buffer and reduce noise spillover. No additional mitigation is recommended.

3.13 Public Services and Facilities

Existing Conditions

Disaster Relief

The Robert T Stafford Disaster relief and Emergency Assistance Act (Stafford Act- PL 100-707) constitutes the statutory authority for most federal disaster response activities. The Disaster Mitigation Act 2000 is the current federal regulation addressing hazard mitigation planning which amended the Stafford Act to require the preparation of hazard mitigation plans by state and local governments emphasizing planning for disasters before they occur. The requirement for state hazard mitigation plan is continued for disaster assistance. HI-EMA, formerly the Hawai‘i State Civil Defense is the current Hawai‘i disaster management agency responsible for coordinating disaster loss reduction programs, initiatives, and policies throughout the State. HI-EMA also coordinates the county emergency management agencies and serves as the State Warning Point (HI-EMA, 2018).

The HCCDA communicates and coordinates with other county, State and Federal agencies in cases of emergency, and coordinates public awareness, information, and education efforts to prepare the community. HCCDA may also issue watches and warnings received at the State level. When a disaster response effort exceeds the capabilities of a county, HI-EMA under the State Department of Defense (DoD) may recommend a State Emergency Proclamation from the Governor. Such a proclamation may suspend certain State laws to enable quick emergency response, activate the State Emergency Response Team, or allow the State DoD to place the Hawai‘i Army and Air National Guard on State Active Duty.

In cases of volcanic eruption, tsunami, hurricane, or wildfire a network of emergency evacuation shelters managed by the Hawai‘i County are designated throughout the island. Shelter locations and opening times are determined based on the situation. The tsunami shelters in South Hilo are Piihonua Gym, Puueo Community Center, Andrews Gym, Coastales Waiakea Uka Gym, Panaewa Park, Hilo High School Cafeteria and Carvalho park (Hawai‘i 24/7, 2023) . Other shelters in South Hilo used during emergency or threat of disaster are E B de Silva Elementary, Waiakea Waena Elementary, special needs shelters such as Hilo intermediate, Kaumana Elementary, Waiakea Elementary, and Waiakea Intermediate, and the special needs and pet friendly shelters of Hilo High and Waiākea High (Tribune Herald, 2023). HCCDA also encourages the public to shelter-in-place or in homes outside of hazard areas.

Fire Service and Emergency Medical Service Facilities

Fire protection services land and sea search and rescues, hazardous material response, ocean safety and pre-hospital emergency medical services (EMS) are provided by the Hawai‘i Fire Department (HFD). Station 2 Waiākea Fire Station is in close proximity to the Project located 1.00-mile northeast of the Project site at 95 Keaa St, Hilo, HI 96720. The response time to the Project site would be approximately seven (7) minutes. Additional fire support could be provided by the Central Fire Station 01 located approximately 2.17-mile southwest of the of the Project site 466 Kino‘ole Street, Kawailani Fire Station (Station 3) located approximately 2.2-miles northwest of the Project site at 285 Haihai

Street and the Kea‘au Fire Station (Station 5) located 5.52-miles south of the Project site at 16-579 Old Volcano Road.

HFD responds to medical emergencies, providing first aid and medical services. EMS operates 9 ambulance units within 10-miles of the Project area. All ambulance units are designated as advanced life support units, meaning they are staffed by at least two people. The Project area is immediately served by District 2, which includes the Keaukaha and Pana‘ewa area.

The site is served by Hilo Urgent care located 1.05-miles northwest of the Project site at 670 Kekuanaaoa Street, Hilo Medical Center located approximately 3.75-mile northwest of the Project site, and Keaau Urgent care located approximately 5.50-mile south. Hilo Medical Center is a not-for-profit health care provider licensed for 157-beds for acute care and 35 beds for long-term care (HMC, 2023). Hilo and Kea‘au Urgent Care responds to non-emergency conditions, in similar sityations for which one might visit a primary care Physician due to the difficulty of finding immediate care and does not handle medical emergencies that would typically require a trip to the Emergency room (Urgent Care, 2023).

Airports

Runway 3 of the Hilo International Airport is located approximately 0.84-miles away from the Project site. Potential single event noise from aircraft operations may impact the Project site. There is also the potential for fumes, smoke, vibrations, and odors to impact the site. See Chapter *3.12 Air Quality and Noise* for more details. The Project site is not in direct line with any flight paths currently used to land or depart from Hilo international airport.

Police Services

Police protection services for the Project site are provided by Police Department for the CoH-PD, which covers all of the South Hilo area from Hakalau gulch at the seashore to the Puna district boundary of the Māmalahoa highway. The main police station is located 2.1-miles northwest of the Project site at 349 Kapi‘olani Street. The CoH-PD administrative office for the island of Hawai‘i and headquarters is located 1.9-miles northwest at 101 Pauahi St #9. Additional police protection is provided by the Keaau Police station located approximately southeast of the Project site at Old Volcano Rd, Keaau, HI 96749. The Project site is located within the Beat 142 (CoH-PD, 2011).

Educational and Library Facilities

The Project site is located within the State Department of Education’s (DOE) Hawai‘i District, Hilo-Waiākea Complex area, which includes the following schools: de Silva Elementary, Ha‘aheo Elementary, Hilo Union Elementary, Kapi‘olani Elementary, Kaumana Elementary, Keaukaha Elementary, Waiākea Elementary, Waiākeawaena Elementary, Kalanianaole Elementary, and Intermediate, Hilo Intermediate, Waiākea Intermediate, Waiākea High, and Hilo High. These schools serve approximately 3,629 students (DOE, 2017). Public charter schools located within the Hilo-Waiākea Complex area include Connections Public Charter School (PCS), Ka ‘Umeke Ka‘eo PCS, Ke Ana La‘ahana PCS, and Laupahoehoe Community PCS. This Complex area also includes WCSA-Hilo Campus Community School and the Hilo Childrens Center which is located approximately 3,782 feet northwest of the Project Site and serves children five years old and younger.

The public library in closest proximity to the Project site is the Hilo Public Library, located 2.74-mile northwest.

Solid Waste Management

There is one transfer station located approximately 2,600 ft to the northeast of the Project. This transfer station is used by the wider Hilo Community. The commercial operations, State and Federal agencies, religious entities and non-profit organizations may not use the transfer stations for disposal. Construction and demolition waste is prohibited at all County Transfer stations. The South Hilo Sanitary Landfill is now closed and all municipal solid waste will need to be deposited at the West Hawaii Sanitary Landfill.

Recreational Facilities

The park in closest proximity to the Project site managed by the County is Pana'ewa Park, a six (6)-acre park located approximately 0.45-mile southwest of the Project site. The park important site community events and includes a playground and an open-gymnasium style basketball court along with restroom services and an open field.

The closest park to the Project site that is managed by the county is Lokahi Park located approximately 1.00-miles away west of the Project at 126 Lokahi Place. The complex includes a two tennis courts, two basketball courts, restroom facilities and an open field. Facilities at Waiakea High School, including a track and field, two baseball diamonds, and a cafeteria, that can be made available to the public for community meetings, and school events.

The Project is not anticipated to adversely impact the existing recreational facilities in the area.

Anticipated Impacts and Proposed Mitigation

Disaster Relief

The Project is expected assist the HCCDA and the County by providing a viable resiliency hub after its construction and providing education on emergency and disaster management for the public. This increase in education is expected to improve the capability and efficiency of HCCDA's disaster relief responsibilities. The new building will also provide information on disaster relief fostering collaboration on natural hazard planning and response.

The Project is expected to decrease demand at emergency evacuation shelters. It is anticipated that volunteers at the Project site will assist during cases of emergencies and natural hazard events. The new resiliency hub will include a working kitchen and rooms that can house volunteers and members of the public during the case of an emergency. Volunteers would be required to stay overnight during emergency event. Users and volunteer would be advised to escape to safer areas would be advised to evacuate to other areas if the KPFA-RAIH becomes unsafe during an emergency event.

Fire Services and Emergency Medical Service Facilities

The Project will impact fire protection services with a slight increase in the number of employees in the vicinity. Design measures for the building will meet the Uniform Fire Code and fire flow requirements including compliance with Chapter 18 of the 2018 Hawaii State fire Code and Chapter 26 of the Hawaii County Code in accordance with the letter from CoH-FD (dated: October 3rd, 2022). Staff training will also provide an additional measure of safety and emergency response preparation. The Project will include HCCDA office facilities, increasing the on-site emergency services. Staff training may be included which would provide an additional measure of safety and emergency response preparation.

The Project may improve fire and emergency medical first responders' coordinated response during cases of emergency and times when the emergency protocols are activated, thus resulting in an overall benefit to the public.

With the implementation of the proposed mitigation measures, the Project is not anticipated to result in a significant adverse impact on HFD and EMS operations. The Project will not result in a substantial population growth or a demographic shift, and thus is not anticipated to substantially increase long-term demand for fire or emergency medical services. No additional mitigation is recommended.

Airports

All projects within 5-miles from Hawai'i State airports are advised to read the Technical Assistance Memorandum (TAM) for guidance with development and activities that may require further review and permits. The proposed development will not provide landscape and vegetation that will create a wildlife attractant, which can potentially become a hazard to aircraft operations. Figure 3.19 shows the Project site in proximity to the Hilo International Airport. According to the plans shown in *Figure 3.20* to *3.22* the property is not in-line with any flight pathways and therefore will not have any impact on airport operations. Any future Solar energy photovoltaic (PV) system installed for the facility will conduct a glint and glare study to mitigate any hazard it may produce for the nearby airport and its operations in accordance with the recommendations made by HDOT in their letter (November 2, 2022).

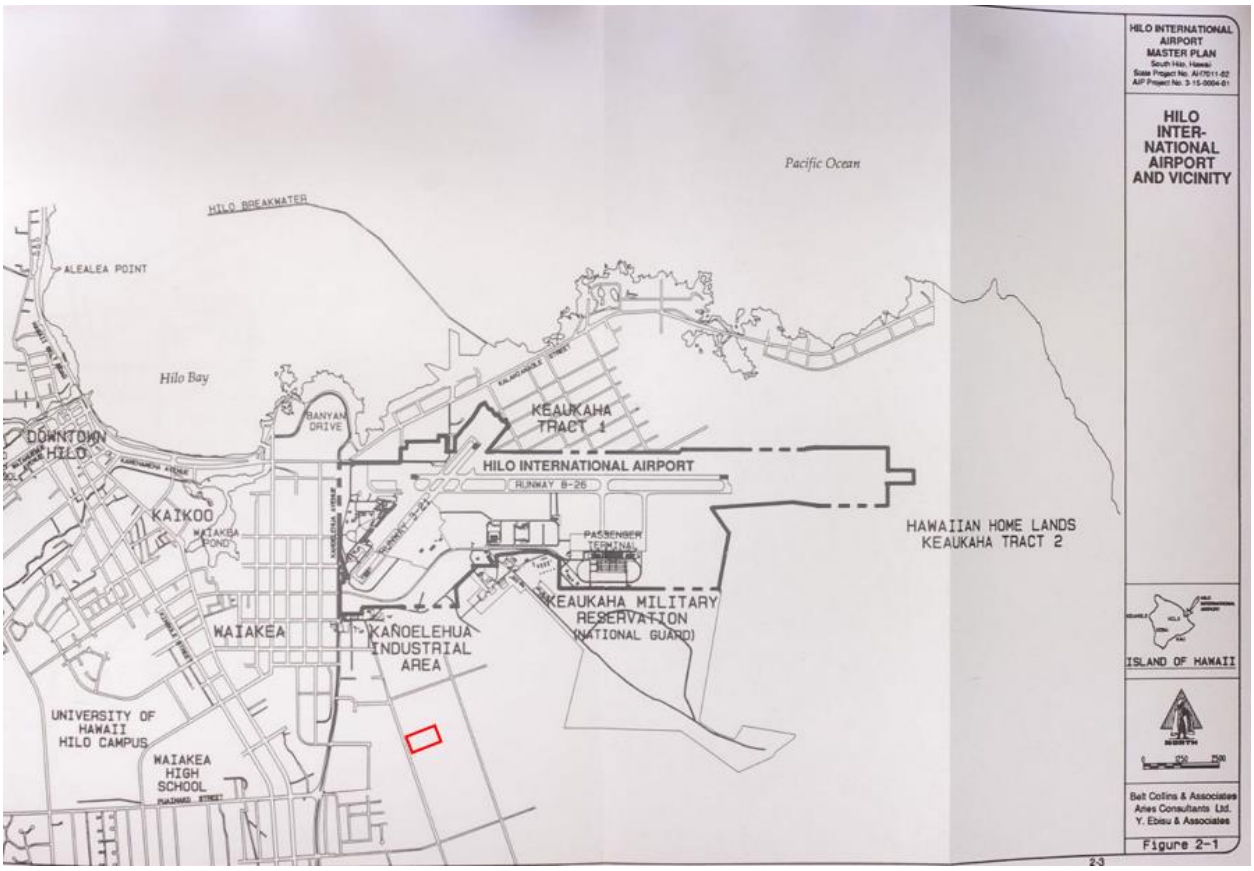

Figure 3.19 **Project Site in Relation to Hilo International Airport**

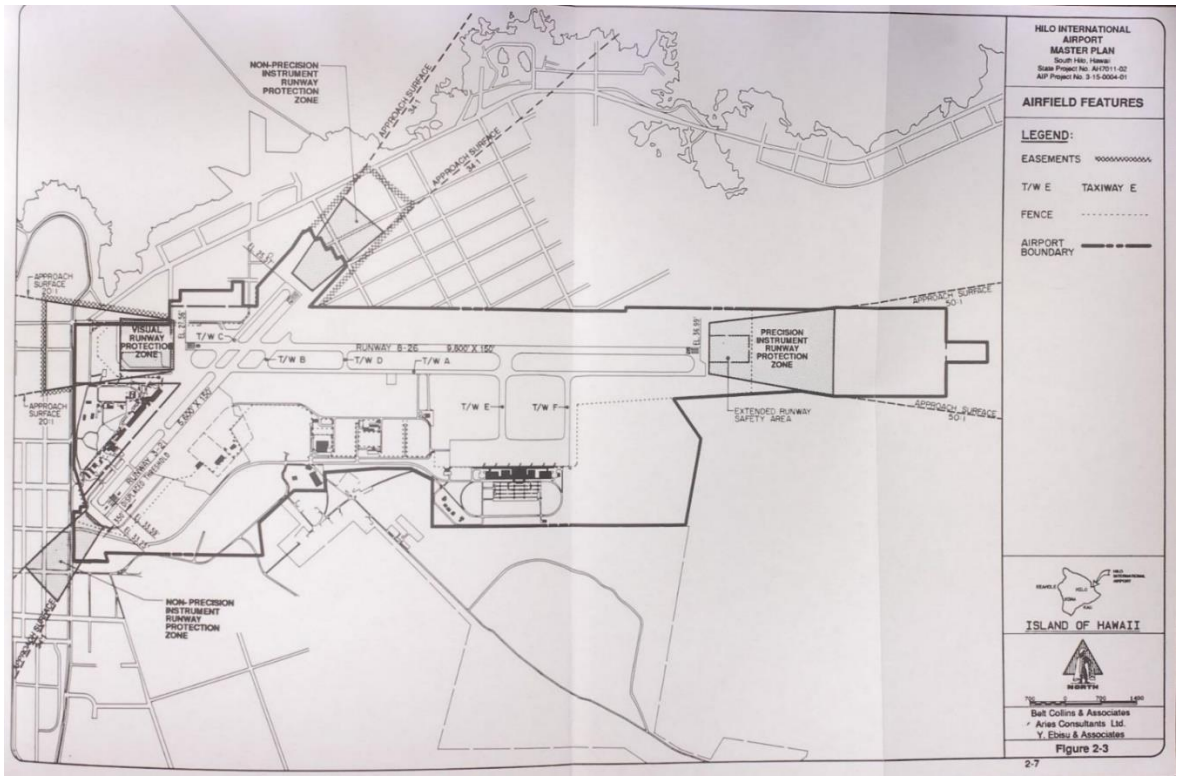

Figure 3.20 **Hilo International Airport Airfield Features**

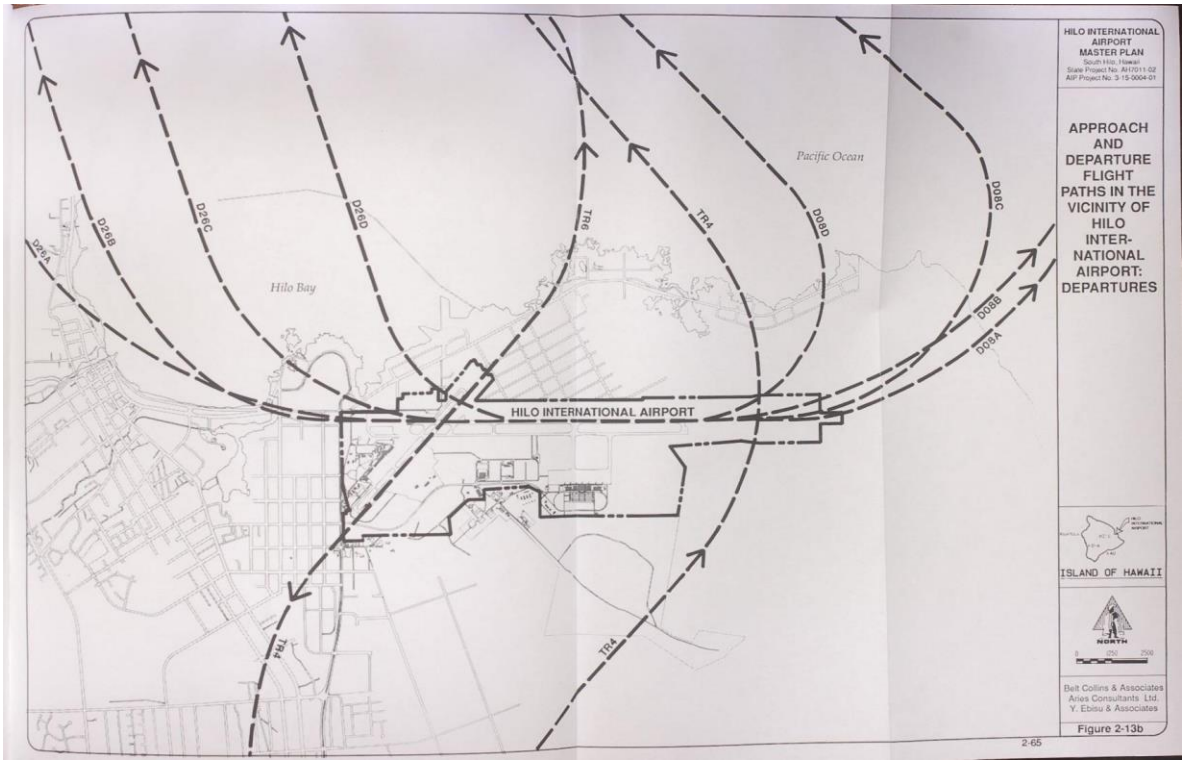

Figure 3.21 **Departure Flight Paths for Hilo International Airport**

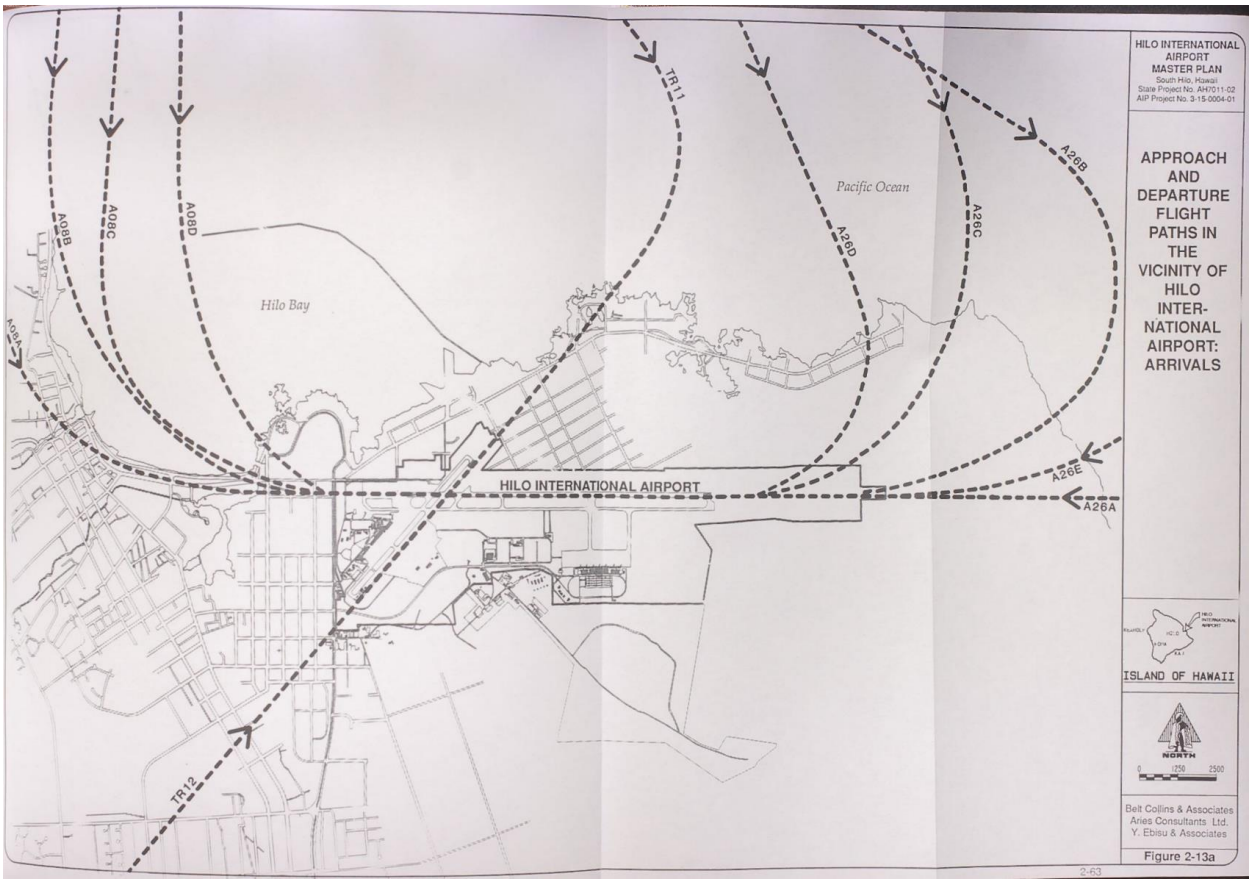

Figure 3.22 **Approaching Flight Paths for Hilo International Airport**

Police Services

This increase in population may required security and police services during special events. This increase in population may require additional security and police protection services. Per CoH-PD letter (dated October 5, 2022) significant impacts to traffic and/or public safety concerns are not anticipated (*See Appendix B: Preliminary Community Consultation Letters*). During construction, all necessary signs, lights, barricades, and other safety equipment will be installed and maintained by the contractor. Temporary loading and unloading zones will be determined by the contractor to mitigate for any disruption to existing traffic patterns. Designated parking areas for contractors and construction personnel will also be established. Entry to the facility will be gated. All restricted areas will have security measures that may include, but not be limited to, clear signage, secured and non-manipulable locks, and security cameras. Design measures will ensure that public spaces are well-lit and visible as to deter the potential for crime-related opportunities.

Like with fire and EMS, the new Project may improve police and fire first responders' coordinated response during cases of emergency and in cases of emergencies and natural hazard events. Project must be activated, thus resulting in an overall benefit to the public. Should police services be needed at the site, responders would be able to quickly respond given the close proximity of the site to such services.

With the implementation of the proposed mitigation measures, the Project is not anticipated to have a significant adverse impact on CoH-PD's operations. The Project will not result in a substantial population growth or a demographic shift, and thus is not anticipated to substantially increase long-term demand for police services. No additional mitigation is recommended.

Educational and Library Facilities

The Project will create programs to educate the public on resiliency and recovery practices after disaster and emergency events, as well as disaster preparedness to create a more prepared and educated community before disaster and emergency events occur.

The proposed Project is anticipated to produce increased noise levels during construction. No schools or libraries will be affected by the noise generated during Project construction. Measures to mitigate noise impacts during construction are detailed in *Chapter 3.12 Air Quality and Noise.* Upon completion of construction activities, it is anticipated that noise levels will be reduced back to pre-construction levels. There is no anticipated impacts on traffic in the area due to the Project construction and operation.

With the implementation of the proposed mitigation measures, the Project is not anticipated to have a significant adverse impact on existing educational and library facilities in the Project vicinity. No additional mitigation is recommended.

Solid Waste Management

Due to the anticipated amount of solid waste generated a Solid Waste Management Plan (SWMP) is required per CoH-DEM Solid Waste Division's preliminary letter (dated: October 31st, 2022). Aggregates and any other construction/demolition waste should be responsibly reused to the fullest extent. Ample and equal room should be provided for rubbish and recycling. Green waste may be transported to the green waste sites located at the East Hawai'i Organics Facility, or other suitable diversion programs. The SWMP must provide sufficient information (tonnage, schedule, etc.) to allow DEM to plan for increased disposal rate. The SWMP will contain: a description of the Project and the potential waste it may be generating, an indication of onsite source separation by waste type, an identification and location of the proposed waste reduction, waste re-use, recycling facility or disposal site and associated transportation methods for various components of solid waste management systems, an identification of any impacts to County-operated waste management and the appropriate mitigation measures that will be implemented by the development to minimize these impacts, and an analysis will be based on the highest potential use or zoning of the development.

Recreational Facilities

The Project will serve the communities of Pana'ewa and Keaukaha during disaster events. When there are no disaster events, the Project is anticipated to serve as a recreational facility serving kūpuna and keiki programs for residents of the Keaukaha and Pana'ewa communities. This is anticipated to decrease the demand for regional recreation in turn decreasing both shorth-term and long-term impacts on recreation for these communities.

Pedestrian and transportation facilities will continue to be separated. Pedestrian traffic will be controlled and directed along the existing street sidewalks to pedestrian access points along Maka'ala Street. Landscaping will be installed along the perimeter of the site to facilitate a pedestrian-friendly environment.

The Project is not anticipated to have a significant adverse impact on existing recreational facilities, as the Project does not involve a long-term loss of access or overuse of recreational facilities. No additional mitigation is recommended.

3.14 Potential Cumulative and Secondary Impacts

Cumulative impacts are the result of incremental effects of an activity when combined with other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Minor but collectively significant actions over a period of time can result in cumulative impacts to a place. The areas surrounding the Project have been previously disturbed and currently hold a number of commercial buildings. The Project will be constructed in an area currently zoned for mixed use, and as a result, is not anticipated to generate any significant cumulative impacts that are negative, however, the Project will have the opportunity to impact the community in a positive way.

The Project will generate few vehicular trips and is expected to have a negligible impact on traffic operations. There are no known major projects or long-range development projects within the vicinity of the Project. The proposed Project will not impact any natural or cultural resources in the area and will aim to increase the amount of natural and cultural resources and practices for community interaction. It is not anticipated that the proposed construction of the Project will interfere with current operations in the area and the structures will follow the Hawaii County Code as it relates to appropriate building permits in accordance with the preliminary letter from CoH-DPW Building Division (dated: October 11th, 2022). The Project will also receive plan approval for all new structures and additions to existing structures for the MG district as per section 25-5-157(c) of the Hawaii County Code, Chapter 25 zoning code in accordance with the preliminary letter received from CoH-Planning (dated: October 24th, 2023). The Project will act as a community resource for members to use for educational and training purposes as well as sustainable agricultural practices. The Project would create short-term employment for the construction phase of the Project, while possibly adding long-term employment opportunities to service and care for the Project facility itself. The cumulative intensification of development on the site will have little change on the landscape; however, adverse impacts to scenic and visual resources is not anticipated.

Secondary effects are impacts that are associated with an activity but do not result directly from the activity. The increase of users on site is not expected to exceed the capacity of already existing public parking areas. The site may also see an increase in the use of pedestrian and mass transit resources in the vicinity of the site, which would have the secondary impacts of further activating the streets in the Project area. The Project would promote a more informed community in terms of disaster preparedness and recovery. This would have incidental impacts on the overall County knowledge sharing and hazard awareness which are positive secondary impacts that will improve natural hazard response by the County, an overall safer island, and other qualitative public benefits that are difficult to quantify.

Chapter 4

Alternatives to the Proposed Action

Chapter 4

Alternatives to the Proposed Action

This chapter describes a range of alternatives considered to the Proposed Action, and a high-level analysis of the potential impacts in comparison to the Proposed Action.

4.1 Alternative A – No Action

Alternative A or the "No Action" alternative is the baseline against which all other alternatives are measured. "No-action" refers to the future conditions that would result should the Project not proceed.

Under Alternative A, there would be no potential short-term, construction-related impacts (e.g., dust generation, vehicular traffic, intermittent noise) or long-term, operational impacts to the existing natural environment (e.g., water resources, air quality, and flora/fauna) and existing human environment (e.g., potable water system, wastewater system, traffic conditions, noise conditions, and visual resources).

However, under Alternative A, KPFA would not be able to create the RAIH, which will have short-term and long-term positive impacts on the Keaukaha and Pana'ewa communities. The Project allows for KPFA to create a space that supports the KPFA's program operations, to meet the physical and social needs of the Keaukaha Pana'ewa Homestead lessees/beneficiaries, in accordance with the KPFA Conceptual Master Plan as well as provide a place to shelter from the numerous natural and man-made hazards that exist on the island of Hawai'i . For these reasons, the No-Action Alternative was not considered a viable alternative.

4.2 Alternative B – Location Alternative

Alternative B or the "Alternate Location" alternative involves the consideration of alternate locations for Project.

Under Alternative B, there would be potential short-term, construction-related impacts (e.g., dust generation, vehicular traffic, intermittent noise) similar to the Proposed Action; however, mitigation measures would be implemented, and potential impacts would cease after construction. Under Alternative B, there would also be potential long-term, operational impacts to the existing natural environment (e.g., water resources, air quality, and flora/fauna) and existing human environment (e.g., potable water system, wastewater system, traffic conditions, noise conditions, and visual resources).

However, after studying alternate design concepts, the location of the Proposed Action proved to be the most practicable, as KPFA already has an existing ROE for the location. Without the Project parcel KPFA has no alternative location for the Project nor would it serve the same communities as it does. This location is also ideal for pedestrian traffic and its proximity to commercial resources.

For these reasons, Alternative B was not considered a viable alternative.

4.3 Alternative C – Delayed Action Alternative

Alternative C or the "Delayed Action" alternative refers to a delay in the proposed Project.

Once the Project commences, Alternative C would generally result in the same potential impacts and proposed mitigation measures of the Proposed Action. Under Alternative C, there would be potential short-term, construction-related impacts (e.g., dust generation, vehicular traffic, intermittent noise) similar to the Proposed Action; however, mitigation measures would be implemented, and potential impacts would cease after construction. Under Alternative C, there would also be potential long-term, operational impacts to the existing natural environment (e.g., water resources, air quality, and flora/fauna) and existing human environment (e.g., potable water system, wastewater system, traffic conditions, noise conditions, and visual resources).

Though in the near term, delaying the commencement of the Project would also delay the multitude of short- and long-term benefits associated with the Proposed Action. Additionally, delaying action could jeopardize securing grants for the planned facilities, and thereby jeopardize the recently renewed ROE if action is not taken within a reasonable time period. If the ROE is revoked, the Project is at risk of losing out on a highly beneficial community resource.

Therefore, the Delayed Action alternative would delay the purpose and need of the Proposed Action. For these reasons, Alternative C was not considered a viable alternative.

Chapter 5

Relationship to Plans and Policies

Chapter 5

Relationship to Plans and Policies

In this chapter, the Project's consistency with applicable land use policies set forth in the Americans with Disabilities Act, Hawai'i State Plan, Hawai'i 2050 Sustainability Plan, Hawai'i State Land Use District Guidelines, Hawai'i Coastal Zone Management Program, Hawai'i Multi-Hazard Mitigation Plan (2018), County of Hawai'i General Plan 2040 (2019 Draft), County of Hawai'i Land Use Ordinance (LUO), County of Hawai'i Special Management Area Guidelines, County of Hawai'i Multi-Hazard Mitigation Plan, Department of Hawaiian Home Lands Island Plan, and the Department of Hawaiian Home Lands Pana'ewa Regional Plan are discussed.

5.1 Americans with Disabilities Act of 1991

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

Discussion: The proposed RAIH facility and site improvements will be designed to comply with ADA and DCAB accessibility requirements.

5.2 Hawai'i State Plan

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

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

The objectives and policies of the Hawai'i State Plan are presented below and discussed based on their relevance to the proposed Project *(see Table 5.1)*.

Table 5.1 Hawai'i State Plan – HRS Ch. 226 - Part 1. Overall Theme, Goals, Objectives and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
§226-1: Findings and Purpose			
§226-2: Definitions			
§226-3: Overall Theme			
§226-4: State Goals. In order to guarantee, for the present and future generations, those elements of choice and mobility that insure that individuals and groups may approach their desired levels of self-reliance and self-determination, it shall be the goal of the State to achieve:			
(1) A strong, viable economy, characterized by stability, diversity, and growth, that enables the fulfillment of the needs and expectations of Hawai'i'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 Hawai'i, that nourishes a sense of community responsibility, of caring, and of participation in community life.	X		
Discussion: The proposed project aims to support KPFA programming and vision to "support, motivate, and education Keaukaha Pana'ewa agricultural lessees to establish a viable, sustainable farm community; preserve Hawaiian culture; achieve self-sufficiency; and strengthen pono management and respect for the 'āina."			
§226-5: Objective and policies for population (a) 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; (b) To achieve the population objective, it shall be the policy of this State to:			
(1) Manage population growth statewide in a manner that provides increased opportunities for Hawai'i's people to pursue their physical, social and economic aspirations while recognizing the unique needs of each county.			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 Hawai'i's people to pursue their socioeconomic aspirations throughout the islands.	X		
(4) Encourage research activities and public awareness programs to foster and understanding of Hawai'i's limited capacity to accommodate population needs and to address concerns resulting from an increase in Hawai'i's population.			X
(5) Encourage federal actions and coordination among major governmental agencies to promote a more balanced distribution of immigrants among 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
Discussion: The proposed project encourages agricultural practices as economic drivers for agricultural beneficiaries and community members in a neighbor island community.			
§226-6 Objectives and policies for the economy in general. (a) Planning for the State's economy in general shall be directed toward achievement of the following objectives:			
(1) Increased and diversified employment opportunities to achieve full employment, increased income and job choice, and improved living standards for Hawai'i's people.	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		

Table 5.1 Hawai'i State Plan – HRS Ch. 226 - Part 1. Overall Theme, Goals, Objectives and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
(b) To achieve the general economic objectives, it shall be the policy of this State to:			
(1) Promote and encourage entrepreneurship within Hawai'i by residents and nonresidents of the State.	X		
(2) Expand Hawai'i'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 Hawai'i as an attractive market for environmentally and socially sound investment activities that benefit Hawai'i's people.			X
(4) Transform and maintain Hawai'i 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 Hawai'i.			X
(6) Seek broader outlets for new or expanded Hawai'i business investments.			X
(7) Expand existing markets and penetrate new markets for Hawai'i's products and services.			X
(8) Assure that the basic economic needs of Hawai'i'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 Hawai'i'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 Hawai'i.			X
(13) Foster greater cooperation and coordination between the government and private sectors in developing Hawai'i'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 Hawai'i's workers.			X
(16) Provide equal employment opportunities for all segments of Hawai'i's population through affirmative action and nondiscrimination measures.			X
(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 Hawai'i's economy.			X
(19) Promote and protect intangible resources in Hawai'i, 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, potential growth industries in particular.			X
(21) Foster a business climate in Hawai'i--including attitudes, tax and regulatory policies, and financial and technical assistance programs--that is conducive to the expansion of existing enterprises and the creation and attraction of new business and industry.			X
Discussion: The RAIH will partner agricultural demonstration gardens along with opportunities for selling produce, medicine, and value-added products on-site. At current, KPFA runs a Farmers Market for small-scale producers and the RAIH will aid in expanding this effort.			

Table 5.1 Hawai'i State Plan – HRS Ch. 226 - Part 1. Overall Theme, Goals, Objectives and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
§226-7 Objectives and policies for the economy - agriculture.			
(a) Planning for the State's economy with regard to agriculture shall be directed towards achievement of the following objectives:			
(1) Viability of Hawai'i'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 Hawai'i's strategic, economic, and social well-being.	X		
(b) To achieve the agriculture objectives, it shall be the policy of this State to:			
(1) Establish a clear direction for Hawai'i'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 Hawai'i's economy.	X		
(6) Seek the enactment and retention of federal and state legislation that benefits Hawai'i's agricultural industries.			X
(7) Strengthen diversified agriculture by developing an effective promotion, marketing, and distribution system between Hawai'i'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
(11) Increase the attractiveness and opportunities for an agricultural education and livelihood.	X		
(12) Expand Hawai'i'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 Hawai'i'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 non-feasible 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: The project involves the creation of agricultural demonstration gardens in conjunction with the community-geared services provided by the RAIH. Agriculture is not only a main component of Hawaiis economy, but a key factor in the lifeblood and well-being of agricultural beneficiaries. The proposed project will aid Hawai'i's producers to market products on a local scale.			

Table 5.1 Hawai'i State Plan – HRS Ch. 226 - Part 1. Overall Theme, Goals, Objectives and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
§226-8 Objective and policies for the economy--visitor industry.			
(a) 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 Hawai'i's economy.			
(b) To achieve the visitor industry objective, it shall be the policy of this State to:			
(1) Support and assist in the promotion of Hawai'i'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 Hawai'i'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 Hawai'i's people.			X
(6) Provide opportunities for Hawai'i'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 Hawai'i'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 Hawai'i's cultures and values.			X
Discussion: While the proposed project supports the State's policies for the economy regarding the visitor industry, the policies outlined are not applicable to the project.			
§226-9 Objective and policies for the economy--federal expenditures.			
(a) 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 Hawai'i's economy.			
(b) To achieve the federal expenditures objective, it shall be the policy of this State to:			
(1) Encourage the sustained flow of federal expenditures in Hawai'i that generates long-term government civilian employment.			X
(2) Promote Hawai'i's supportive role in national defense.			X
(3) Promote the development of federally supported activities in Hawai'i that respect state-wide economic concerns, are sensitive to community needs, and minimize adverse impacts on Hawai'i's environment.			X
(4) Increase opportunities for entry and advancement of Hawai'i's people into federal government service.			X
(5) Promote federal use of local commodities, services, and facilities available in Hawai'i.			X
(6) Strengthen federal-state-county communication and coordination in all federal activities that affect Hawai'i.			X
(7) Pursue the return of federally controlled lands in Hawai'i 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
Discussion: While the proposed project supports the State's policies for the economy regarding federal expenditures, the policies outlined are not applicable to the project.			
§226-10 Objective and policies for the economy--potential growth and innovative activities.			
(a) Planning for the State's economy with regard to potential growth and innovative activities shall be directed towards achievement of the objective of development and expansion of potential growth and innovative activities that serve to increase and diversify Hawai'i's economic base.			
(b) To achieve the potential growth and innovative activity objective, it shall be the policy of this State to:			

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(1) Facilitate investment and employment growth in economic activities that have the potential to expand and diversify Hawai'i'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 Hawai'i 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 Hawai'i's capacity to attract and service international programs and activities that generate employment for Hawai'i's people;			X
(7) Enhance and promote Hawai'i's role as a center for international relations, trade, finance, services, technology, education, culture, and the arts;			X
(8) Accelerate research and development of new energy-related industries based on wind, solar, ocean, underground resources, and solid waste;			X
(9) Promote Hawai'i'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 Hawai'i'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 Hawai'i's ability to attract and develop economic activities of benefit to Hawai'i;			X
(13) Foster a broader public recognition and understanding of the potential benefits of new or innovative growth-oriented industry in Hawai'i;			X
(14) Encourage the development and implementation of joint federal and state initiatives to attract federal programs and projects that will support Hawai'i'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; and			X
(17) Recognize and promote health care and health care information technology as growth industries.			X
Discussion: The proposed project champions the traditional, cultural, and local knowledge of agricultural beneficiaries, which are key factors in driving innovative agricultural activity.			
§226-10.5 Objectives and policies for the economy--information industry. (a) 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 Hawai'i as a leader in broadband and wireless communications and applications in the Pacific Region. (b) To achieve the information industry objective, it shall be the policy of this State to:			

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(1) Promote efforts to attain the highest speeds of electronic and wireless communication within Hawai'i and between Hawai'i and the world, and make high speed communication available to all residents and businesses in Hawai'i;			X
(2) Encourage the continued development and expansion of the telecommunications infrastructure serving Hawai'i to accommodate future growth and innovation in Hawai'i's economy;			X
(3) Facilitate the development of new or innovative business and service ventures in the information industry which will provide employment opportunities for the people of Hawai'i;			X
(4) Encourage mainland- and foreign-based companies of all sizes, whether information technology-focused or not, to allow their principals, employees, or contractors to live in and work from Hawai'i, using technology to communicate with their headquarters, offices, or customers located out-of-state;			X
(5) Encourage greater cooperation between the public and private sectors in developing and maintaining a well-designed information industry;			X
(6) Ensure that the development of new businesses and services in the industry are in keeping with the social, economic, and physical needs and aspirations of Hawai'i's people;			X
(7) Provide opportunities for Hawai'i's people to obtain job training and education that will allow for upward mobility within the information industry;			X
(8) Foster a recognition of the contribution of the information industry to Hawai'i's economy; and			X
(9) Assist in the promotion of Hawai'i as a broker, creator, and processor of information in the Pacific.			X
Discussion: While the proposed project supports the State's policies for the economy regarding the information industry, the policies outlined are not applicable to the project.			
§226-11 Objectives and policies for the physical environment--land-based, shoreline, and marine resources.			
(a) Planning for the State's physical environment with regard to land-based, shoreline, and marine resources shall be directed towards achievement of the following objectives:			
(1) Prudent use of Hawai'i's land-based, shoreline, and marine resources.	X		
(2) Effective protection of Hawai'i's unique and fragile environmental resources.			X
(b) To achieve the land-based, shoreline, and marine resources objectives, it shall be the policy of this State to:			
(1) Exercise an overall conservation ethic in the use of Hawai'i's natural resources.			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 Hawai'i.			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

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Discussion: The proposed Project will construct the RAIH on DHHL lands, consistent with DHHL land use designations and beneficiary preferences. The Project takes into account the physical attributes of the parcel throughout the planning process. The RAIH will be compatible with the surrounding landscape and land use designations. For more information on the Natural Environment, see *Chapter 3*.			
§226-12 Objective and policies for the physical environment--scenic, natural beauty, and historic resources.			
(a) Planning for the State's physical environment shall be directed towards achievement of the objective of enhancement of Hawai'i's scenic assets, natural beauty, and multi-cultural/historical resources.			
(b) To achieve the scenic, natural beauty, and historic resources objectives, it shall be the policy of this State to:			
(1) Promote the preservation and restoration of significant natural and historic resources.			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 Hawai'i's ethnic and cultural heritage.			X
(5) Encourage the design of developments and activities that complement the natural beauty of the islands.	X		
Discussion: The RAIH is designed to maximize and preserve views of Mauna Kea and Mauna Loa from the project site. The Project will not detract from surrounding natural beauty, instead the residences will be designed to complement the existing environment through design and material selection. For further discussion, see *Section 3.9.*			
§226-13 Objectives and policies for the physical environment--land, air, and water quality.			
(a) Planning for the State's physical environment with regard to land, air, and water quality shall be directed towards achievement of the following objectives:			
(1) Maintenance and pursuit of improved quality in Hawai'i's land, air, and water resources.			X
(2) Greater public awareness and appreciation of Hawai'i's environmental resources.			X
(b) To achieve the land, air, and water quality objectives, it shall be the policy of this State to:			
(1) Foster educational activities that promote a better understanding of Hawai'i's limited environmental resources.			X
(2) Promote the proper management of Hawai'i's land and water resources.	X		
(3) Promote effective measures to achieve desired quality in Hawai'i'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 Hawai'i'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 Hawai'i'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 Hawai'i's people, their cultures and visitors.	X		
Discussion: The RAIH promotes the proper management of Hawai'i's land and water resources through the promotion of traditional, cultural, and innovative agricultural practices. As a resilience hub, the project will be geared to serve the community during all points of the disaster cycle: pre-event, event, post-event, and long-term. The Project is not anticipated to have a significant impact on land, air, and water (surface, ground and coastal) resources. The Project will not increase the threat to life and property from erosion, flooding, tsunamis, hurricanes, earthquakes, volcanic eruptions, and other natural or man-induced hazards and disasters.			

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§226-14 Objective and policies for facility systems--in general.			
(a) 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.			
(b) To achieve the general facility systems objective, it shall be the policy of this State to:			
(1) Accommodate the needs of Hawai'i's people through coordination of facility systems and capital improvement priorities in consonance with state and county plans.			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: While the proposed project supports the State's policies for facility systems in general, the policies outlined are not applicable to the project.			
§226-15 Objectives and policies for facility systems--solid and liquid wastes.			
(a) Planning for the State's facility systems with regard to solid and liquid wastes shall be directed towards the achievement of the following objectives:			
(1) Maintenance of basic public health and sanitation standards relating to treatment and disposal of solid and liquid wastes.	X		
(2) Provision of adequate sewerage facilities for physical and economic activities that alleviate problems in housing, employment, mobility, and other areas.			X
(b) To achieve solid and liquid waste objectives, it shall be the policy of this State to:			
(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: The Project is not expected to increase demands or negatively affect solid and liquid waste systems in the area. Low Impact Development (LID), such as water reuse and landscaping, will be implemented in the design process.			
§226-16 Objective and policies for facility systems--water.			
(a) Planning for the State's facility systems with regard to water shall be directed towards achievement of the objective of the provision of water to adequately accommodate domestic, agricultural, commercial, industrial, recreational, and other needs within resource capacities.			
(b) To achieve the facility systems water objective, it shall be the policy of this State to:			
(1) Coordinate development of land use activities with existing and potential water supply.	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

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Discussion: Existing water at the parcel location is sufficient to serve the Project site. LID measures may be incorporated into the Project to the extent possible to encourage the productive use of runoff water.			
§226-17 Objectives and policies for facility systems--transportation.			
(a) Planning for the State's facility systems with regard to transportation shall be directed towards the achievement of the following objectives:			
(1) An integrated multi-modal transportation system that services statewide needs and promotes the efficient, economical, safe, and convenient movement of people and goods.			X
(2) A statewide transportation system that is consistent with and will accommodate planned growth objectives throughout the State.			X
(b) To achieve the transportation objectives, it shall be the policy of this State to:			
(1) Design, program, and develop a multi-modal system in conformance with desired growth and physical development as stated in this chapter;			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 inter-island 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 Hawai'i'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: While the proposed project supports the State's policies for facility systems – transportation, the policies are not applicable to the project.			
§226-18 Objectives and policies for facility systems--energy.			
(a) 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 security and self-sufficiency through the reduction and ultimate elimination of Hawai'i's dependence on imported fuels for electrical generation and ground transportation;			X

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(3) Greater diversification of energy generation in the face of threats to Hawai'i's energy supplies and systems;			X
(4) Reduction, avoidance, or sequestration of greenhouse gas emissions from energy supply and use; and			X
(5) Utility models that make the social and financial interests of Hawai'i's utility customers a priority.			X
(b) To achieve the energy objectives, it shall be the policy of this State to ensure the short- and long-term provision of adequate, reasonably priced, and dependable energy services to accommodate demand. (c) To further achieve the energy objectives, it shall be the policy of this State to:			
(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
(4) Promote all cost-effective conservation of power and fuel supplies through measures, including: (A) Development of cost-effective demand-side management programs; (B) Education; (C) Adoption of energy-efficient practices and technologies; and (D) Increasing energy efficiency and decreasing energy use in public infrastructure;			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 Hawai'i's greenhouse gas emissions through agriculture and forestry initiatives.			X
(10) Provide priority handling and processing for all state and county permits required for renewable energy projects;			X
(11) Ensure that liquefied natural gas is used only as a cost-effective transitional, limited-term replacement of petroleum for electricity generation and does not impede the development and use of other cost-effective renewable energy sources; and			X
(12) Promote the development of indigenous geothermal energy resources that are located on public trust land as an affordable and reliable source of firm power for Hawai'i.			X
Discussion: The Project will include the use of rooftop solar PVs to support the building's energy needs. However, the State's objectives and policies with regards to energy are not applicable to the Project.			
§226-18.5 Objectives and policies for facility systems--telecommunications. (a) 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. (b) To achieve the telecommunications objective, it shall be the policy of this State to ensure the provision of adequate, reasonably priced, and dependable telecommunications services to accommodate demand. (c) To further achieve the telecommunications objective, it shall be the policy of this State to:			

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(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: While the proposed project supports the State's goals and policies for facility systems – telecommunications, the policies are not applicable to the project.			
§226-19 Objectives and policies for socio-cultural advancement--housing.			
(a) 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 Hawai'i'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 rental and for sale affordable housing is made available to extremely low-, very low-, lower-, moderate-, and above moderate-income segments of Hawai'i'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 Hawai'i's people.			X
(b) To achieve the housing objectives, it shall be the policy of this State to:			
(1) Effectively accommodate the housing needs of Hawai'i's people.			X
(2) Stimulate and promote feasible approaches that increase affordable rental and for sale housing choices for extremely low-, very low-, lower-, moderate-, and above moderate-income 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 rental and for sale 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 Hawai'i 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 Hawai'i.			X
Discussion: While the proposed project supports the State's goals and policies for socio-cultural advancement – housing, the policies are not applicable to the project.			
§226-20 Objectives and policies for socio-cultural advancement--health.			
(a) 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 Hawai'i's communities.			X
(b) To achieve the health objectives, it shall be the policy of this State to:			

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(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: While the proposed project supports the State's goals and policies for socio-cultural advancement – health, the policies are not applicable to the project.			
§226-21 Objective and policies for socio-cultural advancement--education. (a) 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. (b) To achieve the education objective, it shall be the policy of this State to:			
(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 Hawai'i's cultural heritage.			X
(5) Provide higher educational opportunities that enable Hawai'i'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 Hawai'i's institutions to promote academic excellence.			X
(9) Support research programs and activities that enhance the education programs of the State.			X
Discussion: When not activated in emergency situations, the proposed Project facility will be designed to be used for multipurpose meetings and training events and will include collaboration areas for KPFA staff. However, the advancement of the State's socio-cultural education objectives is not applicable to the proposed project.			

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§226-22 Objective and policies for socio-cultural advancement--social services.			
(a) Planning for the State's socio-cultural advancement with regard to social services shall be directed towards the achievement of the objective of improved public and private social services and activities that enable individuals, families, and groups to become more self-reliant and confident to improve their well-being.			
(b) To achieve the social service objective, it shall be the policy of the State to:			
(1) Assist individuals, especially those in need of attaining a minimally adequate standard of living and those confronted by social and economic hardship conditions, through social services and activities within the State's fiscal capacities.			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 Hawai'i'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
(6) Promote programs which assist people in need of family planning services to enable them to meet their needs.			X
Discussion: The purpose of the Project is to construct a resiliency hub which will include educational facilities for Agricultural practices. Planning for the State's socio-cultural advancement with regard to social services is not applicable to the proposed Project.			
§226-23 Objective and policies for socio-cultural advancement--leisure.			
(a) 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.			
(b) To achieve the leisure objective, it shall be the policy of this State to:			
(1) Foster and preserve Hawai'i'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 Hawai'i'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 Hawai'i'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 Hawai'i's population to participate in the creative arts.			X
(10) Assure adequate access to significant natural and cultural resources in public ownership.			X

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Discussion: The purpose of the Project is to construct a resiliency hub which will include educational facilities for Agricultural practices. Planning for the State's socio-cultural advancement with regard to leisure is not applicable to the proposed Project.			
§226-24 Objective and policies for socio-cultural advancement--individual rights and personal well-being.			
(a) 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.			
(b) To achieve the individual rights and personal well-being objective, it shall be the policy of this State to:			
(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
(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: The State's socio-cultural advancement objectives regarding individual rights and personal well-being of individuals is not applicable for the Project.			
§226-25 Objective and policies for socio-cultural advancement--culture.			
(a) 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 Hawai'i's people.			
(b) To achieve the culture objective, it shall be the policy of this State to:			
(1) Foster increased knowledge and understanding of Hawai'i's ethnic and cultural heritages and the history of Hawai'i.	X		
(2) Support activities and conditions that promote cultural values, customs, and arts that enrich the lifestyles of Hawai'i'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 Hawai'i.			X
(4) Encourage the essence of the aloha spirit in people's daily activities to promote harmonious relationships among Hawai'i's people and visitors.			X
Discussion: The RAIH will support and enhance KPFAs mission, which is to "support, motivate, and educate Keaukaha Pana'ewa agricultural lessees to establish a viable, sustainable farm community; preserve Hawaiian culture; achieve self-sufficiency; and strengthen pono management and respect for the 'āina." As a beneficiary-driven project, the RAIH will support activities and conditions that promote Native Hawaiian values, customs, practices, and arts at a community level.			
§226-26 Objectives and policies for socio-cultural advancement--public safety.			
(a) Planning for the State's socio-cultural advancement with regard to public safety shall be directed towards the achievement of the following objectives:			
(1) Assurance of public safety and adequate protection of life and property for all people.			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 Hawai'i's people.	X		
(b) To achieve the public safety objectives, it shall be the policy of this State to:			
(1) Ensure that public safety programs are effective and responsive to community needs.			X

Table 5.1 Hawai'i State Plan – HRS Ch. 226 - Part 1. Overall Theme, Goals, Objectives and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
(2) Encourage increased community awareness and participation in public safety programs.			X
(c) To further achieve public safety objectives related to criminal justice, it shall be the policy of this State to:			
(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
(d) To further achieve public safety objectives related to emergency management, it shall be the policy of this State to:			
(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		
Discussion: The proposed projet is to build an Resilience and Agricultural Innovation Hub (RAIH), which will prepare and assist the community in disaster management capabilities and emergency preparedness in the event of civil distruptions, wars, natural disasters, and other major disturbances.			
§226-27 Objectives and policies for socio-cultural advancement--government. (a) Planning the State's socio-cultural advancement with regard to government shall be directed towards the achievement of the following objectives:			
(1) Efficient, effective, and responsive government services at all levels in the State.			X
(2) Fiscal integrity, responsibility, and efficiency in the state government and county governments.			X
(b) To achieve the government objectives, it shall be the policy of this State to:			
(1) Provide for necessary public goods and services not assumed by the private sector.			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 Hawai'i.			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
Discussion: While the project supports the State's objectives for socio-cultural advancement – government, the policies are not applicable to the project.			
§226-101 Purpose. The purpose of this part is to establish overall priority guidelines to address areas of statewide concern.			
§226-102 Overall direction. The State shall strive to improve the quality of life for Hawai'i's present and future population through the pursuit of desirable courses of action in seven major areas of statewide concern which merit priority attention: economic development, population growth and land resource management, affordable housing, crime and criminal justice, quality education, principles of sustainability, and climate change adaptation.			

Table 5.1 Hawai'i State Plan – HRS Ch. 226 - Part 1. Overall Theme, Goals, Objectives and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
Discussion: The Project supports the overall direction of the State of Hawai'i with regards to sustainability and climate change adaptation. The agricultural portion of the project aims to increase sustainability and self-sufficiency of the Keaukaha Pana'ewa community by providing agricultural opportunities. As the climate changes, natural disasters are expected to increase in frequency, duration, and/or severity. The RAIH will prepare and assist the community during all stages of disaster preparedness and management.			
§226-103 Economic priority guidelines.			
(a) Priority guidelines to stimulate economic growth and encourage business expansion and development to provide needed jobs for Hawai'i's people and achieve a stable and diversified economy:			
(1) Seek a variety of means to increase the availability of investment capital for new and expanding enterprises.			
(A) Encourage investments which:			
(i) Reflect long term commitments to the State;			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 Hawai'i 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 Hawai'i;			X
(iii) Investment interest from Hawai'i residents;			X
(iv) Resources unique to Hawai'i 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 processes for building and development permit and review and telecommunication infrastructure installation approval and eliminate or consolidate other burdensome or duplicative governmental requirements imposed on business, where scientific evidence indicates that public health, safety, and welfare would not be adversely affected.			X
(6) Encourage the formation of cooperatives and other favorable marketing or distribution arrangements at the regional or local level to assist Hawai'i's small-scale producers, manufacturers, and distributors.			X
(7) Continue to seek legislation to protect Hawai'i from transportation interruptions between Hawai'i 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 Hawai'i's unique location and available physical and human resources.			X
(B) A clean industry that would have minimal adverse effects on Hawai'i's environment.			X

Table 5.1 Hawai'i State Plan – HRS Ch. 226 - Part 1. Overall Theme, Goals, Objectives and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
(C) An industry that is willing to hire and train Hawai'i'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 Hawai'i business.			X
(10) Enhance the quality of Hawai'i's labor force and develop and maintain career opportunities for Hawai'i's people through the following actions:			X
(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 Hawai'i'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 Hawai'i'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 Hawai'i's significant natural, scenic, historic, and cultural resources.			X
(5) Develop and maintain career opportunities in the visitor industry for Hawai'i's people, with emphasis on managerial positions.			X
(6) Support and coordinate tourism promotion abroad to enhance Hawai'i'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 Hawai'i.			X

Table 5.1 Hawai'i State Plan – HRS Ch. 226 - Part 1. Overall Theme, Goals, Objectives and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable			S	N/S	N/A
	(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
	(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 Hawai'i's agricultural community.			X
	(6)	Seek favorable freight rates for Hawai'i'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 Hawai'i'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 Hawai'i.			X

Table 5.1 Hawai'i State Plan – HRS Ch. 226 - Part 1. Overall Theme, Goals, Objectives and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
(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
(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 Hawai'i'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
Discussion: The purpose of the Project is to construct a resiliency and agricultural innovation hub (RAIH) which will include educational facilities for Agricultural practices. The RAIH will continue to function as a Farmer's Market, in which local farmers and vendors can sell their locally-grown produce. The use of Low Impact Development (LID) and solar PV panels will be incorporated into the site and building design.			
§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 Hawai'i's people.			X
(2) Manage a growth rate for Hawai'i's economy that will parallel future employment needs for Hawai'i'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
(4) Encourage restriction of new urban development in areas where water is insufficient from any source for both agricultural and domestic use.			X

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(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 Kaka'ako 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 Hawai'i to include but not be limited to the following: watershed and recharge areas; wildlife habitats (on land and in the ocean); areas with endangered species of plants and wildlife; natural streams and water bodies; scenic and recreational shoreline resources; open space and natural areas; historic and cultural sites; areas particularly sensitive to reduction in water and air quality; and scenic resources.			X
(11) Identify all areas where priority should be given to preserving rural character and lifestyle.			X
(12) Utilize Hawai'i's limited land resources wisely, providing adequate land to accommodate projected population and economic growth needs while ensuring the protection of the environment and the availability of the shoreline, conservation lands, and other limited resources for future generations.	X		
(13) Protect and enhance Hawai'i's shoreline, open spaces, and scenic resources.	X		
Discussion: The Project site is located in the mixed use and urbanized environment of Pana'ewa. Thus, the Project will protect lands designated for conservation and preservation. Existing utilities are adequate to support the proposed Project. The new building will also be oriented to preserve existing mauka-makai and east-west viewsheds.			
§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 purpose of the Project is to construct a resiliency hub which will include educational facilities for Agricultural practices. The priority guidelines in the area of crime and criminal justice are not applicable to the proposed Project.			
§226-106 Affordable housing. Priority guidelines for the provision of affordable housing:			
(1) Seek to use marginal or nonessential agricultural land, urban land, and public land to meet housing needs of extremely low-, very low-, lower-, moderate-, and above moderate-income households.			X
(2) Encourage the use of alternative construction and development methods as a means of reducing production costs.			X

Table 5.1 Hawai'i State Plan – HRS Ch. 226 - Part 1. Overall Theme, Goals, Objectives and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
(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 Hawai'i's extremely low-, very low-, lower-, and moderate-income households and residents with special needs.			X
(5) Encourage continued support for government or private housing programs that provide low interest mortgages to Hawai'i'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 Hawai'i's residents and less priority to development of housing intended primarily for individuals outside of Hawai'i.			X
Discussion: The purpose of the Project is to construct a resiliency hub which will include educational facilities for Agricultural practices. Planning for the State's advancement with regard to affordable housing is not applicable to the proposed Project.			
§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 workforce;			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:			
(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 Hawai'i'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: The purpose of the Project is to construct a resiliency hub which will include educational facilities for Agricultural practices. The priority guidelines in the area of education are not applicable to the proposed Project.			
§226-108 Sustainability. Priority guidelines and principles to promote sustainability shall include:			
(1) Encouraging balanced economic, social, community, and environmental priorities;			X
(2) Encouraging planning that respects and promotes living within the natural resources and limits of the State;			X
(3) Promoting a diversified and dynamic economy;			X
(4) Encouraging respect for the host culture;	X		

Table 5.1 Hawai'i State Plan – HRS Ch. 226 - Part 1. Overall Theme, Goals, Objectives and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
(5) Promoting decisions based on meeting the needs of the present without compromising the needs of future generations;	X		
(6) Considering the principles of the ahupua'a system; and			X
(7) Emphasizing that everyone, including individuals, families, communities, businesses, and government, has the responsibility for achieving a sustainable Hawai'i.	X		
Discussion: The Project meets the sustainability priority guidelines articulated in the Hawai'i State Plan. The RAIH will support the community through various training and programming centered around agriculture and disaster preparedness and management to build and maintain a self-sufficient community.			
§226-109 Climate change adaptation priority guidelines. Priority guidelines to prepare the State to address the impacts of climate change, including impacts to the areas of agriculture; conservation lands; coastal and nearshore marine areas; natural and cultural resources; education; energy; higher education; health; historic preservation; water resources; the built environment, such as housing, recreation, transportation; and the economy shall:			
(1) Ensure that Hawai'i's people are educated, informed, and aware of the impacts climate change may have on their communities;	X		
(2) Encourage community stewardship groups and local stakeholders to participate in planning and implementation of climate change policies;			X
(3) Invest in continued monitoring and research of Hawai'i's climate and the impacts of climate change on the State;			X
(4) Consider native Hawaiian traditional knowledge and practices in planning for the impacts of climate change;	X		
(5) Encourage the preservation and restoration of natural landscape features, such as coral reefs, beaches and dunes, forests, streams, floodplains, and wetlands, that have the inherent capacity to avoid, minimize, or mitigate the impacts of climate change;			X
(6) Explore adaptation strategies that moderate harm or exploit beneficial opportunities in response to actual or expected climate change impacts to the natural and built environments;			X
(7) Promote sector resilience in areas such as water, roads, airports, and public health, by encouraging the identification of climate change threats, assessment of potential consequences, and evaluation of adaptation options;			X
(8) Foster cross-jurisdictional collaboration between county, state, and federal agencies and partnerships between government and private entities and other nongovernmental entities, including nonprofit entities;			X
(9) Use management and implementation approaches that encourage the continual collection, evaluation, and integration of new information and strategies into new and existing practices, policies, and plans; and			X
(10) Encourage planning and management of the natural and built environments that effectively integrate climate change policy.			X
Discussion: The RAIH will provide trainings and programming centered around agricultural practices and disaster preparedness and management. The use of community input and traditional cultural knowledge in paramount in this project, as to support the vision of KPFA to provide a sustainable farm community; preserve Hawaiian culture; achieve self-sufficiency; and strengthen pono management and respect for the 'āina.			

5.3 Hawai‘i 2050 Sustainability Plan

The long-term strategy of the Hawai‘i 2050 Sustainability Plan is supported by its main goals and objectives of respect for culture, character, beauty, and history of the State's island communities; balance among economic, community, and environmental priorities; and an effort to meet the needs of the present without compromising the ability of future generations to meet their own needs. The 2050 Plan delineates five goals toward a sustainable Hawai‘i accompanied by strategic actions for implementation and indicators to measure success or failure. The goals and strategic actions that are pertinent to the project are as follows:

> Goal One: *Living sustainably is part of our daily practice in Hawai‘i.* Strategic Actions: *Develop a sustainability ethic.*
>
> Goal Two: *Our diversified and globally competitive economy enables us to meaningfully live, work, and play in Hawai‘i.* Strategic Actions: *Develop a more diverse and resilient economy.*
>
> Goal Three: *Our natural resources are responsibly and respectfully used, replenished, and preserved for future generations*. Strategic Actions: *Provide greater protection for air, and land-, fresh water- and ocean-based habitats; conserve agricultural, open space and conservation lands and resources.*
>
> Goal Four: *Our community is strong, healthy, vibrant and nurturing, providing safety nets for those in need.* Strategic Actions: *Provide access to diverse recreational facilities and opportunities*.
>
> Goal Five: *Our Kanaka Maoli and island cultures and values are thriving and perpetuated.* Strategic Actions: *Honor Kanaka Maoli culture and heritage; Celebrate our cultural diversity and island way of life; Enable Kanaka Maoli and others to pursue traditional Kanaka Maoli lifestyles and practices.*

Discussion: The RAIH will expand and support KPFA programming in agricultural training and disaster preparedness and management, to support its mission to "support, motivate, and educate Keaukaha Pana‘ewa agricultural lessees to establish a viable, sustainable farm community; preserve Hawaiian culture; achieve self-sufficiency; and strengthen pono management and respect for the ‘āina." Acknowledging the need for sustainability and community self-sufficiency, KPFA champions Kanaka Maoli knowledge, culture, practice, and tradition in the pursuit of a strong, healthy, and vibrant community.

5.4 Hawai‘i State Land Use District Guidelines

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

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

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

Although DHHL is outside the jurisdiction of the SLUD, the proposed project is consistent with this Statute, as the proposed land uses are consistent with this designation.

5.5 Hawai'i Coastal Zone Management Program

The Coastal Zone Management Program (CZMP) is a comprehensive nationwide program that establishes and enforces standards and policies to guide the development of public and private lands within the coastal areas. In the State of Hawai'i, the CZMP is articulated in the State Coastal Zone Management (CZM) Law in Chapter 205A of the HRS. The State CZM objectives and policies address ten subject areas. These subject areas 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.

The Hawai'i CZM Law charges each County with designating and administering Special Management Areas (SMA) within the State's coastal areas. Any "development," as defined by the CZM Law, located within the SMA requires a SMA Use Permit.

Discussion: The Project area is not located within the coastal zone or SMA. However, HRS Chapter 205A requires all state and county agencies to enforce CZM objectives and policies as set forth in HRS §205A-2. *Table 5.2* below addresses the applicability of the objectives/policies to the RAIH in relation to the ten subject areas mentioned above.

Table 5.2 Hawai'i Coastal Zone Management Program – HRS Chapter 205A Objectives and Policies	
Subject Area	**Objective/Policy**
Recreational Resources	See *Chapter 3.13* for a discussion on recreational resources in the vicinity of the Project. The RAIH will adopt water quality standards and regulate point and nonpoint sources of pollution to protect the recreational value of coastal waters.
Historic Resources	See *Chapter 3.6 for* further discussion on historic and archaeological resources in the vicinity of the Project. The Project is not expected to adversely affect known resources in the area.
Scenic and open space Resources	The Project is not anticipated to have significant impact on scenic view planes or resources in the Hilo area. The height of the RAIH is within the height limit of the zoning. Surrounding buildings are of equal of higher elevation. *Chapter 3.9* for further discussion.
Coastal Ecosystems	The Project site is not located within an area vulnerable to coastal hazards, as discussed in *Chapter 3.5.*
Economic Uses	The Project is providing a facility that is in a suitable location and will not negatively impact the state's economy. The Project site is not a coastal dependent.
Coastal Hazards	Not applicable.
Managing Development	The project site is in the State Urban Land Use District and is zoned MG-1, General Industrial District. All improvement activities will be conducted in compliance with State and County environmental rules and regulations. This EA identifies and, where necessary, proposes mitigation measures to address anticipated impacts from the construction and operation of the project.
Public Participation	A 30-day early consultation period was conducted beginning October 3, 2022. See *Chapter 7.0 of* this EA for a list of agencies, organizations and individuals consulted in the preparation of the project EA.
Beach and Coastal Dune Protection	The Project is not located along the coastal area, and therefore will not impact public beaches on Hawai'i Island.
Marine and Coastal Resources	The Project will not impact the protection or use of marine and coastal resources. During construction, BMPs will mitigation the potential for erosion and stormwater runoff from the site, as described in *Chapter 3.3*.

5.6 State Hazard Mitigation Plan (2018)

State and County Agencies must develop and implement hazard mitigation plans to qualify for mitigation grants and disaster recover funding from FEMA. The State must update its plan every five years to maintain funding eligibility. The State of Hawai'i's Multi-Hazard Mitigation Plan serves as the State's comprehensive plan to address the risks and vulnerabilities and outlines its mitigation goals and priority mitigation projects. The State of Hawai'i updated its Multi-Hazard Mitigation Plan in 2018, identifying six mitigation goals. Those goals that are relative to the development of the RAIH are as follows.

> Goal 1: Reduce the long-term vulnerability of Hawai'i's people, property and jurisdiction, including state-owned or operated buildings, infrastructure and critical facilities, to natural hazards while conserving the State's natura, historical, and cultural assets. This includes high risk properties such as repetitive loss and severe repetitive loss properties.
>
> Goal 2: Promote actions designed to ensure long-term resiliency.
>
> Goal 4: Utilize state-of-the-art methods and technology and local knowledge to identify and analyze natural hazards and assess State capabilities to reduce the impact of those hazards.
>
> Goal 5: Promote public awareness of natural hazard risks and public action to reduce the long-term risks.

Discussion: In addition to disaster preparedness, training, and provision of resources before, during, or after a disaster event or pandemic, the RAIH serves as an agricultural training center for Keaukaha and Pana'ewa beneficiaries and community members. KPFAs agricultural programming assists in recovery efforts for those affected by natural hazards and provides long-term food security for local residents and users of the RAIH.

5.7 County of Hawai'i General Plan 2040 (2019 Draft)

The County of Hawai'i's General Plan is the policy document for the long-range comprehensive development of the island of Hawai'i. With the adoption and ratification of the County Charter in 1969, the General Plan was instituted as the main County policy document. The General Plan has a 20-30 year planning range. The current Hawai'i County General Plan was adopted by ordinance in February 2005. The Draft 2040 Hawaii General Plan Update was published in August 2019 and a Final Revised General Plan Update is still pending as of February 2023.

The County of Hawai'i's General Plan is broken into six sections, arranged by topic: Natural Resources, Infrastructure Planning, Economic and Opportunity Planning, Community Placemaking, Land Use Planning, and Implementation. The proposed project is consistent with the applicable objectives and policies of the draft County of Hawai'i's General Plan as described below:

Part I: Natural Resources

> Goal B: Proactive and adaptive land use and design standards will be used to protect life and property from hazards and a program of mitigation and post-disaster redevelopment will be maintained to increase public safety, reduce damages, and ensure resilient public investments

Discussion: The proposed project is to construct the RAIH on DHHL lands, with a focus on trainings, workshops, and provision of resources for disaster preparedness and management. The implementation of the RAIH will aid in increasing public safety and reducing damages in the event of a disaster or pandemic.

Part III: Economic and Opportunity Planning

> Goal A: Agriculture is a robust, diversified sector that emphasizes food security and includes a broad range of agricultural-based businesses, and agricultural tourism.
>
> Goal B: Residents have physical and economic access to sufficient, safe, nutritious, and locally produced food to meet their dietary needs and food preferences for an active and healthy life.

Discussion: In addition to disaster preparedness, training, and provision of resources before, during, or after a disaster event or pandemic, the RAIH serves as an agricultural training center for Keaukaha and Pana‘ewa beneficiaries and community members. KPFAs agricultural programming assists in supporting local farmers, vendors, and businesses, as well as providing opportunities for beneficiaries and community members to build self-sufficiency through agricultural production.

Part IV: Community Placemaking

> Goal F: Our Hawaiian and multi-ethnic cultural values are preserved and perpetuated in celebration of the evolving diversity that enhances our island way of life.

Discussion: The proposed project is rooted in Native Hawaiian cultural values and practices, bringing them to the forefront of agricultural production and self-sufficiency.

Part V: Land Use Planning

> Goal A: Direct growth and increase density towards urban and village centers

Discussion: The proposed project is located within the Urban State Land Use District and the MG-1 General Industrial District. The construction of the RAIH will support agricultural and economic activity within urban areas.

5.8 County of Hawai‘i, Chapter 25: Zoning Code

The Hawai‘i County Code Chapter 25 is known as the "Zoning Code." It defines permitted land uses within the State Land Use "Urban" and "Agricultural" classifications. For each Zoning district, the Code spells out required building setbacks, height limits, and other constraints.

Discussion: The subject property is designated as MG-1, General Industrial District by the Hawai‘i County Code, Chapter 25 *(Figure 1.4)*.

5.9 County of Hawai‘i Multi-Hazard Mitigation Plan (2020)

State and County Agencies must develop and implement hazard mitigation plans to qualify for mitigation grants and disaster recover funding from FEMA. The County must update its plan every five years to maintain funding eligibility. The County of Hawai‘i’s Multi-Hazard Mitigation Plan serves as the County’s comprehensive plan to address the risks and vulnerabilities and outlines its mitigation goals and priority mitigation projects. The County of Hawai’i updated its Multi-Hazard Mitigation Plan in 2020, identifying seven mitigation goals:

1. Utilize state-of-the-art methods and technologies as well as local knowledge to identify hazards, risks, and capabilities.
2. Ensure that all critical facilities and infrastructure withstand hazard incidents and have contingency plans to restore services quickly.
3. Protect natural and cultural resources to the extent practicable while mitigating hazards.
4. Promote actions that support land use planning and regulations designed to ensure long-term resiliency.
5. Promote community risk reduction and preparedness through public education, training and awareness.
6. Improve capabilities to implement response protocols and continuity of operations and services.
7. Strengthen partnerships and leverage existing resources and capabilities to identify, assess, and reduce theimpact of hazards.

The plan further identifies 12 objectives that measure the effectiveness of mitigation actions. These goals and objectives drive Hawai’i Island’s planning approach and response to climate change, dam failure, drought, earthquakes, floods, high surf, storm surge, coastal flooding, landslides, tropical cyclones, tsunami, volcanic eruption, and wildfire.

Discussion: The proposed Project fully aligns with the goals outlined in the Hawai‘i County Multi-Hazard Mitigation Plan. The RAIH will serve as a physical structure, community gathering place, and sustainable resource before, during, and after a disaster related event.

5.10 County of Hawai‘i Special Management Area Guidelines

The Special Management Area (SMA) is a designation established to preserve, protect, and where possible, to restore the natural resources of the coastal zone of Hawai‘i. Special controls on developments within the SMA are necessary to avoid permanent loss of valuable resources and foreclosure of management options.

Discussion: The Project site is not within the SMA as delineated by the County. In addition, the potential environmental impacts of the project have been evaluated and determined to not pose a threat to the nearshore and coastal areas.

5.11 Department of Hawaiian Home Lands, General Plan (2023)

DHHL has a three-tiered planning process. In the first tier, the General Plan sets the vision and establishes goals and policies to guide the discussions and decision-making of the Hawaiian Homes Commission. The General Plan guides Department of Hawaiian Home Lands (DHHL) plans, programs, and policies for the next 20 years. DHHL's first General Plan was adopted in 1976 and contained land use-oriented policies in accordance with HAR §10-4-2. At that time, the Rules specified that "the department shall develop and maintain a general plan providing for the development and use of land needed for the purposes of the act."

The DHHL General Plan was revised beginning in 2018 and approved in January 2023. The General Plan takes the Trust to the planning horizon of 2040. The General Plan focuses on seven priority areas: Land Use and Water Resources, Infrastructure, Housing, Food Production, Healthy Communities, Natural and Cultural Resource Management, and Revenue Generation and Economic Development. The proposed project is consistent with the applicable objectives and policies of DHHLs General Plan as described below:

Land Use Planning:

> Goal LU-1: Utilize Hawaiian home lands for uses most appropriate to meet the needs and desires of the beneficiary population.
>
> Goal LU-3: Protect life and property from the effects of natural hazards and climate change on Hawaiian home lands.

Food Production:

> Goal FP-5: Promote a diversity of food production on Hawaiian home lands.

Healthy Communities:

> Goal HC-2: Establish livable, sustainable, resilient, and healthy communities on Hawaiian home lands that provide space for or access to the amenities that serve the daily needs of its residents
>
> Goal HC-2: Establish livable, sustainable, resilient, and healthy communities on Hawaiian home lands that provide space for or access to the amenities that serve the daily needs of its residents

Economic Development:

> Goal ED-1: Provide economic opportunities for beneficiaries on Hawaiian home lands.

Discussion: The proposed project is in alignment with the DHHL General Plan in the areas of Land Use Planning, Food Production, Healthy Communities, and Economic Development. The RAIH will serve Keaukaha and Pana'ewa beneficiaries and community members through agricultural training and disaster preparedness and management, to further a sustainable, self-sufficient Native Hawaiian community.

5.12 Department of Hawaiian Home Lands, Hawai‘i Island Plan (2002)

The second tier of DHHLs planning process includes Strategic Program Plans and Island Plans. Island Plans are documents that outline DHHL actions for a 20-year timeframe. The Hawai‘i Island Plan provides DHHL with a comprehensive assessment of its lands on Hawai‘i Island, and aims to assess and recommend future uses for Hawaiian Home lands on Hawai‘i Island. The Hawai‘i Island Plan is organized by regions and priority tracks; the priority tract of Pana‘ewa is located in the “East Region” of Hawai‘i Island.

Discussion: The Hawai‘i Island Plan finds that the Pana‘ewa tract is well-suited for development given its extensive acerage and proximity to available infrastructure. The RAIH will utilize this prime location to expand agricultural services and training, and, disaster preparedness and management to serve DHHL beneficiaries.

5.13 Department of Hawaiian Home Lands, Pana‘ewa Regional Plan (2016)

Regional Plans are part of DHHLs three-tiered planning system. Regional Plans are located at the third tier of the Department’s Planning System which focuses at the community/regional level. Regional Plans serve a 1-3 year timeframe and serve to build a sense of community and capacity, stimulate partnerships for development and improvements, and put homestead lessees in the “driver’s seat”. The vision for the Pana’ewa Region is as follows:

“The Pana‘ewa Homestead is a connected community that promotes collective health and wealth, succession of generational knowledge and practices, and access to resources and services through community and agriculture activities.”

Regional Plans produce a list of priority projects, projects that are selected and voted on by beneficiaries during the Regional Planning process. In the Pana‘ewa Regional Plan, the proposed project is listed as Priority Project #3, a “Marketing and Training Center for Agricultural Capacity Building.”

Discussion: The proposed project is in alignment with the Pana‘ewa Regional Plan by furthering the development of Priority Project #3. The RAIH will offer training and demonstration programs in agriculture, serve as a place for local farmers and vendors to sell products, and serve as a training center for disaster preparedness, response, and management. The RAIH is in alignment with the vision of the Pana‘ewa region to promote the succession of generational knowledge and practices, as well as provide the community with agricultural and disaster management resources.

Chapter 6

Findings Supporting the Anticipated Determination

Chapter 6

Findings Supporting the Anticipated Determination

6.1 Anticipated Determination

HAR §11-200.1-2 defines "significant effect" as the *sum of effects* on the quality of the environment. Based on a review of the significance criteria outlined in HRS Chapter 343, and HAR §11-200.13, the Project has been determined to not result in a significant effect/impact on the quality of the environment. Therefore, per HAR §11-200.1-14, DHHL has issued a determination of Anticipated Finding of No Significant Impact (AFNSI) for the Project. The potential impacts of the Project have been fully examined and discussed in this Draft EA. A summary of the Project assessed alongside the significance criteria is summarized below.

6.2 Reasons Supporting the Anticipated Determination

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

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

This Project is not anticipated to result in the loss or destruction of any cultural or archaeological resources. At present, KPFA and G70 have consulted with SHPD on the determination status of historical features found at Site 1 on the property and it is anticipated that these features hold no historical value as outlined in *Chapter 3.6 Archaeology*. KPFA and G70 is committed to continuing consultation and seeks to ensure that all archaeological work for the Project Site is found to be acceptable by SHPD pursuant to HAR 13-279. There are currently no cultural practices or cultural resources located on the Project site as outlined in *Chapter 3.7 Cultural Resources*. However, the Project aims to incorporate cultural practices and education for the Project site in their long-term programming.

If any cultural or archaeological resources are unearthed or ancestral remains are inadvertently discovered, the DLNR, SHPD, the Hawaii Island Burial Council (HIBC) Hilo moku representative and known cultural descendants will be duly notified. The treatment of these resources and iwi kupuna will be conducted in strict compliance with applicable historic preservation and burial laws and code of conduct to appropriately care for any iwi kūpuna. With the prescribed mitigation measures, the Project will not involve a known loss of existing cultural, archaeological, or historical resources.

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

The project will not curtail the range of beneficial uses of the environment. Currently, KPFA manages the Project parcel for farmer, community, and cultural programming on one acre of the project area. The proposed project would create the RAIH facility on State designated "Urban" land and MG-1a General Industrial District by the County of Hawai'i. This Project will enhance KPFA's current programming, which is consistent with State and County land use designations.

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

The project does not conflict with the State's long-term environmental policies or goals and guidelines as expressed in the State Environmental Policy, Chapter 344, HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders. This Draft EA was prepared to ensure the Project will not have a significant adverse impact on the environment. Where mitigation measures are recommended due to the Project's potential impacts, the KPFA will implement those applicable measures to the extent possible to curtail long-term impacts to the environment.

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

The project will result in short-term economic benefits during construction and operation that include direct, indirect, and induced employment opportunities and multiplier effects, but not at a level that would generate significant economic activity. The Project is expected to improve the safety of the community and enhance operations of KPFA's programs. The new facility will enable the County to better serve the wider island population through education before, during, and after cases of emergency.

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

The project is consistent with existing land uses and is not expected to affect public health. However, there are short term impacts to air quality in the form of exhaust and fugitive dust from construction activity. Short term noise impacts related to construction activity may occur, though construction noise is not expected to be significant. The project will comply with State and County regulations during the construction period and will implement BMPs to minimize temporary impacts. The proposed project is expected to continue to provide a space for the community and continue to improve the health and safety through agriculture and disaster preparedness.

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

There are no adverse secondary impacts such as population changes as a result of this project. The number of people permitted to access the Project Site will be managed and will largely be under the supervision of KPFA members. Bus operations and traffic should not be interrupted, any interruption that may arise during Project construction would be minimized.

(7) Involve a substantial degradation of environmental quality.

The project will not involve a substantial degradation of environmental quality on-site or in the surrounding area. Construction related impacts related to noise and air quality are temporary and will be minimized by following State and County regulations and using construction BMPs as discussed throughout this Draft EA. Long-term impacts to air and water quality, noise, and natural resources are not anticipated.

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

The development and implementation of the project will have a very limited and negligible impact on the natural and cultural environment. There are no anticipated cumulative effects on ecosystem resources or human communities. The purpose of the proposed action is limited to the construction of RAIH to improve overall efficiency and hazard response and provide a space for community for education and agricultural practices.

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

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

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

The Project is not anticipated to have a substantial adverse effect on air or water quality or ambient noise levels. Short-term effects on air, water quality, and ambient noise levels during construction will be mitigated through adherence with State and County regulations and mitigation measures as discussed throughout this Draft EA. No detrimental long-term impacts to air, water, or acoustic quality are anticipated with the project improvements. For further discussion, see **Chapter 3.3, Water Resources,** and **Chapter 3.12, Air Quality and Noise Conditions.**

(11) Have a substantial adverse effect on or be likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, sea level rise exposure area, beach, erosion-prone area, geologically hazardous land, estuary, freshwater, or coastal waters.

The Project site lies within Flood Zone "X", an area determined to be outside the 0.2% annual chance floodplain and outside of the 500-year floodplain. The Project site is in the urban Hilo area adjacent to the Pana'ewa rainforest and consists primarily of soils characterized by moderately rapid permeability, slow runoff, and an erosion hazard that is no more than slight. The elevation of the Project area is outside of the tsunami zone, sea level rise exposure area, and other coastal areas. In cases of extreme tsunamis, users of the facility would be able to evacuate the higher levels of the building. No long-term impact is anticipated. For further discussion, see **Chapter 3.5, Natural Hazards & Manmade Hazards.**

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

The Project is not anticipated to have a substantial adverse effect on scenic vistas and view planes, during day or night, as identified in State or County plans. Short-term impacts to visual resources are related to construction. The new building and the surrounding pavilions are under the 45-foot height limit designated for the County of Hawai'i land use height limits for this particular district (HCC §25-5-133). The facility is visible from Railroad Avenue. Final design treatments to minimize the impact of the structure on the surrounding neighborhood may include screening such as landscaping. For further discussion, see **Chapter 3.9, Visual and Scenic Resources**.

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

Construction of the project will not require substantial energy consumption relative to other similar sized projects and other commercial activities in the area. The new building may increase existing electrical demand at this location. However, the Project would not result nor constitute a source of impact to the climate and does not propose activities that will lead to an increase in the generation of GHGs. For further discussion, see **Chapter 3.1, Climate & Climate Change.**

6.3 Summary

Based on the information and findings in this EA and coordination with local, state, and federal regulatory agencies and public, it is determined that, with the incorporation of mitigation measures, this Project will have no significant impact on the natural or human environment. Further evaluation of the Project's impacts through the preparation of an EIS is not warranted. The EA recommends mitigation measures to alleviate impacts when such impacts are identified. An AFNSI has been issued for this project.

The RAIH will provide act as a resource to aid in disaster management operations by facilitating knowledge and resource-sharing on disaster preparedness and disaster management for the public and promoting efficient hazard response. Increased efficiency of operations will result in improved public safety. Beyond its use during emergency situations, the new Project may also be used for education or training for agricultural practices, and community programs. The existing farmers market operations will benefit from an expanded space and a certified kitchen designed to accommodate all required personnel during times of activation. The Project is consistent with State and County plans and policies with regards to public safety as discussed in *Chapter 5.0*. Overall, the Project will provide a public benefit while resulting in minimal impacts to the surrounding environment.

Chapter 7

Agencies, Organizations, and Individuals Consulted in the EA Process

Chapter 7

Agencies, Organizations, and Individuals Consulted in the EA Process

An early consultation letter/handout was mailed on October 03, 2022 to stakeholders (e.g., Federal, State and County agencies, elected officials, community organizations and individuals, libraries, utilities, medical services, and schools) as part of the scoping process for this Project. Subsequently, comment letters were received during the 30-day early consultation period, which began on October 2, 2022. *Table 7.1* lists the stakeholders who were engaged during the early consultation period, stakeholders who submitted early consultation comments, and stakeholders who will receive notification of the publication of this Draft EA.

Table 7.1 Consultation with Agencies, Organizations, and Individuals

Respondents and Distribution	Early Consultation	Received Early Consultation Comments	Notification of Draft EA
Federal Agencies			
U.S. Department of the Interior, Geological Survey	X		X
U.S. Fish and Wildlife Service (USFWS) – Pacific Islands Fish and Wildlife Office	X		X
U.S. Department of the Interior, National Parks Service	X		X
U.S Department of Agriculture, National Resources Conservations Service	X		X
Federal Emergency Management Agency, Region 9 Office	X		X
U.S. National Oceanic Atmospheric Administration	X		X
State of Hawai'i Agencies			
Department of Accounting and General Services	X		X
Department of Agriculture	X		X
Department of Business, Economic Development & Tourism (DBEDT)	X		X
Department of Health (DOH)	X		X
Department of Health (DOH) – Clean Water Branch	X		X
Department of Health (DOH) – Wastewater Branch	X		X
Department of Health (DOH)- Environmental Health Administration	X		X

Table 7.1 Consultation with Agencies, Organizations, and Individuals			
Respondents and Distribution	**Early Consultation**	**Received Early Consultation Comments**	**Notification of Draft EA**
Department of Health (DOH) – Clean Air Branch	X		X
Department of Land and Natural Resources (DLNR) – Land Division	X	X	X
Department of Land and Natural Resources (DLNR) – Engineering Division	X	X	X
Department of Land and Natural Resources (DLNR) – Land Division, Hawai'i District	X	X	X
Department of Land and Natural Resources (DLNR)- Division of Forestry and Wildlife	X	X	X
Department of Land and Natural Resources (DLNR) – State Historic Preservation Division	X		X
Department of Transportation (DOT)	X	X	X
Office of Hawaiian Affairs (OHA)	X		X
Department of Defense (DoD)	X		X
Hawai'i Emergency Management Agency	X		X
Office of Planning and Sustainable Development	X		X
County of Hawai'i Agencies			
County of Hawai'i Department of Water Supply (DWS)	X	X	X
Hawai'i County Civil Defense Agency (HCCDA)	X		X
County of Hawai'i Department Environmental Management	X	X	X
Department of Parks and Recreation	X	X	X
Department of Parks and Recreation: Culture & Education	X		X
Department of Parks and Recreation: Elderly Activities Division	X		X
County of Hawai'i Department of Research and Development	X	X	X
County of Hawai'i Planning Department	X	X	X
County of Hawai'i Planning Department: Douglas Le (Recovery Officer)	X		X
County of Hawai'i Planning Department: Garrett Smith (Recovery & Redevelopment Manager)	X		X
Department of Public Works: Building Division	X	X	X
Department of Public Works: Traffic Division	X		X
Hawai'i County Police Department (CoH-PD)	X	X	X

Table 7.1 Consultation with Agencies, Organizations, and Individuals			
Respondents and Distribution	**Early Consultation**	**Received Early Consultation Comments**	**Notification of Draft EA**
Hawai'i County Fire Department (CoH-FD)	X	X	X
Office of the Mayor	X		X
Elected Officials			
U.S. Representative Jill Tokuda, Second Congressional District			X
Senator Lorraine R. Inouye – State Senate District	X		X
Senator Joy A. San Buenaventura- State Senate District	X		X
Representative Chris Todd – State House District	X		X
Representative Richard H.K. Onishi- State House District	X		X
County Councilmember Susan "Sue" L. K. Lee Loy- Hawai'i County Council District 3	X		X
OHA Hawai'i Island Trustee Mililani Trask	X		X
Community Groups and Individuals			
Pana'ewa Hawaiian Home Lands Community Association	X		X
Keaukaha Community Association	X		X
National Disaster Preparedness Training Center	X		X
Vibrant Hawai'i	X		X
Edith Kanaka'ole Foundation	X		X
The Food Basket: Hawai'i Island's Food Bank	X		X
Libraries			
Hawai'i State Library Hawai'i Documents Center	X		X
Hilo Public Library	X		X
Utilities			
Hawaiian Electric Company	X	X	X
Medical Services			
Hilo Medical Center	X		X
Queen's Health Care: Hilo Specialty Care	X		X
Maika'i Health	X		X
Hawai'i Island Community Health Center: Hilo	X		X
Big Island Healthcare	X		X

Table 7.1 Consultation with Agencies, Organizations, and Individuals			
Respondents and Distribution	**Early Consultation**	**Received Early Consultation Comments**	**Notification of Draft EA**
Bay Clinic, Inc.: Hilo Clinic	X		X
East Hawai‘i Health Clinic	X		X
Schools			
Kamehameha Schools	X		X
Hilo High School	X		X
Kea‘au High School	X		X
Ke kula ‘o Nāwahīokalani‘ōpu‘u Lab Public Charter School	X		X
Kua o ka Lā Public Charter School	X		X
Ka ‘Umeke Kā‘eo Public Charter School	X		X
Waiākea High School	X		X
University of Hawai‘i at Hilo (UHH): Environmental Health & Safety Office	X		X
University of Hawai‘i at Hilo (UHH): College of Agriculture, Forestry & Natural Resource Management	X		X
University of Hawai‘i at Hilo (UHH): Facilities Planning & Construction	X		X
University of Hawai‘i at Hilo (UHH): Institutional Research Office	X		X
Hawai‘i Community College: Tropical Forest Ecosystem and Agroforestry Management Program Faculty: Orlo Steele	X		X
Hawai‘i Community College: Tropical Forest Ecosystem and Agroforestry Management Program Faculty:Pamela Scheffler	X		X
Hawai‘i Community College: Agriculture Program Faculty: Lew Nakamura	X		X
Keiki o ka ‘Āina	X		X

Table 7.2 provides responses to the comments received during the 30-day early consultation period. Comments are arranged by themes:

Table 7.2 Responses to Comments Received During Early Consultation

Stakeholder	Date	Comment	Reponse
Compliance with Codes and Regulations			
County of Hawai'i, Fire Department	October 3, 2022	Fire Department Access and Water Supply shall comply with Chapter 18 of the 2018 Hawaii State Fire Code and Chapter 26 of the Hawaii County Code.	• The Project will comply with Chapter 18 of the 2018 Hawaii State Fire Code and Chapter 26 of the Hawaii County Code.
County of Hawai'i, Department of Environmental Management – Solid Waste Division	October 11, 2022	• Commercial operations, State and Federal agencies, religious entities, and non-profit organization may not use transfer stations for disposal • Aggregates and any other construction/demolition waste should be responsibly reused to its fullest extent • Ample and equal room should be provided for rubbish and recycling • Green waste may be transported to the green waste sites located at the West Hawai'i Organics Facility and East Hawai'i Organics Facilites, or other suitable diversion programs • Construction and demolition waste is prohibited at all County Transfer Stations • Must submit a Solid Waste Management Plan	• A Solid Waste Management Plan will be submitted to the County of Hawai'i, Department of Environmental Management – Solid Waste Division, which will provide information (e.g., tonnage and schedule) regarding anticipated disposal rates.
County of Hawai'i, Department of Environmental Management – Wastewater Division	October 11, 2022	Applicant shall follow Department of Health regulations. No Hawaii County sewer system in area.	• The Project will comply with DOH regulations, as applicable.
County of Hawai'i, Department of Public Works	October 3, 2022	The Building Division requires all structures to follow the Hawaii County Code and obtain appropriate Building Permits.	• The Project will comply with the Hawai'i County Code, as applicable; appropriate building permits will be obtained.
County of Hawai'i, Planning Department	October 24, 2022	Per section 25-5-157(c) of the Hawai'i County Code, Chapter 25 Zoning Code: "Plan approval shall be required for all new structures and additions to existing structures in the MG district. Please provide our department with a copy of the Draft Environmental Assessment.	• The Project will comply with Hawai'i County Code, Chapter 25, as applicable. The Draft EA will be made available to the County of Hawai'i, Planning Department.
State of Hawai'i, Department of Land and Natural Resources – Engineering Division	October 26, 2022	The owner of the project property and/or their representative is responsible to research the Flood Hazard Zone designation for the project.	• Flood Hazards are identified in this Draft EA.
Submission of Plans, Permits, and/or Supplemental Information			
Hawaiian Electric	October 26, 2022	• Hawaiian Electric will be able to provide electrical service to the proposed development in South Hilo. A detailed analysis will be performed after the receipt of the consultant's detailed design drawings and estimated load. • After the development's detailed loading and civil plans are submitted, Hawaiian Electric will prepare a firm cost to provide electrical power to this development. Recommends energy efficient and conservation measures to reduce the maximum electrical demand and energy consumption.	• Detailed design and estimated load will be submitted when available. The project will explore energy efficient and conservation measures in the design phase.
State of Hawai'i, Department of Transporation	November 2, 2022	• All projects within 5 miles from Hawaii State airports are advised to read the Technical Assistance Memorandum (TAM) for guidance with development and activities that may require further review and permits. • Federal Aviation Administration (FAA) regulation requires the submittal of FAA Form 7460-1 Notice of Proposed Construction or Alteration pursuant to the Code of Federal Regulations, Title 14, Part 77.9, if the construction or alteration is within 20,000 feet of a public use or military airport which exceeds a 100:1 surface from any point on the runway of each airport with its longest runway more than 3,200 feet. Construction equipment and staging area heights, including heights of temporary construction cranes, shall be included in the submittal. • The proposed development shall not provide landscape and vegetation that will create a wildlife attractant, which can potentially become a hazard to aircraft operations. If a solar energy photovoltaic (PV) system is going to be installed, be aware that PV systems located in or near the approach path of aircrafts can create a hazardous condition for pilots due to possible glint and glare reflected from the PV panel array. If glint or glare from the PV array creates a hazardous condition for pilots, the owner of the PV system shall be prepared to immediately mitigate the hazard upon notification by the HDOT-A and/or FAA.	• The TAM will be reviewed for guidance during the design stage. • The Project will complete and submit FAA Form 7460-1 when appropriate. • A glint and glare analysis will be completed for the Project should PV systems be used. • The Project proposes mitigation measures to address traffic impacts during peak A.M. and P.M. hours. (e.g., adjust hours of operation, encourage the use of rideshare and alternative modes of transportation).

County of Hawai'i, Department of Water Supply	November 3, 2022	The department requests the applicant submit estimated maximum daily water usage calculations for the proposed project, including total estimated daily water usage in gallons per day and the estimated peak flow in gallons per minute.	• Estimated maximum daily water usage calculations are included in this Draft EA.
Pertaining to Natural Environment, Flora and Fauna			
State of Hawai'i, Department of Land and Natural Resources – Department of Forestry and Wildlife	October 3, 2022	• The State listed Hawaiian Hoary Bat or 'Ōpe'ape'a (Lasiurus cinereus semotus) could potentially occur at or in the vicinity of the project and may roost in nearby trees. • Artificial lighting can adversely impact seabirds that may pass through the area at night by causing them to become disoriented. This disorientation can result in their collision with manmade structures or the grounding of birds. • The State listed Hawaiian Hawk or 'Io (Buteo solitarius) may occur in the project vicinity. • The State listed Hawaiian Goose or Nēnē (Branta sandvicensis) could potentially occur in the vicinity of the proposed project site. • Recommends a botanical survey be conducted prior to commencing work • Recommends using native plant species for landscaping that are appropriate for the area. Do not plant invasive species. • Recommends minimizing the movement of plant or soil material between worksites. Soil and plant material may contain invasive fungal pathogens (e.g., Rapid 'Ōhi'a Death), vertebrate and invertebrate pests (e.g., Little Fire Ants, Coconut Rhinoceros Beetles), or invasive plant parts that could harm our native species and ecosystems. • To prevent the spread of Rapid 'Ōhi'a Death (ROD), DOFAW requests that the information and guidance at the following website be reviewed and followed if 'ōhi'a trees are present at the project site that will be removed, trimmed, or potentially injured: https://cms.ctahr.hawaii.edu/rod. Recommends taking action to minimize predator presence; remove cats, place bait stations for rodents and mongoose, and provide covered trash receptacles.	• Requires site clearing will be timed to avoid disturbance to bats during the birthing and pup rearing season (June 1 - September 15). During this time, woody plants greater than 15 feet will not be disturbed, removed or trimmed. Barbed wire will be avoided. • For nighttime work that may be required, lights will be fully shielded to minimize the attraction of seabirds. Nightime work will be avoided during seabird fledging season (September 15 – December 15). • Area will be surveyed for Hawaiian Hawks to ensure no nests are present. • If any nēnē are present during construction, then all activities within 100 feet will cease until the birds leave on their own accord. • The Big Island Invasive Species Committee (BIISC) may be contacted for assistance in identifying invasive species in the area. All equipment, materials, and personnel will be cleaned of excess soil and debris to minimize the risk of spreading invasive species.
No Comment at this Time			
County of Hawai'i, Police Department	October 5, 2022	Upon reviewing the provided documents, the department does not anticipate any significant impact to traffic and/or public safety concerns.	• The KPFA acknowledges that the County of Hawai'i, Police Department does not anticipate a significant impact to traffic and/or public safety concerns.
State of Hawai'i, Department of Accounting and General Services	October 17, 2022	No comments to offer at this time.	• The KPFA acknowledges that the State of Hawai'i, Department of Accounting and General Services does not have any comments at this time.

Chapter 8

References

Chapter 8

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Appendices

Appendix A

Early Consultation Letters

111 S. King Street
Suite 170
Honolulu, HI 96813
808.523.5866
www.g70.design

October 3rd, 2022

Subject: Early Consultation for a Chapter 343, Hawai‘i Revised Statutes
Draft Environmental Assessment
Keaukaha Pana‘ewa Farmers Association (KPFA)
Resiliency and Agricultural Innovation Hub (RAIH) Project
Hilo, Island of Hawai‘i, Hawai‘i
Tax Map Key (TMK): (3) 2-1-025:091

Dear Participant:

On behalf of KPFA, a Homestead Association and Hawaiian Homes Commission Act Beneficiary Association, G70 is preparing a Draft Environmental Assessment, pursuant to Hawai‘i Revised Statutes (HRS), Chapter 343, and Hawai‘i Administrative Rules (HAR), Chapter 11-200.1 for the RAIH Project. The RAIH is proposed on approximately ten acres of land under the jurisdiction of the Department of Hawaiian Home Lands (DHHL) at the intersection of Railroad Avenue and East Maka‘ala Street in Pana‘ewa located at 363 Railroad Avenue and identified as TMK (3) 2-1-025:091.

KPFA was formed by native Hawaiians who lost their homes in Keaukaha and were forced to relocate from Keaukaha to Pana‘ewa when the Hilo International Airport was built. The organization represents over 1,000 native Hawaiian farmers that reside on Hawaiian Homes Trust Lands. The mission of KPFA is to support, motivate, and educate area farmers and lessees to establish a viable and sustainable farm community; preserve Hawaiian culture; achieve self-sufficiency, pono management, and respect for the ‘āina.

The RAIH is a 17,490 square foot facility envisioned to serve as an agricultural center with community gathering space for farmers and ‘ohana in the area on a day-to-day basis. It will also serve the entirety of the Hilohanakahi region as a resiliency hub and will provide necessary protection and resources in preparation, response, and recovery during a natural disaster. When not acting as a resource for disaster management, the RAIH will serve the region by providing kūpuna care and programs that honor the legacy of the area. The RAIH will also encourage agricultural education, acting as a seed bank for the community while fostering the education of farming methods and uses.

The district of Hilo can be delineated by 3 regions: Hilopalikū, Hiloone, and Hilohanakahi. Keaukaha and Pana‘ewa are located firmly in Hilohanakahi on the makai side of Kanoelehua Avenue in the ahupua‘a of Waiākea, which is comprised of several communities stretching from Kea‘au to Papa‘i (Kings Landing). The County of Hawai‘i has identified Keaukaha’s eight miles of coastline as a high-risk area for coastal hazard, this includes sea level rise, strong hurricanes, flooding, tsunamis, and extreme weather. Pana‘ewa also currently lacks an appropriate area for residents to shelter and access critical resources like water, electricity, and food during a hazard event.

An environmental review under Chapter 343 is required due to the project's use of state land and funds. Pursuant to HAR, Chapter 11-200.1-18, KPFA is conducting early consultation to seek input from agencies, citizen groups, and individuals who may have an area of expertise or have an association with KPFA, which may guide the scope and preparation of the Draft EA.

Please provide comments via U.S. mail or email. We request you submit comments no later than November 3rd, 2022.

G70
111 S. King Street, Suite 170
Honolulu, HI 96813-4307
Email: RAIH@g70.design

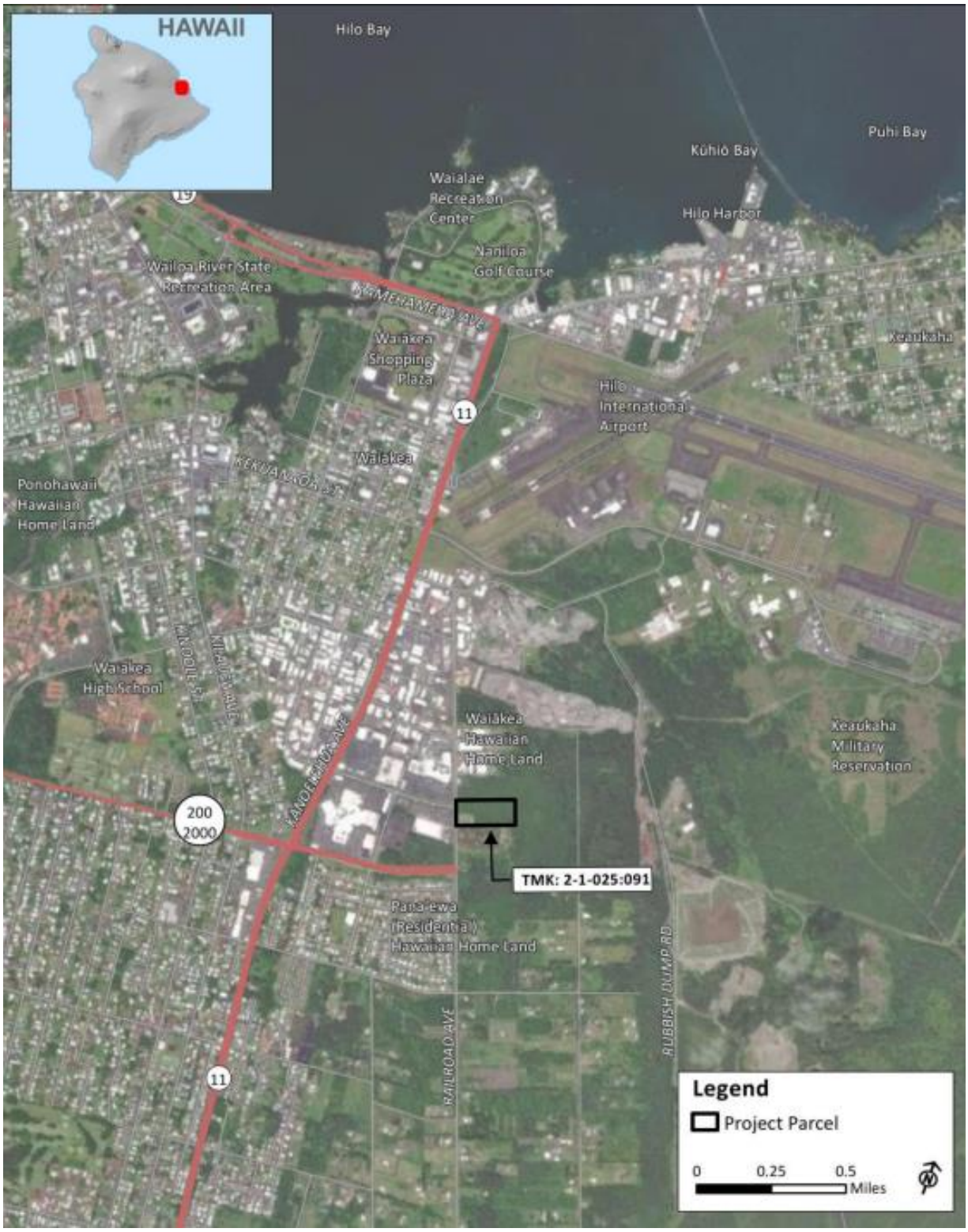
Thank you for participating in the early consultation for this environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC., dba G70

Mark Kawika McKeague, AICP
Principal

Enclosure: Project Location Map



Project Location **Keaukaha-Pana'ewa Community Resiliency Hub**

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE
MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

Nov 1, 2022

Group 70 International, Inc., dba G70 email: RAIH@G70.design
Attn: Mr. Kawika McKeague, Principal Planner
111 S. King Street, Suite 170
Honolulu, Hawaii 96813-4307

Dear Mr. McKeague:

SUBJECT: Early Consultation for Draft Environmental Assessment for the Proposed Keaukaha Pana'ewa Farmers Association Resiliency and Agricultural Innovation Hub Project located at Hilo, Island of Hawaii; TMK: (3) 2-1-025:091 on behalf of **Keaukaha Pana'ewa Farmers Association**

Thank you for the opportunity to review and comment on the subject matter. The Land Division of the Department of Land and Natural Resources (DLNR) distributed or made available a copy of your request pertaining to the subject matter to DLNR's Divisions for their review and comments.

At this time, enclosed are comments from the (a) Engineering Division, (b) Division of Forestry & Wildlife, and (c) Land Division-Hawaii District on the subject matter. Should you have any questions, please feel free to contact Darlene Nakamura at (808) 587-0417 or email: darlene.k.nakamura@hawaii.gov. Thank you.

Sincerely,

Russell Tsuji

Russell Y. Tsuji
Land Administrator

Enclosures
cc: Central Files

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

Oct 3, 2022

MEMORANDUM

FROM: ~~TO:~~ **DLNR Agencies:**
___Div. of Aquatic Resources
___Div. of Boating & Ocean Recreation
_X_ Engineering Division (DLNR.ENGR@hawaii.gov)
_X_ Div. of Forestry & Wildlife (rubyrosa.t.terrago@hawaii.gov)
___Div. of State Parks
_X_ Commission on Water Resource Management (DLNR.CWRM@hawaii.gov)
___Office of Conservation & Coastal Lands
_X_ Land Division – Hawaii District (gordon.c.heit@hawaii.gov)

TO: ~~FROM:~~ Russell Y. Tsuji, Land Administrator *Russell Tsuji*
SUBJECT: Early Consultation for Draft Environmental Assessment for the Proposed Keaukaha Pana'ewa Farmers Association Resiliency and Agricultural Innovation Hub Project
LOCATION: Hilo, Island of Hawaii; TMK: (3) 2-1-025:091
APPLICANT: G70 on behalf of **Keaukaha Pana'ewa Farmers Association**

Transmitted for your review and comment is information on the above-referenced subject matter. Please submit comments by **November 1, 2022.**

If no response is received by the above date, we will assume your agency has no comments. Should you have any questions about this request, please contact Darlene Nakamura at darlene.k.nakamura@hawaii.gov. Thank you.

BRIEF COMMENTS:

( ) We have no objections.
( ) We have no comments.
( ) We have no additional comments.
(✓) Comments are included/attached.

Signed: *[signature]*
Print Name: Carty S. Chang, Chief Engineer
Division: Engineering Division
Date: Oct 26, 2022

Attachments
cc: Central Files

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/Russell Y. Tsuji

Ref: Early Consultation for Draft Environmental Assessment for the Proposed Keaukaha Pana'ewa Farmers Association Resiliency and Agricultural Innovation Hub Project
Location: Hilo, Island of Hawaii
TMK(s): (3) 2-1-025:091
Applicant: G70 on behalf of Keaukaha Pana'ewa Farmers Association

COMMENTS

The rules and regulations of the National Flood Insurance Program (NFIP), Title 44 of the Code of Federal Regulations (44CFR), are in effect when development falls within a Special Flood Hazard Area (high-risk areas). Be advised that 44CFR, Chapter 1, Subchapter B, Part 60 reflects the minimum standards as set forth by the NFIP. Local community flood ordinances may stipulate higher standards that can be more restrictive and would take precedence over the minimum NFIP standards.

The owner of the project property and/or their representative is responsible to research the Flood Hazard Zone designation for the project. Flood zones subject to NFIP requirements are identified on FEMA's Flood Insurance Rate Maps (FIRM). The official FIRMs can be accessed through FEMA's Map Service Center (msc.fema.gov). Our Flood Hazard Assessment Tool (FHAT) (http://gis.hawaiinfip.org/FHAT) could also be used to research flood hazard information.

If there are questions regarding the local flood ordinances, please contact the applicable County NFIP coordinating agency below:

- Oahu: City and County of Honolulu, Department of Planning and Permitting (808) 768-8098.
- Hawaii Island: County of Hawaii, Department of Public Works (808) 961-8327.
- Maui/Molokai/Lanai County of Maui, Department of Planning (808) 270-7139.
- Kauai: County of Kauai, Department of Public Works (808) 241-4849.

Signed: _____
CARTY S. CHANG, CHIEF ENGINEER

Date: Oct 26, 2022

10/25/22

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

Oct 3, 2022

MEMORANDUM

TO: **DLNR Agencies:**
___Div. of Aquatic Resources
___Div. of Boating & Ocean Recreation
_X_ Engineering Division (DLNR.ENGR@hawaii.gov)
_X_ Div. of Forestry & Wildlife (rubyrosa.t.terrago@hawaii.gov)
___Div. of State Parks
_X_ Commission on Water Resource Management (DLNR.CWRM@hawaii.gov)
___Office of Conservation & Coastal Lands
_X_ Land Division – Hawaii District (gordon.c.heit@hawaii.gov)

FROM: Russell Y. Tsuji, Land Administrator *Russell Tsuji*
SUBJECT: Early Consultation for Draft Environmental Assessment for the Proposed Keaukaha Pana'ewa Farmers Association Resiliency and Agricultural Innovation Hub Project
LOCATION: Hilo, Island of Hawaii; TMK: (3) 2-1-025:091
APPLICANT: G70 on behalf of **Keaukaha Pana'ewa Farmers Association**

Transmitted for your review and comment is information on the above-referenced subject matter. Please submit comments by **November 1, 2022.**

If no response is received by the above date, we will assume your agency has no comments. Should you have any questions about this request, please contact Darlene Nakamura at darlene.k.nakamura@hawaii.gov. Thank you.

BRIEF COMMENTS:

( ) We have no objections.
(✓) We have no comments.
( ) We have no additional comments.
( ) Comments are included/attached.

Signed: _____
Print Name: GORDON C. HEIT
Division: Land Division
Date: 10/27/22

Attachments
cc: Central Files

9839

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

Oct 3, 2022

MEMORANDUM

~~TO:~~
FROM:

DLNR Agencies:
___Div. of Aquatic Resources
___Div. of Boating & Ocean Recreation
_X_ Engineering Division (DLNR.ENGR@hawaii.gov)
_X_ Div. of Forestry & Wildlife (rubyrosa.t.terrago@hawaii.gov)
___Div. of State Parks
_X_ Commission on Water Resource Management (DLNR.CWRM@hawaii.gov)
___Office of Conservation & Coastal Lands
_X_ Land Division – Hawaii District (gordon.c.heit@hawaii.gov)

~~FROM:~~ TO: Russell Y. Tsuji, Land Administrator *Russell Tsuji*
SUBJECT: Early Consultation for Draft Environmental Assessment for the Proposed Keaukaha Pana'ewa Farmers Association Resiliency and Agricultural Innovation Hub Project
LOCATION: Hilo, Island of Hawaii; TMK: (3) 2-1-025:091
APPLICANT: G70 on behalf of **Keaukaha Pana'ewa Farmers Association**

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If no response is received by the above date, we will assume your agency has no comments. Should you have any questions about this request, please contact Darlene Nakamura at darlene.k.nakamura@hawaii.gov. Thank you.

BRIEF COMMENTS:

( ) We have no objections.
( ) We have no comments.
( ) We have no additional comments.
(☑) Comments are included/attached.

Signed: *Lainie Berry*
Print Name: **LAINIE BERRY, Wildlife Program Mgr.**
Division: **Division of Forestry and Wildlife**
Date: Oct 31, 2022

Attachments
cc: Central Files

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
FIRST DEPUTY

M. KALEO MANUEL
DEPUTY DIRECTOR - WATER

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

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF FORESTRY AND WILDLIFE
1151 PUNCHBOWL STREET, ROOM 325
HONOLULU, HAWAII 96813

October 31, 2022

MEMORANDUM *Log no. 3839*

TO: RUSSELL Y. TSUJI, Land Administrator
Land Division

FROM: LAINIE BERRY, Wildlife Program Manager
Division of Forestry and Wildlife

SUBJECT: **Division of Forestry and Wildlife Comments Early Consultation for a Draft Environmental Assessment (DEA) for the Keaukaha Panaʻewa Farmers Association (KPFA) Resiliency and Agricultural Innovation Hub Project (RAIH) on Hawaiʻi Island**

The Department of Land and Natural Resources, Division of Forestry and Wildlife (DOFAW) has received your early consultation request for the preparation of a DEA for the KPFA-RAIH project located at 363 Railroad Avenue on Panaʻewa, on the island of Hawaiʻi; TMK: TMK): (3) 2-1-025:091. The proposed project consists of developing a 17,490 square-foot facility on 10-acre parcel to serve as an agricultural center with community gathering space for farmers and ʻohana in the area on a day-to-day basis and as a resiliency hub that will provide necessary protection and resources in preparation, response, and recovery during a natural disaster. It will also provide kupuna care and programs and act as a seed bank for the community while fostering the education of farming methods and uses.

The State listed Hawaiian Hoary Bat or ʻŌpeʻapeʻa (*Lasiurus cinereus semotus*) could potentially occur at or in the vicinity of the project and may roost in nearby trees. Any required site clearing should be timed to avoid disturbance to bats during their birthing and pup rearing season (June 1 through September 15). During this period woody plants greater than 15 feet (4.6 meters) tall should not be disturbed, removed, or trimmed. Barbed wire should also be avoided for any construction because bats can become ensnared and killed by such fencing material during flight.

Artificial lighting can adversely impact seabirds that may pass through the area at night by causing them to become disoriented. This disorientation can result in their collision with manmade structures or the grounding of birds. For nighttime work that might be required, DOFAW recommends that all lights used to be fully shielded to minimize the attraction of seabirds. Nighttime work that requires outdoor lighting should be avoided during the seabird fledging season, from September 15 through December 15. This is the period when young seabirds take their maiden voyage to the open sea. Permanent lighting also poses a risk of seabird attraction, and

as such should be minimized or eliminated to protect seabird flyways and preserve the night sky. For illustrations and guidance related to seabird-friendly light styles that also protect seabirds and the dark starry skies of Hawai‘i, please visit https://dlnr.hawaii.gov/wildlife/files/2016/03/DOC439.pdf.

The State listed Hawaiian Hawk or ‘Io (*Buteo solitarius*) may occur in the project vicinity. DOFAW recommends surveying the area to ensure no Hawaiian Hawk nests are present if trees are to be cut. ‘Io nests may be present during the breeding season from March to September.

The State listed Hawaiian Goose or Nēnē (*Branta sandvicensis*) could potentially occur in the vicinity of the proposed project site. It is against State law to harm or harass these species. If any are present during construction, then all activities within 100 feet (30 meters) should cease, and the bird or birds should not be approached. Work may continue after the bird or birds leave the area of their own accord. If a nest is discovered at any point, please contact the Hawai‘i Island Branch DOFAW Office at (808) 974-4221.

DOFAW recommends that a botanical survey be conducted by a qualified botanist in all proposed affected areas prior to commencing work to determine if any rare or endangered plants are present in the project area. We recommend that the survey consists of a complete species list and is conducted during the wettest part of the year when plants are more likely to be visible, especially in drier areas. If any listed species are found, please notify DOFAW at (808) 587-0166.

DOFAW recommends using native plant species for landscaping that are appropriate for the area (i.e., climate conditions are suitable for the plants to thrive, historically occurred there, etc.). Please do not plant invasive species. DOFAW also recommends referring to www.plantpono.org for guidance on the selection and evaluation of landscaping plants and for consulting the Hawai‘i-Pacific Weed Risk Assessment to determine the potential invasiveness of plants proposed for use in the project.

DOFAW recommends minimizing the movement of plant or soil material between worksites. Soil and plant material may contain invasive fungal pathogens (e.g., Rapid ‘Ōhi‘a Death), vertebrate and invertebrate pests (e.g., Little Fire Ants, Coconut Rhinoceros Beetles), or invasive plant parts that could harm our native species and ecosystems. We recommend consulting the Big Island Invasive Species Committee (BIISC) at (808) 933-3340 to help plan, design, and construct the project, learn of any high-risk invasive species in the area, and ways to mitigate their spread. All equipment, materials, and personnel should be cleaned of excess soil and debris to minimize the risk of spreading invasive species.

To prevent the spread of Rapid ‘Ōhi‘a Death (ROD), DOFAW requests that the information and guidance at the following website be reviewed and followed if ‘ōhi‘a trees are present at the project site that will be removed, trimmed, or potentially injured: https://cms.ctahr.hawaii.edu/rod.

DOFAW is concerned about attracting vulnerable birds to areas that may host nonnative predators such as cats, rodents, and mongooses. We recommend taking action to minimize predator presence; remove cats, place bait stations for rodents and mongoose, and provide covered trash receptacles.

We appreciate your efforts to work with our office for the conservation of our native species. These comments are general guidelines and should not be considered comprehensive for this site or project. It is the responsibility of the applicant to do their own due diligence to avoid any negative environmental impacts. Should the scope of the project change significantly, or should it become apparent that threatened or endangered species may be impacted, please contact our staff as soon as possible. If you have any questions, please contact Paul Radley, Protected Species Habitat Conservation Planning Coordinator at (808) 295-1123 or paul.m.radley@hawaii.gov.

Sincerely,

Lainie Berry

LAINIE BERRY
Wildlife Program Manager

DAVID Y. IGE
GOVERNOR

JADE T. BUTAY
DIRECTOR

Deputy Directors
ROSS M. HIGASHI
EDUARDO P. MANGLALLAN
DAVID J. RODRIGUEZ
EDWIN H. SNIFFEN

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

IN REPLY REFER TO:

DIR 0973
STP 8.3491

November 2, 2022

VIA EMAIL: RAIH@g70.design

Mr. Mark Kawika McKeague, AICP
GROUP 70 INTERNATIONAL, INC., dba G70
111 S. King Street, Suite 170
Honolulu, Hawaii 96813-4307

Dear Mr. McKeague:

Subject: Early Consultation for Draft Environmental Assessment (EA)
Keaukaha Panaewa Farmers Association (KPFA)
Resiliency and Agricultural Innovation Hub (RAIH) Project
Hilo, Hawaii Island, Hawaii
Tax Map Key: (3) 2-1-025: 091

Thank you for your letter dated October 3, 2022, requesting Hawaii Department of Transportation's (HDOT) review and comments on the subject project. HDOT understands the KPFA is proposing to develop a 17,490 square feet facility to serve as an agricultural center with community gathering space for farmers and families in the area. The RAIH project will also serve as a natural disaster emergency response center, as well as providing kapuna care and programs to serve the community.

Airports Division (HDOT-A)

1. The KPFA Resiliency and Agricultural Innovation Hub project site is approximately 4,962 feet (0.94 miles) from the end of Runway 3 at Hilo International Airport (ITO). All projects within 5 miles from Hawaii State airports are advised to read the Technical Assistance Memorandum (TAM) for guidance with development and activities that may require further review and permits. The TAM can be viewed at this link: http://files.hawaii.gov/dbedt/op/docs/TAM-FAA-DOT-Airports_08-01-2016.pdf.

2. Federal Aviation Administration (FAA) regulation requires the submittal of FAA Form 7460-1 Notice of Proposed Construction or Alteration pursuant to the Code of Federal Regulations, Title 14, Part 77.9, if the construction or alteration is within 20,000 feet of a public use or military airport which exceeds a 100:1 surface from any point on the

runway of each airport with its longest runway more than 3,200 feet. Construction equipment and staging area heights, including heights of temporary construction cranes, shall be included in the submittal. The form and criteria for submittal can be found at the following website: https://oeaaa.faa.gov/oeaaa/external/portal.jsp.

3. Due to the project site's proximity to ITO, the applicant and future users should be aware of potential single event noise from aircraft operations. There is also a potential for fumes, smoke, vibrations, odors, etc., resulting from occasional aircraft flight operations over or near the project. These incidences may increase or decrease over time and are dependent on airport operations.

4. The proposed development shall not provide landscape and vegetation that will create a wildlife attractant, which can potentially become a hazard to aircraft operations. Please review the FAA Advisory Circular 150/5200-33C, Hazardous Wildlife Attractants On Or Near Airports for guidance. If the development's landscaping creates a wildlife attractant, the developer shall immediately mitigate the hazard upon notification by the HDOT-A and/or FAA.

5. If a solar energy photovoltaic (PV) system is going to be installed, be aware that PV systems located in or near the approach path of aircrafts can create a hazardous condition for pilots due to possible glint and glare reflected from the PV panel array. If glint or glare from the PV array creates a hazardous condition for pilots, the owner of the PV system shall be prepared to immediately mitigate the hazard upon notification by the HDOT-A and/or FAA.

   The FAA requires a glint and glare analysis for all solar energy PV systems near airports. The www.sandia.gov/glare website has information and guidance with the preparation of a glint and glare analysis. A separate FAA Form 7460-1 will be necessary for the solar energy PV system. After the FAA determination of the Form 7460-1 glint and glare analysis, a copy shall be provided to the HDOT-A by the owner of the solar energy PV system.

   Solar energy PV systems have also been known to emit radio frequency interference (RFI) to aviation-dedicated radio signals, thereby disrupting the reliability of air-to-ground communications. Again, the owner of the solar energy PV system shall be prepared to immediately mitigate the RFI hazard upon notification by the HDOT-A and/or FAA.

Highways Division

1. The project site is at the intersection of two County roads, Railroad Avenue and East Makala Street. Two State roads are in the vicinity of the site and relevant to the proposed action:

a. Puainako Street (State Route 2000) is aligned generally east-west and at Railroad Avenue, less than 0.25 mile south of the project site.

b. Kanoelehua Avenue (State Route 11) is aligned generally north-south and is approximately 0.5 mile west of the project site.

2. No direct impact to State highways is anticipated, however the draft EA traffic impact discussion should include the following:

    a. Jurisdiction of roadways in the vicinity.

    b. Location of existing and proposed site access driveways.

    c. Observations regarding existing traffic conditions in the vicinity of the site, include bicycle and pedestrian routes and location of transit stops.

    d. Project description, including pipelines and other infrastructure that may be removed or constructed within the HDOT right-of-way (ROW), operations and construction activities, hours of operations, estimated number of vehicle trips to/from the site during peak traffic hours, and access routes.

    e. Assessment of project's potential direct, secondary, and cumulative impact to State roadways.

    f. If the qualitative traffic assessment suggests a potential for adverse impact to State highways, then the EA should include traffic impact assessment report prepared by a licensed Professional Engineer.

3. Propose measures (e.g., adjust hours of operation, encourage the use of rideshare and alternative modes of transportation) to avoid impacts to traffic during peak A.M. and P.M. hours.

4. Consider the applicability of the following HDOT permits and approvals:

    a. Permit to Perform Work Upon State Highways is required for any work within the State highway ROW (Hawaii Revised Statutes [HRS] 264). The application includes the review and approval of construction drawings and a Traffic Management Plan.

    b. Permit to Operate or Transport Oversize and/or Overweight Vehicles and Loads Over State Highways (HRS Chapter 291, Section 36).

c. Permit for the Occupancy and Use of State Highway ROW (HRS 264). Note this is applicable to underground and overhead power lines and stormwater management structures within the State highway ROW.

If there are any questions, please contact Mr. Blayne Nikaido of the HDOT Statewide Transportation Planning Office at (808) 831-7979 or via email at blayne.h.nikaido@hawaii.gov.

Sincerely,

JADE T. BUTAY
Director of Transportation

DAVID Y. IGE
GOVERNOR

CURT T. OTAGURO
COMPTROLLER

AUDREY HIDANO
DEPUTY COMPTROLLER

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810-0119

(P)22.182

OCT 17 2022

Mark Kawika McKeague
G70
111 S King Street, Suite 170
Honolulu, Hawaii 96813

Dear Mr. McKeague:

Subject: Early Consultation for Chapter 343, HRS Draft Environment Assessment for
Keaukaha Panaewa Farmers Association
Resiliency and Agricultural Innovation Hub Project
Hilo, Island of Hawaii, Hawaii
TMK: (3) 2-1-025: 091

Thank you for the opportunity to comment on the subject project. We have no comments to offer at this time as the proposed project does not impact any of the Department of Accounting and General Services' projects or existing facilities.

If you have any questions, your staff may call Ms. Gayle Takasaki of the Planning Branch at (808) 586-0584.

Sincerely,

CHRISTINE L. KINIMAKA
Public Works Administrator

GT:mo
c: Mari Joy Angsioco, DAGS HDO

Mitchell D. Roth
Mayor

Lee E. Lord
Managing Director

West Hawai‘i Office
74-5044 Ane Keohokālole Hwy
Kailua-Kona, Hawai‘i 96740
Phone (808) 323-4770
Fax (808) 327-3563

Zendo Kern
Director

Jeffrey W. Darrow
Deputy Director

East Hawai‘i Office
101 Pauahi Street, Suite 3
Hilo, Hawai‘i 96720
Phone (808) 961-8288
Fax (808) 961-8742

County of Hawai‘i
PLANNING DEPARTMENT

October 24, 2022

G70 Planning
111 South King Street, Suite 170
Honolulu, HI 96813

Dear G70 Planning:

SUBJECT: Early Consultation for a Chapter 343, Hawai‘i Revised Statues Draft Environmental Assessment
Keaukaha Pana‘ewa Farmers Association (KPFA)
Resiliency and Agricultural Innvation Hub (RAIH) Project
Project: Keaukaha Pana‘ewa Association Resiliency and Agriculture Innovation Hub Project
TMK: (3) 2-1-025:091; South Hilo, Hawai‘i

Thank you for your request. This is to acknowledge your email dated October 3, 2022, requesting an early consultation for a Chapter 343, Hawai‘i Revised Statues Draft Environmental Assessment for the subject project.

The proposed 17,490 square foot Resiliency and Agricultural Innovation Hub (RAIH) is envisioned to serve as an agricultural center and community gathering space for farmers and ‘ohana. The facility will also serve as a resiliency hub and provide the necessary protection and resources in preparation, response, and recovery during any potential natural disaster. Lastly, the RAIH will provide kūpuna care and programs that will honor the subject area. The RAIH will encourage agricultural learning while fostering the education of farming methods and uses.

The 10.633-acre property is zoned MG-1a (General Industrial with a minimum building area of 1-acre) with the County of Hawai‘i and has a State Land Use Commission designation of Urban. The Hawai‘i County General Plan Land Use Pattern Allocation Guide (LUPAG) Map designates this parcel as Urban Expansion (ue). This subject parcel is not located within the Special Management Area (SMA). However, the subject parcel does fall under the jurisdiction of the Department of Hawaiian Homelands (DHHL).

Per section 25-5-157(c) of the Hawai‘i County Code, Chapter 25 Zoning Code: “Plan approval shall be required for all new structures and additions to existing structures in the MG district.”

We have no further comment at this time. However, please provide our department with a copy of the Draft Environment Assessment for our review and comment.

Should you have any questions or concerns, please feel free to contact Elyse Stevens of this office via email at elyse.stevens@hawaiicounty.gov, or at (808) 961-8378.

Sincerely,

Zendo Kern
Zendo Kern (Oct 26, 2022 07:51 HST)

ZENDO KERN
Planning Director

ES:cc
\\coh01\planning\public\wpwin60\Elyse\Pre-Consultation EA\Pre-Consult EA - Keaukaha Panaewa Farmers Association Resiliency and Agriculture Innovation Hub.docx.doc

DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAI'I
345 KEKŪANAŌ'A STREET, SUITE 20 • HILO, HAWAI'I 96720
TELEPHONE (808) 961-8050 • FAX (808) 961-8657

November 3, 2022

Mr. Mark Kawika McKeague
G70
111 South King Street, Suite 170
Honolulu, HI 96813

Dear Mr. McKeague:

Subject: Pre-Environmental Assessment Consultation for
Keaukaha Pana'ewa Farmers Association (KPFA)
Resiliency and Agricultural Innovation Hub (RAIH) Project
Tax Map Key (3) 2-1-025:091

This is in response to your Pre-Environmental Assessment letter dated October 3, 2022.

Please be informed that there is an existing 12-inch waterline within Railroad Avenue fronting the subject parcel, and an existing 1-inch meter serving the subject parcel, which is limited to an average daily usage of 1,000 gallons.

In order to ascertain the water needs of the project, the Department requests that the applicant submit estimated maximum daily water usage calculations for the proposed project, prepared by a professional engineer licensed in the State of Hawai'i, for review and approval. The water usage calculations shall include the total estimated daily water usage in gallons per day and the estimated peak flow in gallons per minute.

Upon acceptance of the water usage calculations, the Department will determine if water is available, the water commitment deposit amount, facilities charge due, and necessary water system improvements to support the subject development.

Should there be any questions, please contact Mr. Ryan Quitoriano of our Water Resources and Planning Branch at (808) 961-8070, extension 256.

Sincerely yours,

Keith K. Okamoto, P.E.
Manager-Chief Engineer

RQ:dfg

Good Morning,

This is in response to your 10/03/22 request for input on the draft EA for the Keaukaha Pan‘aewa Farmers Association (KPFA) Resiliency and Agricultural Innovation Hub (RAIH) Project:

The Building Division requires all structures follow the Hawaii County Code related to structures and that appropriate Building Permits are obtained.

Thank you,

Julann Sonomura, P.E.
Building Chief
County of Hawaii
Department of Public Works – Building Division

Aloha G70:

I am submitting brief comments as the Director of Research & Development, County of Hawaii, regarding the early consultation request for the Keaukaha Panaewa Farmers Association (KPFA) Resiliency and Agricultural Innovation Hub (RAIH) project.

We support the proposal in concept. There is plentiful capacity (and need) for resilience hubs and agricultural innovation parks throughout Hawaii Island. The KPFA RAIH project will serve a community that relies on agriculture as a mainstream economic sector. The location is already being used for the Panaewa Farmers Market, which allows the RAIH project to build upon the community connections that exist. Finally, the department is collaborating with communities around Hawaii Island in pursuing opportunities for dialogue, and looks forward to similar opportunities with the KPFA in the future.

very respectfully,

Douglass S. Adams
Director
Dept of Research & Development
County of Hawai'i
W: (808) 961-8368
C: (808) 825-5195

Mitchell D. Roth
Mayor

Lee Lord
Managing Director

Ramzi I. Mansour
Director

Brenda Iokepa-Moses
Deputy Director

County of Hawai'i

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

345 Kekūanāo'a Street, Suite 41 · Hilo, Hawai'i 96720 · cohdem@hawaiicounty.gov
Ph: (808) 961-8083 · Fax: (808) 961-8086

G70
111 S. King Street, Suite 170
Honolulu, HI 96813-4307
RAIH@g70.design

SUBJECT: Early Consultation for a Chapter 343, Hawaii Revised Statutes
Draft Environmental Assessment
Keaukaha Pana'ewa Farmers Association (KPFA)
Resiliency and Agricultural Innovation Hub (RAIH) Project
Hilo, Island of Hawaii, Hawaii
TMK (3) 2-1-025:091

The Department of Environmental Management appreciates the opportunity to comment on the above-referenced matter.

The Solid Waste Division has reviewed the subject application and offers the following comments and/or recommendations (contact the Solid Waste Division for details):

- Commercial operations, State and Federal agencies, religious entities and non-profit organization may not use transfer stations for disposal.
- Aggregates and any other construction/demolition waste should be responsibly reused to its fullest extent.
- Ample and equal room should be provided for rubbish and recycling.
- Green waste may be transported to the green waste sites located at the West Hawai'i Organics Facility and East Hawai'i Organics Facility, or other suitable diversion programs.
- Construction and demolition waste is prohibited at all County Transfer Stations.
- Submit Solid Waste Management Plan in accordance with attached guidelines.
- Applicant is reminded that the South Hilo Sanitary Landfill is now closed and all municipal solid waste will need to be deposited at the West Hawaii Sanitary Landfill. The Solid Waste Management Plan must provide sufficient information (tonnage, schedule, et cetera) to allow DEM to plan for an increased disposal rate.

The Wastewater Division has reviewed the subject application and offers the following comments and/or recommendations (contact the Wastewater Division for details):

- Applicant shall follow Department of Health regulations. No Hawaii County sewer system in area.

Again, thank you for the opportunity to provide comment.

Sincerely,

Ramzi Mansour
Director

Mike Rivera
OIC 10.10.2022

Mitchell D. Roth
Mayor

Lee E. Lord
Managing Director

Ramzi I. Mansour
Director

Brenda D. Iokepa-Moses
Deputy Director

County of Hawai'i

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

345 Kekūanāo'a Street, Suite 41 · Hilo, Hawai'i 96720
Ph: (808) 961-8083 · Fax: (808) 961-8086
Email: cohdem@hawaiicounty.gov

January 29, 2021

SOLID WASTE MANAGEMENT PLAN
Guidelines

INTENT AND PURPOSE

This is to establish guidelines for reviewing Solid Waste Management Plans, for which special conditions are placed on developments. The Solid Waste Management Plan will be used to: (1) promote and implement recycling and recycling programs, (2) predict the waste generated by the proposed development to anticipate the loading on County Solid Waste Management Facilities, and (3) predict the additional vehicular traffic being generated because of waste and recycling transfers. A State of Hawai'i licensed engineer shall prepare a suitable Solid Waste Management Plan for review by the Department of Environmental Management.

REPORT

The Solid Waste Management Plan will contain the following:

1. Description of the project and the potential waste it may be generating: i.e. analysis of anticipated waste volume and composition. This includes waste generated during the construction and operational or maintenance phases. Waste types shall include (but not be limited to):
    A. Organics (including food waste and green wastes);
    B. Construction and Demolition materials;
    C. Paper (including cardboard);
    D. Metal (including ferrous and non-ferrous metals).
    E. Plastic;
    F. Special (including ash, sludge, treated medical waste, bulky items, tires);
    G. Hazardous (including paint, vehicle fluids, oil, batteries); and
    H. Glass.

2. Indicate onsite source separation by waste type; i.e. source separation bins for glass, metal, plastic, cardboard, aluminum, etc. Provide ample and equal space for rubbish and recycling.

3. Identification and location of the proposed waste reduction, waste re-use, recycling facility or disposal site and associated transportation methods for the various components of the development's waste management system, including the number of vehicle movements and associated routes that will be used to transport the waste and recycled materials.

4. The report will include identification of any impacts to County-operated waste management facilities, and the appropriate mitigation measures that will be implemented by the development to minimize these impacts.

5. Analysis will be based on the highest potential use or zoning of the development.

REQUIREMENTS AND CONDITIONS

1. A Solid Waste Management Plan will be prepared for all commercial developments, as defined under the policies of the Department of Environmental Management, Solid Waste Division.

2. The Department of Environmental Management will require the developer to provide or resolve all recommendations and mitigation measures as outlined in the solid waste management plan; besides any conditions placed on the applicant herein.

3. A State of Hawai`i licensed engineer will draft and certify in writing the Solid Waste Management Plan as complying with applicable Federal, State and County of Hawai'i Solid Waste Laws, Regulations, and Administrative Rules.

Should you require additional information, please contact Greg Goodale, Solid Waste Division Chief, at (808) 961-8515.

CONCUR:

Ramzi I. Mansour
DIRECTOR

Mitchell D. Roth
Mayor

Kenneth Bugado Jr.
Acting Police Chief

County of Hawai'i

POLICE DEPARTMENT
349 Kapi'olani Street • Hilo, Hawai'i 96720-3998
(808) 935-3311 • Fax (808) 961-2389

October 5, 2022

Group 70 International Inc.
Attention: Mr. Mark Kawika McKeague
111 S. King Street, Suite 170
Honolulu, HI 96813-4307

Dear Mr. McKeague:

SUBJECT: EARLY CONSULTATION FOR CHAPTER 343, HAWAII REVISED STATUTES DRAFT ENVIRONMENTAL ASSESSMENT KEAUKAHA PANA'EWA FARMERS ASSOCIATION (KPFA) RESILIENCY AND AGRICULTURAL INNOVATION HUB (RAIH) PROJECT HILO, ISLAND OF HAWAII; TAX MAP KEY (TMK): (3) 2-1-025:091

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 Sandor Finkey of the Hilo Patrol Division at 961-2214 or via e-mail at sandor.finkey@hawaiicounty.gov.

Sincerely,

KENNETH A. K. QUIOCHO
ASSISTANT CHIEF

SF:lli/22HQ1235

HAWAII FIRE DEPARTMENT . COUNTY OF HAWAII .

HILO, HAWAII 96720

DATE October 3, 2022

Memorandum

TO : GROUP 70 INTERNATIONAL

FROM : CAPTAIN CLINTON BAYBAYAN, FIRE PREVENTION BRANCH

SUBJECT: KPFA RESILIENCY AND AGRICULTURE INNOVATION HUB PROJECT, HILO HAWAII, EARLY CONSULTATION

In regards to the above mentioned project, Fire Department Access and Water Supply shall comply with Chapter 18 of the 2018 Hawaii State Fire Code and Chapter 26 of the Hawaii County Code. For any questions please email Clinton.Baybayan@hawaiicounty.gov or call 808-323-4761.

Respectfully Submitted,

Clinton Baybayan
Fire Prevention Captain
Fire Prevention Branch
Hawaii Fire Department

CUST 3-3-1
H-W/G

October 26, 2022

Mr. Mark Kawika McKeague, AICP
Principal
G70
111 South King Street, Suite 170
Honolulu, HI 96813-4307

To Whom It May Concern:

SUBJECT: Early Consultation for a Draft Environmental Assessment
Keaukaha Pana'ewa Farmers Association (KPFA)
Resiliency and Agricultural Innocation Hub (RAIH) Project
South Hilo, Hawai'i Island, Hawai'i
Tax Map Key: 2-1-025:091

Thank you for the opportunity to comment on the subject's Early Consultation for a Draft Environmental Assessment (EA). Hawaiian Electric will be able to provide electrical service to the proposed development in South Hilo. A detailed analysis will be performed after the receipt of the consultant's detailed design drawings and estimated load. The following is a summary of our comments:

1. Generation capacity – As of January 2021, Hawaiian Electric's current system peak load is 193.9MW and our total generation system capability is 235.3MW. Our firm generating reserve margin is 28.6% and may have adequate generation to serve the above.

2. Electrical Substation - The area is served by our existing Kanoelehua Substation and a 12,470 volt overhead distribution along Railroad Avenue. The capacity of our existing substation may be adequate to serve the anticipated load.

3. Off-Site Electrical Distribution System – The existing off-site 12,470 volt distribution system along Railroad Avenue is adequate to serve the proposed project.

5. On-Site Electrical Distribution System – On-site distribution line extensions and easements may be required on the developer's property to serve the anticipated load.

After the development's detailed loading and civil plans are submitted, Hawaiian Electric will prepare a firm cost to provide electrical power to this development.

Hawaiian Electric recommends energy efficient and conservation measures to reduce the maximum electrical demand and energy consumption. The developer may call Hawai'i Energy at (808) 537-5577 for questions or details on available programs.

It is encouraged that the developer’s electrical consultant open a service request with Hawaiian Electric via our link to our Interconnection Tool as soon as practicable to ensure timely electrical facility installation. For more information and instructions here is the link to our website: Electrical Services > Builder, Developers & Contractors.

If you have any questions, please contact (808) 969-0311 or email us at CI@hawaiianelectric.com.

Me ke aloha pumehana,

Shelley Doctor
shelley.doctor@hawaiianelectric.com
Designer III
Transmission and Distribution Engineering

email: D. Demichelis

Appendix B

Archaeological Reconnaissance Survey

DRAFT—Archaeological Reconnaissance Survey for TMK: (3) 2-1-025:091, Waiākea Ahupuaʻa, South Hilo District, Island of Hawaiʻi

Prepared For:
Keaukaha Panaʻewa Farmers Association
363 Railroad Avenue
Hilo, HI 96720

September 2021

Keala Pono Archaeological Consulting, LLC ● PO Box 1645, Kāneʻohe, HI 96744 ● Phone 808.381.2361

DRAFT—Archaeological Reconnaissance Survey for TMK: (3) 2-1-025:091, Waiākea Ahupuaʻa, South Hilo District, Island of Hawaiʻi

Prepared For:

Keaukaha Panaʻewa Farmers Association
363 Railroad Avenue
Hilo, HI 96720

Prepared By:

Windy Keala McElroy, PhD
and
Christine Hitt, BA

September 2021

Keala Pono Archaeological Consulting, LLC ● PO Box 1645, Kāneʻohe, HI 96744 ● Phone 808.381.2361

MANAGEMENT SUMMARY

An archaeological reconnaissance survey was conducted at TMK: (3) 2-1-025:091 in Waiākea Ahupua‘a, South Hilo District, on the island of Hawai‘i in advance of improvements to the parcel by the Keaukaha Pana‘ewa Farmers Association. One archaeological site was identified that includes five features: the remains of three old cars (Features 1–3), structural remnants (Feature 4), and historic artifacts (Feature 5). The site as a whole likely dates to the 1960s or later, with the cars and at least one artifact probably dating to the 1950s.

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INTRODUCTION

At the request of G70, on behalf of the Keaukaha Panaʻewa Farmers Association (KPFA), Keala Pono Archaeological Consulting conducted archaeological reconnaissance survey in support of improvements to TMK: (3) 2-1-025:091 in Waiākea Ahupuaʻa, South Hilo District, on the island of Hawaiʻi. The primary focus of the monitoring was on the identification and appropriate treatment of historic properties that might be affected by construction. The purpose of this work is to identify any historic properties that may be located on the property to help inform decisions on project design.

The report begins with a description of the project area and a historical overview of land use and archaeology in the area. The next section presents methods used in the fieldwork, followed by the results of the archaeological survey. Project results are summarized and recommendations are made in the final section. Hawaiian words and technical terms are defined in a glossary at the end of the document.

Project Location and Description

The project area is located at 363 Railroad Avenue on TMK: (3) 2-1-025:091 in Waiākea Ahupuaʻa, South Hilo District, on the island of Hawaiʻi. The project area is bounded by Railroad Avenue to the west, undeveloped land to the north and east, and farmland to the south (Figures 1 and 2). Approximately 1.5 acres (0.6 ha) in the southwest former of the parcel is currently being utilized for the farmer's market, while the remainder of the property is forested. Topography is undulating and vegetation is heavy in the forested section, primarily consisting of guava trees.

The KPFA is proposing to develop an agricultural innovation and resilience hub for the 10.63 acre (4.30 ha) parcel, which is on Hawaiian Home Lands. The hub will consist of a series of modular open air pavilions connected by an elevated lanai deck encompassing a central mound (piko). The pavilions will be designed as flexible spaces that can accommodate a range of programs. A kitchen and equipment storage area will also be included to support KPFA operations. Structures will be orientated to maximize views of Mauna Kea and Mauna Loa. The grounds surrounding the hub will be utilized for a playground, parking and circulation, and agricultural demonstration areas.

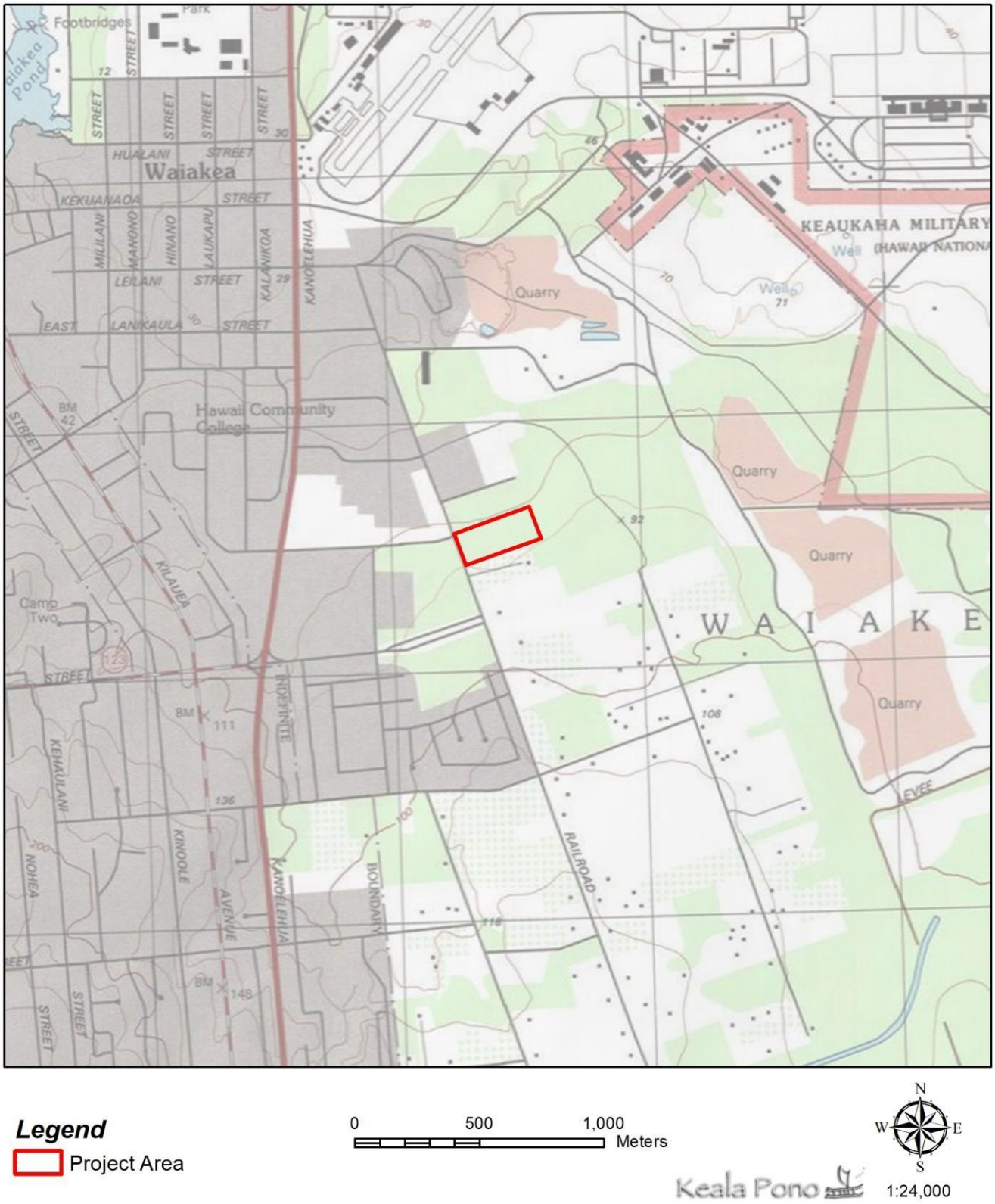
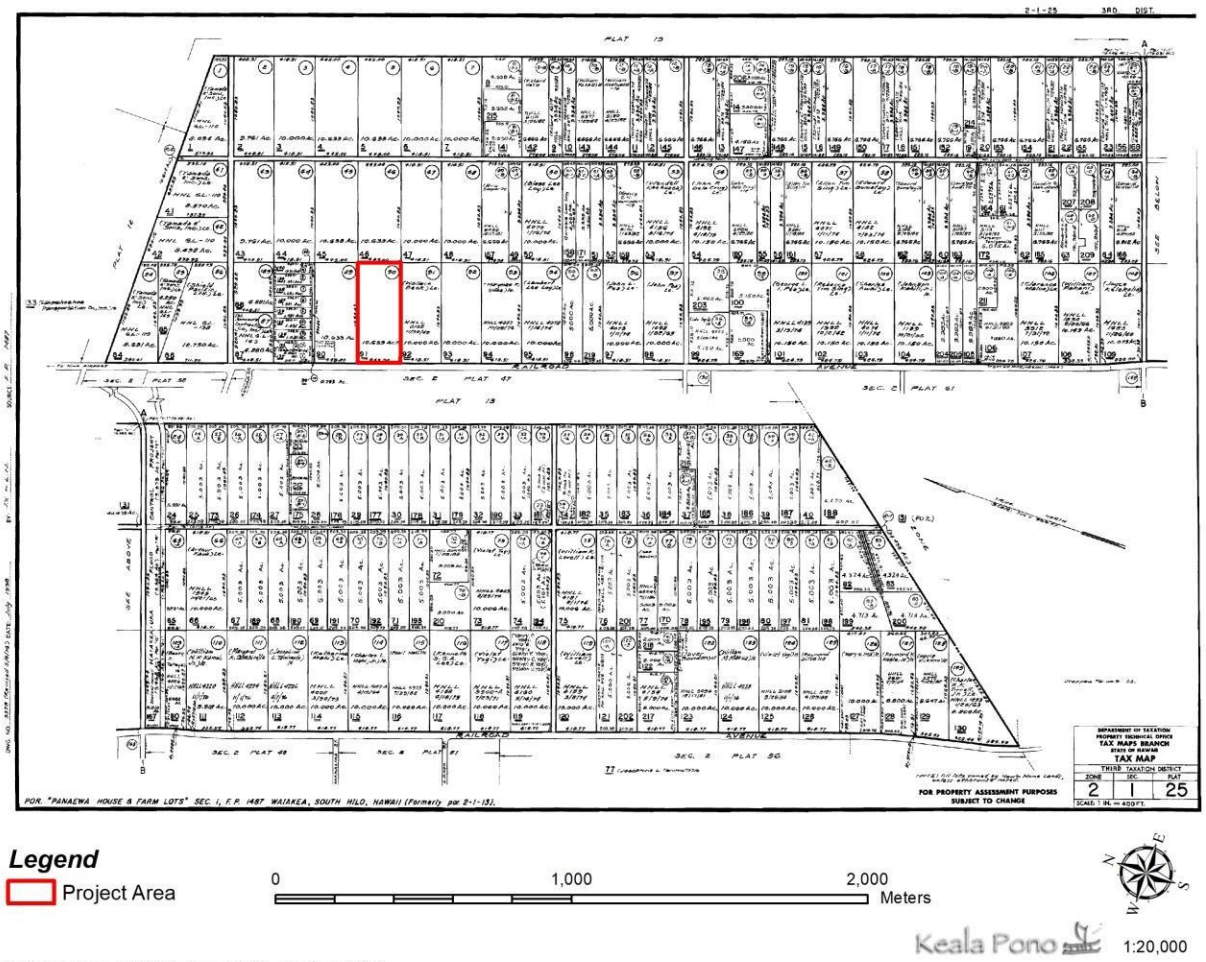


Figure 1. Project location on a 7.5 minute USGS Hilo quadrangle map.



TMK Plat Map H21025, Dated 1938, Revised 1976

Figure 2. Project location on a portion of TMK plat (3) 2-1-025.

BACKGROUND

The project area is located within the Waiākea ahupuaʻa of Hilo on the island of Hawaiʻi. Waiākea Ahupuaʻa is one of the largest in the Hawaiian Islands, so it is split into eight smaller land divisions, or ʻili, including Panaʻewa, where this project is situated, and also Pūʻāinakō, Keaukaha, Kāwili, Kalepolepo, Piʻopiʻo, Mohouli, and Kalanakāmaʻa (Maly 1996).

A brief historic review of Hilo is provided below, to offer a better holistic understanding of the use and occupation of the project area. In the attempt to record and preserve both the tangible (e.g., traditional and historic archaeological sites) and intangible (e.g., moʻolelo, ʻōlelo noʻeau) culture, this research assists in the discussion of anticipated finds. Research was conducted at the Hawaiʻi State Library, the SHPD library in Kapolei, and online on the Waihona ʻAina, Huapala, and Ulukau databases. Archaeological reports, historic maps, and historical reference books were among the materials examined.

Hilo in Traditional Times

> Native traditions describe the formation (literally the birth) of the Hawaiian Islands and the presence of life on and around them, in the context of genealogical accounts… As this Hawaiian genealogical account continues, we find that these same god-beings, or creative forces of nature who gave birth to the islands, were also the parents of the first man (Hāloa), and from this ancestor, all Hawaiian people are descended. It was in this context of kinship, that the ancient Hawaiians addressed their environment. (Maly and Maly 2003)

The history of Hilo begins with the history of Hawaiʻi Island:

> Hawaiʻi was another child of Papa and Wākea, their first-born child. He was the brother of Hoʻohoku-kalani. Hawaiʻi became the ancestor of the people of Hawaiʻi; the ancient name of Hawaiʻi island was Lono-nui-ākea. (Kamakau 1991:129)

Much of the oral accounts which narrate the events from the first peopling of Hawaiʻi to the recent period of written documentation has been lost in time. However, there are several renowned Hawaiian historians who diligently tried to record as much of Hawaiian prehistory as possible. Among these historians is the famous scholar, Samuel Mānaiakalani Kamakau, who shared the cosmological story of Hawaiʻi Island above.

In the compilation of Kamakau's writings entitled, *Ke Kumu Aupuni*, one of the earliest accounts of Hilo hints of the significance of the area during the reign of Alapaʻi (translation in italics by D. Duhaylonsod):

> Ua kaʻapuni ʻo Alapaʻi i kona noho aupuni ʻana. Ma Hilo ʻo ia i noho ai i kekahi mau makahiki. I ko Alapaʻi noho ʻana ma Hilo, ua māhuahua ka maʻi iā Keōua, ʻo ia hoʻi ʻo Kalanikupuapāikalaninui, a ma Piʻopiʻo, e pili ana ma Wailoa, ma Waiākea, make ihola ʻo Keōua i ka M.H. 1752. (Kamakau 1996[1866]:11).
>
> *Alapaʻi toured [around the island] during his reign. Hilo is where he lived for some years. While Alapaʻi was living in Hilo, Keōua, also known as Kalanikupuapāikalaninui, became very sick, and it was at Piʻopiʻo, close to Wailoa, at Waiākea, Keōua died in the year 1752.*

Kamakau also writes that just before the arrival of Captain Cook to Hawaiʻi, Keawehano was a chief of Hilo. Keawehano is recorded as providing prized feathers and featherwork to the visitors Kapohu

and Kaʻakakai who sought these items to enter the royal house built by Chief Kahekili on Maui (Kamakau 1996[1866]:82).

Place Names

Besides the chronicles of the early Hawaiian historians, there are other means by which Hawaiʻi's history has been preserved. One often overlooked source of history is the information embedded in the Hawaiian landscape. Hawaiian place names "usually have understandable meanings, and the stories illustrating many of the place names are well known and appreciated… The place names provide a living and largely intelligible history" (Pukui et al. 1974:xii).

Traditionally, Hilo was divided into three sections, including Hilo-one (sand Hilo), near the sea; Hilo-Hanakahi, an inland section toward Keaukaha; and Hilo-palikū, or Hilo of the upright cliffs (Pukui et al. 1974).

Toward the end of the 16th century and early 17th century, Hilo was divided into ahupuaʻa with names that it still retains today, including Puʻuʻeo, Piʻihonua, Punahoa, Pōnohawai, Kūkūau and Waiākea. Stretching from the sea to 6,000 feet, Waiākea and Piʻihonua offered the greatest amount of resources (Kelly et al. 1981).

Other places around the project area that have storied meanings attached to their names include Panaʻewa, Keaukaha, Wailoa, Kanukuokamanu, Huia, and Wailuku (Table 1). They are listed in *Place Names Of Hawaii* (Pukui et al. 1974) as follows:

> Hilo. City… bay, district… ancient surfing area… Three sections of Hilo town are: Hilo-one (sand Hilo), near the sea; Hilo-Hanakahi, and inland section toward Ke-au-kaha, named for a chief famous in song…; and Hilo-pali-kū (Hilo of the upright cliff), east of the Wai-luku River. Perhaps [Hilo is] named for the first night of the new moon or for a Polynesian navigator.
>
> Huia. Ancient surfing place… Name of a wave for surfing.
>
> Kanukuokamanu. Ancient surfing area… *Lit.,* the beak of the bird (the place was thought to be shaped like a bird's beak).
>
> Keaukaha. Hawaiian homestead area… *Lit.,* the passing current.
>
> Kūkūau. Section of Hilo… named for a grapsid crab.
>
> Panaʻewa. Land division, Hilo district, Hawaiʻi; legendary home of moʻo destroyed by Hiʻiaka.
>
> Piʻihonua. Land sections… ancient surfing place… *Lit.,* land incline.
>
> Ponahawai. Land division, Hilo… *Lit.,* water circle.
>
> Punahoa. Land sections. *Lit.,* companion spring.
>
> Waiākea. Village and land section… bay… A legendary man, ʻUlu (breadfruit), lived here. He died of starvation and was buried near a running spring. Next morning a breadfruit tree laden with fruit was found there, ending the famine… *Lit.,* broad waters.
>
> Wailoa… river… *Lit.,* long water.
>
> Wailuku. River… A rock here called Waʻa Kauhi (canoe [of] Kauhi [a Maui chief]) is said to be the petrified canoe of the demigod Māui… *Lit.,* water [of] destruction.

Table 1. Place Names in the Vicinity of the Project Area

Place name	Location
Hilo	District and bayfront
Hilo One	Region in Hilo
Waiākea	Land division where the project is located
Kūkūau	Land division
Ponahawai	Land division
Hilo Hanakahi	Region in Hilo
Keaukaha	Land division in Hilo Hanakahi
Wailoa	River
Kanukuokamanu	Surfing area in Hilo Bay; closer to the Wailoa River
Huia	Surfing area in Hilo Bay
Hilo Palikū	Region in Hilo
Pana‘ewa	District where project is located
Punahoa	Land division in Hilo One
Pi‘ihonua	Land division in Hilo One
Wailuku	River at the boundary of Hilo One and Hilo Palikū

Subsistence and Traditional Land Use

Since ancient times, the well-watered lands fronting Hilo Bay have attracted and supported permanent settlements.

> The population of Hilo was anciently as now concentrated mostly around and out from Hilo Bay, which is still the island's principal port. The Hilo Bay region is one of lush tropical verdure and beauty, owing to the prevalence of nightly showers and moist warmth which prevail under the northeasterly trade winds into which it faces. (Handy et al. 1972:538)

Pana‘ewa is also referenced for its agricultural fields:

> On the lava strewn plain of Waiakea and on the slopes between Waiakea and Wailuku River, dry taro was formerly planted wherever there was enough soil. There were forest plantations in Panaewa and in all the lower fern-forest zone above Hilo town... (Handy et al. 1972:539)

The missionary William Ellis, during his trip around Hawai‘i Island in 1825, describes the lands around Hilo Bay as luxuriantly vegetated due to fertile soil. He documented the presence of plantations filled with bananas, plantains, sugarcane, potatoes, melons, and taro (Handy et al. 1972).

A century later, the methods of growing taro to fit the landscape of the region was documented in *Native Planters In Old Hawaii*:

> In the marshes surrounding Waiakea Bay, east of Hilo [town], taro was planted in a unique way known as *kanu kipi*. Long mounds were built on the marshy bottom with their surface two or three feet above water level. Upon the top and along the sides of these mounds taro was planted. Flood waters which occasionally submerged the entire mound are said to have done no harm, as the flow was imperceptible… We are told that farther seaward in Waiakea taro is still grown by the ingenious method of heaping up stones around a taro *huli* which is submerged in water, and held upright by chunks of lava; the stones presumably accumulate refuse enough to nourish the taro, along with the food taken in by the roots from lava and water… On the lava-strewn plain of Waiakea, and on the slopes between Waiakea and the Wailuku River, dry taro was formerly planted wherever there was enough soil. (Handy et al. 1972:538, 539)

American missionary C.S. Stewart wrote of ʻulu, hala, and kukui trees in lower elevations of Panaʻewa in the years 1823–1825 (Stewart 1970). Kalo, maiʻa, niu, ʻuala, and ʻulu were and are still grown in small plots in sites of coastal habitation (DHHL 2016). The upland reaches of Panaʻewa forest were not likely areas of traditional habitation; they were known as a sacred landscape, home to legendary entities such as Paliuli and the five maile sisters. The primary use of the higher elevation forests was to collect plants such as hāpuʻu, maile and other wet forest species or birds.

Besides extensive agriculture which marked the lands of South Hilo, there was at least one aquacultural complex documented in the vicinity of the project area. This was the fishpond called Hauna, previously called Hanauna, at the shoreline fronting Ponahawai and Punahoa (Maly and Maly 2003).

For ceremonial purposes, there was also a heiau, named Kanowa, which was erected just north of the project area in Puʻuʻeo. Kamakau attributes the building of this heiau to Chief Kalaniʻōpuʻu:

> I ka hiki ʻana o Kalaniʻōpuʻu ma Hilo One, hoʻāla aʻela ʻo ia i ka heiau o ke akua, aia ma Puʻueo, ʻo Kanowa ka inoa o ua heiau nei. A pau ke kapu ʻana, hoʻi aʻela ʻo Kalaniʻōpuʻu a noho ma ʻOhele i Waiākea, a ʻo nā aliʻi hoʻi a me nā pūkaua, a me nā māmakakaua, a me nā pūʻali a me nā koa, hele akula lākou i ke kaua ma Puna. (Kamakau 1996[1866]:60)
>
> *When Kalaniʻōpuʻu arrived at Hilo One, he raised a heiau at Puʻueo, Kanowa was the name of the heiau. After the sacred ceremony [for the heiau], Kalaniʻōpuʻu returned and stayed at ʻOhele in Waiākea, and the chiefs together with the war leaders, and the companies of warrior went to battle in Puna.*

Kanowa Heiau is also recognized as one of six human sacrificial luakini heiau around Hawaiʻi Island that was visited by the aliʻi wahine Keakealaniwahine. Her connection to this heiau in Hilo is recorded by the Hawaiian historian John Papa ʻĪʻī:

> Keakealaniwahine was once the ruler of all Hawaii, and was succeeded by her son Keawe i Kekahialiiokamoku… When she became the ruler, she was in charge of all the heiaus on Hawaii. She offered human sacrifices in the six *luakini* heiaus of the six districts of Hawaii, which were Hikiau in Kona, Punaluu in Kau, Wahaula in Puna, Kanoa in Hilo, Honuau of Waipio in Hamakua, and Mookini in Kohala. (ʻĪʻī 1959:159,160)

Moʻolelo

As mentioned earlier, Hawaiian place names were connected to traditional stories by which the history of the places was preserved. These stories were referred to as:

> Mo‘olelo, a term embracing many kinds of recounted knowledge, including history, legend, and myth. It included stories of every kind, whether factual or fabulous, lyrical or prosaic. Mo‘olelo were repositories of cultural insight and a foundation for understanding history and origins, often presented as allegories to interpret or illuminate contemporary life…Certainly many such [oral] accounts were lost in the sweep of time, especially with the decline of the Hawaiian population and native language. (Nogelmeier 2006:429, 430)

Still, many traditional stories managed to be recorded as Hawaiian society transitioned from an oral culture to a written one, and among those recorded were several versions of stories connected to the South Hilo region.

One such story that had been recorded in the Hawaiian language newspaper *Ka Hoku o Hawaii* is recounted as “Ka‘ao Ho‘oniua Pu‘uwai no Ka-Miki,” or “The Heart Stirring Story of Ka-Miki”:

> [This mo‘olelo] is about two supernatural brothers, Ka-Miki (The quick, or adept, one) and Maka-‘iole (Rat [squinting] eyes), who traveled around the island of Hawai‘i along the ancient *ala loa* and *ala hele* (trails and paths) that encircled the island. During their journey, the brothers Ka-Miki and Maka-‘iole competed alongside the trails they traveled, and in famed *kahua* (contest arenas) and royal courts, against *‘ōlohe* (experts skilled in fighting or in other competitions, such as running, fishing, debating, or solving riddles, that were practiced by the ancient Hawaiians). They also challenged priests whose dishonorable conduct offended the gods of ancient Hawai‘i. Ka-Miki and Maka-‘iole were empowered by their ancestress Ka-uluhe-nui-hihi-kolo-i-uka (The great entangled growth of *uluhe* fern which spreads across the uplands), a body form of the goddess Haumea…The traditions associate place names with people and events in history, and describe a broad range of sites and travel across the Hilo landscape…While the tradition does not specifically name Ponahawai… it is clear that the area described includes those lands [of Ponahawai and of others nearby]. (Maly and Maly 2003:10)

The story of the brothers is set in the 1300s and their travels also take them to the royal court of Waiākea-nui-kumu-honua, who was the brother of the chiefess Pana‘ewa-nui-moku-lehua and the chief Pi‘ihonua-a-ka-lani. The lands of Waiākea were named after all of them.

Another mo‘olelo relating to the area, documented by the historian Theodore Kelsey in 1921, points out that the land divisions of Kūkūau and Ponahawai are named after chiefesses. These two chiefesses were sisters, and they once lived in the Ponahawai-Kūkūau area (Maly and Maly 2003).

Kamakau also mentions Hilo in the story of the great navigator Kila. Kila and his brothers were sent to Kahiki to bring back the chief, La‘a. However, when they arrived at Kahiki, the chief ‘Olopana, refused to allow La‘a to return to Hawai‘i. So the navigators returned to Hawai‘i without La‘a, and after landing in Puna and Hilo, Kila remained there and became a chief of Hawai‘i Island (Kamakau 1991).

The forest of Pana‘ewa borders the Hilo and Puna districts. It is said to be named after a dragon deity, or mo‘o, who lived there. The forest is also the location where the goddess of hula Hi‘iaka, the daughter of Haumea and Kāne, defeated Pana‘ewa and her mo‘o friends.

> Choosing the upland path across Hawaii, the party must first exterminate the evil moo who make the way dangerous. With the help of the war gods Kuliliaukaua and Kekao‘i and the shell-conch blowers Kamaiau, Kahinihini and Mapu, Hi‘iaka fights and overcomes a number of these monsters. The moo woman Panaewa, who impedes her way in the form first of fog (kino-ohu), then of sharp rain (kino-au-awa), then of a candlenut (kukui) tree,

she entangles the moo and her followers, the Na-mu and Na-wa in a growth of vine [or engulfs them in the sea]. (Beckwith 1970)

Oli and Mele

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

One such chant, *Hea 'Oe Kahaiolama,* acknowledges that Hilo belongs to the great chief, Kamehameha. In this chant the chiefess Kalama is in dialogue with Kamehameha I, and he assures her that indeed, all of Hawai'i Island, including Hilo district, is his (Bacon and Napoka 1995:194, 195):

Hea 'Oe Kahaiolama

KAMEHAMEHA: Hea 'oe Kahaiolama.	KAMEHAMEHA: Where are you, O Kalama?
KALAMA: He maka'u mai au lā iā Ka'ahumanu.	KALAMA: I am afraid of Ka'ahumanu.
KAMEHAMEHA: Mai maka'u mai 'oe.	KAMEHAMEHA: Do not be afraid.
No'u o luna, no'u o lalo,	All above is mine, all below is mine,
No'u o Kohala,	Kohala is mine,
No'u o Hāmākua,	Hāmākua is mine,
No'u o Hilo,	Hilo is mine,
No'u o Puna,	Puna is mine,
No'u o Ka'ū,	Ka'ū is mine,
No'u o Kona,	Kona is mine,
No'u nā wahi āpau-o-loa	Everywhere is mine

CONTRIBUTOR: Mrs. Kaimu Kihe, Pu'uanahulu, North Kona, Hawai'i. *Mele kake*.

Hilo is also mentioned in a name chant honoring King Kamehameha II, or Liholiho, who was born in that district. In this mele, performed as a hula pa'i umauma or chest-slapping chant, a poetic reference is made to the lehua flower for which Hilo is particularly known (Lyrics and translation to this mele along with its accompanied descriptions are from the www.huapala.org database compiled by Kanoa-Martin):

A Hilo Au (I Was At Hilo)

A Hilo au e lā	At Hilo
Ho'olulu ka lehua lā	I gather the lehua
A Wailuku e lā	At Wailuku
I ka lua kanaka lā	The man-destroying pit
A Haili e lā	At Haili

I ke kula manu lā	Is a plain inhabited by birds
A Panaʻewa e lā	At Panaʻewa
I ka moku lehua lā	With its groves of lehua trees
A Leleʻiwi e lā	At Leleʻiwi
ʻAuʻau i ke kai lā	I swim in the sea
A Molokaʻi e lā	At Molokaʻi
ʻIke ala kāhi lā	I see one road
A Mauna Loa au lā	At Mauna Loa
I ka lua koʻi hala lā	Is the adze quarry
Haʻina mai ka puana lā	Tell the refrain
No ka lani nō he inoa lā	In the name of the chief
He inoa nō Liholiho	The name-song for Liholiho

Source: - This paʻi umauma or chest slapping chant was composed for Liholiho who ruled the Hawaiian kingdom as Kamehameha II from 1819 to 1824. Verse 1 is in reference to Hilo, his birthplace, and his departure from Hilo to Kona. The lehua is symbolic of a young girl. Verse 2, the man-destroying hole is a cave for prisoners who committed misdemeanors. Verse 5, Leleʻiwi heiau and the surrounding area was named after a despotic chief whose bones were desecrated by throwing them into the sea at this point of land, north of Hilo. The name immortalized this event. The heiau is where people were blessed and protected from harm in the water, for the sea had healing qualities for Hawaiians. Verse 6, Molokaʻi is a reference to:1) a sea outside of the Hilo coastline and 2) an ancient path on Molokaʻi. This is the poetic kaona for the chief travelling. Verse 7, Maunaloa is a place where adze makers gathered their stone called ʻalā to make stone adzes, another poetic kaona reference. Told to M. Gay by Iolani Luahine and Edith Kanakaʻole. Edited by Dr. Barbara Price

Hilo is mentioned again, in yet another chant honoring the aliʻi, this time the Aliʻi Wahine Emalani. This chant commemorates her visit to the area and remarks that Hilo and Puna are made more beautiful when decorated with the leis of Waiākea, leis which are for Chiefess Emalani (Pukui and Korn 1979:75–78).

Lei nō Emalani	**Lei Chant for Queen Emma**
E hea aku nō au iā Kalani	I chant this song in praise of my Queen.
E ō mai ʻoe i kō inoa lei!	Answer, beloved Queen, to your lei chant!
He kākua nō ka lei i Mōkaulele,	The lei-carrier comes from Mōkaulele,
He pewa nō ka lei o ʻOhiʻakalani,	The bundle-bearer from ʻŌhiʻakalani,
He kīhene lei o Kaniʻahiku.	The lady with the lei-basket from Kaniʻahiku.
He ʻahiku ka nani o Puna me Hilo	Puna and Hilo are made seven more times beautiful
He kilohana lei o Waiākea.	When bedecked with the finest leis of Waiākea.
Lawea ka lei a kau i Ka-Maka-o-Kū,	Bring these leis and present them to
Kū mai o ka lani Kaumaka,	The-Eye-Of-Kū, Queen Kaumaka
Ke aliʻi nona ka lei.	Who now stands forth in radience

O pāpahi i ka lei i ke poʻo,	She whose leis these are takes them
O hoʻonuʻanuʻa ka lei i ka ʻāʻī.	To crown her head, fall from her neck
Ke kui lei ʻo Kolopulepule,	Kolopulepule strung them for her,
He amo lei ʻo Wailuku.	Wailuku bore them to her.
O ke ola e	Her shoulders.
O kahua o ka lei ʻo Waiānuenue,	May the Queen long so live! Waiānuenue is keeper,
O ka heʻe o ka lei kai ā Wailoa,	Wailoa is bestower,
O ka hoʻonoho o ka lei iā Waiākea,	Waiākea is arranger,
O ka wili o ka maile kai ā Hina,	Winder of the maile is Hina,
O ka paʻa o ka ʻomou kai ā Māui.	The bundle-bearer holding the lei pegs is Māui.
Nīnau mai ʻo Kekele-a-Iku:	Kekele-a-Iku asks:
ʻO wai ke aliʻi nona ka lei?	Who is the Chiefess these leis are to praise?
ʻO wai hoʻi kāu o kalani ka manomano,	What brought so many givers of garlands here, all to foregather in praise?
O ke ali'i nona ka lei?	None but the Queen most worthy of honor.
He lei nō Emalani.	A lei chant for Emalani.

Two other mele which mention Hilo have been recorded in the compilation of chants in the book *Nā Mele Welo: Songs of Our Heritage.* Both of these mele similarly convey that Hilo is a place of great rains. The first mele is described as one which can be accompanied with a presentation of string-figures. The other mele is documented as one which utilizes sticks in its dance (Bacon and Napoka 1995:96, 97, 202, 203).

Nā Moku ʻEono o Hawaiʻi Nei

Ka lā, ka lā, i ke kula o Ahuʻena	The sun, the sun shines on the plain of Ahuʻena,
Komo i ka laʻi o Kailua ē, o Kona.	It comes to peaceful Kailua --- that is Kona.
ʻO Kona ia o ke kai malino a Ehu,	It is Kona, home of the calm sea of Ehu,
E hele ana i waho o Pulau.	Extending all the way out to Pulau.
Kani ka hoe i Waiʻulaʻula.	The traveler whistles at Waiʻulaʻula
I ke ala a ke kanaka e hele nei,	On the much-traveled road.
Hōʻea i Kaʻū.	Kaʻū is reached.
ʻŌ Kaʻū ia, ʻo Kaʻū nui kua makani,	This is Kaʻū, great Kaʻū of the windblown back,
Kū ka ʻeʻa o ka lepo.	Which swirls the dust upward.
Lele koaʻe o ka pali kaulana o Kaumaea.	The game of dust-leaping is at the famous hill of Kaumaea.
Hōʻea i Puna.	Puna is reached.
ʻO Puna ia lā, ʻo Puna i ke kai kōloa,	This is Puna, Puna of the moaning sea,
Ken ū hele ala i ka ulu hala	Which groans to the hala grove
I ke kai o Puna o Keaʻau.	At Keaʻau in Puna.
Hōʻea i Hilo.	Hilo is reached.
ʻO Hilo ia lā o ka ua kinakinai	This is Hilo of the endless rain,
He ua lū lehua ia no Panaʻewa,	A rain that pelts the lehua of Panaʻewa,

I kinai i ka ua o ke kila	A beating, relentless rain,
He ua mao ʻole kaulana o Hilo.	The famous endless rain of Hilo.
Hōʻea i Hāmākua.	Hāmākua is reached.
ʻO Hāmākua ia o kalawa i ka pali,	This is Hāmākua of the sheer cliffs,
He ʻūlili ke ala e hiki ai.	Steep is the trail to go.

CONTRIBUTOR: Z. P, Kalokuokamaile, Nāpoʻopoʻo, South Kona, Hawaiʻi. Mele hei [String-figure chant].

Pāuli Hiwa maila ka Lani o Hilo

Pāuli hiwa mailaka lani o Hilo,	Dark and lowering is the sky of Hilo,
Kalani a ka ua i ʻōʻō a nakele,	The rain breaks through the sky and falls.
A nakele Hilo i ka ua a naha,	Hilo is made boggy by the rain with the swelling of the streams.
Nahā mai kekahi maha o ka hala,	The water breaks through to the hala-covered slope,
Mapēpē i holo ka maha o ka ʻōhiʻa.	It presses down as it rushes through the ʻōhiʻa-covered slopes.
Hapaina aʻela e ka ua a kelakela,	The rain seems to raise them up high.
Kelakela Mokulaui i ʻaʻā ka lehua.	High is Mokulau, bright with lehua blossoms,
Lehua noho ma kea nu i uka o Kaliʻu.	The lehua which dwells in the upland of Kaliʻu.
I nani ka pili e, aia e ka aloha,	Beautiful is the companionship when love abides.
A hele aʻe ke aloha, a hemo ka pili.	When love departs, companionship is broken.

CONTRIBUTOR: Samuela Akoni Mika Waiākea Homesteads, Hilo Hawaiʻi. Hula lāʻau. [Stick dance]. Akoni learned this from his parents on Kauaʻi.

ʻŌlelo Noʻeau

Like oli and mele, traditional proverbs and wise sayings, also known as ʻōlelo noʻeau, have been another means by which the history of Hawaiian locales have been recorded. In 1983, Mary Kawena Pukuʻi published a volume of close to 3,000 ʻōlelo noʻeau that she collected throughout the islands. The introductory chapter of that book reminds us that if we could understand these proverbs and wise sayings well, then we would understand Hawaiʻi well (Pukuʻi 1983).

Most of the sayings of Panaʻewa focus on its plentiful ʻōhiʻa lehua trees, which once reached the sea, the forests and the rain (Pukuʻi 1983: 471, 659, 1570, 1585, 1725, 1969, 2264.)

Panaʻewa

Hanohano Paliuli i ka ua noe.

Majestic is Paliuli in the misty rain.

An expression of admiration for a person. Paliuli is a mythical place in the mountain region back of Panaʻewa forest, Hawaiʻi.

He kai lū lehua ko Panaʻewa.

Panaʻewa shakes down the lehua fringes into the sea.

Once, when the forest of Panaʻewa extended to the sea, fringes of lehua blossoms were seen floating about in the water.

Ka ua kinai lehua o Panaʻewa.

The rain that bruises the lehua blossoms of Panaʻewa.

Both lehua and rain are commonly found in Panaʻewa.

Ka ua lū lehua o Panaʻewa.

The lehua-shedding rain of Panaʻewa.

The heavy rain of the lehua forests of Panaʻewa in Hilo, Hawaiʻi. Famed in chants of old.

Ke kai kuaʻau lehua o Panaʻewa.

The sea where lehua fringes float about in the shallows.

Long ago when lehua trees grew down to the shore at Puna and Hilo, the fringes of the flowers often fell into the sea, reddening the surface.

Lei Hanakahi i ke ʻala me ke onaona o Panaʻewa.

Hanakahi is adorned with the fragrance and perfume of Panaʻewa.

The forest of Panaʻewa was famous for its maile vines and hala and lehua blossoms, well liked for making lei, so Hilo (Hanakahi) was said to be wreathed with fragrance.

Na manu leo nui o Panaʻewa.

Loud-voiced birds of Panaʻewa.

Loud talkers. Panaewa, Hilo, was famous for its lehua forests that sheltered the honey-sucking birds. Here people went to gather lehua and maile.

In addition, there are many ʻōlelo noʻeau in which Hilo's name is memorialized. Well over half of these sayings refer to the rains of Hilo in some way, a testament that Hilo is indeed known for its rainy weather. Aside from those ʻōlelo noʻeau speaking of the rain, one saying refers to the noted farmers of the district, while the rest of the sayings use Hilo's environment; its sand, sea, and streams; and its famous lehua blossoms; in its imagery (Pukui 1983:40, 53, 54, 56, 107, 108, 118, 135, 167, 168, 173, 186, 188, 190, 207, 253, 287).

Hilo

ʻEleʻele Hilo, panopano i ka ua.

Dark is Hilo, clouded with the rain.

Hilo is always rainy.

Halulu me he kapuaʻi kanaka la ka ua o Hilo.

The rain of Hilo makes a rumbling sound like the treading of feet.

Hana Hilo i ka poʻi a ka ua.

Hilo works on the lid of the rain.

Refers to the constant shower typical of Hilo district on Hawaiʻi.

Hana mao ʻole ka ua o Hilo.

Endlessly pours the rain of Hilo.

Said of anything that goes on and on, as the pouring rain, or of havoc such as that produced by a torrent.

Hilo ʻai lūʻau.

Hilo, eater of taro greens.

The people of Hilo were said to be fond of cooked taro greens. When storms came to Hilo it was impossible to obtain fish from the streams or the sea. The people had to be content with taro greens.

Hilo ʻāina ua lokuloku.

Hilo of the pouring rain.

Hilo i ka ua Kanilehua.

Hilo of the Kanilehua rain.

The Kanilehua rain, or the rain that patters in the *lehua* forest, is frequently referred to in the chants and songs of Hilo.

Hilo i ka ua kinakinai, ka ua mao ʻole.

Hilo of the constant rain, where it never clears up.

Hilo mahi haʻaheo.

Hilo of the proud farmers.

The climate makes the soil of Hilo very easy to till, so the farmers uswd to make a game of planting. They used long digging sticks to make the holes and wore *lei* to work. Working in unison, they make a handsome picture.

Hilo, nahele paoa i ke ʻala.

Hilo, where the forest is imbued with fragrance.

Hilo's forest is fragrant with *hala* and *lehua* blossoms.

Hilo paʻele ku.

Hilo is dark all over.

The rain, mist, and mud make Hilo dark.

Hoʻonuʻa Hilo i ka lehua.

Hilo produces the lehua in abundance.

Inu wai kōliʻuliʻu o Hilo.

Drink the waters of the distant sky in Hilo.

The rain of Hilo is a chief source of drinking water.

Ka ua heʻe nehu o Hilo.

The nehu-*producing rain of Hilo.*
The people knew the season when the schools of *nehu* fish followed the rain.

Ka ua Kanilehua o Hilo.
The Kanilehua rain of Hilo.
Hilo, where the rain moistens the *lehua* blossoms.

Kai i ka lani ka holowa‘a ua o Hilo.
Placed high in heaven is the rain trough of Hilo.
An expression of admiration for a person of regal bearing.

Ke kai leo nui o Paikaka.
The loud-voiced sea of Paikaka.
Paikaka is in Hilo.

Ke koa ia e laumeki ai kahawai o Hilo.
That is the warrior who will dry the streams of Hilo.
A powerful warrior.

Ke one ‘anapa o Waiolama.
The sparkling sand of Waiolama.
This is an expression much used in chants of Hilo, Hawai‘i. Waiolama is a place between Waiakea and the town of Hilo. It was said to have sand that sparkled in the sunlight.

Ku pāpū Hilo i ka ua.
Hilo stands directly in the path of the rain.

Noho maialile ka ua o Hilo, ‘elua wale no māua.
Keep your silence, O rain of Hilo, there are only two of us.
Uttered by Kanuha in retort when rebuked by Reverend Titus Coan for Sabbath-breaking: “Hold your silence, for there are only two of us in authority” --- meaning Kanuha and Governor Kuakini. Rev. Coan was not to give orders when either was present. Now it is used to mean, “Keep quiet. You’re not the boss around here.”

Pau kea ho i ke kahawai lau o Hilo.
One’s strength is exhausted in crossing the many streams of Hilo.
Said of or by one who is weary with effort. First uttered by Hi‘iaka in a chant when she found herself weary after a bettle with the lizard god Pana‘ewa.

Pāuli hiwa ka lani o Hilo.
Black with rainclouds is the sky of Hilo.
Sometimes said in humor when a dark-skinned person is seen.

Ka Makani a me Ka Ua o Hilo

With their lives closely connected to the natural environment and physical surroundings, Hawaiian winds and rains were individually named and associated with a specific place, region, or island. In *Hānau Ka Ua*, Akana and Gonzalez (2015:xv) explain that kūpuna "knew when a particular rain would fall, its color, duration, intensity, the path it would take, the sound it made on the trees, the scent it carried, and the effect it had on people." Table 2 lists rain and wind names for Hilo as found in *Hānau Ka Ua* and in the mele, ʻōlelo noʻeau, and other sources mentioned in this report.

Hilo in the Historic Era

Hilo, being on the island of Hawaiʻi, witnessed multiple changes in its political rule in the years just prior to Western contact. In the early 18th century, Chief Alapaʻi ruled the entire island of Hawaiʻi. But due to internal strife, it became divided with Alapaʻi ruling the northern portion and Kalaniʻōpuʻu ruling the southern districts of Kaʻū and Puna. In 1754, Alapaʻi died, and his son Keaweʻōpala inherited the governance of Alapaʻi's lands. However, later that same year, Kalaniʻōpuʻu wrested control of Keaweʻōpala's lands, and because of that, Kalaniʻōpuʻu became the ruler of the entire island. When Kalaniʻōpuʻu died in 1782, the governance of Hawaiʻi went to his son Kīwalaʻō. However, it was not long before Kīwalaʻō's rule was challenged by Kalaniʻōpuʻu's brother's son, Kamehameha, who was the keeper of the god, Kūkāʻilimoku. In a subsequent battle between Kīwalaʻō's and Kamehameha's forces, Kīwalaʻō was killed, and Kamehameha took his place. Following that decisive battle, the governance of Hawaiʻi Island was divided into three parts. Kamehameha ruled the northern half from Hāmākua to Kohala to Kona. Keawemaʻuhili, the brother of the deceased Chief Kalaniʻōpuʻu, ruled out of Hilo, and Keōuakūʻahuʻula, a son of Kalaniʻōpuʻu, ruled the districts of Kaʻū and Puna. Eventually, Keawemaʻuhili was killed by Keōuakūʻahuʻula's forces after which Keōuakūʻahuʻula divided the lands of Hilo between himself and his warriors. Not long after that, Keōuakūʻahuʻula was defeated by Kamehameha's army, giving Kamehameha complete rule over the entire island. From there Kamehameha set out to unify the rest of the Hawaiian Islands under his rule (translations in italics by D. Duhaylonsod):

> Hoʻi akula ʻo Alapaʻi i Hawaiʻi i ke kaua, a ua lanakila ʻo Alapaʻi ma luna o nā aliʻi o Hawaiʻi, a ua luku ʻia nā aliʻi o Hawaiʻi, a ua hui ʻia i hoʻokahi aupuni ma lalo o Alapaʻi. (Kamakau 1996[1866]:1)
>
> *Alapaʻi returned to Hawaiʻi Island to do battle, and Alapaʻi emerged victorious over the chiefs of Hawaiʻi Island, the chiefs were slaughtered, and the entire kingdom was gathered as one under Alapaʻi.*
>
> I ke kaua ʻana i Mahinaakāka ke kū kaʻawale ʻana o Kalaniʻōpuʻu e noho mōʻī no Kaʻū me Puna, no ka mea, he aliʻi kamaʻāina ʻo Kalaniʻōpuʻu no Kaʻū, a ʻo kona one hānau ia o kona mau mākua. Hoʻi maila ʻo Alapaʻi a noho ma Hilo, a hala ka makahiki, hoʻi maila ʻo ia a noho ma Waipiʻo. A pau kona noho ʻana ma Waipiʻo. Hoʻi maila ʻo Alapaʻi me nā aliʻi a hiki ma Waimea, a ʻo kekahi poʻe, ma kai o ka ʻau waʻa, a pae i Kawaihae. Hoʻi akula ʻo Alapaʻi mai Waimea aku a Lanimaomao, loaʻa ihola i ka maʻi… Ma Kikiakoʻi, make ihola ʻo Alapaʻi. I ka A.D. 1754, noho aliʻi ihola ʻo Keaweʻōpala no ke aupuni o Hawaiʻi (Kamakau 1996[1866]:13).
>
> *From the battle at Mahinaakāka, Kalaniʻōpuʻu emerged as the king of Kaʻū and Puna, because Kalaniʻōpuʻu was a native chief of Kaʻū, and it was the birthplace of his parents. Alapaʻi returned to Hilo, and after some time, he went to live at Waipiʻo. After living at Waipiʻo, Alapaʻi and his chiefs went to Waimea, and others, by way of canoes, landed at Kawaihae. Alapaʻi went from Waimea to Lanimaomao, he became ill… At Kikiakoʻi,*

Table 2. Rain Names of Hilo (Wind Names also listed as noted)

Rain Name	Description
Alanilehua/Wailehua	A rare, delicate rain associated with lehua blossom nectar; it will start to fall outside the western border of Panaʻewa and head towards the uplands.
ʻĀpuakea	A rain on the ocean mentioned in a kanikau.
ʻAwa, ʻAwaʻawa	A bitter cold rain and wind noted in mele. Translates to "bitter," and can refer to tragedy, misfortune, or grief.
Hālaulani	Translates to "heavenly structure."
Hāliʻipili	Translates to "to spread over pili grass."
Heʻe Nehu	A nehu-producing rain, described for Hilo in olelo no'eau.
Heʻenehu/Hukiheʻenehu	Refers to nets for catching nehu or when the nehu fish run.
Hehilauʻulu/Hehiʻulu	Translates to "to tread upon ʻulu leaves."
Hoʻolua	A heavy rain that falls with a strong north wind that has the same name.
Kanikaniʻāʻula	Translates to "ringing in the ears," "insomnia," or "to mourn in chanting."
Kanilehua/Kanikanilehua/ Lehua/Leilehua/ Mailani	Refers to birdsong in the ʻōhiʻa lehua, rustling of lehua flowers, or "drinking of the rain by lehua flowers."
Kēwai	A wind and a misty rain; translates as "watery," "misty," or "dew-laden."
Kilihune	A light rain noted in mele.
Kinai	Translates to "persist."
Kinailehua	Translates to "suppress lehua flowers," "to persist on lehua flowers," or "to quench the thirst of lehua flowers."
Kinakinai	Endless rain, described for Hilo in mele and ʻōlelo noʻeau.
Kino au awa	A sharp rain mentioned in moʻolelo.
Kīpēhala	Translates to "to pelt hala trees."
Kīpehipualehua	Translates to "to pelt hala fruit."
Kīpuʻupuʻu	Refers to goosebumps in the cold, wind-driven rain.
Kualau/Kuakualau	A rain shower over the ocean that is accompanied by wind.
Kuaʻoʻe	A friendless rain that adorns lehua blossoms.
Kukupaʻu	Translates to "to do with zest," "to beat overlaid kapa," or "to beat completely."
Lanihaʻahaʻa	Translates to "low sky."
Lanipili	A heavy rain that could be long-lasting or a cloudburst.
Lanipōlua	Translates to "very dark sky."
Lauhīnano	A rain noted in a name chant for Queen Emma; translates to "hīnano bracts."
Leimāʻohu	Translates to "lei of mist."
Līhau	A cool and gentle rain.
Lū Lehua/Lūlehua/ Lūlehuahala	Lehua-shredding rain, described for Panaʻewa in ʻōlelo noʻeau; translates to "to scatter lehua flowers."

Table 2. (continued)

Rain Name	Description
Mālua/Mālualua	A wind and rain associated with the Hoʻolua wind/rain.
Māluaki'iwai	A wind associated with the Uluau rain.
Moaniʻala	Translates to “fragrant breeze.”
Moanilehua	Translates to “wafted lehua fragrance.”
Mololani	A rain similar to Lūlehua.
Nahunahu	Translates to “to bite.”
Nāulu	A sudden rain shower, a shower cloud, and also a wind name.
Noe	Misty rain, described for Paluli (a mythical place in the mountains behind Panaʻewa) in ʻōlelo noʻeau. Also a wind name.
Palahīnano	A rain noted in mele, translates to “yellow pandanus blossom.”
Pehihala	Translates to “to pelt the hala fruit.”
Polopuahīnano	Translates to “white hīnano blossom with its stem.”
Poʻolipilipi	Translates to “adze-like head.”
Pōpōlehua	Translates to “cluster of lehua flowers.”
Pūʻololehua	Translates to “bundle of lehua flowers.”
Ua o ke Kila	Beating, relentless rain, described for Hilo in mele.
Uluau	A rain that arrives with the Māluakiʻiwai wind.
Waʻahia	Translates to “to bundle up kapa.”
Wailehua	Translates to “lehua water” or “lehua nectar.”

Alapaʻi died. In the year 1754, Keaweʻōpala (the son of Alapaʻi) became the ruler of Hawaiʻi.

ʻŌlelo aku ke kahuna ma hope o Kalaiʻōpuʻu [another name for Kalaniʻōpuʻu], ʻo Holoʻae ka inoa, [“]Eia ka mea e make ai ʻo Keaweʻōpala, aia a make ʻē ke kahuna ma mua o Keaweʻōpala, a laila, lilo ke aupuni iā ʻoe, no ka mea, ʻo ke kahuna ka mea e paʻa ai ke aupuni iā Keaweʻōpala.[“]... ua hopu ʻia ke kahuna o Keaweʻōpala, ua pepehi ʻia a kālua ʻia e Kalaniʻōpuʻu me ka hoʻomāinoino ʻia… I ka makahiki A.D. 1754, ua lilo holoʻokoʻa ke aupuni o Hawaiʻi iā Kalaniʻōpuʻu (Kamakau 1996[1866]:13,14).

The kahuna under Kalaiʻōpuʻu, whose name was Holoʻae, spoke, “Here is the way Keaweʻōpala will die, first his priest must die, and then, the kingdom will go to you, because it is the priest who keeps the kingdom securely under Keaweʻōpala’s rule… the priest of Keaweʻōpala was captured, and he was tortured, killed and burned in the pit by Kalaniʻōpuʻu… In the year 1754, the entire kingdom of Hawaiʻi went under the rule of Kalaniʻōpuʻu.

I ka pau ʻana o ka wā hī ʻahi o Kalae, manaʻo ihola ʻo Kalaniʻōpuʻu e hoʻi i Kona, akā, ua loaʻa ʻē ʻo ia i ka maʻi, no laila, hoʻi maila ʻo ia a noho ma Kaʻilikiʻi i Waioʻahukini ma Pākini; māhuahua loa ka maʻi, a make nō ma laila. I ka iwakāluakumamāiwa makahiki [ia] o kona noho aliʻi ʻana ma luna o ke aupuni o Hawaiʻi. A ʻo nā makahiki a pau o kona ola ʻana, he kanahikukumamāiwa, a make ihola ʻo ia i ka malama ʻo Ianuari, i ka A.D. 1782 (Kamakau 1996[1866]:62).

When he was finished trolling for ʻahi at Kalae, Kalaniʻōpuʻu decided to return to Kona, but he became sick, and therefore, he went to stay at Kaʻilikiʻi in Waioʻahukini at Pākini; the illness intensified, and he died there. His reign over the kingdom of Hawaiʻi lasted twenty-nine years. And he lived for seventy-nine years, and died in the month of January, 1782.

I ka noho ʻana o Kalaniʻōpuʻu ma Kohala, ua hoʻoholo ihola nā aliʻi a me nā kuhina, e kauoha ʻia ke keiki hoʻoilina o ke aupuni (Kalanikauikeaoulikīwalaʻō)... Aia a make ʻo Kalaniʻōpuʻu, a laila, e ili aku ke aupuni i ka hoʻoilina (Kamakau 1996[1866]:59–60).

When Kalaniʻōpuʻu was staying at Kohala, the chiefs and the cabinet members decided, and the command would be given that the child Kīwalaʻō would be the next heir to the kingdom… Kalaniʻōpuʻu died, and then, the heir inherited the kingdom.

I ko Kamehameha mā hiki ʻana mai ma hope, ua hoʻomaka mua aku ʻo Keʻeaumoku i ke kaua i ko Kīwalaʻō mau koa… A ʻike akula ʻo Keʻeaumoku iā Kīwalaʻō e huli ana i lalo, kokolo akula ʻo ia me ka leiomano ma ka lima, a papaʻi aʻela ma ko Kīwalaʻō kaniʻāʻī, a make loa ihola ia... ʻO ke ʻauheʻe ihola nō ia o nā aliʻi a me nā koa o Kīwalaʻō. ʻO Keōuakūʻahuʻula hoʻi a me kekahi poʻe aliʻi… holo akula i Kaʻū, a lilo ihola ʻo Keōuakūʻahuʻula i mōʻī no Kaʻū a me Puna… ʻO Keawemaʻuhili nō hoʻi ke aliʻi kapu i ke au o Alapaʻinui… a hele akula a hiki i Hilo, a lilo ihola ʻo ia i aliʻi no kekahi hapa o Hilo, a me kekahi hapa hoʻi o Puna, a pēlā nō hoʻi ʻo Hāmākua… Lilo ihola ʻo Kona, Kohala a me kekahi hapa o Hāmākua iā Kamehameha. Lilo ihola ka mokupuni ʻo Hawaiʻi i mau aupuni ʻekolu, a ʻekolu nō hoʻi mau mōʻī (Kamakau 1996[1866]:73–74).

When Kamehameha arrived later, (his warrior-general) Keʻeaumoku had already started the battle with Kīwalaʻōʻs warriors… Keʻeaumoku saw Kīwalaʻō facing down, he crawled with a leiomano weapon in his hand, and struck at Kīwalaʻōʻs throat, and Kīwalaʻō died… The chiefs and the warriors of Kīwalaʻō fled. Keōuakūʻahuʻula and some chiefs sailed to Kaʻū, and Keōuakūʻahuʻula became the king of Kaʻū and Puna… Keawemaʻuhili also, he was a sacred chief from the time of Chief Alapaʻi… Keawemaʻuhili went to Hilo, and he became the chilef of parts of Hilo, Puna, and Hāmākua… Kona, Kohala and a portion of Hāmākua became lands of Kamehameha. The island of Hawaiʻi was divided into three kingdoms, and with three kings.

Kiʻi maila ʻo Keōuakūʻahuʻula e kaua iā Keawemaʻuhili. Kaua ihola lāua i kinohi, a heʻe ʻo Keawemaʻuhili; a kaua hou ihola ma ʻAlae, ma Hilo Palikū, ua pepehi ʻia ʻo Keawemaʻuhili, a make pū ihola kekahi aliʻi, ʻo Kāoʻo kona inoa, he kaikoʻeke nō hoʻi nona. Luku nui akula ʻo Keōuakūʻahuʻula i nā koa o Keawemaʻuhili. A lilo aʻela ʻo Hilo iā Keōuakūʻahuʻula… I ko Keōuakūʻahuʻula noho ʻana ma Hilo, a ʻokiʻoki ihola i ka ʻāina no kona mau aliʻi a me kona mau pūʻali koa. ʻO ka ʻanae pū kō momona o Waiākea me Piʻopiʻo [na lākou ia]. A pau ko Keōuakūʻahuʻula noho ʻana ma Hilo a manaʻo ihola ʻo ia me kona mau aliʻi me nā pūʻali koa e hoʻi i Kaʻū (Kamakau 1996[1866]:105,106).

Keōuakūʻahuʻula came to do battle against Keawemaʻuhili. They fought in the beginning, and Keawemaʻuhili fled; and they fought again at ʻAlae, at Hilo Palikū, Keawemaʻuhili was killed, together with another chief named Kāoʻo, who was a brother-in-law of his. Keōuakūʻahuʻula destroyed the warriors of Keawemaʻuhili terribly. And Hilo fell to Keōuakūʻahuʻula… While Keōkūʻahuʻula was staying at Hilo, he divided the lands for his chiefs and warriors. The mullet also together with the abundance of Waiākea and Piʻopiʻo were theirs. Keōuakūʻahuʻula was done staying at Hilo and he decided to return to Kaʻū with his chiefs and warriors.

> Kiʻi akula ʻo Keaweaheulu a me Kamanawa, nā kuhina o Kamehameha, iā Keōuakūʻahuʻula, ka mōʻī o ka ʻaoʻao hikina o ka mokupuni ʻo Hawaiʻi… nīnau ihola ʻo Keōua, ʻHe aha kā ʻolua huakaʻi?ʼ Pane aʻela ʻo Keaweaheulu mā, ʻI kiʻi mai nei nō māua iā ʻoe, ʻo ʻoe nō ke keiki a ko māua kaikuaʻana haku; i kiʻi mai nei iā ʻoe, e holo kākou i Kona, a hui pū me kō kaikaina… E hoʻopau i ke kaua ʻana ma waena o ʻolua… Holo akula nō lākou nei a kokoke e pili i Mailekini ma Kawaihae… Kū maila nō hoʻi ʻo Keōuakūʻahuʻula a kāhea mai iā Kamehameha, ʻEia au lā.ʼ Kāhea mai nō hoʻi ʻo Kamehameha, ʻKū mai, a hele mai e ʻike kāua.ʼ Kū aʻela nō hoʻi ʻo Keōuakūʻahuʻula me ka manaʻo e lele mai i uka; e hou mai ana ʻo Keʻeaumoku i ka pololū… A ʻo Keōua a me kekahi poʻe ʻē aʻe ma ko lākou waʻa, ua pau loa lākou i ka make… I ka make ʻana o Keōuakūʻahuʻula, ke keiki a Kalaniʻōpuʻu, ka mōʻī o Hawaiʻi, a kau ʻia ʻo ia ma Puʻukoholā ma Kawaihae, a laila, ua holoʻokoʻa ke aupuni o ka mokupuni ʻo Hawaiʻi iā Kamehameha (Kamakau 1996[1866]:110–113).
>
> *Keaweaheulu and Kamanawa, the cabinet members of Kamehameha, went to get Keōuakūʻahuʻula, the king of the eastern side of Hawaiʻi Island… Keōua asked, "Why have you two journeyed?" The two travelers answered, "We have come to get you, you are the child of our older brother, Chief [Kalaniʻōpuʻu]; we have come to get you that we may all sail to Kona and meet with your younger brother [cousin Kamehameha]... to put an end to the warfare between you two… They all sailed and approached close to Mailekini at Kawaihae… Keōuakūʻahuʻula stood and called out to Kamehameha, "Here I am." Kamehameha called back in return, "Stand up and come, let us see." Keōuakūʻahuʻula stood up with the thought of fleeing inland; (Kamehameha's warrior uncle) Keʻeaumoku threw his spear… Keōua and the other people on that canoe, they all died… At the death of Keōuakūʻahuʻula, who was the child of Kalaniʻōpuʻu, the former king of Hawaiʻi, Keōuakūʻahuʻula was placed on the sacrificial heiau of Puʻukoholā at Kawaihae, and then, the entire kingdom of Hawaiʻi Island became under the one rule of Kamehameha.*

Arrival of Westerners

Amid the battles for rule over Hawaiʻi Island at the end of the 18th century, there arrived the first Western explorers to the Hawaiian Islands. Captain Cook is distinguished as being the first to have arrived, in 1778. Following Captain Cook's appearance, knowledge of the location of the Hawaiian Islands spread across the sea. This opened the floodgates of Westerners to Hawaiʻi's shores, and it would forever change the fabric of the traditional lifestyle.

Among the early arrivals of foreigners to Hawaiʻi, and noted in the history of Hilo, were sandalwood traders and Christian missionaries. And on the heels of the missionaries and sandalwood traders came the sugarcane industry entrepreneurs. Though each of their agendas differed, they all left their mark on Hawaiʻi Island as it transitioned from the traditional era to the contemporary.

Missionary Activities

Leading the cause to evangelize the Pacific were the American Board of Commissioners for Foreign Missions (ABCFM) and the London Mission Society. The landing of the American Board of Foreign Missions on Hawaiʻi's shores in 1820 could not have come at a more opportune time. Just a year earlier, Liholiho, or Kamehameha II, became the new king, and soon after that, he abolished the ancient traditional religion (Ellis 1963[1827]).

> In 1823, British missionary William Ellis… [and other missionaries from the ABCFM] toured the island of Hawaiʻi seeking out primary community in which to establish church centers for the growing Calvinist mission. Within the year following the visit of Ellis and the members of the A.B.C.F.M., a church was established, and by mid 1825, school was being attended by native students. The school evolved into the Hilo Boarding School that

> was situated in the lands of Punahoa and Ponahawai for nearly 100 years. (Maly and Maly 2003:25, 29)

Sandalwood Trading

Ellis also noted in his journal the active harvesting of sandalwood by the chief of Waiākea, named Maʻalo, and several hundred of the natives of the area. According to Ellis, great quantities of the sandalwood trees were cut down and prepared for ships destined to supply the demand for it in China. The Hawaiian sandalwood trade resulted in a market exchange for Asian and European goods (Maly and Maly 2003:25, 26).

Changes in Land Tenure

Within a decade after the opening of the Ponahawai plantation, and the establishment of other plantations throughout the islands, radical changes were made to the traditional land tenure system of Hawaiʻi. These changes were instituted by the king at a time when an increased presence of Westerners in Hawaiʻi brought pressure to Hawaiian governance.

> Kamehameha III's government stood upon the crumbling foundations of a feudal autocracy that could no longer handle the weight of geo-political and economic forces sweeping across the islands. Uniformity of law across the realm and the centralization of authority had become a necessity. Foreigners were the source of many of these difficulties. (Sai 2008:62)

"Several legislative acts during the period 1845–1855 codified a sweeping transformation from the centuries-old Hawaiian traditions of royal land tenure to the western practice of private land ownership" (Moffat and Fitzpatrick 1995). Most prominent of these enactments was the Māhele of 1848 which was immediately followed by the Kuleana Act of 1850.

> The Mahele was an instrument that began to settle the undefined rights of three groups with vested rights in the dominion of the Kingdom --- the government, the chiefs, and the hoaʻāina. These needed to be settled because it had been codified in law through the Declaration of Rights and laws of 1839 and the Constitution of 1840, that the lands of the Kingdom were owned by these three groups… Following the Mahele, the only group with an undefined interest in all the lands of the Kingdom were the native tenants, and this would be later addressed in the Kuleana Act of 1850. (Beamer 2008:194, 195)

Although the Māhele had specifically set aside lands for the King, the government, and the chiefs, this need not be interpreted as a selfish act which alienated the makaʻāinana from the land. The reciprocal relationships between the commoners and the chiefs continued to exist, and for this reason, perhaps the chiefs were expected to better care for the commoners' rights than the commoners themselves who arguably might not have been as well versed in foreign land tenure systems. Indeed, the ahupuaʻa rights of the makaʻāinana were not extinguished with the advent of the Māhele, and Beamer points out that there are "numerous examples of hoaʻāina living on Government and Crown Lands Post-Mahele which indicate the government recognized their rights to do so" (Beamer 2008:274).

> Hoaʻāina who chose not to acquire allodial lands through the Kuleana Act continued to live on Government and Crown Lands as they had been doing as a class previously for generations. Since all titles were awarded, "subject to the rights of native tenants." The hoaʻāina possessed habitation and use rights over their lands. (Beamer 2008:274)

For those commoners who did seek their individual land titles, the process they needed to follow consisted of filing a claim with the Land Commission; having their land claim surveyed; testifying in person on behalf of their claim; and submitting their final Land Commission Award to get a binding royal patent. However, in actuality, the vast majority of the native population never received any land commission awards recognizing their land holdings due to several reasons, such as their unfamiliarity with the process, their distrust of the process, and/or their desire to cling to their traditional way of land tenure regardless of how they felt about the new system. In 1850, the king passed another law, this one allowing foreigners to buy land. This further hindered the process of commoners securing lands for their families. For Hilo One, most of the land awards received were small parcels close to the coast or near the fishponds, hinting to a way of life that was still traditional.

While the population of Waiākea was substantial, not many Māhele claims were made. Few parcels of land were awarded to commoners, and the majority of the ahupuaʻa went to King Kauikeaouli (Maly 1996:20). Most of the small plots of land that were awarded to commoners were located in the lower flats and around ponds of Waiākea (Maly 1996:20). Maly considers why there were no Māhele claims for upland agricultural plots:

> While legendary and early historic references, as those cited in this study, document that many people were living in Waiākea, and that extensive agricultural fields extended inland from the area of main habitations, it is not clear as to why few upland agricultural [plots] were claimed by native tenants. It appears that at the time of the Māhele, no claims for land at the elevation of, or within the present study area [the Pūʻainakō road extension] were registered in the ahupuaʻa of Waiākea. This lack of registered claims probably reflects the decline of the Hawaiian population and consolidation of the community at the time. (Maly 1996:20)

While Waiākea became Crown lands during the Māhele, 26 land claims were awarded, 25 of which were to Hawaiian citizens (DHHL 2016a).Upon Prince Kuhio's successful establishment of the Hawaiian Homes Commission Act, Mr. Rudolph Duncan, the Executive Secretary of the Department of Hawaiian Home Lands, announced in 1924 that the Keaukaha-Panaewa area was the next homestead tract (Akoi 1989). The Panaʻewa homestead remains a vibrant and active community.

Sugarcane Industry

Connected to the arrival of Christian missionaries were the eventual formation of large scale capitalist agricultural enterprises throughout the Hawaiian Islands. For Hilo, this initially took the form of the clearing of land for a sugarcane plantation operated out of Ponahawai.

> One result of the missionary effort through the islands was to bring the traditionally dispersed native population into western-style towns and population centers, where the fold could be kept under the watchful eyes of church leaders… As foreign crops were introduced Hawaiian agricultural systems and production were significantly modified. In ca. 1839, Governor Kuakini ordered land to be cleared in Ponahawai, and Hilo's largest sugar plantation was planted… This specialization of crop production had a significant impact on native Hawaiian crop production, subsistence agriculture, land use, and the cultural landscape. (Maly and Maly 2003:35, 36)

In the early part of the 20th century the rail system was expanded into Hilo Town. Railroad wharves was constructed north of the Wailoa River mouth, and tracks were built to connect with North Hilo and Hāmākua. The project area is adjacent to a railroad line that runs from Hilo Bay to the Olaa Mill in Keaʻau (Figure 3). Thus, the natural landscape and the traditional lifestyle of Hilo would be altered in the first half of the 19th century, and for better or worse, these changes would prove to be permanent.

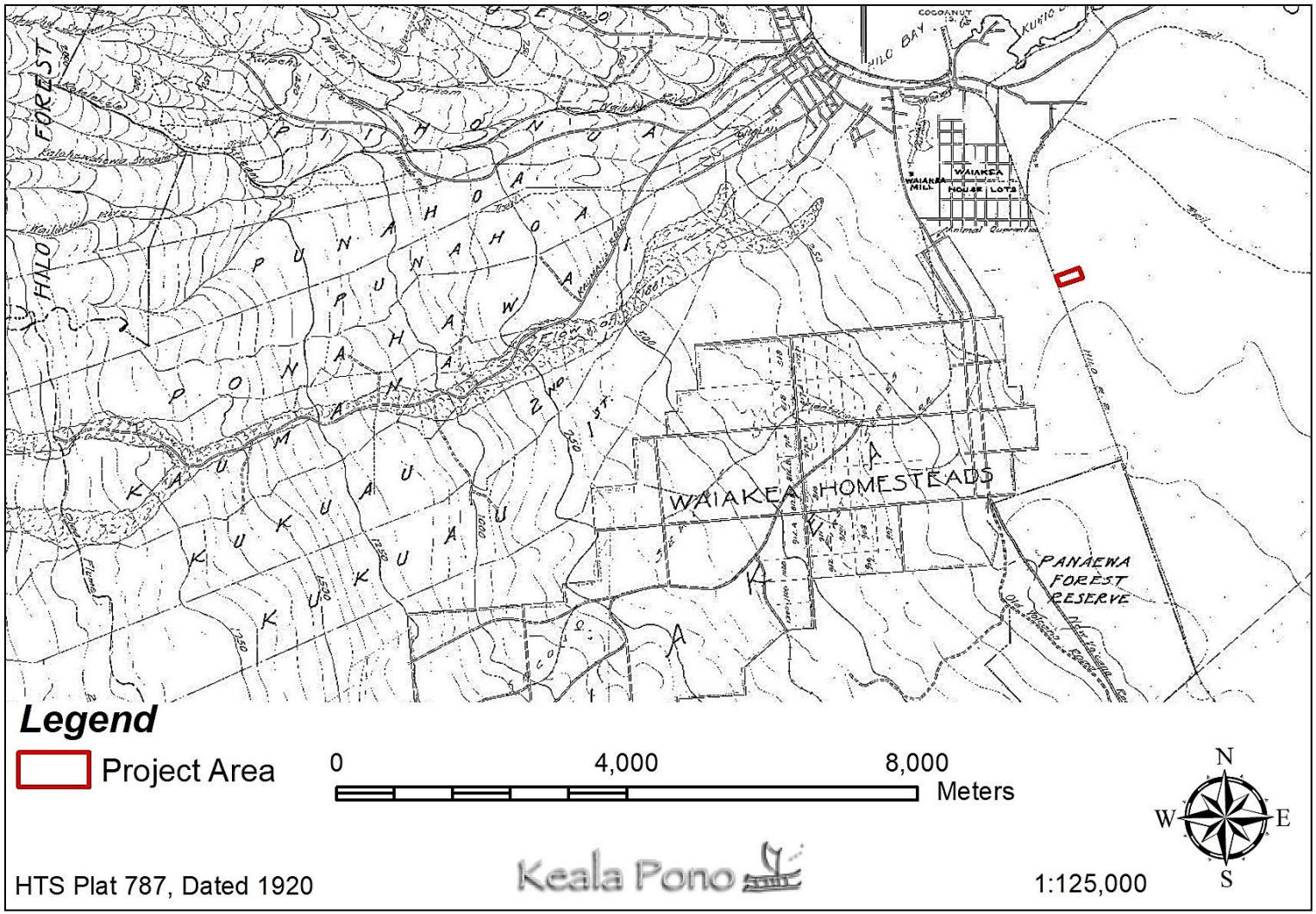


Figure 3. Portion of a Hilo map showing former railroad tracks (Iao 1920).

Contemporary History

After transitioning from the 19th to the 20th century, Hilo has undergone significant changes into one of the most important towns of Hawai‘i Island today. During its transformation, Hilo saw its marshlands filled and open spaces built upon to keep up with the expanding population of its growing town.

Land just northeast of the project area, the current Keaukaha Military Reservation (KMR), was also used as the location of a territorial prison camp (1938–1946) and naval coral runway (1925–1947) (PBR Hawaii & Associates 2015). Throughout the wider Keaukaha and Pana‘ewa areas surrounding KMR, in sites of vegetative overgrowth, military structures are still visible, such as bunkers and pillboxes. The expansion of the Hilo airport following involvement of Hawai‘i in World War II caused the cancellation of 50 leases in Keaukaha, with several homes demolished to make room for offer quarters and mess facilities (Wheeler et al. 2014). Today, Hilo continues to be an important economic and political center for the island, a community made up of residences, hotels, churches, schools, and various businesses.

Natural Hazards History

The Pana‘ewa and Hilo region have been fraught with a history of natural hazards. Lava, tsunami, earthquakes and flooding have affected the community.

Lava

Mauna Loa has erupted 33 times since 1843. Of particular note, the 1880–1882 Mauna Loa eruption caused flows to come within 1.1 miles of the Hilo Bay coast (USGS 2019). The 1881 flow slowly continued to encroach closer and closer to Hilo (USGS 2019). In July of 1881 Princes Ruth Ke‘elikōlani traveled to Hilo, camping at the top of what is now known as Haili Street (USGS 2019). In early August, 1881, Princess Ruth and her attendants approached the flow (USGS 2019). Upon offering oli and ho‘okupu, the flow stopped.

In 1935 an unusual breakout of lava at 8,500 ft. on Mauna Loa’s northern flank sent a flow northward towards Hilo. Lava advanced at a rate of approximately 1.6 km (1 mi.) per day, eventually threatening the Wailuku River headwaters, which supply Hilo’s fresh water (USGS 2017). On December 27, 1935 the Army Air Service bombed the lava source to destroy the channels headed towards Hilo. A few days later, the flow stopped advancing. Whether the bombing was the cause of the flow’s stop has been the subject of much debate over the years.

Pana‘ewa is outside of the flow paths of the active Kīlauea Volcano, although it has been indirectly affected by these events. For example, in 2016, the Panae‘wa Agricultural Lots Subdivision Mahi‘ai Lot project was proposed to subdivide a 10-acre parcel in 16 half-acre lots in response to lava threat to the Maku‘u agricultural homestead lots (DHHL 2016b).

Tsunami

While the developed portions of the Pana‘ewa area are higher inland than the designated tsunami evacuation zone, tsunami have been particularly devastating to the greater Hilo area. A 1946 tsunami was generated from a 7.1-magnitude earthquake in the Aleutian Islands. The tsunami struck Hilo Bay on April 1, 1946 and killed 159 people and leveled much of the Bayfront (*Hawaii News Now* 2021). A May 23, 1960 tsunami caused by a 9.5-magnitude earthquake off the coast of Chile pummeled Hilo Bay with 35 foot waves. It was reported that parking meters were bent to the ground and most buildings were washed away (History.com 2021). A total of 61 people were killed. A 1975

tsunami was caused by an earthquake that occurred in Hawai‘i (see below). Two people died as a result of the tsunami.

Earthquakes

Thousands of earthquakes occur every year on Hawai‘i Island and few cause significant damage, however ground fractures and subsidence have resulted (USGS 2021). Historic earthquakes on Hawai‘i Island include the 7.7-magnitude quake in 1975, occurring at the base of Kīlauea (USGS 2021). The earthquake and tsunami generated from it caused an estimated 4.1 million dollars in property damage (USGS 1976). The 6.9 magnitude earthquake in 2018 on the south flank of Kīlauea caused wide-power loss in Hilo and items to be knocked from shelves in the Hilo area (Hurley and Nakaso 2018). No damage was reported to the neighboring airport in Pana‘ewa (Hurley and Nakaso 2018). This quake was the largest experienced in East Hawai‘i since 1975. The Pana‘ewa area is designated within the seismic hazard zone nearest to active faults that can cause the strongest shaking and structural damage (USGS 2021).

Flooding

In the early 1970s the County of Hawai‘i proposed a flood-control project in the Waiākea-Uka area on 12 acres of Hawaiian Home Lands to alleviate flooding hardships experienced by Pana‘ewa lessees (U.S. Court of Appeals, Ninth Circuit 1978). This is an example of ongoing efforts that have been made towards flooding prevention. Certain areas of Pana‘ewa may be subject to flooding, particularly when natural water flow through forested areas is interrupted or altered during development and land clearing.

Mele

Like the traditional chants from ancient times that give us a window into pre-contact Hawai‘i, the modern songs of today also provide a glimpse of the recent time and place that they were composed. Over the years, quite a number of songs have been written about the Hilo area. The song *Hilo* speaks of the beauty of Hilo and its bay with Mauna Kea standing in the distance. Another song, *Hilo E,* also speaks of the beauty of Hilo and especially points out the districts of Waiākea and Pana‘ewa. Like *Hilo E,* the *Hilo Hula* points out place names throughout Hilo, and it also acknowledges Hilo’s famous rain, the Kanilehua. The famous *Hilo March* sounds indeed like a march and notes the lehua and tuberose flowers and also mentions the wind name Pu‘ulena. Finally, there is the song, *Hilo One.* This song is especially about that middle portion of Hilo, Hilo One, and the love that the composer found there. The song *Ka Pua O Kina* speaks of the beauty of a certain family in Hilo which appears to be part-Hawaiian and part-Chinese. All of the songs described thus far were written in the Hawaiian language. In addition to those, there are two written in English which have been included here. *Swept Away,* remembers the great tsunami that hit Hilo in 1946. *Hilo, My Home Town,* is a Hilo favorite. This song speaks of the friendliness of the Hilo people, and it welcomes all visitors to the town (Lyrics and translation to these songs along with their accompanied descriptions are from the www.huapala.org database compiled by Kanoa-Martin). Together, this collection of contemporary mele captures the essence of Hilo today.

Hilo - Words & Music by E. Keali‘i Blaisdell

He mele kēia no Hilo	This song is for Hilo
Ka nani o ka ‘āina	A land of much beauty
Ke kaiku ‘ono hala‘i	The bay resting in the calm,
‘Āina i ka ‘ehu o ke kai	Land freshened by the sea spray.

Makemake wale ka ʻikena	It is a delight to see
Ka nani o Mauna Kea	The beauty of Mauna Kea
E hoʻopulu ʻia nei	Freshened by
Ka ua kilihune	The light rain
Puana ʻia me ke aloha	Thus ends my song with affection
I ka nani aʻo Hilo	For the beauty of Hilo
Ke kaiku ʻono halaʻi	The bay resting in the calm,
ʻĀina i ka ʻehu o ke kai	Land freshened by the sea spray

Source: E. Kealiʻi Blaisdell Album "Keeping It Traditional - This song was written to honor the composer's hometown of Hilo. Translation by E. Kealiʻi Blaisdell

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Hilo Ē - Words & Music by Mary Heanu

Aia ē a i Hilo ē	There at Hilo
O ka nani ē pua ka lehua ē	Is the beautiful flower of the lehua
I lei ē no ka malihini ē	It's a lei for the visitors
Kipaʻaku ai ē i ka ʻāina ē	That come to this island
E ake au ē a e ʻike ē	I desire to see
I ka nani ē o Waiākea ē	The beauty of Waiākea
Kilohi au ē ʻo ka nani ē	I glance to see
I ka ulu lehua ē aʻo Panaʻewa ē	The lehua grove of Panaʻewa
Haʻina ē mai ka puana ē	Tell the refrain
ʻO ka nani ē pua ka lehua ē	Of the beautiful lehua flower

Source: Noble's Hawaiian Hulas

Hilo Hula - Joe Kalima

Kaulana mai nei ʻo Hilo ʻeā	Famous is Hilo
Ka ua Kanilehua ʻeā	And it's rain called Kanilehua
Ka ua hoʻopulu ʻili ʻeā	Rain that wets one's skin
Ka ʻili o ka malihini ʻeā	Especially those of the newcomers
Nani wale hoʻi ka ʻikena ʻeā	Lovely is the scenery
Ka nani o Waiākea ʻeā	And beauty of Waiākea
Ka wai o Waiolama ʻeā	The water of Waiolama
Mālamalama Hawaiʻi ʻeā	Brightens Hawaiʻi (the island)
Kaulana hoʻi Mokuola ʻeā	Situated here is Mokuola
He moku au i ke kai ʻeā	An island set apart in the sea
E hoʻopulu ʻili nei ʻeā	Drenching the skin
Ka hunehune kai ʻeā	The mist of the sea
Lei ana i ka lei nani ʻeā	Wear the lei of loveliness
Ka pua o ka lehua ʻeā	The blossom of the red lehua

Haʻina mai ka puana ʻeā	Tell the refrain
No ka ua Kanilehua ʻeā	The rain called Kanilehua

Source: Kanilehua is the misty rain of Hilo that gives drink to the lehua blossoms. Verse #2, Waiākea or broad waters, was the home of ʻUlu, a legendary man who died of starvation and was buried near a spring. The next morning, an ʻulu (breadfruit) tree, laden with fruit, marked his grave and put an end to the famine. Verse #3. Mokuola was the son of ʻUlu and the name of an island in Hilo bay. There was a spring on the island with water that had healing qualities. The old Hawaiians would swim to the island and hide the umbilical cords of infants in the crevices of a flat stone called Papa o Hina. Many Hawaiians today honor this tradition of hiding umbilical cords from rodents, believing it saves the child from becoming a thief. Translated by Mary Pukui

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Hilo March - Words & music by Joseph Kapaeau Aeʻa

ʻAuhea wale ʻoe e ke ʻala tuberose	Heed the fragrance of the tuberose
He moani ʻaʻala i ke ano ahiahi	Fragrance wafted at evening time
Ua like me ka lau vabine	Like verbena leaves
I ka hoene i ka poli pili paʻa	Singing in the heart, tightly clasped
Hui:	Chorus:
ʻIke hou ana i ka nani aʻo Hilo	Behold again the beauty of Hilo
I ka uluwehiwehi o ka lehua	And the beautiful grove of lehua
Lei hoʻohihi	Cherished lei
Hiʻi a ka malihini	Worn by visitors
Mea ʻole i ke kono a ke aloha	Nothing deters the invitation of love
E aloha aʻe ana i ka makani Puʻulena	Greeting the Puʻulena wind
Ka makani kaulana o ka ʻāina	Famous wind of the land
Home noho a na ʻiʻiwi polena	Home of scarlet honey-creepers
Mea ʻole i ke kono a ke aloha	Not indifferent to the call of love
Nani wale no Hilo	Hilo is so beautiful
I ka ua Kanilehua	With the rustling of lehua in the rain
Me he mea ala e ʻi mai ana	As though saying
Eia iho a hiki mai	Wait until the princess comes

Source: Nā Mele o Hawaiʻi Nei – Aeʻa, a member of the Royal Hawaiian Band composed this song in the summer of 1881, on the eve of the band's departure to Hilo. They accompanied Princess Lydia Liliʻuokalani Kamakaeha Kaalaniali‘i Neweweli‘i on a 10-day tour of the Big Island. The original title was Ke ʻAla Tuberose and was set to a slower tempo. Berger arranged it as a march for the band and first played it in Hilo. It has been adopted as the island song of Hawaiʻi, the big island. Puʻulena is the cold wind at Kīlauea. Translated by Sam Elbert & Noelani Mahoe.

Hilo One – Traditional

Aia i Hilo One ka ʻeha a ka manaʻo remembrance	There in Hilo One is the painful
ʻO sweet ʻEmalia ʻo koʻu aloha ia	Of sweet Emily, my beloved

Nānā ke kolohe kiʻina i ka liko	Mischievious looks trap the young man
ʻIʻiwi pōlena ʻo ka manu o ka uka	The ʻiʻiwi polena, a bird of the uplands
Kohu ʻole ʻo ia ala i kaʻī ʻana mai	No one can compare to her flirtation
Eia me aʻu ka ʻiwi aʻo Heneri	Here with me is Henry, the ʻiʻiwi
Haʻina ka puana aia i Hilo One	Tell the refrain, there in Hilo One
ʻO sweet ʻEmalia ʻo koʻu aloha ia	Is sweet Emily, my beloved

Source: Composed in 1894, Sweet Emalia or Emalia Kaihumua was a hula dancer in the court of King Kalākaua. Verse 2, the liko is a very young, attractive man. The ʻiwi or bone in the 3rd verse is an old Hawaiian expression in songs, that means love rooted deep in the bones. The three sections of Hilo are: 1) Hilo One, the sands of Hilo, near the sea; 2) Hilo Palikū, the upright cliff of Hilo, east of the Wailuku river toward Hāmākua; and 3) Hilo Hanakahi, named for the beloved and benevolent chief of Hilo, inland toward Keaukaha. Translated by Kaiu Kanoa based on the interpretation and notes of Kini Sullivan.

Ka Pua O Kina - Irmgard Farden Aluli

Aia i Hilo one	There in the land of Hilo
Ka pua aʻo Kina	Is the flower of China
Pili ia puʻe one	Close to the sandbar
He one kaulana nō	On the shores of the homeland
I loku i ka ua	Drenched by the Kanilehua
Kanilehua	The rain the lehua flower drinks
Ka lehua kea pili	Is the rare while lehua flower
A me ka mamo	Next to the yellow
ʻIke ʻia nā kini	They are known by the people
ʻO Kawaikapu	Of Kawaikapu
Ua kapu i ke one	And are sacred to
Aʻo Hanakahi	The land of Hanakahi
Hoʻokahi ke kupuna	They are descendants
ʻO keawehiku	Of Keawehiku
ʻElima nā pua	The five blossoms
Lawa kuʻu lei	That complete my lei
Lei hoʻoheno	This cherished lei
No ʻelima hua	Of five daughters
He lehua ʻohelo	A lehua lei, red as the ʻohelo
Kaʻu ʻike	Which I now behold
No ka wahine ala	The lei worn by their aliʻi mother
Kū onaona	Surrounded by soft fragrance
No ka wao e ka pua	The lady of the uplands
ʻO Kawaipuʻilani	The flower of Kawaipuʻilani
Haʻina ʻia mai	This is the end
Ana ka puana	Of my song

Aia i Hilo one	There in the land of Hilo
Ka pua a‘o Kina	Is the flower of China

Source: CD: Kuuipo Kumukahi CD -Nā Hiwa O Ku‘u One Hānau Translation by Mary Kawena Pukui

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Swept Away - Words and Music by Gordon Manuel Freitas

Old Hilo town in forty-six , waking up April Fool's Day
Hilo sugar sendin’ smoke in the sky, a harbor wave coming their way
Hilo bay waters receded while people ran down to the shore
To marvel at mother ocean exposing her secret sea floor

Who can predict what can happen when ocean is up to her tricks
The first wave arrived with the sunrise, it roared in at seven 'o six
No time to run, high ground too far; the town was a bone to be chewed
A wall of water came pounding down Kamehameha Avenue

Keaukaha houses pushed in the street; the frontage road homes washed away
Threads of existence worn and frayed, a lot of good folk lost that day
Hilo Theater still standing not too much around it was saved
The Kress building stood the highest above the crests of the incoming waves

Swept away, swept away,
A tiny town by the ocean
Got swallowed up by her bay
Swept away

God bless the folks of Hilo town who lost something down by that shore
They say don't turn your back on the ocean; It'll swallow you up for sure

Swept away, swept away
A tiny town by the ocean
Got swallowed up by her bay
Swept away, swept away, swept away...

Source: Recorded by Gordon M. Freitas "Local Folks" CD. April 1, 1946 at 6:33 a.m., the first tsunami (tidal wave) hit Kaua‘i with minimal damage. Less than a hour later, it hit the North Shore of O‘ahu with some destruction. On to Moloka‘i, pass Maui and finally hitting Hilo, the wave pushed 4 blocks inward to Kamehameha Avenue, the main street. What was not destroyed in the initial force was taken away with the tsunami when it receded. The withdrawal left the reef exposed and the harbor without water. Then the second wave hit. Final tally left 83 dead, 13 missing and $25 million in destruction. The composer was inspired by a series of black and white photos of the tsunami on display at Hilo's Hawaiian Airlines terminal. He jotted down a few notes about the tsunami that hit Hilo at sunrise on April Fools Day, 1946. The whole song was completed by the time he got off the plane in Honolulu. This is his tribute to the Hilo people and has been performed in conjunction with the "tsunami awareness" programs.

Hilo, My Home Town - Betty Lou Yuen

Come along, join the throng
Visit my Aloha Land
Take a train, or a plane
Travel any way you can
See the smiling faces
Of the many races
You'll be smiling too
You will want to linger
Learn to do the hula
Make some whoopie too

Start the day, wear a lei
And a colored muʻumuʻu
Hear the crowd sing aloud,
"Aloha nui to you!"
For there's no place on earth
Where friends prove their worth
More than Hilo, my home town
Oh, there's no place on earth
Where friends prove their worth
More than Hilo, my home town!

Source: Leilehua Yuen - Written in the 1930's, this was the winning song in a competition that was held to encourage more songs about the town of Hilo.

Previous Archaeology

Many archaeological projects have been carried out in Hilo (Figure 4 and Table 3). The following paragraphs summarize those in the vicinity of the project area.

The earliest studies focused on the district of Hilo as a whole. In 1908, T.G. Thrum published names and descriptions of heiau he had researched in his publication, "Hawaiian Almanac and Annual for 1908." These are the few specifically pertaining to Waiākea:

> Kapaieie …….. Near Honokawailani, Waiakea, famed in the Hilo-Puna wars. In existence at time of Byron's visit in the "Blonde." Size and class uncertain. Its ruins still to be seen.
>
> Makaoku…….. On the shore opposite Cocoanut Island, Hilo, of luakini class, connected with the noted Mokuola place of refuge,
>
> Ohele…… Site above the old Pitman store, at Waiakea; a small heiau of luakini class, about 60 ft. square: destroyed before Pitman's time.

J.F.G. Stokes did his own survey of heiau in 1906–1907 and also reported on sites in the Hilo region (Stokes and Dye 1991). Following that, in 1930, 1931 and 1932, A.E. Hudson conducted an archaeological survey of East Hawaiʻi and wrote of his findings in a manuscript report.

The Kapaieie heiau in Waiākea is mentioned by Hudson:

> There was a heiau named Kapaieie near Honokawailani in Waiakea. Bloxam who passed the site on his way from Hilo to the volcano say that its center was marked by a single coconut tree. At the time of his visit nothing remained but ruined walls choked with weeds.

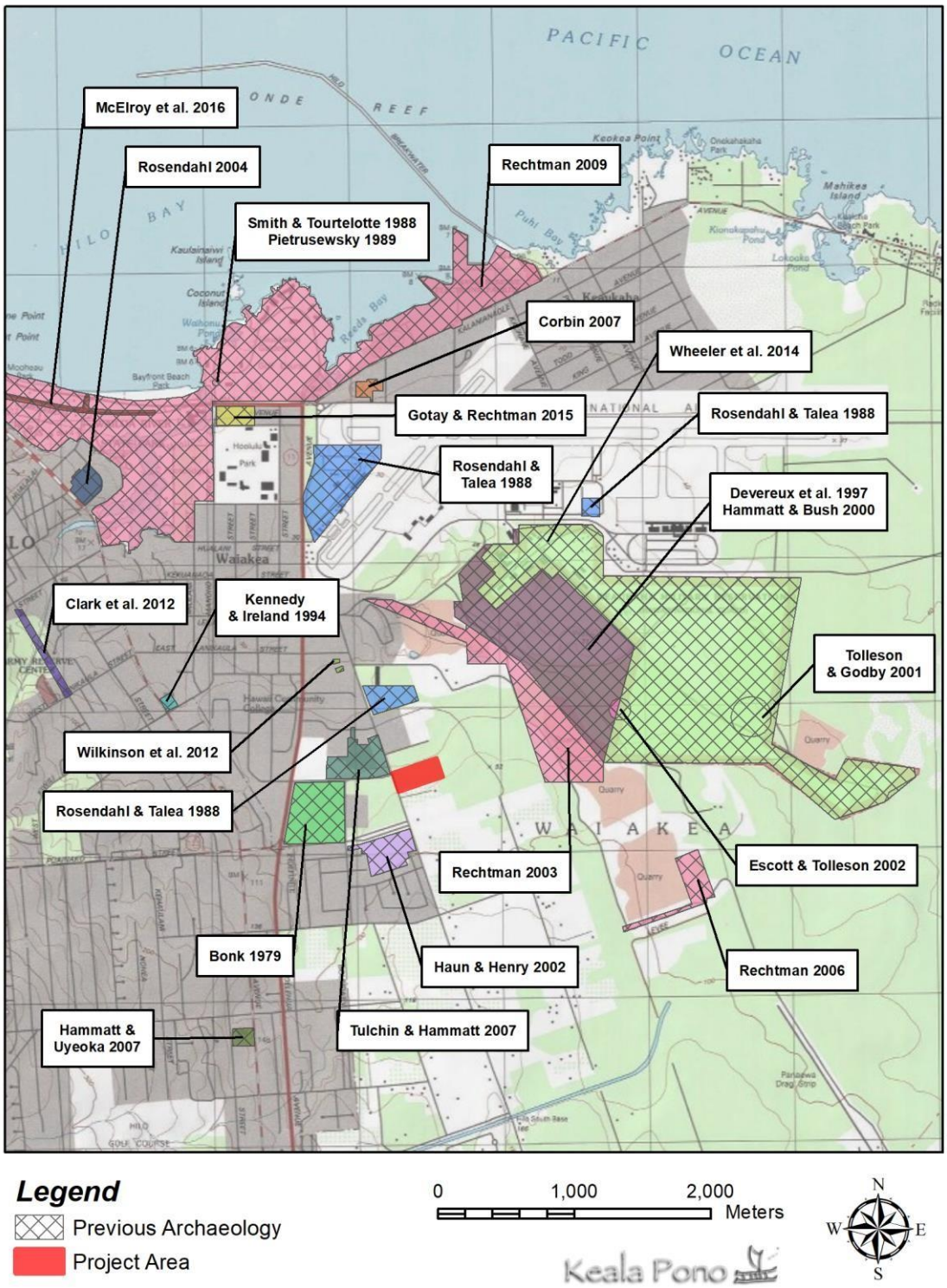

Figure 4. Location of archaeological studies in the project vicinity.

Table 3. Previous Archaeology in the Vicinity of the Project Area

Author	Year	Location	Work Completed	Findings
Thomas Thrum	Late 1800s	Hilo	Heiau Research	Recorded various heiau in vicinity of Waiākea.
J.F.G Stokes	1906	Hilo	Archaeological Survey	Recorded various heiau on Hawai‘i Island.
A.E. Hudson	1932	East Hawai‘i Island	Archaeological Survey	Recorded various heiau on Hawai‘i Island.
Bonk	1979	Pana‘ewa Tract 1	Archaeological Survey	Identified a historic wall and an old road. No SIHP numbers were assigned.
Rosendahl and Talea	1988	Various sites throughout South Hilo	Reconnaissance Survey	No archaeological sites identified; subsurface testing recommended.
Smith and Tourtellotte	1988	Mouth of Wailoa Stream	Burial Report	Recorded human remains, SIHP 11115.
Pietrusewsky	1989	Mouth of Wailoa Stream	Burial Report	Recorded human remains, SIHP 11115.
Kennedy and Ireland	1994	Corner of Kāwili and Kīlauea St.	Archaeological Inventory Survey	No archaeological sites identified.
Devereux et al.	1997	Keaukaha Military Reservation	Reconnaissance Survey	Recorded a military c-shaped enclosure (later assigned SIHP 21657) and a coral mound (de-accessioned by Hammatt and Bush 2000).
Hammatt and Bush	2000	Keaukaha Military Reservation	Archaeological Inventory Survey	De-accessioned the coral mound recorded by Devereux et al. (1997) and identified the Puna Trail (SIHP 18869), the previously-recorded c-shape (21657), five ahu (21658), and a modified lava blister (21659).
Tolleson and Godby	2001	Keaukaha Military Reservation	Site Documentation	Recorded additional information for the Puna Trail and collected historic artifacts related to use of the trail.
Escott and Tolleson	2002	Keaukaha Military Reservation	Archaeological Inventory Survey	Identified the previously-recorded SIHP 18869, 21657, 21658, and 21659.
Haun and Henry	2002	South of Keaukaha Military Reservation	Archaeological Inventory Survey	No archaeological sites identified.

Table 3. (continued)

Author	Year	Location	Work Completed	Findings
Rechtman	2003	West of Keaukaha Military Reservation	Archaeological and Limited Cultural Impact Assessment	No archaeological sites identified.
Rosendahl	2004	Hilo Judiciary Complex	Archaeological Survey	No surface archaeological sites recorded; subsurface testing not recommended due to development and tsunami history.
Rechtman	2006	Yamada & Sons Roadway and Quarry Site	Archaeological Survey	No archaeological sites identified.
Corbin	2007	HPM Building Supply	Archaeological Survey	No archaeological sites identified.
Hammatt and Uyeoka	2007	Waiākeawaena Elementary School	Archaeological Monitoring	No archaeological sites identified.
Tulchin and Hammatt	2007	Wal-Mart, Waiākea	Archaeological Literature Review and Field Inspection	No archaeological sites were identified in two parcels, although an archaeological inventory survey was recommended for one undeveloped parcel with heavy vegetation.
Rechtman	2009	Along the Hilo Bayfront	Archaeological Assessment	No archaeological sites identified; an archaeological monitoring plan was recommended for future construction.
Clark et al.	2012	Kapiʻolani St	Archaeological Inventory Survey	Recorded four historic-era sites: a modified drainage (SIHP 29370), a ditch (29371), a cobble mound (29372), and the remains of the Hilo Dairy (29373).
Wilkinson et al.	2012	Hawaiʻi County Bus Maintenance Yard	Archaeological Literature Review and Field Inspection	No archaeological sites identified.
Wheeler et al.	2014	Keaukaha Military Reservation	Archaeological Inventory Survey	Recorded five previously-identified sites (SIHP 21657, 21658, 21771, 23273, 18869) and six new sites. The new sites are a lava tube shelter (SIHP 30008), a temporary habitation complex (30009), features associated with the Puna Trail (30010), a historic site of undetermined function (30011 and two trails (30012 and 30038).

Table 3. (continued)

Author	Year	Location	Work Completed	Findings
Gotay and Rechtman	2015	Kuawa St.	Archaeological Inventory Survey and Limited Cultural Assessment	Identified three sites: asphalt pavements (SIHP 30288 and 30289) and a concrete foundation (30290).
McElroy et al.	2016	Kamehameha Ave.	Archaeological Monitoring	Identified SIHP 30616, a large assemblage of historic artifacts.

> He was told that the priests would lie in wait for passersby and dispatch them with clubs. Thrum [1908:40] states that the site was famed in the Hilo-Puna wars but its size and class are unknown. No remains of any kind could be found and no Hawaiians with whom I talked had ever heard of it. (Hudson 1932:240)

A 1979 archaeological survey by the University of Hawai‘i at Hilo identified two archaeological sites (Bonk 1979). These were located on the Pana‘ewa Tract 1 and consist of a historic rock wall segment and what was described as an old road outlined by rock alignments. SIHP numbers were not assigned.

In 1988, a set of human remains belonging to one individual was identified across of the Suisan Fish Market at the mouth of Wailoa Stream. After documenting the burial (Pietrusewsky 1989), it was excavated and reported on (Smith and Tourtellotte 1988). The remains were recorded as SIHP 11115.

Several studies were completed at the Keaukaha Military Reservation, located to the northwest of the project area. An archaeological reconnaissance survey identified a military c-shaped enclosure and a coral mound (Devereux et al. 1997) A subsequent archaeological inventory survey de-accessioned the coral mound and assigned SIHP 21657 to the c-shaped enclosure (Hammatt and Bush 2000). This study also identified the Puna Trail (SIHP 18869), five ahu (21658), and a modified lava blister (21659). The Puna Trail was further documented and historic artifacts were collected that related to use of the trail (Tolleson and Godby 2001). Later archaeological inventory surveys identified the previously-recorded sites (Escott and Tolleson 2002, Wheeler et al. 2014). Six new sites were also recorded in the most recent study (Wheeler et al. 2014). The new sites consist of a lava tube shelter (SIHP 30008), a temporary habitation complex (30009), features associated with the Puna Trail (30010), a historic site of undetermined function (30011), and two trails (30012 and 30038).

An archaeological inventory survey for the Kapi‘olani Street extension identified four archaeological sites (Clark et al. 2012). All sites were from the historic era. They consisted of a modified drainage (SIHP 29370), a ditch (29371), a cobble mound (29372), and the remains of the Hilo Dairy (29373). Also in 2012, an archaeological literature review and field inspection for the County of Hawai‘i Bus Maintenance Yard did not identify any archaeological sites (Wilkinson et al. 2012).

An archaeological inventory survey on Kuawa Street recorded three archaeological sites, all historic in age (Gotay and Rechtman 2015). They consist of asphalt pavements (SIHP 30288 and 30289) and a concrete flagpole foundation (30290).

Archaeological monitoring on Kamehameha Avenue identified one site (McElroy et al. 2016). No cultural deposits were identified during monitoring, however a large historic artifact assemblage was

collected, including approximately 1,250 horseshoes in the vicinity of a former blacksmith shop. The assemblage was designated as SIHP 30616. Much of the cultural material dated to the late 1800s and early 1900s, the same time period that the blacksmith shop was in operation.

Many studies near the project area did not identify any archaeological sites. An archaeological reconnaissance survey for potential sites of the Hilo Judiciary construction project did not record any archaeological sites, but subsurface testing was recommended (Rosendahl and Talea 1988). An archaeological inventory survey for an extension to the Hilo Forestry office at the corner of Kāwili and Kīlauea Streets also had no findings (Kennedy and Ireland 1994).

Two surveys near the Keaukaha Military Reservation did not identify any archaeological sites. The first was an archaeological inventory survey to the south of Keaukaha Military Reservation (Haun and Henry 2002), and the second was an archaeological and limited cultural impact assessment to the west of Keaukaha Military Reservation (Rechtman 2003).

An archaeological survey for the Hilo Judiciary Complex also had no findings (Rosendahl 2004). A surface inspection of the property confirmed disturbance by modern development, and subsurface testing was not recommended because of this and also because of the history of tsunami disturbance and subsequent landfilling. Archaeological monitoring was recommended and the monitoring plan was presented as part of the archaeological assessment report.

A 2006 survey was conducted at the Yamada & Sons Roadway and Quarry Site (Rechtman 2006). A letter report for this work stated that there were no findings.

An archaeological survey for the HPM Building Supply Distribution Center also did not identify any archaeological sites (Corbin 2007). The entire project area had been disturbed by construction, and subsurface testing was not conducted. Also in 2007 archaeological monitoring at Waiākeawaena Elementary School did not identify any archaeological sites (Hammatt and Uyeoka 2007). That same year, an archaeological literature and field inspection was conducted on two parcels for the expansion of Wal-Mart (Tulchin and Hammatt 2007). No archaeological sites were identified in the two parcels, although an archaeological inventory survey was recommended for one undeveloped parcel with heavy vegetation.

A pedestrian survey of approximately two miles of the Hilo Bayfront did not identify any archaeological sites (Rechtman 2009). The project was conducted for a proposed trail system slated to pass by or through sites such as Kanakea Fishpond, Lili‘uokalani Gardens, Moku Ola, Wailoa Bridge, the Waiākea Fishpond Complex, the Waiākea Mill Site, Kaipalaoa Point, and downtown Hilo. However, it was stated that “there were no specific archaeological features observed within any of the proposed [trail] alignments,” and none of these sites were documented in the report (Rechtman 2009:30).

Summary of Background Research

Hilo’s fertile lands, abundantly blessed with fresh water and other natural resources from mountain to sea, has made it a prime location for habitation. Both traditional accounts and post-contact historical accounts attest to the wealth that Hilo provided from its forests, its farmlands and its fishponds. While Hawai‘i Island was still an independent chiefdom, Hilo was a place of importance for royals and commoners, and was visited by travelers from other Hawaiian Islands as well as by navigators going to and from distant lands across the ocean. From its storied past, Hilo remained a significant place as the Hawaiian Islands became united under one rule and was thrust into the modern era with the arrival of Westerners.

In the mid-19th century, the Māhele aimed to secure land rights to native populations but few maka‘āinana sought titles. Following that, a law was passed allowing foreigners to buy land. For Hilo One, small parcels of land were distributed to native populations near the coast or by fishponds. For the ahupua‘a of Waiākea, fewer native claims were made, and the majority of the land was given to King Kauikeaouli. After the appearance of foreigners and following their influence, Hilo saw the development of plantations and Christian missions within its boundaries and the increased use of its port for commercial enterprises.

While many previous archaeological studies in the vicinity have yielded no findings, other studies have identified a wide range of archaeological sites. These include trails, ahu, lava blisters and tubes, a temporary habitation complex, human burials, as well as military, dairy, and other historic structures and artifacts. As its population expanded, Hilo continued to grow. The district has raised generations of families who have memorialized their home in chants, songs and dances that have become a part of the oral and cultural traditions known throughout Hawai‘i.

METHODS

Pedestrian survey was carried out on July 12 and 13, 2021, by Kālenalani McElroy, MA, Windy McElroy, PhD, and Max Pinsonneault, MA. Windy McElroy served as Principal Investigator, overseeing all aspects of the project.

The survey covered 91% of the 10.63 ac. study area. The portion of the project area utilized for the current farmer's market is devoid of vegetation, and visibility was excellent in this 1.5 ac. section (see Figure 8). The rest of the project area was covered in dense guava and other flora, and visibility was fair to poor (Figure 5). Approximately 9% (1 ac.) of the project area was not walked due to impenetrable brush that appeared to be a large pile of cut trees that has been overtaken by vines and other invasive plants (Figure 6).

Transects were walked for the surveyed areas, with archaeologists spaced 5–10 m apart, depending on vegetation and topography. Archaeological sites were identified visually and were marked with pink flagging tape and recorded with a 3 m-accurate Garmin GPSmap 62st. Nothing was collected during the survey and therefore no materials are being curated. All artifacts observed were left in place.

Figure 5. Typical survey conditions consisting of dense guava. Orientation is to the north.

Figure 6. Example of vegetation conditions in area not surveyed. This appears to be a pile of cleared brush that has been overtaken by vines and other invasive flora. Orientation is to the south.

RESULTS

Pedestrian survey was conducted in the 4.30 ha (10.63 ac.) project area. The survey covered 91% of the 10.63 ac. study area (Figures 7 and 8) because approximately 9% (1 ac.) of the project area was not walked due to impenetrable brush (see Methods chapter). One archaeological site was identified that includes old car remains, structural remnants, and historic artifacts.

Site 1

Site 1 consists of five features located near the northwest corner of the project area (see Figure 8). The site measures approximately 50 x 35 m, covering an area of roughly 350 m^2. Features include three old cars (Features 1–3), the remains of an abandoned structure (Feature 4), and historic artifacts (Feature 5).

The old cars (Features 1–3) appear to be trucks from approximately the 1950s (Figures 9 and 10). Feature 1 is located on the southwest side of the site; Feature 2 is on the northeast side of the site, and Feature 3 comprises the north end of the site, just behind Feature 2. Rusty metal remains include engines, chassis, axels, bed frames, bumpers, and tire hubs. Glass and other remnants were observed as well. A Hawai‘i license plate dating from 1961–1968 was found between Features 2 and 4 (Figure 11). This supports a 1950s date for the vehicles.

The abandoned structure (Feature 4) includes corrugated metal roofing remnants, machinery parts, and other historic artifacts strewn across the ground surface (Figure 12). These are located in the central part of the site (see Figure 8). Additional artifacts were noted at the southern end of the site; these were designated as Feature 5. A metal barrel remnant and two glass jugs were observed upon a brief inspection of this area (Figure 13). One of the jugs could be identified as a 1956 Purex container.

Site 1 is historic in age and may have functioned as a car dump associated with a structure of unidentified function. The site as a whole likely dates to the 1960s or later, with the cars and at least one artifact probably dating to the 1950s. The site is in fair to poor condition, with all features heavily deteriorated but likely to yield additional information. Further work is recommended to document the site and more fully identify the cars and artifacts.

Summary of Findings

In sum, 91% of the project area was covered during pedestrian survey. Approximately 1 acre of the 10.63 acre parcel was not walked due to impenetrable brush. One archaeological site was identified. It consists of the remains of three cars, structural remnants, and historic artifacts.

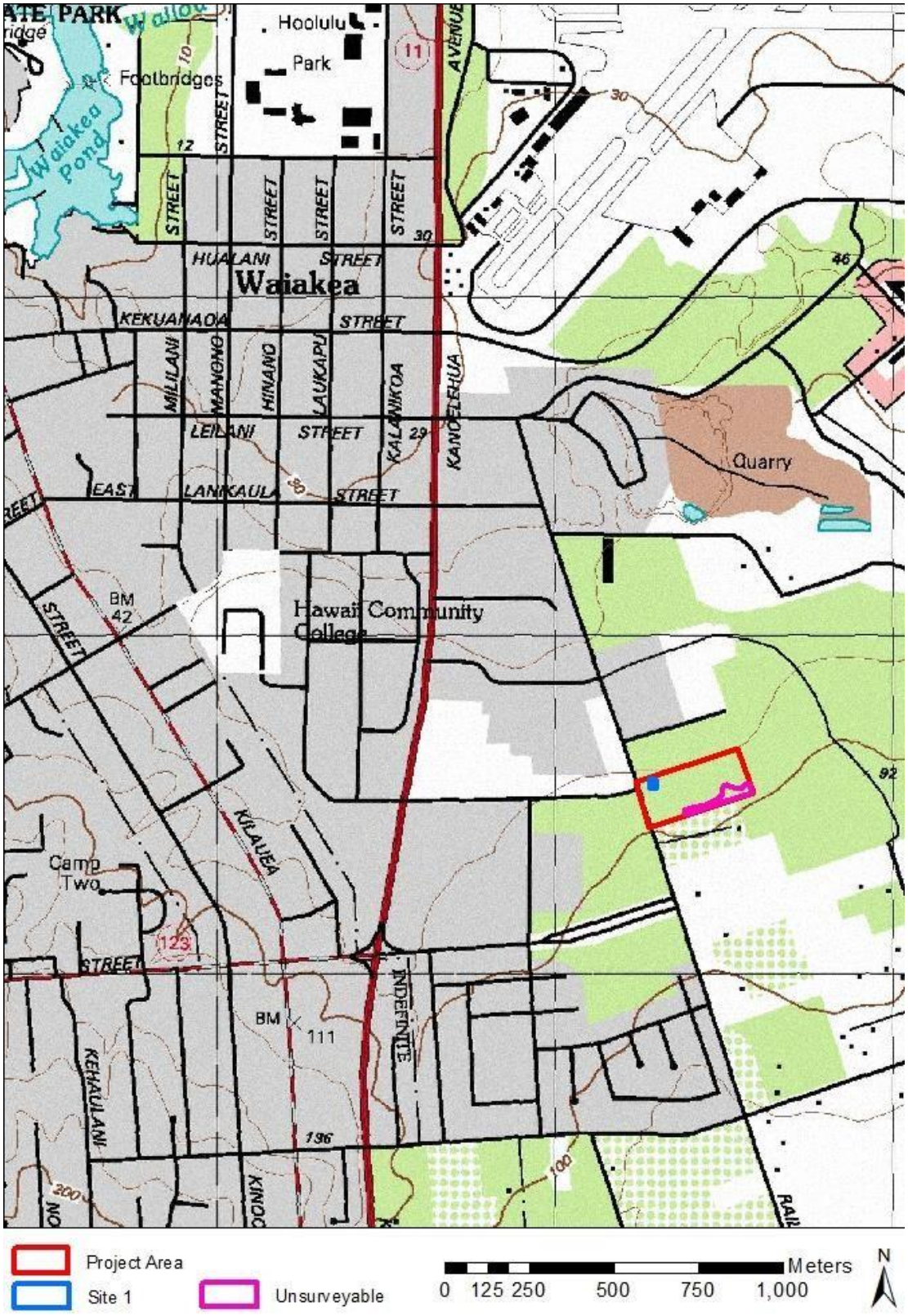

Figure 7. Location of Site 1 and area that was not surveyed due to heavy vegetation.

Figure 8. Closer view of Site 1 and area that was not surveyed due to heavy vegetation. Note the area cleared of vegetation for the current farmer's market in the southwest corner of the project area.

Figure 9. Site 1 Feature 1, abandoned car.

Figure 10. Site 1 Feature 2 (center) and Feature 3 (left background), abandoned cars.

Figure 11. Site 1 1960s license plate found between Features 2 and 4.

Figure 12. Site 1 Feature 4, structural remains.

Figure 13. Site 1 Feature 5, historic artifacts.

SUMMARY AND RECOMMENDATIONS

An archaeological reconnaissance survey was conducted at TMK: (3) 2-1-025:091 in Waiākea Ahupua‘a, South Hilo District, on the island of Hawai‘i in advance of improvements to the parcel by the Keaukaha Pana‘ewa Farmers Association. The reconnaissance included a pedestrian survey that covered 91% of the 4.30 ha (10.63 ac.) project area. Approximately 9% (1 ac.) of the project area was not walked due to impenetrable brush.

One archaeological site was identified that includes five features. These consist of the remains of three cars that likely date to the 1950s, structural remnants, and historic artifacts. The site as a whole probably dates to the 1960s and was used as a car dump with an associated structure of undetermined function. The site is likely to yield additional information with further archaeological work. An archaeological inventory survey or data recovery program is recommended to fully document the site if it will be impacted by improvements to the parcel. If the site will not be impacted, a preservation plan is recommended to outline measures to protect the site during and after improvements to TMK: (3) 2-1-025:091.

GLOSSARY

ahu A shrine or altar.

ahupua‘a Traditional Hawaiian land division usually extending from the uplands to the sea.

‘alā A dense basalt, as used for poi pounders.

ala Trail, road, path.

ala hele Pathway, trail, road.

ali‘i Chief, chiefess, monarch.

guava The invasive tree or shrub *Psidium guajava*, which forms dense thickets in disturbed areas.

hala The indigenous pandanus tree, or *Pandanus odoratissimus*, which had many uses in traditional Hawai‘i. Leaves were used in mats, house thatch, and basketry; flowers were used for their perfume; keys were utilized in lei and as brushes; roots and leaf buds were used medicinally; and wood was fashioned into bowls and other items.

hāpu‘u *Cibotium splendens*, a fern endemic to Hawai‘i; a forest fern to 5 m high.

heiau Place of worship and ritual in traditional Hawai‘i.

hoa‘āina Native tenants that worked the land.

ho‘okupu Tribute, offering, religious gift.

hula The hula (traditional Hawaiian dance), a hula dancer; to dance the hula.

huli The top of the kalo used for planting; shoot, as of the wauke.

ilāmuku Executive officer.

‘ili, ‘ili‘āina Land area; a land section, next in importance to ahupua‘a and usually a subdivision of an ahupua‘a.

Kahiki A far away land, sometimes refers to Tahiti.

kahua Open place for sports, such as ‘ulu maika.

kalo The Polynesian-introduced *Colocasia esculenta*, or taro, the staple of the traditional Hawaiian diet.

kanu To plant or bury.

kaona Hidden meaning in poetry, or concealed reference to a person, place, or thing.

koa *Acacia koa*, the largest of the native forest trees, prized for its wood, traditionally fashioned into canoes, surfboards, and calabashes.

kukui The candlenut tree, or *Aleurites moluccana*, the nuts of which were eaten as a relish and used for lamp fuel in traditional times.

kuleana Right, title, property, portion, responsibility, jurisdiction, authority, interest, claim, ownership.

lehua The native tree *Metrosideros polymorpha*, the wood of which was utilized for carving images, as temple posts and palisades, for canoe spreaders and gunwales, and in musical instruments.

lei Garland, wreath; necklace of flowers.

liko Leaf, bud; newly opened leaf.

lua The ancient style of fighting involving the breaking of bones, dislocation of joints, and inflicting pain by applying pressure to nerve centers.

luakini Large heiau of human sacrifice.

Māhele The 1848 division of land.

maiʻa The banana, or *Musa* sp., whose fruit was eaten and leaves used traditionally as a wrapping for cooking food in earth ovens.

maile *Alyxia olivaeformis*, a fragrant native shrub used for twining.

makaʻāinana Common people, or populace; translates to "people that attend the land."

maika Ancient Hawaiian game suggesting bowling.

makai Toward the sea.

mauka Inland, upland, toward the mountain.

mele Song, chant, or poem.

moʻo Lizard, dragon, water spirit.

moʻolelo A story, myth, history, tradition, legend, or record.

muʻumuʻu A woman's underslip or chemise; a loose gown, so called because formerly the yoke was omitted, and sometimes the sleeves were short.

niu The Polynesian-introduced tree *Cocos nucifera*, or coconut.

ʻōhiʻa Two kinds of forest trees. See also oʻōhiʻaʻai and ʻōhiʻa lehua.

ʻōhiʻa ʻai The mountain apple tree, *Eugenia malaccensis*, a forest tree that grows to 50 ft high.

ʻōhiʻa lehua The native tree *Metrosideros polymorpha*, the wood of which was utilized for carving images, as temple posts and palisades, for canoe spreaders and gunwales, and in musical instruments.

ʻōlelo noʻeau Proverb, wise saying, traditional saying.

oli Chant.

ʻōlohe Skilled, especially in lua fighting.

paniolo Cowboy.

piko Navel; summit; center.

ʻuala The sweet potato, or *Ipomoea batatas*, a Polynesian introduction.

ʻulu The Polynesian-introduced tree *Artocarpus altilis*, or breadfruit.

uluhe Ferns of the genera *Dicranopteris*, *Hicriopteris*, and *Sticherus*. Also known as the false staghorn fern, they form dense thickets.

wahine Woman, wife; femininity. Wāhine is the plural.

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Appendix C

Biological Assessment

DRAFT

Biological Assessment for the Keaukaha Panaʻewa Farmer's Association

TMK: 2-1-025:091

Hilo, Hawaiʻi

September 2021

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Executive Summary

This report was prepared for the Keaukaha Pana'ewa Farmer's Association (KPFA) preliminary master plan. A field survey was requested to:

1) Identify and inventory the plant species and characterize the general composition and distribution of vegetation in the project area;

2) Identify species of concern and document their locations within the parcel boundaries using a Global Positioning System (GPS);

3) Identify threatened and endangered species and determine whether these species are currently using any habitat within the project area;

4) Identify any areas federally designated as critical habitat that may be impacted by the proposed project;

5) Identify and document the bird and mammal species that occur within the proposed site.

The field survey took place on July 21, 2021 and was conducted as a perimeter survey due to safety concerns posed by conditions within and surrounding the heavily vegetated are of the parcel. The survey of terrestrial and avifauna was conducted in conjunction with the botanical survey.

A total of 59 plant taxa and 3 fungi taxa were identified during this survey. Seven (or approximately 11%) of these species may be considered native to the Hawaiian Islands. Also identified were 8 species of avifauna and 4 species of terrestrial fauna, all of which are introduced.

No plants which are proposed or listed as threatened or endangered species under state or federal regulations were observed during these surveys.

Several concerns were noted for the biological composition at the site including the presence of little fire ants, feral pigs, the predominantly invasive composition of the vegetation, and the possible presence of the pathogens known to cause Rapid 'Ōhi'a Death (ROD).

Based on site observations and the parcel's proposed use, recommendations were provided on plant communities compatible with the overall location and KPFA agricultural objectives, invasive species control, and other special management considerations.

Introduction

Setting and Soil Types

The Keaukaha Pana'ewa Farmer's Association (KPFA) parcel is located on the northeast side of Hawai'i Island in the moku (district) of Hilo, the ahupua'a of Waiākea and in the Keaukaha region of Hilo. The project area encompasses a total of 10.63 acres of land. The terrain throughout the parcel is relatively even with a slight increase in elevation from the northwest to southeast from approximately 82-89 feet above Mean Sea Level. The average annual temperature in the Hilo region ranges from 66-80°F with an average annual rainfall between 150-200 inches.

Soil types in the area were determined using the Natural Resources Conservation Service web soil survey platform. Profiles created for the character and properties were used to describe the soil type(s) mapped within the project boundary.

The soil type in the parcel was identified as Papai extremely cobbly highly decomposed plant material with slopes between 2-10%. This type of soil occurs on areas of 'a'a lava flows and is very well-drained with low runoff.

Prehistorical and Historical Land Use Patterns

The portion of the Waiākea ahupua'a landscape where the project parcel is located was formed by periodic lava flows from the Mauna Loa shield volcano. These lava flows are of various ages and alternating types (both pāhoehoe and 'a'ā).

A registered Government Survey map of the Waiākea ahupua'a dating from 1851 shows the region contained a coastal wooded area dominated by hala, as well as the Pana'ewa Woods to the south. This roughly corresponds with historical accounts of a coastal-lowland forest zone and submontane rain forest which was said to have stretched from sea level to 2,000 feet in elevation.

A more recent historical account of the area comes from the archaeological and historical research conducted by Holly McEldowney for a lava flow control study in 1979. The study focused on a large swath of land reaching from the Wailuku River in the north and the Hilo-Puna coast to the east, dividing it into five distinct zones from mauka to makai according to the dominant land use around the time of western contact and likely prior to contact.

Elevation, soil, and rainfall conditions suggest that the region's original vegetation would have been classified as a submontane rain forest which could have extended almost to the coastline as it did in other areas. However, in her study, McEldowney describes this area as an open grassland or plain. The grassland likely resulted from a combination of factors leading to reduced forest regeneration including human disturbance (specifically the use of traditional slash-and-burn agricultural practices), increased soil exposure, and the naturally low availability of nutrients in the soil.

According to McEldowney, the area where the KPFA parcel is located lies within a zone used for upland agriculture by the population of native Hawaiians settled in the coastal zone. Crops were similar to those planted in the gardens of the coastal villages, with dry-land taro and bananas being particularly abundant.

With the advent of the sandalwood trade and the arrival of whalers in the early 1800s, land use across the island began to shift away from subsistence-based agriculture to accommodate the new market-based economy. Resources such as timber, bird feathers, and other animal products were extracted for trade.

An examination of the Land Commission Awards (LCAs) created and awarded following the division of Hawaiian lands during the Māhele (1848) provides clues as to how these lands were used historically. Majority of the lands within the Waiākea ahupua'a were maintained as Crown Lands and held by Kamehameha until his death in 1819. These lands were then passed to his son Alexander Lihloliho and handed down further through the dynasty of Kamehameha I. Ultimately very few LCAs were awarded within the ahupua'a, and most of these lands were located along the densely-inhabited coastal areas. This suggests that little to no habitation or active agriculture was taking place in the present-day location of the parcel.

From the late 1870s until 1948, the Waiakea Mill Company leased lands in Waiākea to produce sugar cane commercially. The plantation covered Crown Lands between the town of Hilo up to 1,100 feet in elevation. Eventually, a railroad track was constructed to haul sugar cane from higher elevations down to the mill near the coast via steam-powered locomotive. A map overlay created by Cultural Surveys Hawai'i shows the approximate location of the Waiakea Mill Company's plantation area in 1933. Although the overlay seems to indicate that the KPFA parcel was not located within the plantation boundaries, Railroad Avenue, which borders the parcel on the west, was part of the plantation's original railroad system. Historical accounts suggest that the lands in the vicinity of the parcel (just mauka of Hilo) were used for dairy cattle pasture, cattle ranching, timber harvesting, and "scattered vegetable gardens" at some point during this time.

Current Land Use Patterns

As described above, the original vegetation of the area likely evolved from a coastal-lowland or submontane rainforest into a semi-cultivated grassland or plain during the plantation era. Today, most of the surrounding area of Hilo has been developed into residential, commercial, and industrial space, with the exception of a large swath of forested area belonging to the Hawaiian Home Lands, where the KPFA parcel is located (Figure 1).

The KPFA facilities occupy a small portion of the parcel's southwest corner, enclosed withing a chain link fence. Both the facilities within the fence and the immediate perimeter appear to be maintained and the remainder of the parcel is undeveloped. The character of the vegetation on the undeveloped part of the parcel suggests a major previous disturbance followed by little to no interference during a period of forest regrowth.

Several extremely invasive species have established themselves and successfully crowded out much of the native vegetation. An impenetrable thicket of strawberry guava (*Psidium cattleianum*) covered the majority of the area was notably broken up in places by small clusters of fruit trees or other invasive species, as well as, on very rare occasions, 'ōhi'a lehua. The tallest vegetation most often observed punctuating the strawberry guava canopy included invasive trees such as bingabing (*Macaranga mappa*), octopus trees (*Schefflera actinophylla*), miconia (*Miconia calvescens*), gunpowder trees (*Trema orientalis*), and trumpet trees (*Cecropia obtusifolia*).

Critical Habitat

There is no federally designated Critical Habitat for any species within the project area, therefore the proposed modifications to the site will not impact Critical Habitat.

Methods

A perimeter survey of the vegetation and fauna observed within the parcel area were conducted on July 21,2021 by Rick Barboza (Hui Kū Maoli Ola, LLC) and Janice Jensen (G70). A Trimble TDC100 handheld (Global Positioning System) GPS unit was used to track the surveyors' path and to mark sites of note for individual plants and plant communities (Figure 2).

Plant species were identified and inventoried as they were encountered. Where possible, GPS points with corresponding notes and pictures were used to record observations on the general character of the vegetation. Plants that could not be identified in the field were photographed for later identification.

Surveyors began along Railroad Avenue at the northwest corner of the fenced area occupied by the KPFA facilities. They walked northeast along the outer perimeter of the fence until reaching the northeast corner. Surveyors then turned south and walked parallel with the forest perimeter until they encountered a barbed-wire fence at the southern boundary of the parcel. From here, surveyors turned northeast to continue tracing the perimeter of the forest along the barbed-wire fence.

After moving through a hollow area mostly free of understory growth, surveyors encountered vegetation too thick to pass through without disturbing plants and the colonies of little fire ants that inhabited them (see Figure 2., yellow point). The surveyors therefore continued to trace the southern perimeter from the other side of the property's fence line (in the macadamia nut orchard) until the pathway was again obstructed by a dog and a private residence.

Upon completion of the survey and prior to leaving the site, surveyors took steps to prevent the accidental spread of the fungal pathogens known to cause Rapid 'Ōhi'a Death (ROD) by treating shoes and equipment with a fungicide containing the recommended 70% isopropyl alcohol solution, as well as changing out of field clothing.

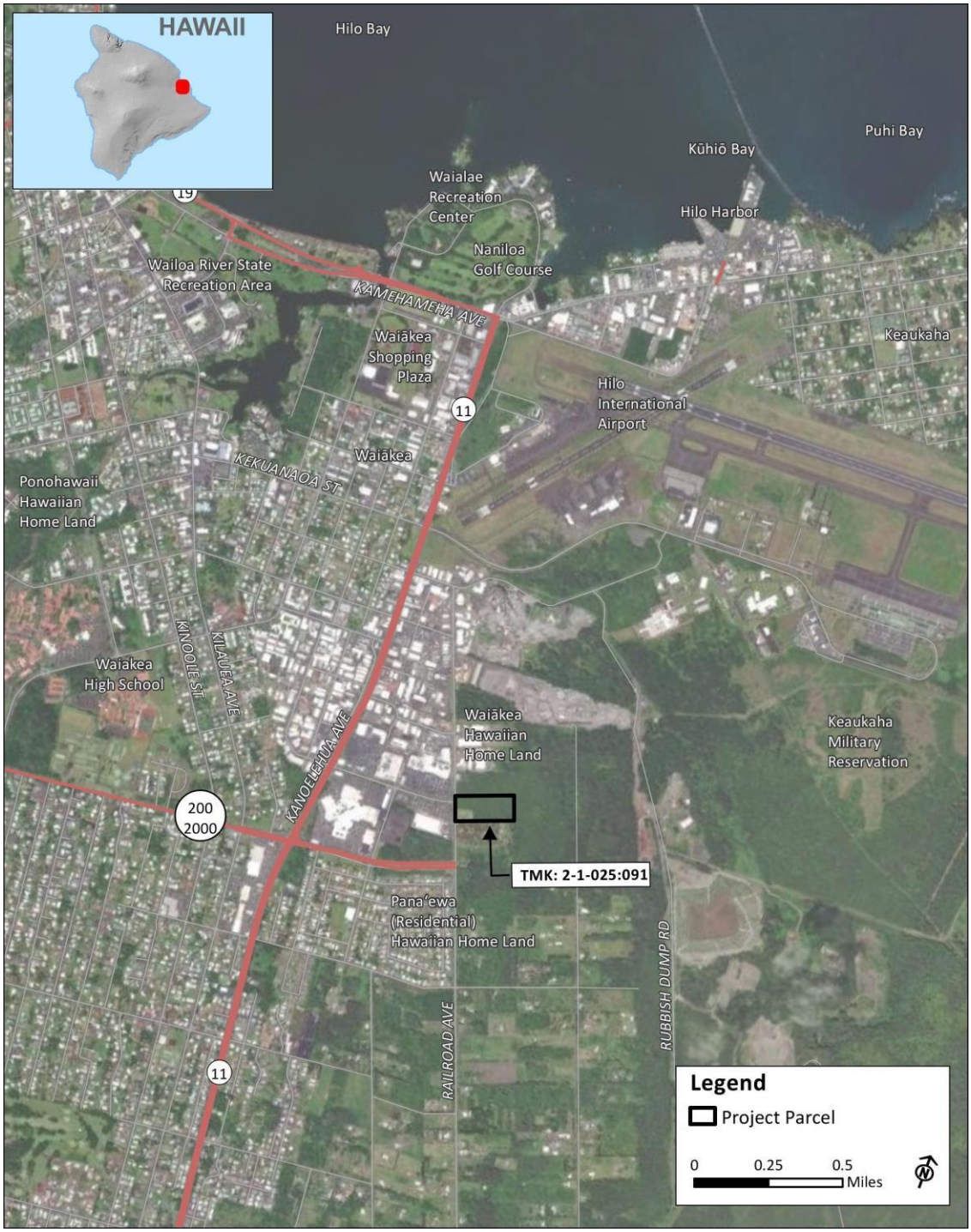

Figure 1 Location of project site in Hilo, Hawai'i.

Results

Vegetation Zones and Plant Communities

The perimeter survey identified 59 plant taxa and 3 fungi taxa, of which seven species (~11%) may be considered native (either indigenous to Hawai'i or of Polynesian introduction). No plants which are proposed or listed as threatened or endangered species under state or federal regulations were observed.

A diversity of introduced species, and several extremely invasive species in particular, have established themselves to successfully crowd out native vegetation at the site. The general character of the plant community within the project parcel can be described as a heavily disturbed coastal-lowland or submontane rainforest. Dominant vegetation cover and sites of significance are represented in Figure 2. and described in further detail below.

A complete inventory of plant species observed during the survey is provided in Appendix II. This table is organized in alphabetical order by family name and lists each species by its scientific name, followed by the common and/or Hawaiian name. Species status in the islands and an estimation of abundance are also noted.

Figure 2 Dominant vegetation and sites of significance located within the project site boundaries during the botanical survey. Area of coverage is approximated based on observations and collected GPS data.

The **maintained area** (indicated in orange) outlined the perimeter of the **Keaukaha Pana'ewa Farmer's Association (KPFA) facilities** (indicated in brown). This area consisted of various groundcovers including Pacific false buttonwood (*Spermacoce exilis*), diamond flower (*Oldenlandia corymbosa*), and honohono (*Commelina diffusa*), among others. Several species of grass were also present, the most common of which were St. Augustine (*Stenotaphrum secundatum*), crab grass (*Digitaria sp.*), California grass (*Urchloa mutica*) and Guinea grass (*Megathyrsus maximus*). The indigenous fimbristylis (*Fimbristylis dichotoma*) was observed, though it was not common. A single fruiting body of a bridal veil stinkhorn mushroom (*Dictyophora cinnabarina*) was encountered in the lawn behind the KPFA facilities.

An impenetrable **strawberry guava thicket** (*Psidium cattleianum*) (indicated in pink) dominated the interior of the parcel's forested area, creating a matrix too thick to safely navigate in the presence of little fire ants.

In places where the density of the thicket was diminished other species emerged to fill the gaps in the canopy. A thin band of **diverse invasive forest** (indicated in blue) lined the inner edges of the strawberry guava thicket from Railroad Avenue, increasing in size toward the south and southeastern borders. The species makeup varied by location within the parcel.

In the areas immediately adjacent to the KPFA facilities the vegetation consisted of a Chinese banyan tree (*Ficus macrocarpa*) as well as large bushes of Christmas berry (*Schinus terebinthifolius*), white shrimp plant (*Justicia betonica*), white moho (*Heliocarpus americanus*), melochia (*Melochia umbellata*) and parasol leaf tree (*Macaranga tanarius*). Understory and groundcover vegetation in this corridor consisted of ferns such as white rabbit's foot fern (*Davallia tyermannii*), sword fern (*Nephrolepis sp.*), and laua'e haole (*Phlebodium aureum*), as well as flamingo lilies (*Anthurium andreaeanum*) which appeared to have been planted in discrete locations along the path. Wedelia (*Sphagneticola trilobata*) made up the bulk of the groundcover beneath a stand of parasol leaf trees near the inside corner of the maintained area. Maunaloa (*Canavalia cathartica*), maile pilau (*Paederia foetida*), and Jamaican lilikoi (*Passiflora laurifolia*) vines were alternately observed spreading over the canopy throughout the corridor.

Bingabing (*Macaranga mappa*), miconia (*Miconia calvescens*), octopus trees (*Schefflera actinophylla*), gunpowder trees (*Trema orientalis*), and trumpet trees (*Cecropia obtusifolia*) comprised the bulk of the remaining diverse invasive forest on the southern part of the site. Mango (*Mangifera indica*) and avocado (*Persea americana*) were also common to the southern border. Fox-tongued melastome (*Melastoma sanguineum*) and Koster's curse (*Clidemia hirta*) appeared occasionally as part of the understory in clearings shaded by the foliage of the canopy.

A thick patch of **juvenile gunpowder trees** (indicated in green) occupied the southwestern corner of the forest, adjacent to the maintained area. The groundcover in this area consisted mainly of bitter melon (*Momordica charantia*), downy wood fern (*Christella dentata*), and sensitive plant (*Mimosa pudica*).

Aside from strawberry guava, the most abundant species observed within the parcel were bingabing, miconia, and gunpowder tree. Significant native vegetation was almost entirely absent from the parcel with the exception of a few 'ōhi'a lehua were observed punctuating the strawberry guava canopy from the perimeter fronting Railroad Avenue, and a number of mature trees were observed in the canopy at the far eastern end of the parcel.

Weedy Plants of Concern

Of the approximately 56 non-native taxa that were observed and recorded during these surveys, 9 species appear on the list below as "weedy plants of concern". Three of these species—strawberry guava, Koster's curse, and miconia— are found on the List of Plant Species Designated as Noxious Weeds for Eradication or Control Purposes by the Hawaii Department of Agriculture (HAR, Title 4 Chap 68; last updated June 18, 1992). This list was developed to better regulate those species identified under the five designated criteria for traits such as reproduction, growth, detrimental effects, control, and distribution and spread.

Taxa that do not appear on the state's noxious weed list may still be considered invasive as their characteristics make them a threat to the integrity of the native forest and the watershed. The invasive qualities of each plant as well as their presence in the project site are discussed briefly, below.

Fiddlewood (*Citharexylum spinosum*)- This evergreen shrub/tree may grow up to 15 to 20 meters in height and can form thickets with dense canopies. They are prolific seeders and their seedlings are capable of sprouting in low light conditions. Their fruit is consumed by birds and easily spread. *C. spinosum* was extensively planted as an ornamental. A juvenile fiddlewood tree was found growing in the corridor of diverse invasive species suggesting that larger mature trees are nearby, though they were not observed during the survey.

Gunpowder tree (*Trema orientalis*)- This evergreen tree is capable of growing in poor soils and its preferred habitat is disturbed mesic forests. It can reach heights of up to 36 meters and has been used for forest rehabilitation due to its extremely fast growth. It is also commonly spread via birds which feed on its seeds. A stand of juvenile gunpowder trees was located near the southeast corner of the KPFA facilities and mature adult trees were observed in the canopy layer of the parcel's vegetation.

Jamaican lilikoi/Passion fruit (*Passiflora laurifolia*)- A climbing vine found in mesic to wet forests and down to sea level, and capable of covering vegetation. This plant is commonly found in disturbed areas and its seeds are easily spread by birds. Lilikoi vines were observed covering the canopy in the northeast corner at the edge of the KPFA facilities in the parcel interior, as well as entangled in the groundcover near the juvenile gunpowder trees.

Koster's curse (*Clidemia hirta*)- This shrub is extremely fast-growing and may reach heights up to 3 meters. It is a pioneer shrub, growing aggressively in steep and disturbed areas in mesic and wet forests, sometimes forming impenetrable thickets. It is tolerant of both full sunlight and deep shade and its large leaves can shade out native vegetation. Koster's curse produces flowers and dark-colored berries throughout the year; these fruits are consumed by birds which are the main method of dispersal. This plant was encountered occasionally in shaded areas throughout the site.

Maile pilau (*Paederia foetida*)- Maile pilau is a twining vine capable of reaching up to 30 feet in length. It is frequently seen growing into the tree canopy but can also trial over the ground. The vines of maile pilau also form dense layers that can smother plants and cause their branches to break and collapse. Maile pilau was observed growing abundantly in the canopy, particularly in the corridor of diverse invasive forest adjacent to the KFA facilities.

Miconia (*Miconia calvescens*)- Miconia is a woody shrub native to Central and South America. Miconia prefers moist habitats, typically tropical montane forest environments. Miconia spreads easily as mature

plants produce millions of seeds per year which can remain viable for upwards of a decade. It can grow up to 15 meters in height and form monotypic stands. Its large oval-shaped leaves shade out plants growing in the understory, while its roots are shallow and are known to cause severe erosion leading to landslides and severe watershed degradation. It was first introduced to the island in 1961 as a botanical species and spread profusely throughout the 70s and 80s until it was recognized as invasive and significant attempts to remove it were undertaken in the mid-90s. Though efforts to control discrete populations continue to this day, miconia has become so well-established on Hawai'i Island that in 2017 the Hawai'i Invasive Species Council pronounced it beyond the possibility of eradication. Miconia was present throughout the parcel with large mature trees making up a significant proportion of the diverse invasive forest.

Octopus tree (*Schefflera actinophylla*)- This tree grows rapidly and can reach 6-9 meters in height. It is shade-tolerant, thriving in moist environments, and forming dense thickets. Its seeds are bird-dispersed and can germinate in the nooks of larger, established trees where it may grow as an epiphyte. These traits enable it to easily invade undisturbed forests. Octopus trees were observed most abundantly at the edges of the strawberry guava thicket as part of the diverse invasive forest. Mature trees were also occasionally seen poking through the interior canopy of strawberry guava.

Strawberry guava (*Psidium cattleianum*)- This evergreen tree, imported from Brazil, can grow to heights of 30-40 feet. It creates dense monotypic stands or thickets which crowd out native species and destroy habitat for native plants. Strawberry guava has successfully invaded forests across Hawai'i, aided in its spread by the feral pig consumption of its fruit. Strawberry guava was the most dominant form of vegetation at the site, covering the majority of the parcel area, particularly in the north. Its dense growth was a significant contributing factor in preventing surveyors from reaching of much of the forest interior.

Trumpet tree (*Cecropia obtusifolia*)- This fast-growing tree reaches heights between 5-10 meters. Its seeds are bird-dispersed and, though it is short-lived, it can quickly invade gaps in the native forest to form dense stands and obstruct the growth of native plants. Like the octopus tree, this species was observed at the edges of the strawberry guava thicket in the diverse invasive forest and occasionally as part of the in the interior of strawberry guava.

Observed Terrestrial and Avifauna

This survey identified eight species of avifauna and four species of terrestrial fauna. All species have been introduced to Hawai'i; none were of indigenous or Polynesian origin.

A complete inventory of species of terrestrial and avifauna observed during the survey is provided in Appendix III. This table is organized in alphabetical order by family name and lists each species by its scientific name, followed by the common name. Species status in the islands and an estimation of abundance are also noted.

Species of terrestrial fauna were noted as they were encountered. These species included feral pigs (*Sus scrofa*), green anole lizards (*Anolis carolinensis*), and little fire ants (*Wasmannia auropuntata*). The distinct calls of coqui frogs (*Eleutherodactylus coqui*) were heard from the forested area during the survey, however no animals were observed.

Avifauna species were also noted as they were encountered. Birds were generally observed in-flight or perched in tall trees for brief periods. Surveyors did not encounter any nesting sites and no birds appeared to reside in the areas surveyed. The most abundant species of birds observed at the site were those that typically prefer pastures and open grassy environments such as the cattle egret (*Bulbulcuz ibis*), and saffron finches (*Sicalis flaveola*). The red-billed leiothrix (*Leiothrix lutea*), a small, lively bird preferring forested areas, was also abundant.

Other birds were sited during this survey though they were not as common. These species included the common myna (*Acridotheres tristis*), house sparrow (*Passer domesticus*), northern red cardinal (*Cardinalis cardinalis*), and two species of doves: the zebra dove (*Geopelia striata*) and spotted dove (*Spilopelia chinensis*).

Invasive Fauna

Of the three terrestrial fauna that were actively observed, two are considered invasive: feral pigs and little fire ants. The life histories of these species are discussed below.

Feral Pigs

Hawai'i's population of feral pigs (*Sus scrofa*) descends from lineages of both the domesticated species introduced by the early Polynesians and the Eurasian wild boar. Feral pigs are omnivorous and readily adapt their diet to their chosen habitat. Populations can be difficult to control as their breeding cycles occur year-round and sows can average seven piglets per litter and attain breeding age within the first year.

Feral pigs have played a sizeable role in the degradation of Hawai'i's native forests due to their opportunistic feeding habits. In their search for food, feral pigs uproot native vegetation, consume a significant amount of the understory, and create disturbed areas which are then colonized by non-native species. Their rooting habits also cause soil erosion in the landscape, exacerbating the loss of habitat for native plants.

Additionally, the pigs' alteration of their habitats can kick off a cascading effect on native ecosystems. For example, their wallowing behaviors create muddy pools which can incubate mosquito larvae and contribute to the transmission of mosquito-borne diseases such as avian malaria.

Little Fire Ants

Little fire ants (LFA) (*Wasmannia auropunctata*) are native to the Central Americas and Brazil. Populations of LFA have been spreading throughout island archipelagos in the Pacific, and the world, for decades. The first population of LFA in Hawai'i were discovered on Hawai'i Island in 1999. This population has been genetically traced to a population originating from Florida. Their introduction likely took place via the importation of nursery plants. LFA are currently widespread throughout East Hawai'i and have been detected on the islands of Maui, Lāna'i, O'ahu and Kaua'i.

LFA are approximately 1.5 mm in length, fiery orange-red in color, and slow moving. They prefer tropical conditions (i.e., environments that are warm and wet) and shady areas. Their nesting areas can range from the ground to the canopy of trees however they do not travel very far from their nests. When their plants are moved or disturbed, they easily fall off creating a "rain" of ants. LFA administer multiple bites which leave stinging welts that can last for several weeks. Their bites have also been known to cause livestock and pets to go blind.

The generalist feeding habits of LFA can also impact agriculture. LFA feed on small insects, tap into flowers for their nectar, and "ranch" certain plant pests (i.e., scales, aphids, whiteflies, mealybugs) for the sugars they produce. The ants protect these pests by protecting them from harm and moving them around, affecting plant health and productivity.

LFA can easily be transported to new locations via potted plants, plant cuttings, produce, mulch, soil, green waste, landscaping materials, and rubbish. They are a target invasive species for multiple invasive species committees Additionally, they are regulated as a pest for control by the Hawaii Department of Agriculture (HDOA) under HAR 69A and as injurious wildlife by the Hawaii Department of Land and Natural Resources (DLNR) under HAR 124.

Conclusions and Recommendations

The forested portion of the parcel is dominated by invasive vegetation and plays host to other invasive species, including those described in Invasive Fauna, above. Current site conditions can be attributed to past patterns of human disturbance in the region, including historical agricultural activities and more recently, urban development.

Plant Communities Compatible with Proposed Use

The proposed future use of this parcel is the expansion of the Keaukaha Pana'ewa Farmers Association agricultural operations to create an agricultural and cultural capacity training center.

Based on the historical accounts described in the Introduction, the landscape originally consisted of coastal and lowland forest species such as hala and 'ōhi'a. Over time, the early coastal inhabitants of Hilo transformed the character of the inland forest through the introduction of agriculture. Historical records identify several food crops including banana, mountain apple, sweet potato, taro (both dryland and wet varieties), and sugarcane as having been planted here prior to Western contact. These traditionally cultivated plants and others with cultural significance to native Hawaiians are listed in Table 1., below, as being compatible with the proposed use of the parcel. Several of these species have myriad cultivars that may be appropriate for farming.

Table 1. Species of culturally significant and traditional Hawaiian agricultural crops

SPECIES	SCIENTIFIC NAME
Trees	
kukui	*Aleurite mollucana*
mai'a (banana)	*Musa sp.*
niu (coconut)	*Cocos nucifera*
noni	*Morinda citrifolia*
'ōhi'a 'ai (mountain apple)	*Syzygium malaccense*
'ulu (breadfruit)	*Artocarpus altilis*
Root Vegetables & Shrubs	
'awa	*Piper methysticum*
kalo (taro)	*Colocasia esculenta*
kī	*Cordyline fruticosa*
kō (sugar cane)	*Sacharum officinarum*
māmaki	*Pipterus albidius*

ʻōlena (turmeric)	*Curcuma longa*
ʻuala (sweet potato)	*Ipomea batatas*
uhi (yam)	*Dioscora alata*

No existing plants or plant communities within the parcel are recommended for preservation, however, the organization may wish to retain some of the existing fruit trees (i.e., mango, avocado, mountain apple) and ʻōhiʻa trees. See the Special Management Considerations section, below, for further discussion of recommendations which may apply to any alterations to the physical character of the site.

Landscaped and other areas of the parcel that will not be developed or cultivated should utilize indigenous species whenever possible, particularly those species which are best suited for the region's soil and climate conditions. If possible, reintroducing native species which have historically been known to the area could encourage the return of populations that have been decimated by disturbance and continue to be oppressed with the successful permeation of alien vegetation.

Invasive Species Control and Management

Plant species recognized as invasive (see list under Weedy Plants of Concern, above) should be removed to the extent possible to prevent further spread. Strawberry guava, miconia and bingabing pose the greatest challenge as they comprise the bulk of the vegetation on the parcel. Effective control methods will vary depending on the species and may include a combination of manual and chemical approaches.

The patch of juvenile gunpowder trees at the edge of the maintained area is a priority concern which should be eradicated immediately. Gunpowder tree is a prolific seeder and extremely fast-growing. If left unchecked, it will quickly spread to take over disturbed areas nearby and become the primary vegetative cover.

Clearing of large areas may reduce the population of one type of introduced species while enabling other, possibly more destructive species, to take its place. Once an area is cleared of invasive vegetation, it should be immediately re-planted and/or continually monitored to prevent invasive plants from regaining a foothold until further development occurs. To prevent long-term problems, mass clearing of the landscape should be avoided without a comprehensive management plan in place.

Feral pig population control measures are also recommended as pigs are one of the main vectors for the spread of invasive species. Suggested control measures include fencing, hunting, trapping, and snaring.

Special Management Considerations

Based on the proposed use of the parcel and the site conditions observed by surveyors, the following considerations should be taken into account prior to initiating any physical changes at the site (i.e., vegetation removal):

Little Fire Ant (LFA) Control

South Hilo where this parcel is located is known to contain populations of Little Fire Ant (LFA) and surveyors frequently encountered such populations when moving through vegetation at the south end of the site.

Infestations of LFA should be reported to the HDOA via the State Pest Hotline prior to the administration of any treatment to ascertain the extent of the infestation and consult on pesticide suitability.

The degree of infestation in East Hawai'i has exceeded the Hawaii Department of Agriculture's (HDOA) resources for control programs, however, field staff can help identify LFA and provide advice on the most appropriate control methods for the area.

LFA are very difficult to eradicate. Treatment involves the use of prescribed pesticides designed to be carried by the worker ants back to the nest where it will be fed to the other ants and the queens, resulting in the extinguishment of the colony as a whole. If there are food crops growing in the area, specific chemicals are recommended to prevent contamination. Sustained and consistent treatments are necessary to completely eradicate an infestation.

Resources for the survey and treatment of LFA are available to the public on the Hawai'i Ant Lab website.

Rapid 'Ōhi'a Death (ROD) Prevention

Surveyors were unable to closely examine the 'ōhi'a trees located within the parcel and are therefore unable to offer observations the state of their health. However, regardless of the condition of these particular trees, Rapid 'Ōhi'a Death (ROD) remains a severe threat to the 'ōhi'a populations on Hawai'i Island and preventing further spread requires strict adherence to prescribed decontamination practices.

There is no cure for trees that have become infected with ROD. There are also no recommended fungicides for the treatment of either of the two species of *Cyratocystis* fungal pathogens known to cause ROD.

The College of Tropical Agriculture and Human Resources (CTAHR) recommends that infected trees on Hawai'i Island be removed by contracting a certified arborist who is familiar with the sanitation protocol and necessary decontamination procedures. These protocols are also described on CTAHR's ROD website.

Information and help with diagnosing a tree suspected to be affected by ROD exists on CTAHR's ROD website.

The following actions are recommended to prevent the spread of ROD:

- Avoid injuring 'ōhi'a trees by keeping sharp objects (i.e., lawnmowers, saws) away from trees and stepping over and around roots. Wounds may serve as entry points for the fungus.
- Before entering a forested area brush all soil and debris off shoes, gear, and tools. Spray these objects with 70% isopropyl alcohol. Coat the sole of the shoe with the isopropyl alcohol and allow it to site for at least 15 seconds to avoid spread. Clean all shoes and gear again after use, especially when used on infected 'ōhi'a. Clothes should be cleaned before and after entering the forests using hot water and soap.
- Do not move 'ōhi'a wood or 'ōhi'a parts from the site and do not transport 'ōhi'a inter-island.
- If using a vehicle off road or in an area known to be affected by ROD, the tires and undercarriage of the vehicle should be washed with a high-pressure water source and all soil and mud removed.

Potential Habitat for the 'Ōpe'ape'a (Hawaiian Hoary Bat)

The 'ōpe'ape'a, or Hawaiian hoary bat (*Lasiurus cinereus semotus*), is listed as an endangered species under both the Federal Endangered Species Act and Hawai'i Endangered Species laws and is the only native land mammal in Hawai'i.

No bats or indications of bat presence were detected during the survey, however, the survey was conducted in mid-day when they are typically inactive.

Population sizes for 'ōpe'ape'a are unknown and scientists are still working to understand their specific habitat needs. 'Ōpe'ape'a are known to roost in large woody vegetation ranging from 5 to 24 meters in height, which describes the character of the vegetation found on site. Prior to the alteration of the canopy, the parcel should be survey for bat presence during the sunset hours when foraging activity typically occurs. Trimming or harvesting trees greater than 15 feet tall should not occur during the pupping season (approximately June 1- September 15) without first consulting with biologists from the US Fish and Wildlife service and the state Department of Forestry and Wildlife.

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Appendix I: Photos

Figure A1 Northwestern corner of the KPFA facilities where the survey began. The vegetation on the edge of the pathway was diverse, but primarily alien and invasive in character. Species observed included tī plant (*Cordyline fruticosa*), white moho (*Heliocarpus americanus*), gunpowder tree (*Trema orientalis*), white shrimp plant (*Justicia betonica*), bingabing (*Macaranga mappa*), Christmas berry (*Schinus terebinthifolius*), Chinese bayan (*Ficus microcarpa*) and octopus tree (*Schefflera actinophylla*).

Figure A2 A) The northwestern corner of forested and maintained area. This portion contained a different profile of alien/invasive plants such as the parasol leaf tree (*Macaranga tanarius*), young bingabing (*Macaranga mappa*), fiddlewood (*Citharexylum spinosum*). B) Feral pig trail leading into the same corner of forested area.

Figure A3 A) Clearing on the southern side of the property, facing dense strawberry guava (*Psidium cattleianum*) growth to the north. The canopy in this area was primarily bingabing. Avocado (*Persea americana*), mango (*Mangifera indica*), and gunpowder trees (*Trema orientalis*) also occupied this area. B) Pig wallow behind tangle of strawberry guava trunks. One adult and one adolescent pig were sighted near the clearing during the survey.

Figure A4 Macadamia nut tree (*Macadamia integrifolia*) orchard adjacent to the property's southern boundary. Macadamia was not included in the final plant list in Appendix II.

Figure A5 A) View of the developed part of the property facing north with the forested area just beyond. B) View of the fence line between the KPFA facilities and the orchard.

Figure A6 Dense growth of strawberry guava at the western edge of the property fronting Railroad Avenue.

Figure A7 Mushroom growth: A) Indigenous pepeiao mushrooms (*Auricularia cornea*) on a decaying tree trunk in the forest clearing. B) Veiled lady stinkhorn mushroom (*Dictyophora cinnabarina*) in the grassy area between the rear of the KPFA facilities and the forest.

Figure A8 A & B) Little fire ants (*Wasmannia auropunctata*) clustered on the stem of a juvenile miconia plant.

Appendix II: Plant Checklist

The following checklist list was prepared after the conclusion of a survey conducted in the proposed project area in Hilo, Hawai'i Island on July 21, 2021. A total of 62 plant taxa were identified including 4 indigenous (including Ind? species), 2 Polynesian-introduced (including Pol? species) and 56 naturalized. For simplification, this checklist also includes observed species of fungi. Three distinct fungi taxa were identified, one of which is considered indigenous to Hawai'i.

The list is divided into five groups: **bryophytes**- mosses, liverworts and hornworts; **pteridophytes**- ferns and fern allies; **flowering plants**, categorized by monocots and dicots; **gymnosperms**; and **fungi**. Each group is organized alphabetically by family, then by scientific name (e.g., genus, species). Common and Hawaiian names for each plant are also included. A key with explanations of the abbreviations used in the checklist is provided below.

PLANT CHECKLIST KEY

Biogeographic Status

Nat Naturalized: Introduced to Hawai'i by humans, either directly or indirectly, since Western contact. Includes ornamentals and plants that may have formerly been cultivated.

Pol Polynesian introduction: Introduced to Hawai'i by the original Polynesian settlers.

Pol? Possible Polynesian introduction: May have been introduced to Hawai'i by the original Polynesian settlers; or may have been introduced post-Western contact.

Ind Indigenous species: Occurs naturally both within and outside of the Hawaiian Islands.

Ind? Possible indigenous species: May occur naturally in Hawai'i; or may have been introduced post-Western contact.

Abundance

R Rare: 1-3 individuals observed.

U Uncommon: Several to a dozen individuals observed.

O Occasional: Found regularly at the site.

C Common: Observed numerous times; makes up a large portion of the vegetation.

A Abundant: Large numbers of plants observed; likely a locally-dominant species.

Scientific Name	Common/Hawaiian Names	Status	Abundance
BRYOPHYTES – MOSSES, LIVERWORTS, HORNWORTS			
Insomniella plumiformis		Nat	C
PTERIDOPHYTES - FERNS & FERN ALLIES			
DAVALLIACEAE			
Davallia tyermannii	white rabbit's foot fern	Nat	R
NEPHROLEPIS			
Nephrolepis sp.	sword fern	Nat	C
POLYPODIACEAE			
Phlebodium aureum	*laua'e haole*	Nat	C
PSILOTACEAE			
Psilotum nudum	*moa*, whisk fern	Ind	R
THELYPTERIDACEAE			
Christella dentata	downy wood fern	Nat	C
FLOWERING PLANTS (DICOTS)			
ACANTHACEAE			
Justicia betonica	white shrimp plant	Nat	R
ANACARDIACEAE			
Mangifera indica	mango	Nat	
Schinus terebinthifolius	Christmas berry	Nat	
ARACEAE			
Anthurium andreaeanum	flamingo lily	Nat	R
Colocasia esculenta	black magic taro	Nat	R
ARALIACEAE			
Schefflera actinophylla	octopus tree	Nat	C
ASTERACEAE			
Ageratina riparia	mistflower, *Hamakua pamakani*	Nat	U
Bidens pilosa	black jack	Nat	U
Sphagneticola trilobata	wedelia	Nat	C
BEGONIACEAE			
Begonia vitifolia	begonia	Nat	O
CECROPIACEAE			
Cecropia obtusifolia	trumpet tree	Nat	A
CLUSIACEAE			
Clusia rosea	autograph tree	Nat	O
CUCURBITACEAE			
Momordica charantia	bitter melon	Nat	C
EUPHORBIACEAE			
Codiaeum variegatum	croton	Nat	O
Macaranga mappa	bingabing	Nat	A

Scientific Name	Common/Hawaiian Names	Status	Abundance
Macaranga tanarius	parsol leaf tree	Nat	C
FABACEAE			
Canavalia cathartica	*maunaloa*	Nat	O
Falcataria moluccana	Moluccan albizia	Nat	O
Mimosa pudica	sensitive plant	Nat	U
LAURACEAE			
Persea americana	avocado	Nat	U
MALVACEAE			
Heliocarpus americanus	white moho	Nat	C
Melochia umbellate	melochia	Nat	C
MELASTOMATACEAE			
Arthrostemma ciliatum	arthrostema	Nat	U
Clidemia hirta	Koster's curse	Nat	O
Melastoma sanguineum	fox-tongued melastome	Nat	C
Miconia calvescens	miconia	Nat	C
MORACEAE			
Ficus microcarpa	Chinese banyan tree	Nat	U
MYRTACEAE			
Metrosideros polymorpha	ʻōhiʻa lehua	Ind	C
Psidium cattleianum	strawberry guava	Nat	C
PASSIFLORACEAE			
Passiflora laurifolia	Jamaican lilikoi, passion fruit	Nat	U
RUBIACEAE			
Oldenlandia corymbosa	diamond flower	Nat	O
Paederia foetida	*maile pilau*	Nat	A
Spermacoce exilis	Pacific false buttonweed	Nat	U
SAPINDACEAE			
Dimocarpus longan	longan	Nat	U
SOLANACEAE			
Solanum americanum	*pōpolo*	Ind	U?
ULMACEAE			
Trema orientalis	gunpowder tree	Nat	A
VERBENACEAE			
Citharexylum spinosum	fiddlewood	Nat	C
Stachytarpheta dichotoma	blue vervain	Nat	O
FLOWERING PLANTS (MONOCOTS)			
ASPARAGACEAE			
Cordyline fruticosa	*ti*, *laʻi*	Pol	
COMMELINACEAE			
Commelina diffusa	*honohono*	Nat	U

Scientific Name	Common/Hawaiian Names	Status	Abundance
CYPERACEAE			
Cyprus polystachos	Manyspike flatsedge	Nat	U
Fimbristylis dichotoma	fimbristylis	Ind	U
Kyllinga brevifolia	green/white kyllinga	Nat	C
POACEAE			
Digitaria sp.	crab grass	Nat	C
Megathyrsus maximus	guinea grass	Nat	C
Melinis minutiflora	molasses grass	Nat	R
Paspalum conjugatum	Hilo grass	Nat	O
Paspalum sp.	paspalum	Nat	O
Saccharum officinarum	kō, sugarcane	Pol	R
Stenotaphrum secundatum	St. Augustine grass	Nat	C
Urchloa/Brachiaria mutica	California grass	Nat	C
GYMNOSPERMS			
PODOCARPACEAE			
Podocarpus gracilior	fern pine	Nat	R
FUNGI			
AURICULARIACEAE			
Auricularia cornea	*pepeiao*, Hawaiian wood ear	Ind	R
PHALLACEAE			
Dictyophora cinnabarina	veiled lady/ bridal veil stinkhorn	Nat	R
TREMELLACEAE			
Tremella fuciformis	snow fungus	Nat	R

Appendix III: Terrestrial and Avifauna Species Checklist

The following checklist was prepared after the conclusion of a walk-through survey conducted in the proposed project area in Hilo, Hawai'i Island on July 21, 2021. A total of 8 taxa of avifauna and 4 taxa of terrestrial fauna were identified. For the purposes of this survey, reptile, insect, and mammalian species observed have been grouped under the single heading of terrestrial fauna. All species identified during the survey were introduced and considered naturalized (including those with a status of Inv). No native species of either terrestrial or avifauna were observed.

Each group on this list is organized alphabetically by family, then by scientific name (e.g., genus, species). Common names are also included. A key with explanations of the abbreviations used in the checklist is provided below.

CHECKLIST KEY

Biogeographic Status

Nat	Naturalized: Introduced to Hawai'i by humans, either directly or indirectly, since Western contact.
Ind	Indigenous species: Occurs naturally both within and outside of the Hawaiian Islands.
Inv	Invasive species: An alien species which has been introduced by human assistance and is recognized to have deleterious effects on the native species or environment.
Pol?	Possible Polynesian introduction: May have been introduced to Hawai'i by the original Polynesian settlers; or may have been introduced post-Western contact.
Unk	Unknown: Species could not be identified.

Abundance

R	Rare: 1-3 individuals observed.
U	Uncommon: Several to a dozen individuals observed.
O	Occasional: Found regularly at the site.
C	Common: Observed numerous times; makes up a large portion of the community.
A	Abundant: Large numbers observed; likely a locally-dominant species.
Unk	Unknown: Quantity of species could not be identified.

Scientific Name	Common/Hawaiian Names	Status	Abundance
AVIFAUNA			
ARDEIDAE			
Bulbulcuz ibis	cattle egret	Nat	C
CARDINALIDAE			
Cardinalis cardinalis	northern red cardinal	Nat	R
COLUMBIDAE			
Geopelia striata	zebra dove	Nat	U
Spilopelia chinensis	spotted dove	Nat	U
LEIOTHRICHIDAE			
Leiothrix lutea	red-billed leiothrix	Nat	C
PASSERIDAE			
Passer domesticus	house sparrow	Nat	R
THRAUPIDAE			
Sicalis flaveola	saffron finch	Nat	C
STURNIDAE			
Acridotheres tristis	common myna	Nat	U
TERRESTRIAL FAUNA			
DACTYLOIDAE			
Anolis carolinensis	green anole lizard	Nat	A
BRACHYCEPHHALIDAE			
*Eleutherodactylus coqui**	coqui frog	Nat/Inv	Unk
SUIDAE			
Sus scrofa	feral pig	Nat/Inv	O

*Presence in the area indicated through calls. No animals observed.

Appendix D

KPFA Design Charrette

Keaukaha Pana‘ewa Farmers Association

Design Charrette

OCTOBER 2021

Contents

1 DEFINITION 3
- Who are you
- Unique Vocabulary
- Vision

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- Foundational Drivers
- About the Site
- Program DNA & Phase 1

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- User Profiles
- User Journey Mapping

4 CONCEPT 23
- Design Components
- Preliminary Masterplan
- Material & Massing Study

1

DEFINITION

Who are you

Unique Vocabulary

Vision

When is **PANA‘EWA FARMER’S MARKET** not just a marketplace?

When it is...

- **Home** - ***Pu‘uhonua***
- **a Hawaiian Agency Base that comes together**
- **to help farmers enhance (Demonstration Farm, Kitchen, Products)**
- **a healthy, thriving community**
- **the *Piko***
- **where *kūpuna* feel at home (resources)**
- **belonging**

a sense of

- **to feed & food**
- ***‘Āina***
- **the hard work of the homesteaders**
- ***Mo‘o***
- **Sovereignty**
- **a repeatable model**

Unique Vocabulary

KPFA Language

Home

A place to touch every age group, together; *keiki* to *kūpuna*

Base

Give life to healing & practices; native to *Pana'ewa*; inter-generational

Farmers

Coming together to share stories, information, and plans

Enhance

Demonstration projects where farmers can be trained

Health

When environment is prime for living & growth; the next stage where it is stable & ready to provide; the increase, forward motion

Thriving

People healed, mentally & emotionally; foster health within - spiritual & physical wellbeing from a strong community environment; sources of water & life; moving forward

Piko

Place of gathering

Kūpuna

Our beloved generation; the seen & unseen in the *'āina*; older trees, our ancestors, U a makani - elemental forms

Belonging

Fulfilling *Kupūna* dreams; *Keiki* utilize these spaces; opportunity to gather & talk; create a safe space where this is their community; always open to community

Food

Center-point of the pavilion; memories, practices, *'Ai Pono*; GMO "Grow my Own"; gathers generations together

'Āina

Keaukaha Pana'ewa; trees sing when wind blows; center-point of home; first time homestead - aspects of whole person; Fruit, forest, *'Io*; important to cultural practitioners; regenerate endemic species (ROD)

Hard Work

Past generation put in the heart & labor (sweat, tears, blood), so we have this land today; privileged

Mo'o

Guardians of our resources; sources of water - aquifer; sources of life

Sovereignty

Food
Energy
'Āina

Repeatable

Every community needs a *Pu'uhonua*; this project is a repetitive model for other communities - in good & bad times

Piha pū - abundance

Pulapula - seedlings, sprouts, to procreate

'Āina Ho'opulapula - a *mana'o* from our *Kūpuna*, describes thriving

Wahi pana - heartbeat that re-invigorates *Mana*

Vision

KPFA Narrative

Our **Keaukaha Panaʻewa Farmers community** honors the **first Panaʻewa Nui homesteaders** by carrying on the vision of a **sovereign and thriving people** committed to the **guardianship** of our resources in this ***puʻuhonua* of well being, gratitude and growth.**

2

SITE & PROGRAM

Foundational Drivers

About the Site

Program DNA & Phase 1

Foundational Drivers

Training Tools in the Natural Environment

Makahiki Solstices

- November - Important for farmers, planting for next harvest
- Markers for what to prepare, when to prepare
- Signals change in weather patterns

Rains

Ka Ua Kanilehua pelting rain; "…can refer to the chattering of birds on *ʻōhiʻa* lehua trees, the rustling of lehua flowers, or the drinking of the rain by lehua flowers"

Māluakiʻiwai sheets of rain followed by wind; the wind visits Hilo and is often accompanied by the *mālua* rain

Rains

Derived from
Hānau Ka Ua
Hawaiian Rain Names
by Collette Leimomi Akana
and Kiele Gonzalez

***Alanilehua/Wailehua*:** Hilo, Puna, and Panaʻewa, Hawaiʻi.
"…associated with the nectar of lehua blossoms. When this rain starts to come form the water's edge at Hāʻena and from above the upper heavens of that place, it will travel to the west, sprinkling the buds of Puna's hīnano blossoms and pouring down over the clusters of Panaʻewa's lehua trees. It won't ever come close to town, but these raindrops will appear outside of the western border of Panaʻewa. Then it turns and circles to the south, ascending the uplands of Pāʻieʻie, and disappearing within the watery mists of the forest. It has a delicate nature, is rarely seen, and is visible only between the hours of 10 and 12 in the morning."

ʻĀpuakea: Hilo, Hawaiʻi.
Translation from a lament: "Hilo is disappointed in the ʻĀpuakea rain
An ʻĀpuakea rain that treads upon the ocean
Treading upon the sea of Piʻihonua"

ʻAwaʻAwa: Hilo, Hawaiʻi.
Translation from a song: "Hit by the thrusts, hit by the bitter cold [ʻawaʻawa]
The hips of Hilo's throngs sag
As they returned burdened to the sands of Hanakahi"

Hālaulani: Hilo and Panaʻewa , Hawaiʻi.
"heavenly structure"

Heʻenehu/Hukiheʻenehu: Hilo, Hawaiʻi.
"Heʻenehu refers to the time when nehu fish run"
"Hukiheʻenehu refers to a fine-meshed net for catching nehu fish"

Hoʻolua: Hilo, Hawaiʻi.
"heavy rain associated with a strong north wind of the same name… means "to talk loudly and pointlessly" "

Kanikaniʻāʻula: Hilo, Hawaiʻi.
"…means "insomnia," "ringing in the ears," or "to mourn in chanting" "

Kanilehua: Hilo and Panaʻewa , Hawaiʻi.
"…can refer to the chattering of birds on ʻōhiʻa lehua trees, the rustling of lehua flowers, or the drinking of the rain by lehua flowers"

Kēwai: Hilo, Hawaiʻi.
"…misty rain. Also the name of a wind… means "watery, misty, dew-laden" "

Kinai: Hilo, Hawaiʻi.
"…means "to persist" "

Kinailehua: Hilo and Panaʻewa , Hawaiʻi.
"…means "to suppress lehua flowers," "to persiston lehua flowers," or "to quench the thirst of lehua flowers" "

Kīpēhala: Hilo, Hawaiʻi.
"…means "to pelt hala trees" "

Kīpehipualehua: Hilo and Panaʻewa , Hawaiʻi.
"…means "to pelt hala fruit" "

Kīpuʻupuʻu: Hilo, Hawaiʻi.
"Refers to the bumpiness of the skin in the cold, wind-driven rain. It may also refer to the hilly land of Waimea."

Kualau: Hilo, Hawaiʻi.
"Shower over the sea, accompanied by wind…"

Kuaʻoʻe: Hilo, Hawaiʻi.
Translation from a chant: " The Kuaʻoʻe rain is friendless
The rain that adorns the face of the lehua bloom The sea-sprayed faces of the lehua of Mokuola"

Kukupaʻu: Hilo, Hawaiʻi.
"…means "to do with zest." "Kuku paʻū" means "to beat overlaid kapa." "Kuku pau" means "to beat completely," as kapa"

Lanihaʻahaʻa: Hilo, Hawaiʻi.
"…means "low sky" "

Lanipili: Hilo and Panaʻewa , Hawaiʻi.
"Heavy rain that lasts for days or a cloudburst…. "Lani pili" means "clinging sky" "

Lanipōlua: Hilo and Panaʻewa , Hawaiʻi.
"…means "very dark sky" "

Leimāʻohu: Hilo, Hawaiʻi.
"…means "lei of mist" "

Līhau: Panaʻewa , Hawaiʻi.
"Gentle, cool rain… means "cool, fresh, moist" "

Lūlehua: Hilo and Panaʻewa , Hawaiʻi.
"…means "to scatter lehua flowers" "

Lūlehuahala: Panaʻewa , Hawaiʻi.
same as Lūlehua

Mailani: Hilo, Hawaiʻi.
same as Kanilehua

Mālua: Hilo, Hawaiʻi.
Same as Mālualua

Moaniʻala: Hilo, Hawaiʻi.
"…means "fragrant breeze" "

Moanilehua: Hilo, Hawaiʻi.
"…means "wafted lehua fragrance" "

Mololani: Panaʻewa , Hawaiʻi.
Similar to Lūlehua

Nahunahu: Panaʻewa , Hawaiʻi.
"…means "to bite" "

Nāulu: Hilo and Panaʻewa , Hawaiʻi.
"Sudden shower…also the name of a shower cloud and a wind"

Pehihala: Panaʻewa , Hawaiʻi.
"…means "to pelt the hala fruit" "

Polopuahīnano: Hilo, Hawaiʻi.
"…means " white hīnano blossom with its stem" "

Poʻolipilipi: Hilo, Hawaiʻi.
"…means "adze-like head" "

Pōpōlehua: Hilo, Hawaiʻi.
"…means "cluster of lehua flowers" "

Uluau: Hilo, Hawaiʻi.
"…comes with the Māluakiʻiwai wind…"
Ulumano: Hilo and Panaʻewa , Hawaiʻi.
Similar to Kanilehua. "Also the name of a wind"

Waʻahia: Hilo, Hawaiʻi.
Similar to Pōpōkapa. "…means "to bundle up kapa" "

Other rains associated with Hilo include: ***ʻAwa; Hāleuʻole; Hāliʻipili; Hehilauʻulu; Hehiʻulu; Kanikanailehua; Kinailehua; Lauhīnano; Lehua; Leilehua; Lūlehuahala; Mololani; Nahunahu; Noe; Palahīnano; Peihala; Pūʻololehua; Wailehua.***

About the Site

Stories of the Place

"This area of Hilo represents **previous generations as first generation farmers** - a significance of the hard work, sweat and heart of the people."

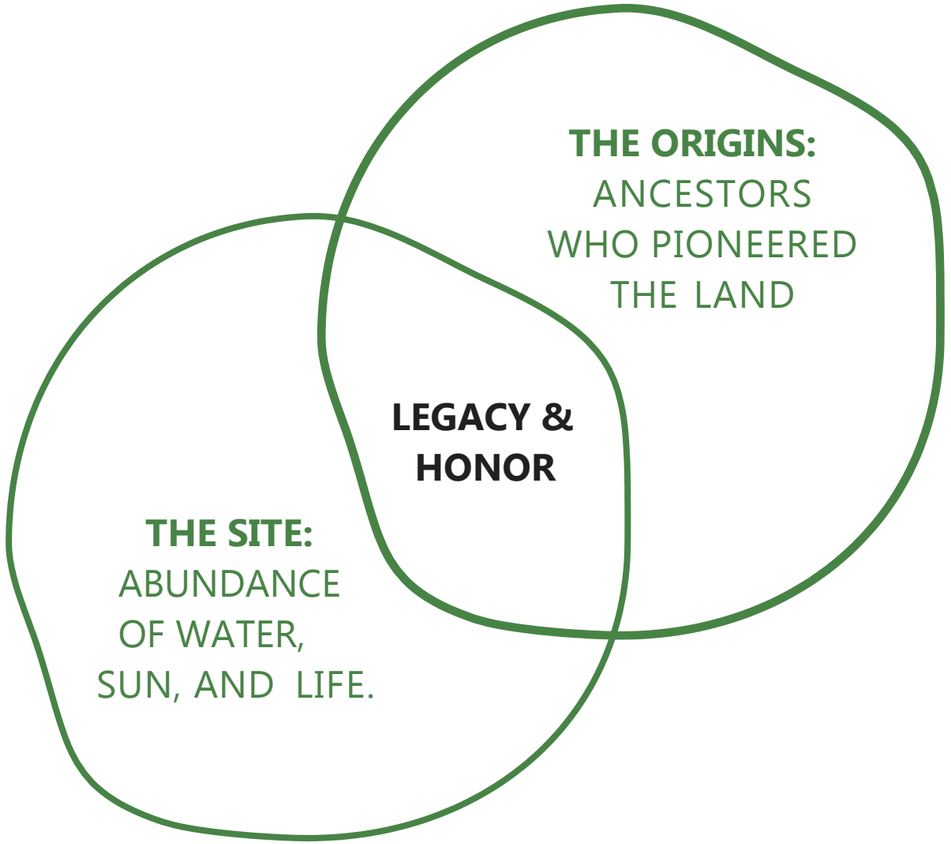
"This new place needs to be humble, about the community, about the land. **We must not forget how special it is**".

"Families worked and fought hard **for the right to live** on the land."

"The origins of farming community were humble and **everyone helped each other**."

"We used to collect rainwater in **50 gallon drums** and had plenty of guava."

"Farming was not just a job but **a way of life**."



About the Site

Challenges & Opportunities

- It’s a peaceful place in the middle of the most busy commercial area in Hilo
- Threats - land value rising in this location
- Street front noise (Home Depot)
- Wind/Rain varies
- Strong wind protected by property trees at back
- 10-15 mph trade winds (Northeast)
- 30 mph gusty high winds
- Range from light snowy rain to heavy
- Views - *Mauna Kea* & *Mauna Loa*, Sunrise (East)
- Botanical Landscape *Panaʻewa - ʻŌhiʻa, Maile, Hōʻawa,*
- Nighttime *Kilo* observing
- Nighttime street lighting (safety)
- Access - Preliminary paved driveway

Program DNA

Meeting Programmatic Needs

Program	Needs & Requirements	User Type
1 **Certified Kitchen**	• Imu Facility • Place to process & store (refrigeration) • Similar to Waiohuli but bigger • Department of Health Certified • Space for Fundraisers • Vendors to make food then distribute (ie. pick up & drive-ins) • Connection to electricity with backup power • Resilience Hub “off grid” • Self sustainable, long term generational	• Community Stakeholders • Product Innovators • Fundraisers (Athletics) • Community with Animals (Harvest)

Program DNA

Meeting Programmatic Needs

Program	Needs & Requirements	User Type
2 *Kūpuna* Care (Adult Day Care)	• Enclosed primarily, suitable for eating & care • *Alu* programmed activities can happen outdoor • Accessible bathrooms & facilities • Leasable for activities • *Kūpuna* Care space - health focused, *Hui Mālama* • *Kūpuna* Activity Center - *hula, lei* making, *‘ukulele* • Modular Planning for phasing • *Kūlana ‘Ōiwi*	• Community Stakeholders • *Kūpuna* Community • Hawaiian Home Lands (Partner)

Program DNA

Meeting Programmatic Needs

Program	Needs & Requirements	User Type
3 Land Clearing Machinery	• Warehouse for storing (barn) • Not too dusty • Equipment for Community to rent out • Ag-*ʻāina* supported services • Easy access to lessees - for maintenance and operational purposes • Place to gather services and provide training	• Community Stakeholders • Community Lessees

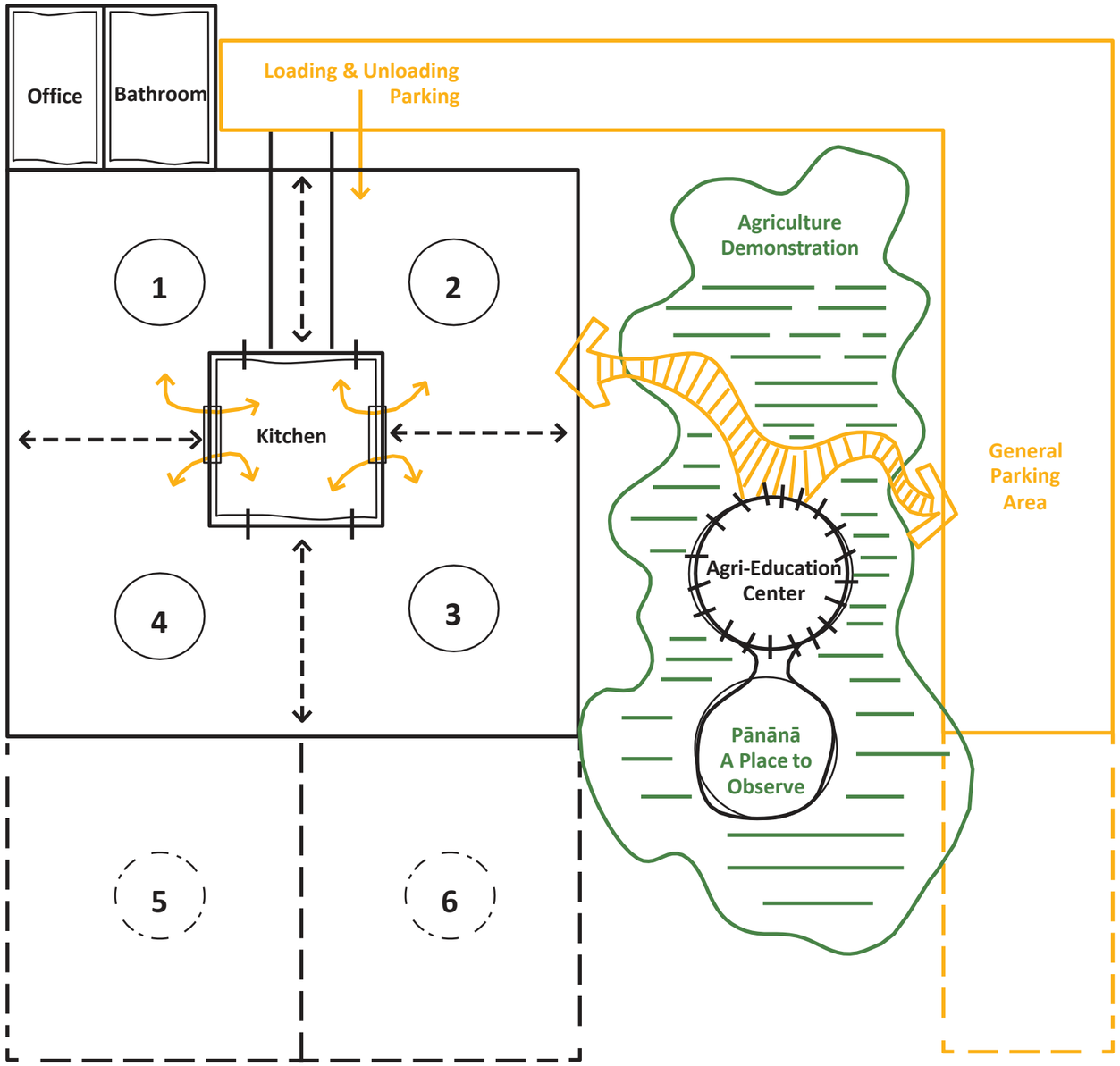
Program DNA

Meeting Programmatic Needs

Program	Needs & Requirements	User Type
4 Agri-Educational (Grow more Products)	• Site & place-specific crops as mother-crops for community • Use crops to teach/educate, test methods • Encourage specialty crops that can be cultivated • Forestry ecosystem • Polyforest system - map out & plan what we grow, plants that nurture plants (water needs & types) • Pavilion by farm to teach and gather • Biochar Facility - energy as a bi-product from farm (ie. Albizia)	• Community Stakeholders • Community Lessees • Community Educators

Phase 1

Preliminary Spatial Diagram



- Certified Kitchen
- Open Area - multiuse (ie. Place of Worship, Farmer's Market, Eatery, Kupuna Gathering)
- Two or more areas that can be combined or separated
- Open Pavilion with walls for wind resistance (150 ppl max)
- Office with lock & storage files
- Bathrooms (min. 3 male/3 female/1 ADA)
- No air-conditioning
- Sliding walls to separate multiple uses
- Low maintenance & resilient

3

DEMOGRAPHICS

User Profiles

User Journey Mapping

Partners & Stakeholders

User Profile

User	Need	Happiness
1 Hui Mālama	• Commercial mercantile space • Anchor tenants & Sub-lessees • Meeting venue, town hall meetings, workshops • Provide educational resources, sponsorships	• Grant money being used well • Programs are effective • Healthy community
2 Office of Hawaiian Affairs		
3 Kamehameha School		
4 Queen Lili‘uokalani Trust		
5 Department of Hawaiian Home Lands		
6 ‘Āina Mauna		
7 Keaukaha Homestead Association		
8 Pana‘ewa Residential Community		
9 All of East Hawai‘i Homestead Association		
10 Department of Land and Natural Resources		
11 Politicians (ie. Kai Kahele, Congress, State Admin, New Mayor, Council Members)		

Residents & Visitors

User Profile

User	Needs	Happiness
12 **Farmers** (Not all are in Association)	• Resource facility, seller of product, value-added product in kitchen • Teaching as education • Co-op to provide manpower & equipment • Workshops to enhance products • Mobilize effectively to threats to community	• Interact with others, Sell product • Proximity to farmer, connected to community • Income, access to equipment & means • Risk is shared, community can thrive • Access to info & education - technology/ innovation • Hard-work as example that island can sustain on people's food needs, so more land can be acquired instead of being converted to other uses
13 **Members of Association who are on Ag Lands** (Not all lessees are living on their Farms)	• "If they can grow, I can grow too" • *Ohana* gatherings, activities	• Able to extend "passing on" of what we have to the next generation, seeing the property = **PRIDE** -> Hawaiian owned & built • Sense of **care & responsibility** -> how special it is
14 **Pana'ewa Residential Homesteaders** (Not on Ag Lands)	• They benefit - two different associations, but all know each other • Participate in activities here (hula, classes, cultural, involvement)	• To be involved in this place = **INCLUSION** -> talk story, come & connect • Benefit whole *Ohana* • *Ohana* culture, family
15 **Visitor** (Day, transient)	• Farm education • Volun-tourism -> help on the site • "Make and take" • *'Aina Aloha* concepts	• Directly talking to Farmers • Meet real Hawaiians to talk story with, getting education "Hang with a Hawaiian" • Chance to experience "hands in earth"

Residents & Visitors

User Profile

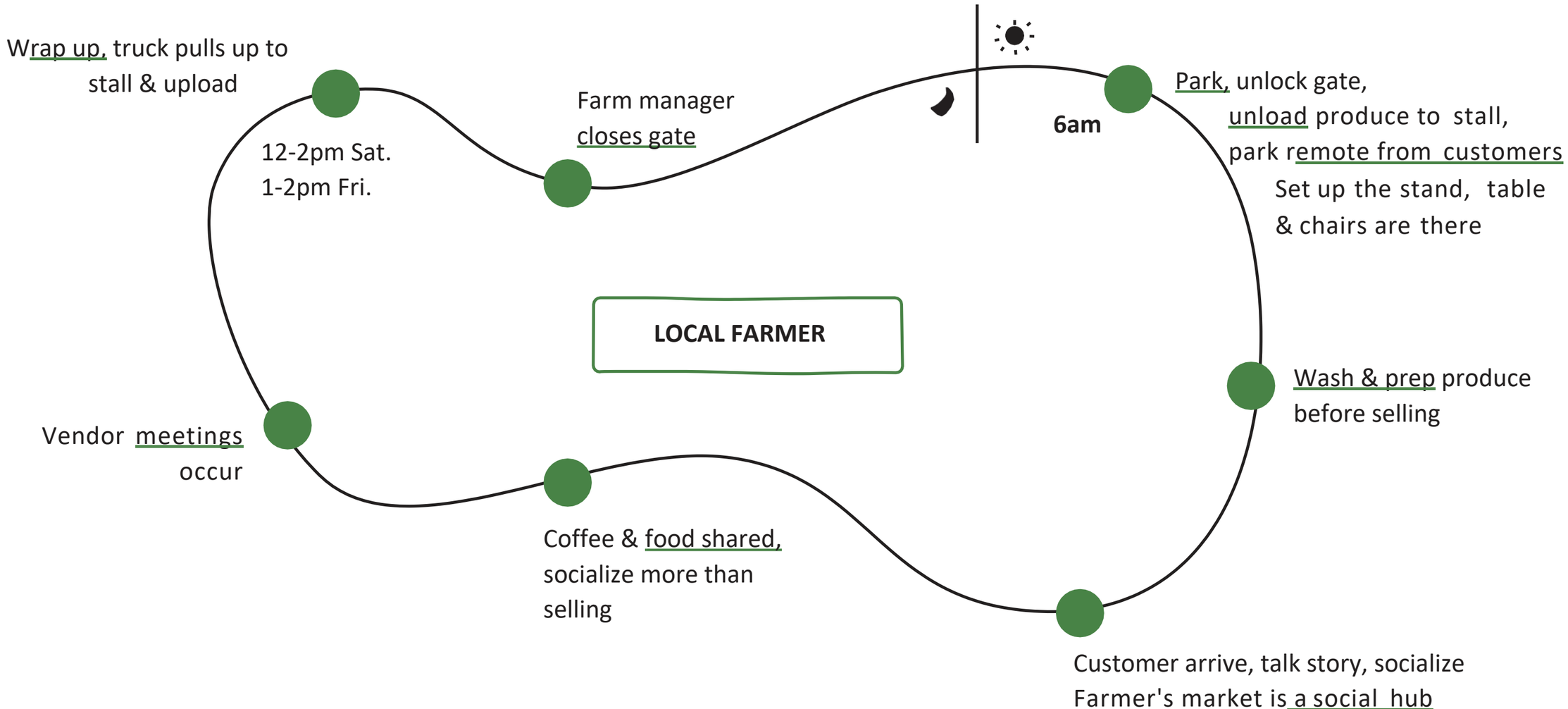
User	Needs	Happiness
16 **Local Resident** (Hawai‘i Island)	• Hydroponics classes, workshop, fee for service • Invited to *Ohana* gatherings	• Learning, engaging with homestead Hawaiians • Find the farmer who shares the story of the food -> **PRIDE** • Intertwining with others in the community to gather
17 **Kupuna**	• Socialize, meet friends, talk story	• To pass knowledge, not forgotten, be valued, wear new mu‘u mu‘u, to see & be seen • To be familiar with, around people they know, routine, comfortable • Safety aspect, have needs recognized
18 **Keiki & Teen Adults**	• Plan, run, youth educational programs, Kilo, Agri-forestry, Farmers educational programs • Different “zones” in space to explore (learning zones, seed bank creation, ulu, kalo) • Scaffolding from adults to *keiki* • Musical Groups, activities, volunteering opportunities, meet organizations through programming	• Able to help, run & play, learning activities & growing • Engage, walk around • New & different things • Watch it grow, mature it this is “MY PLACE” -> generational legacy, connection between generations • Belonging to something • Refuge, safe place

Residents & Visitors

User Profile

User	Needs	Happiness
19 **Cultural Practitioner**	• *Lā‘au Lapa‘au, Ho‘oponopono, Hui Mālama, Olina* • Under guidance of Kūpuna Council, Papa Aukahi • Solstices, Equinox, *Makahiki* -> utilize the site for cultural practice (*Ahu*), traditional food preparation techniques, *Mahi‘ai* -> Moon phases, seasons	• Being able to share, transmit knowledge, being able to practice, passing to generations, excitement to see people learning • Grateful to learn & teach people
20 **Staff**	• Care for facility, maintain, represent	• Opportunity to get paid for a job • From homestead community, proximity to work & community is close • Provide resources to neighbors -> bringing value to my own community
21 **Homeless, vets, ex-prison, vulnerable**	• Health & wellness	• Programs give opportunity

User Journey Mapping



4

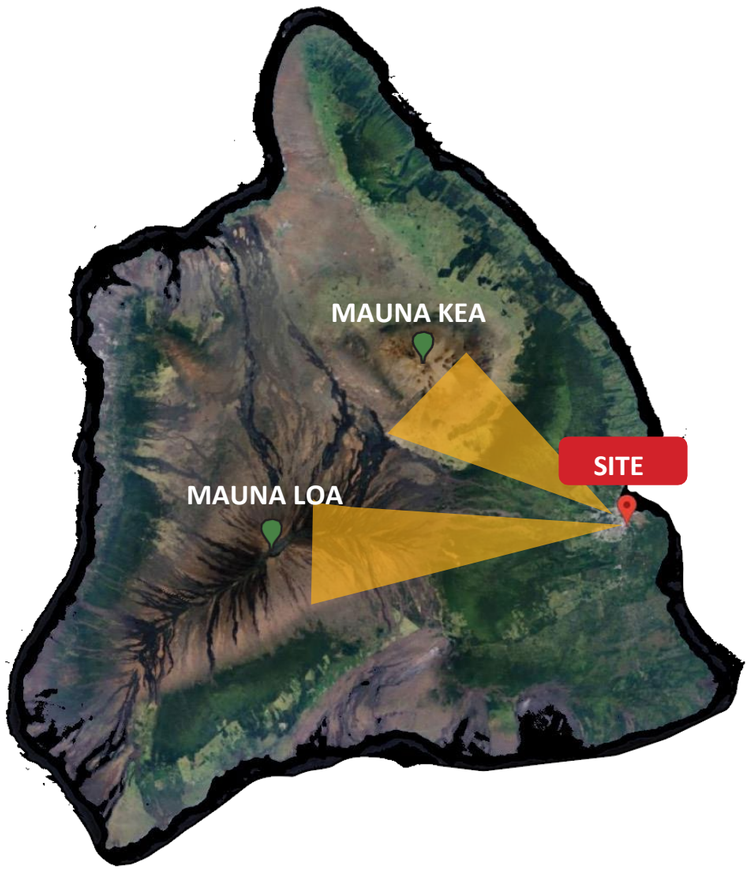
CONCEPT

Design DNA

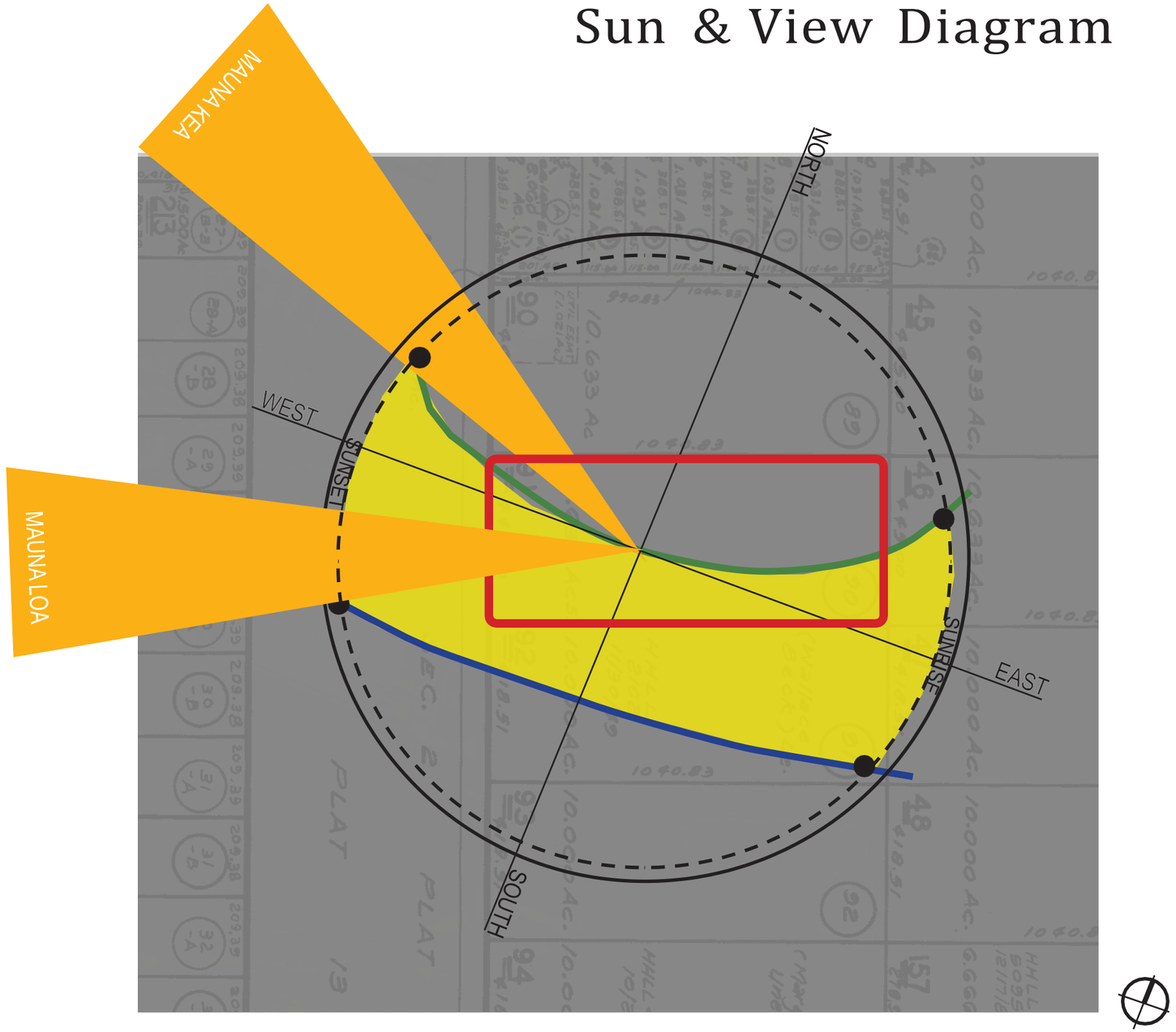
Preliminary Masterplan

Material & Massing Study

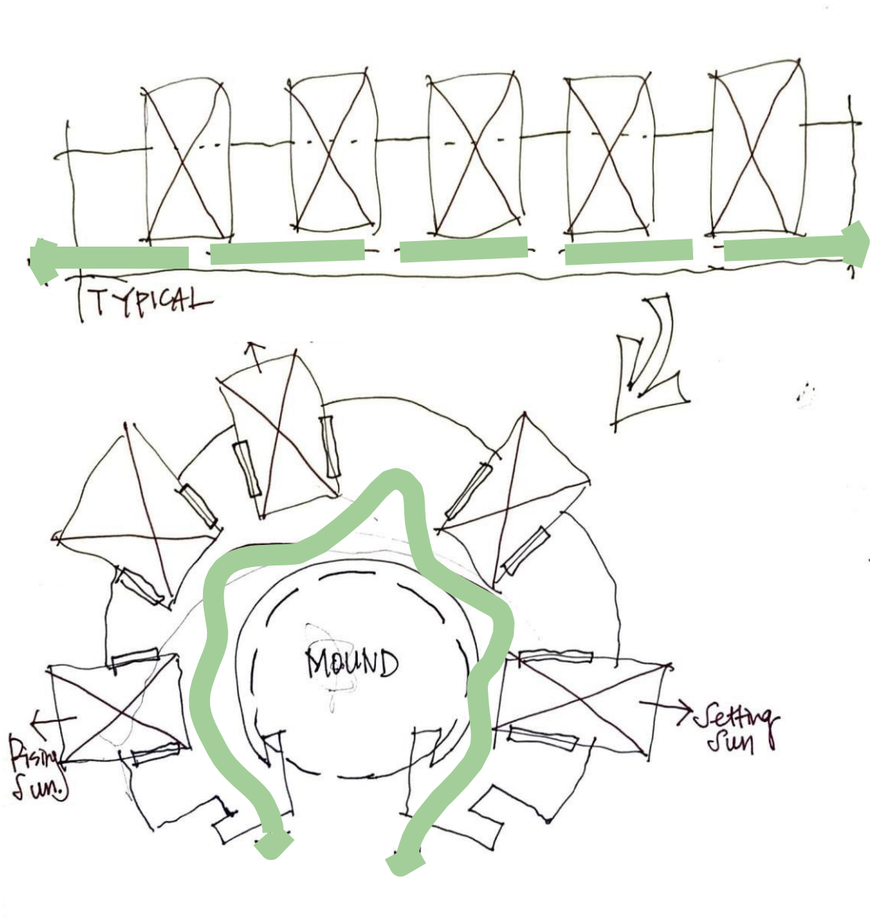
Sun & View Diagram



Island of Hawai'i



Site
Summer Solstice Sun Path
Winter Solstice Sun Path



Design DNA

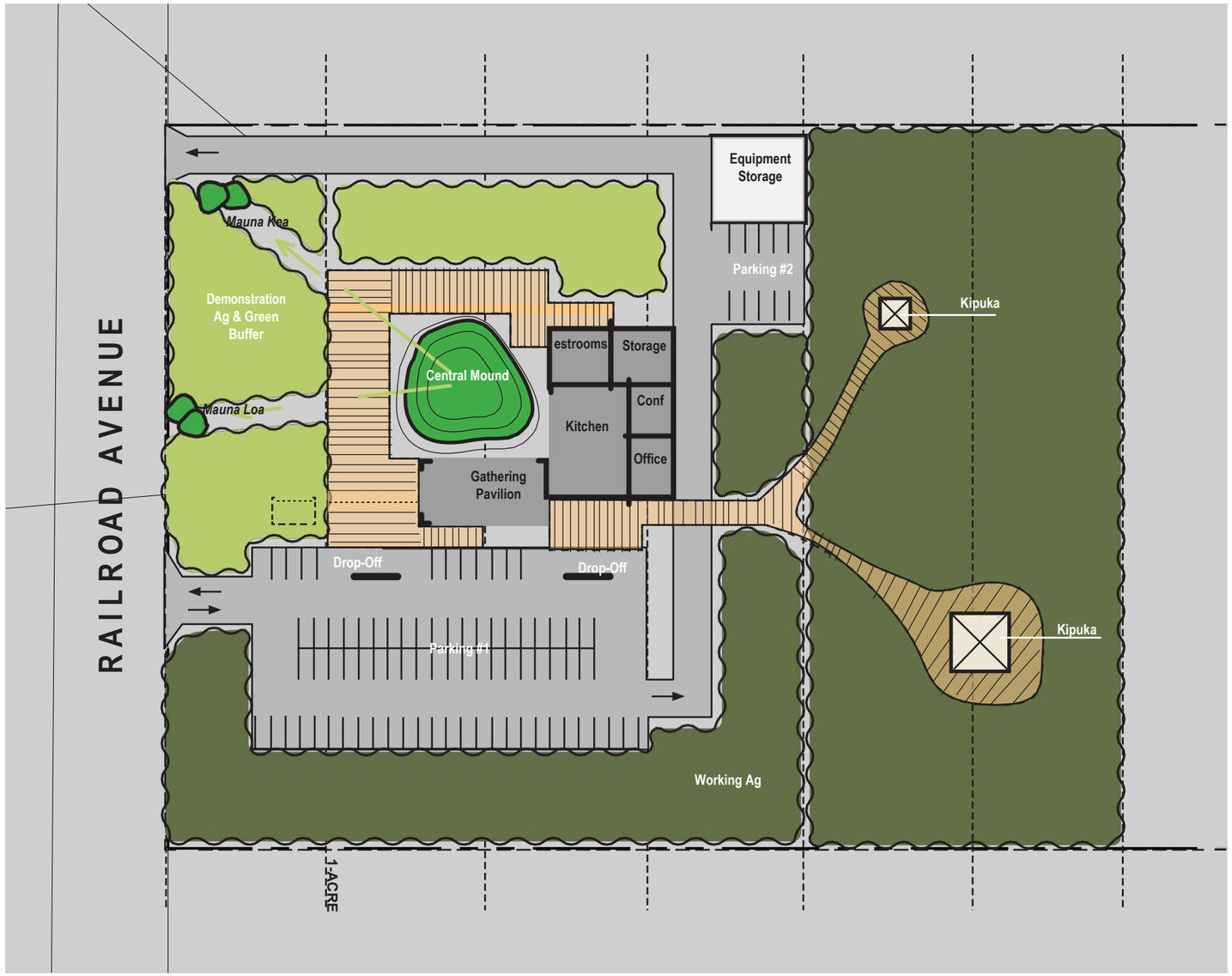
We present and embrace the spirit of the community coming together through Resiliency & Agricultural Innovation.

This is a place that represents shelter and the unique feeling of being safe, a **RESILIENCY HUB** that serves the community with protection and provision when they are in need.

A **CENTRAL MOUND** creates a communal space, further expressing the feeling of being protected. This open, yet secluded space, can house small to large group activities and performances.

In extension to the Central Mound, is the **LUMI** (pavilion). Depending on their use, each Lumi can grow and be flexible using sliding walls and screens.

Layering in a shared, **LIFTED LANAI**, spaces stay cooler and the ground underneath help with rain and water mitigation.



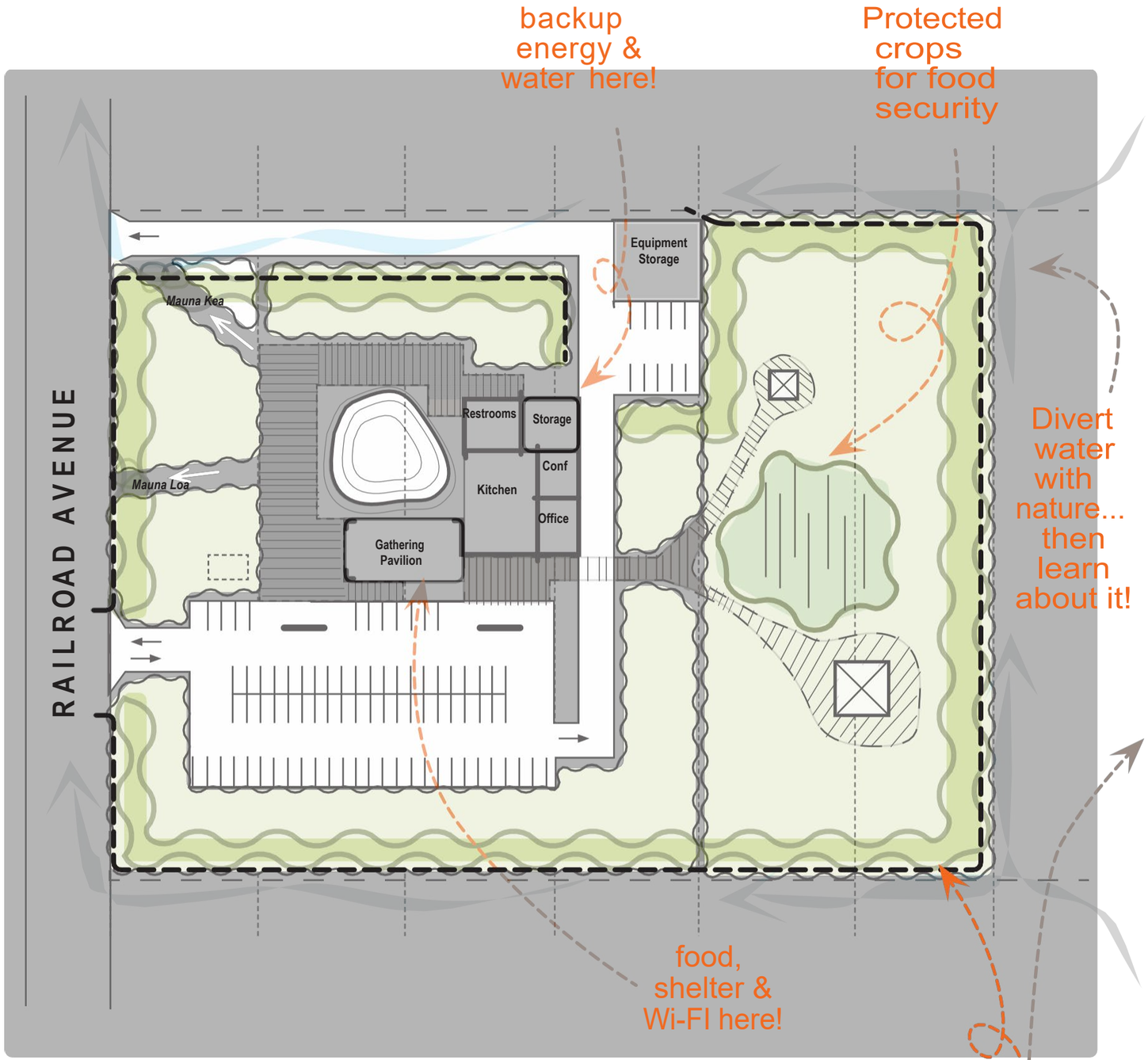
Design DNA Diagrams

RESILIENCY HUB

CENTRAL MOUND

LUMI

LIFTED LANAI



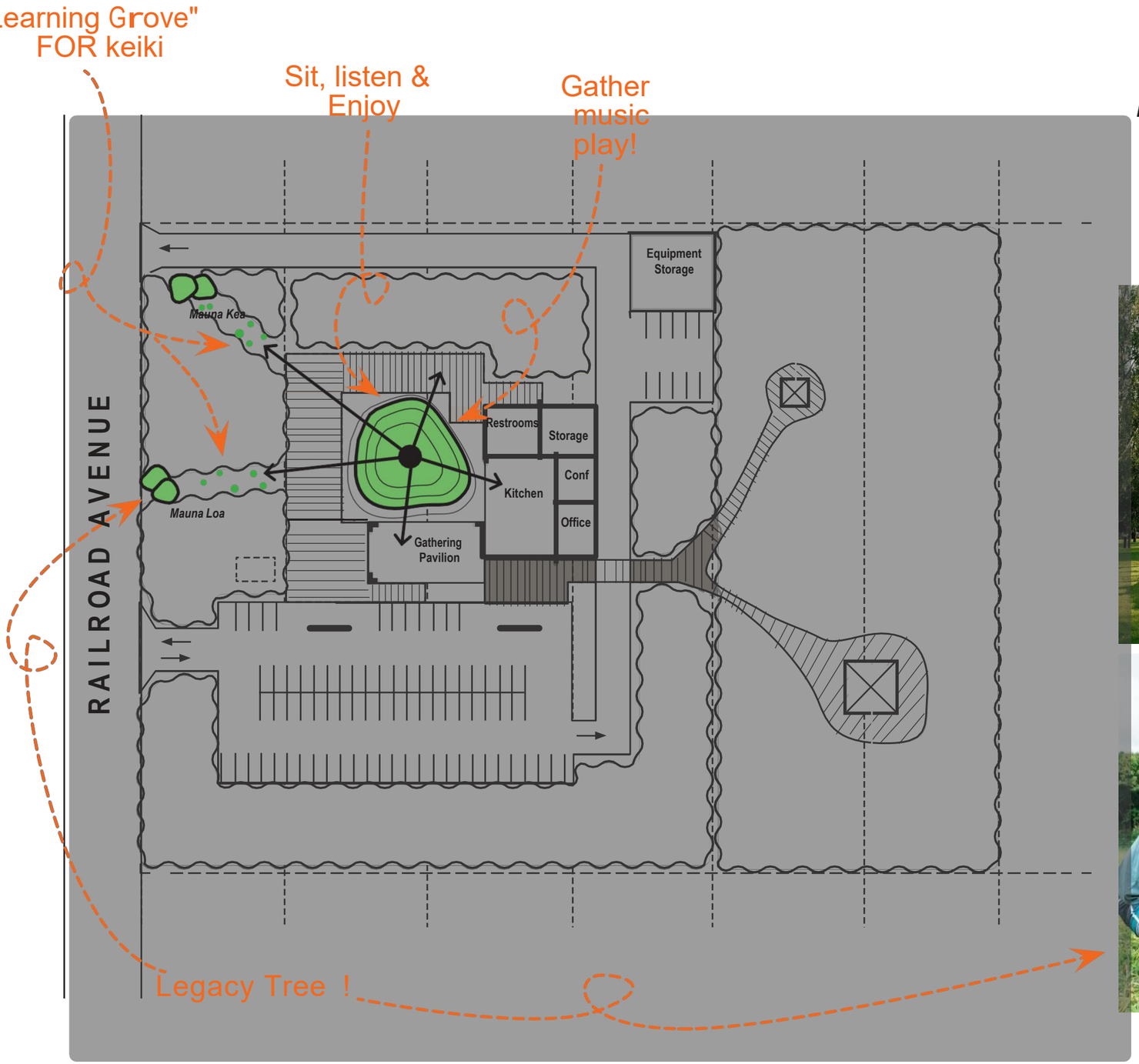
Design DNA

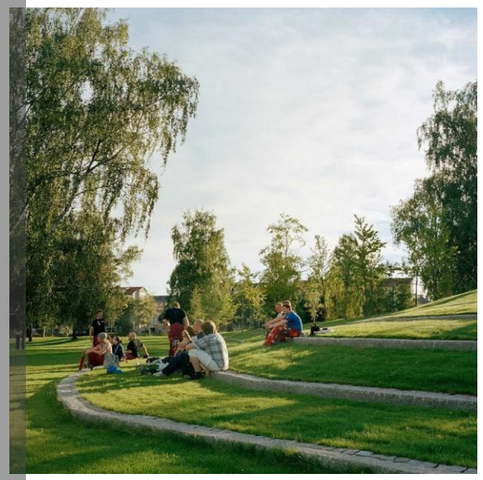
RESILIENCY HUB

As a resilient strategy from hurricanes, flooding and other natural disasters, the site focuses on nature-based solutions that help mitigate wind and water. As a result, the LUMI pavilions remain as a safe and protected resource center throughout all seasons.

CENTRAL MOUND

A central location for demonstration activities such as *Hula, Kilo Hōkū, Kilo Honua, Lāʻau Lapaʻau* (native plants), and *Hoʻokani Pila* (music) - an open space for amphitheater and stepped seating. Open view towards Mauna Kea and Mauna Loa.





Design DNA

LUMI

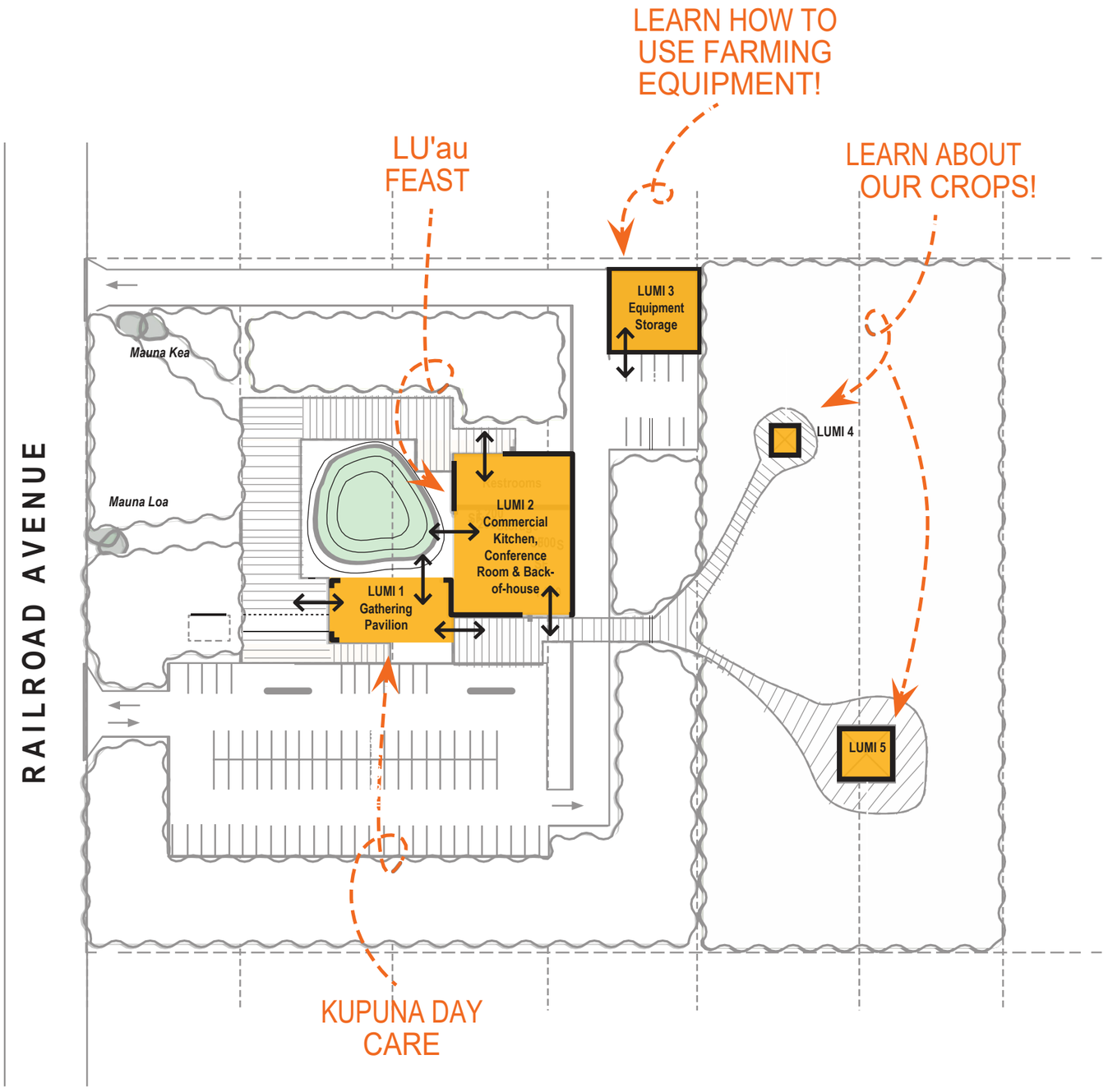
Modular or *Lumi* pavilions

LUMI 1: *Kūpuna/Keiki* engagement activities, *'Ohana* gatherings, farmer's workshops (ie. Indigenous Agro-forestry, projector & screen)

LUMI 2: Commercial Certified Kitchen, Restrooms, Storage, Office, Conference Rooms

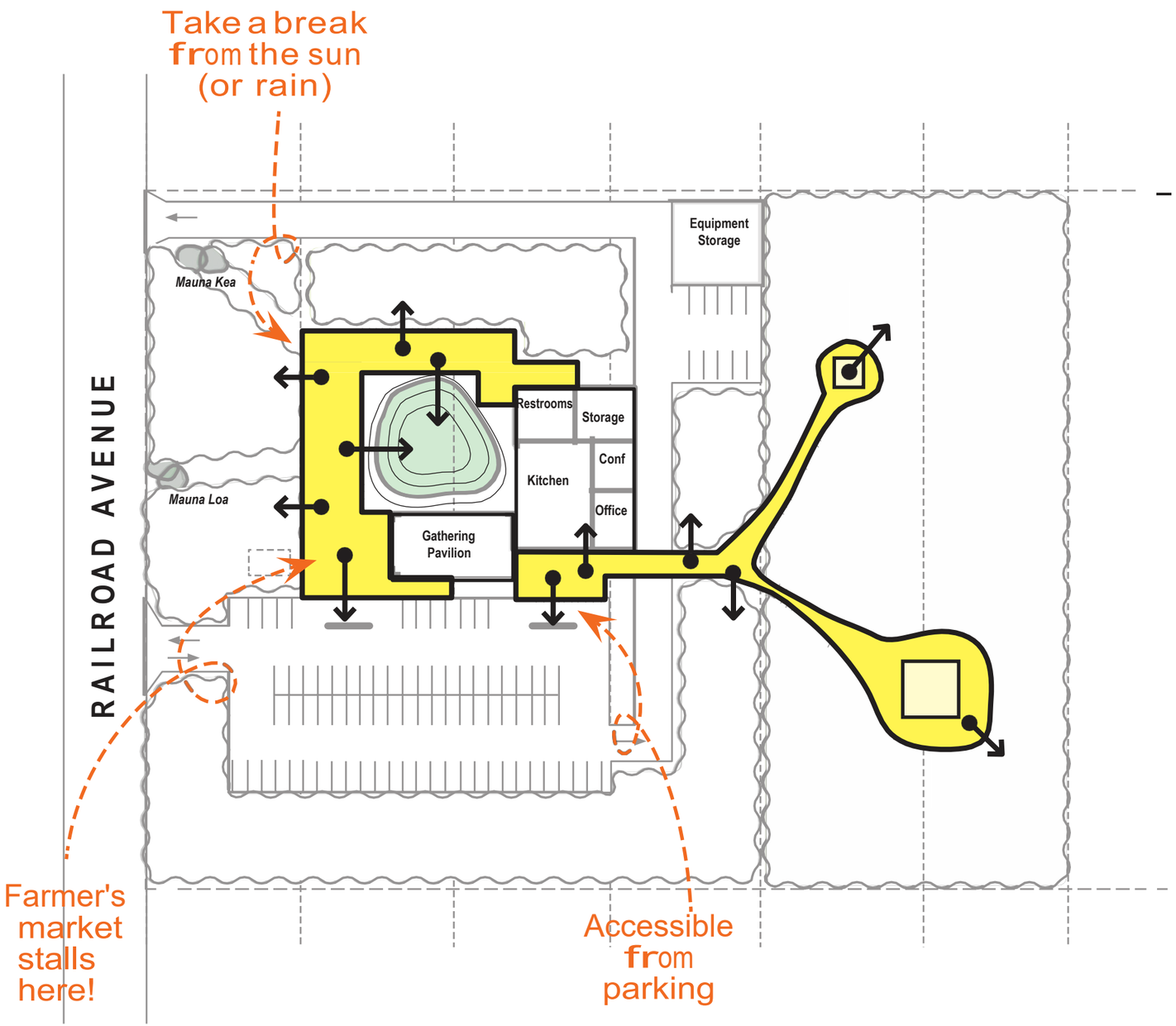
LUMI 3: Equipment Storage & Warehouse

LUMI 4 & 5: Spaces for educators to host *Kilo* and Ag programs.



LIFTED LANAI

A protected indoor-outdoor deck that connects all the *Lumi* pavilions together, providing additional spaces that can be used during private and public events. The *lanai* ensures ease for *Kūpuna* to find their way to their next class.



KEAUKAHA PANA‘EWA FARMERS ASSOCIATION

Preliminary Masterplan

MAKA'ALA ST

RAILROAD AVENUE

OVERFLOW PARKING #2

EQUIPMENT STORAGE
2200 SF

EQUIPMENT STORAGE
835 SF

SHARED LANAI
700 SF

PARKING #2

OPEN PAVILION
400 SF

MAUNA KEA

DEMONSTRATION AG

MAUNALOA

CENTRAL MOUND
700 SF

LANAI
8000 SF

IMU
1300 SF

RESTROOM& SHOWERS
1160 SF

STORAGE
1110 SF

CONFERENCE, CLASSROOM & STORAGE
835 SF

OUTDOOR PREP
990 SF

KITCHEN
1960 SF

FRONTLANAI
500 SF

OFFICE
950 SF

GATHERINGPAVILION
2570 SF

OUTDOOR PREP
680 SF

HYDROPONICS

STORAGE

BACKLANAI
500 SF

LANAI
1300 SF

WORKING AG

DROP-OFF (A)

DROP-OFF(B)

REFUSE & RECYCLING AREA

PARKING #1

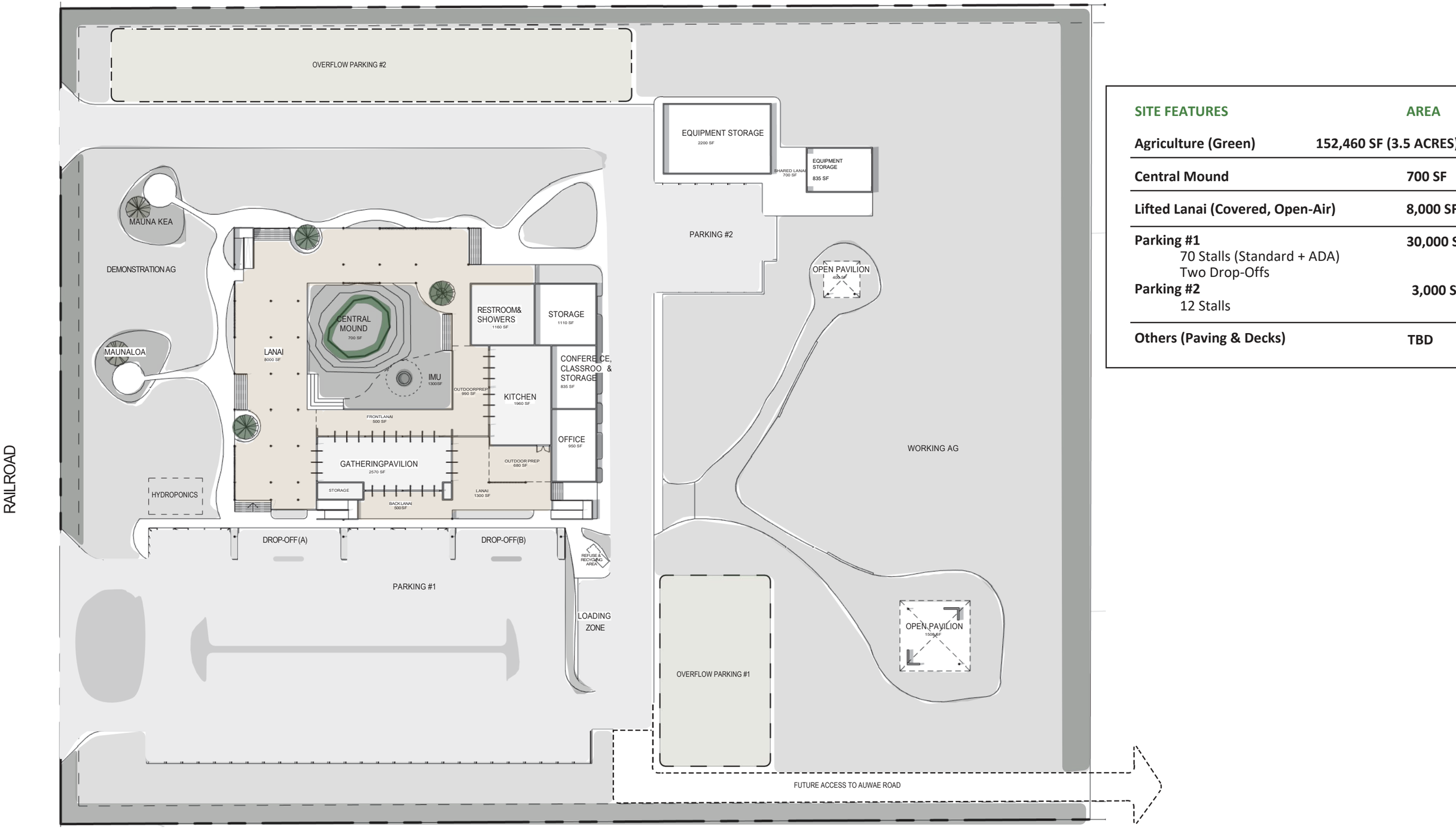
LOADING ZONE

OVERFLOW PARKING #1

OPEN PAVILION
1500 SF

FUTURE ACCESS TO AUWAE ROAD

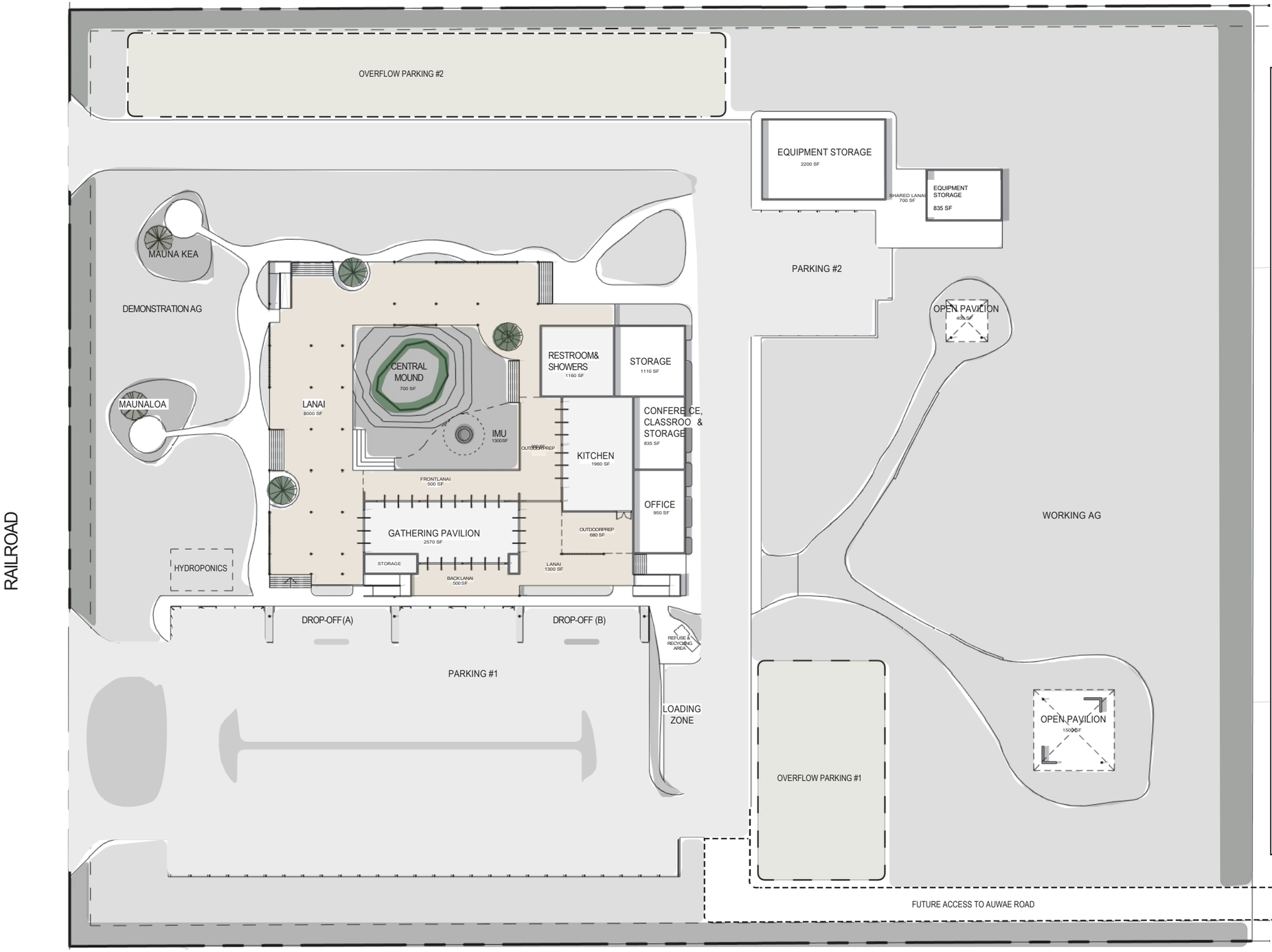
50' 25' 0' 50' 100'



SITE FEATURES	AREA
Agriculture (Green)	**152,460 SF (3.5 ACRES)**
Central Mound	**700 SF**
Lifted Lanai (Covered, Open-Air)	**8,000 SF**
Parking #1 70 Stalls (Standard + ADA) Two Drop-Offs	**30,000 SF**
Parking #2 12 Stalls	**3,000 SF**
Others (Paving & Decks)	**TBD**

50' 25' 0' 50' 100'

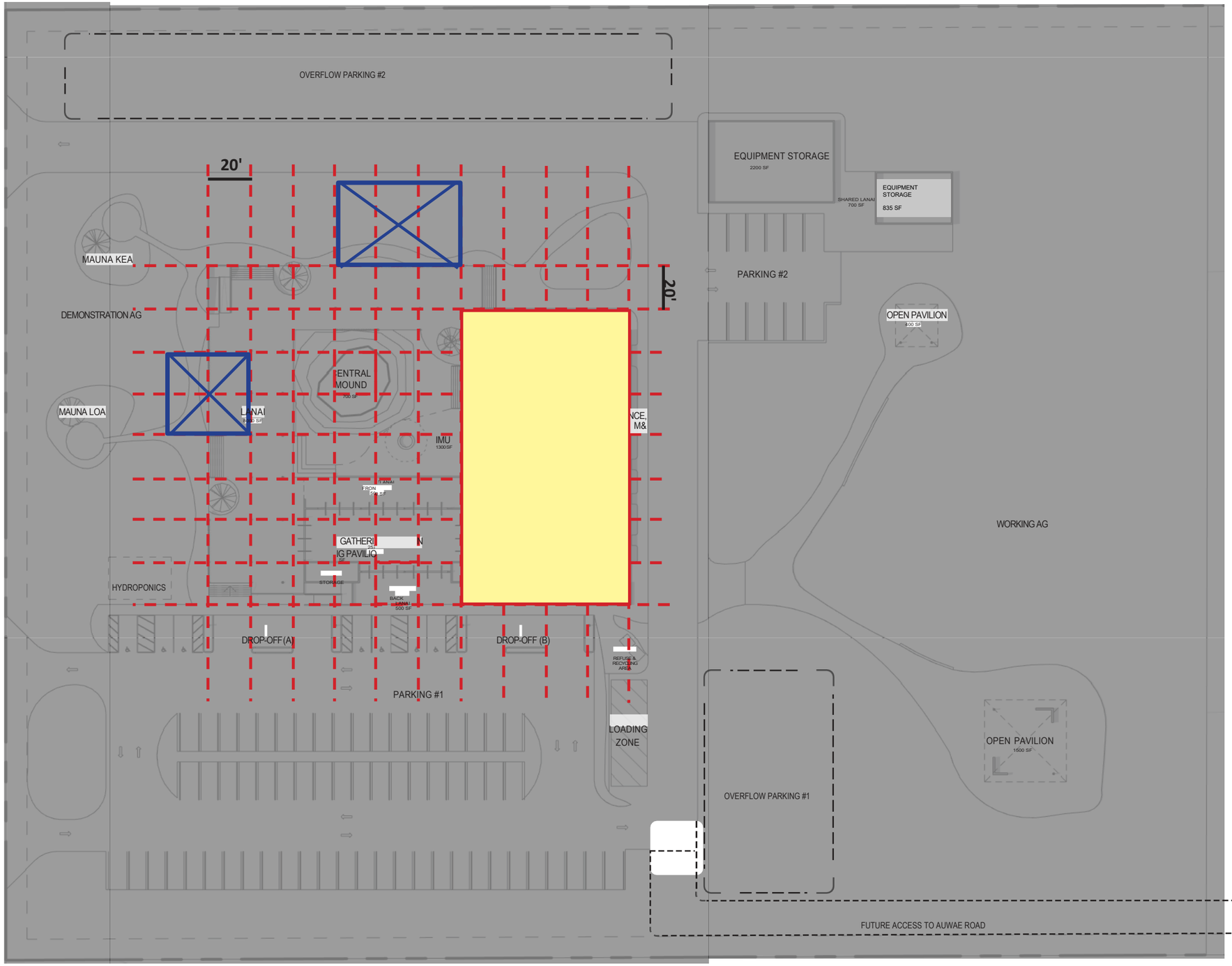
Masterplan Site Features

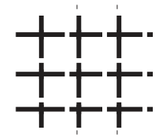


PROGRAM	AREA
Gathering Pavilion	**2,570 SF**
Front Lanai	**500 SF**
Back Lanai	**500 SF**
250 ppl max	**3,570 SF**
Commercial Certified Kitchen	**1,960 SF**
Outdoor Prep	**1,670 SF**
Process & Store/Refrigeration	
Vendor Stations	
Emergency Food Storage	
Backup Power Storage	
	3,630 SF
Imu Facility (Outdoor)	**1,300 SF**
Restrooms & Showers	**1,160 SF**
Male - Min. 3 stalls	
Female - Min. 3 stalls	
ADA - Min. 1 stall	
Office	**950 SF**
Storage Files	
Conference Room	**835 SF**
Classrooms & Storage	
Storage (Energy & Water storage)	**1,110 SF**
Equipment Storage/Warehouse	**2,200 SF**
Equipment Storage	**835 SF**
Open (Kipuka) Pavilions	**1,900 SF**
Community Use	
Educational Use	
Total =	**17,490 SF**

50' 25' 0' 50' 100'

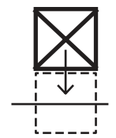
Masterplan Program





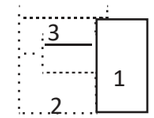
Structural & Modular Grid

The hub is laid out on a structural grid of 20' intervals. This grid can be further broken down into 10' or less intervals, giving flexibility to the configuration of the structural bays.



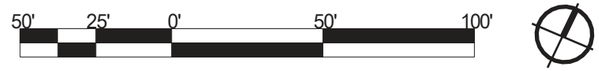
Plug in & out

The advantage of building a modular system for both the Pavilions and Lanai, is adaptability. The hub can house more program and activities by simply inserting or attaching Pavilions along the Lanai.



Planning for Phases

In addition to the ease and efficiency of building the hub, the grid also allows for multiple phases to be planned out. For example, Phase I (highlighted in yellow) could be built first, with the option to expand in the future.



Structural Grid & Phasing Strategy

Circulation Diagram

Vehicular

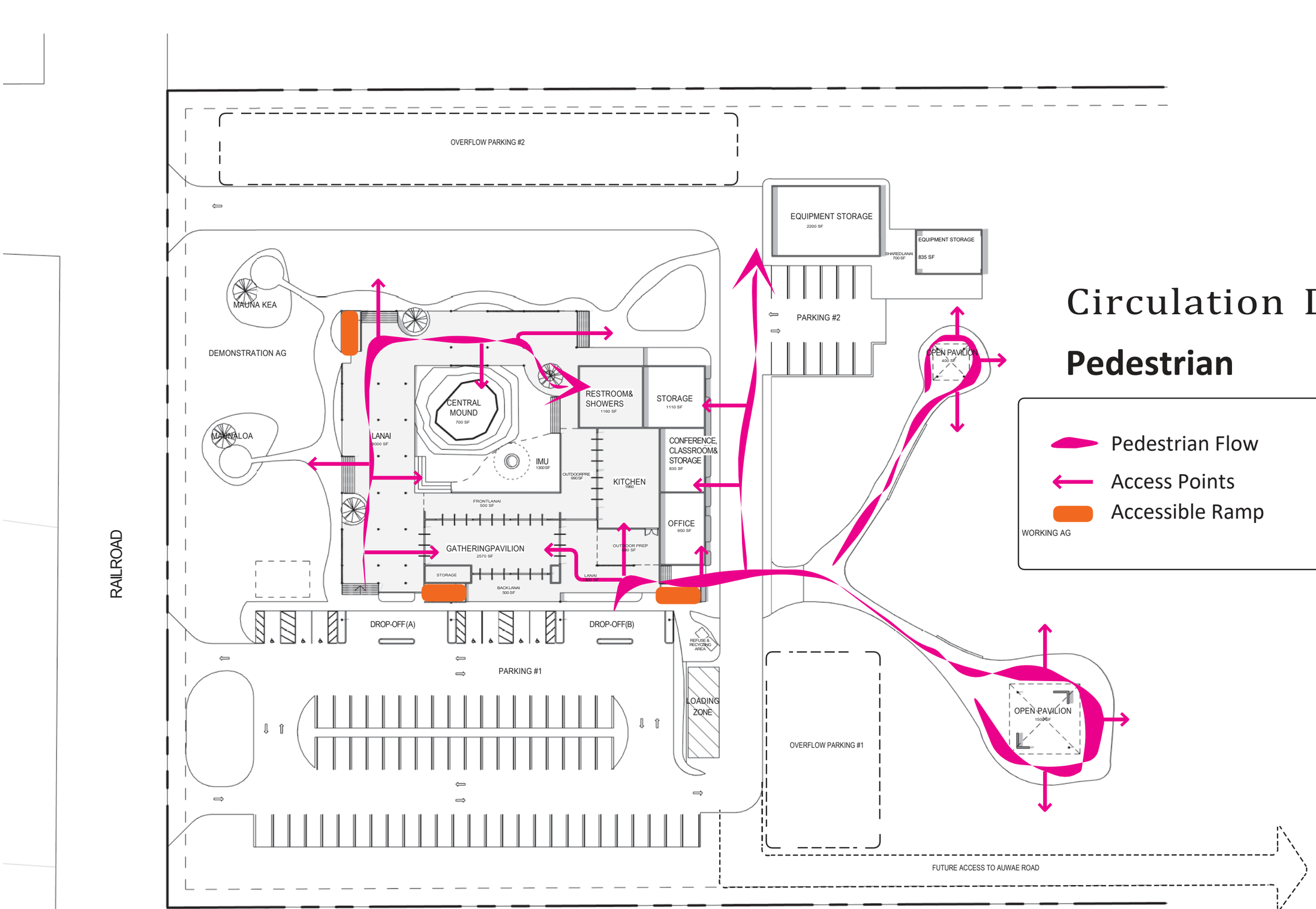
- Public Access, Parking & Drop-Off
- Access for Farmers, Employees, etc.
- Service & Refuse Access
- Area for Service, Refuse, and Drop-Off
- Accessible Parking Stalls
- Future Access to Auwae Road

OVERFLOW PARKING #2
EQUIPMENT STORAGE 2200 SF
EQUIPMENT STORAGE 835 SF
SHAREDLANAI 700 SF
PARKING #2
OPEN PAVILION 400 SF
MAUNA KEA
DEMONSTRATION AG
MAUNALOA
CENTRAL MOUND 700 SF
LANAI 8000 SF
IMU 1300 SF
OUTDOORPREP 990 SF
RESTROOM& SHOWERS 1160 SF
STORAGE 1110 SF
CONFERENCE, CLASSROOM& STORAGE 835 SF
KITCHEN 1960
OFFICE 950 SF
FRONTLANAI 500 SF
GATHERINGPAVILION 2570 SF
STORAGE
OUTDOOR PREP 680 SF
LANAI 1300 SF
BACK LANAI 500 SF
RAILROAD
DROP-OFF (A)
DROP-OFF(B)
REFUSE & RECYCLIN AREA
PARKING #1
LOADING ZONE
OVERFLOW PARKING #1
OPEN PAVILION 1500 SF
WORKING AG
FUTURE ACCESS TO AUWAE ROAD

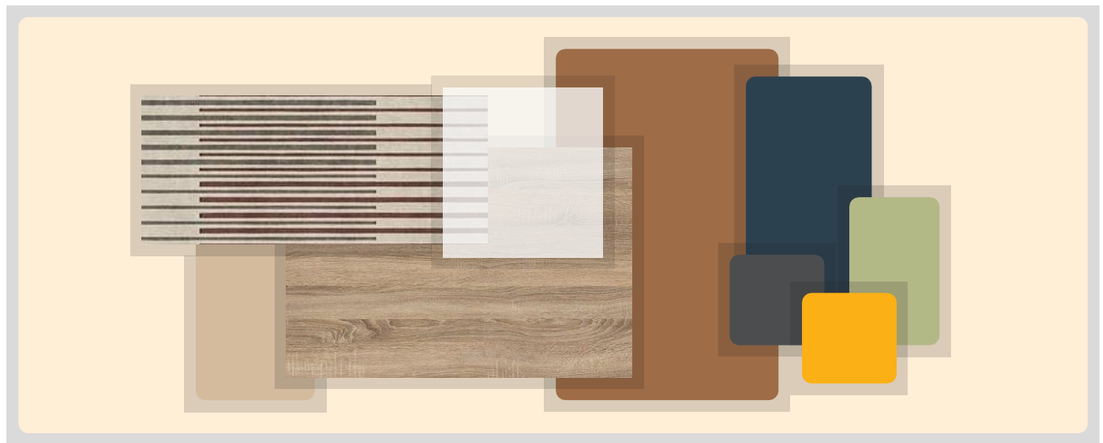
Circulation Diagram

Pedestrian

- Pedestrian Flow
- Access Points
- Accessible Ramp



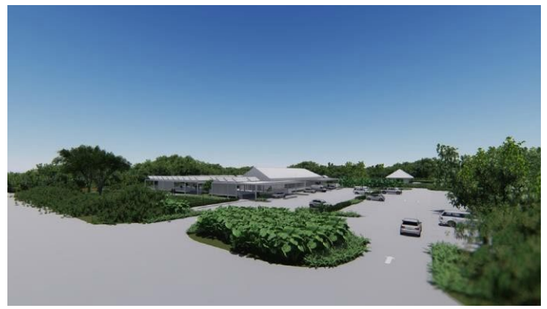
Material Palette



KEAUKAHA PANA‘EWA FARMERS ASSOCIATION

Resiliency & Agricultural Innovation Hub

3D Massing Study



1-Entry

2-Drop Off (A)

3- Drop Off (B)

4- Lifted Lanai

5-Gathering Pavilion

6-Courtyard

7-Kitchen

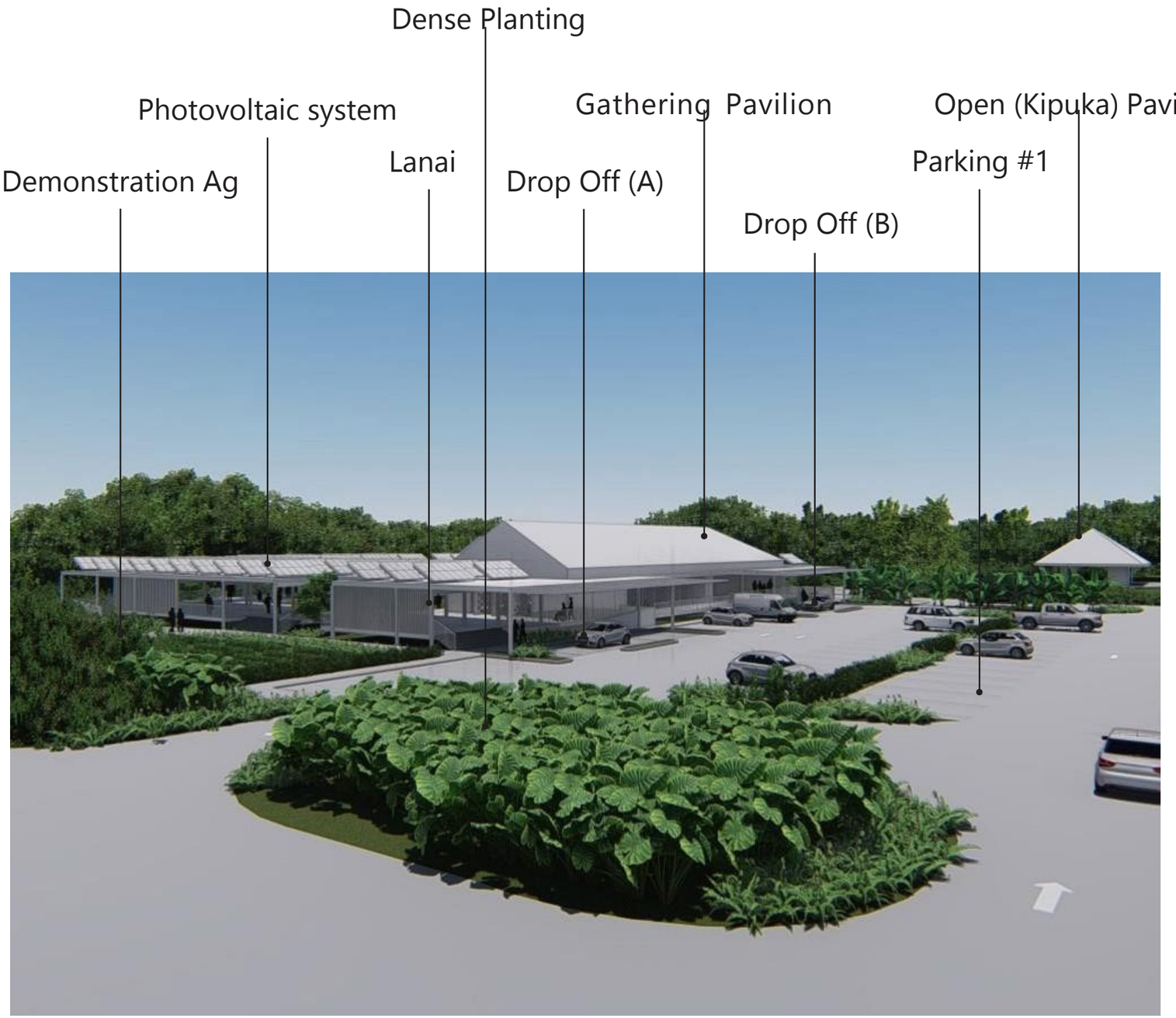
8- Ag Access

9-Equipment Warehouse

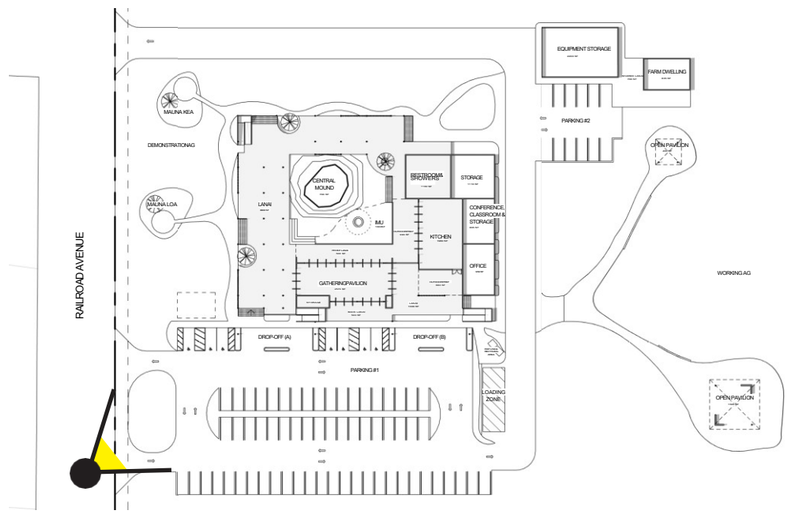
10-Ag Pavilions

1

Entry

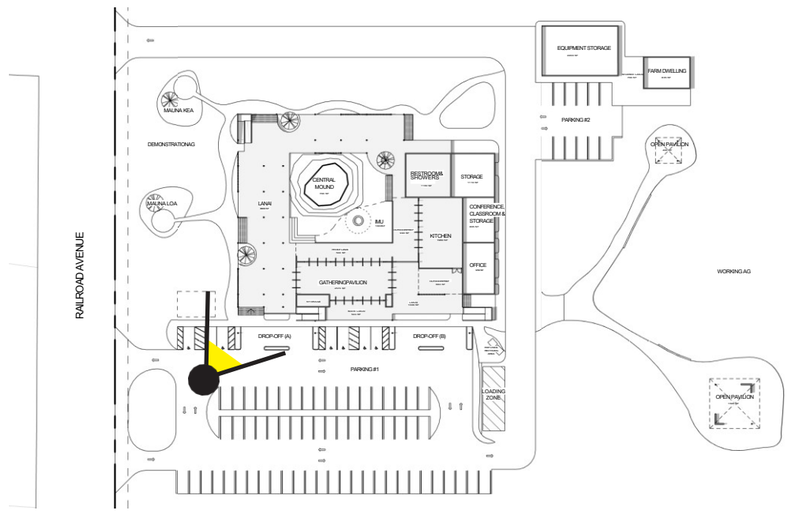

Dense Planting
Photovoltaic system
Gathering Pavilion
Open (Kipuka) Pavilion
Lanai
Parking #1
Demonstration Ag
Drop Off (A)
Drop Off (B)

Key:


EQUIPMENT STORAGE
FARM DWELLING
MAUNA KEA
PARKING #2
DEMONSTRATION AG
OPEN PAVILION
CENTRAL MOUND
RESTROOMS/ SHOWERS
STORAGE
MAUNA LOA
LAWN
IMU
CONFERENCE, CLASSROOM & STORAGE
KITCHEN
RAILROAD AVENUE
OFFICE
LANAI
WORKING AG
GATHERING PAVILION
DROP-OFF (A)
DROP-OFF (B)
PARKING #1
LOADING ZONE
OPEN PAVILION

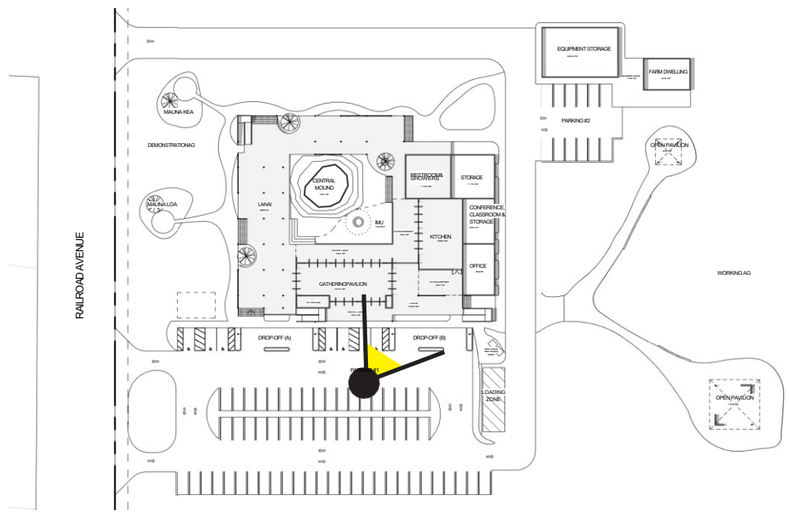
2
Drop Off (A)

Key:



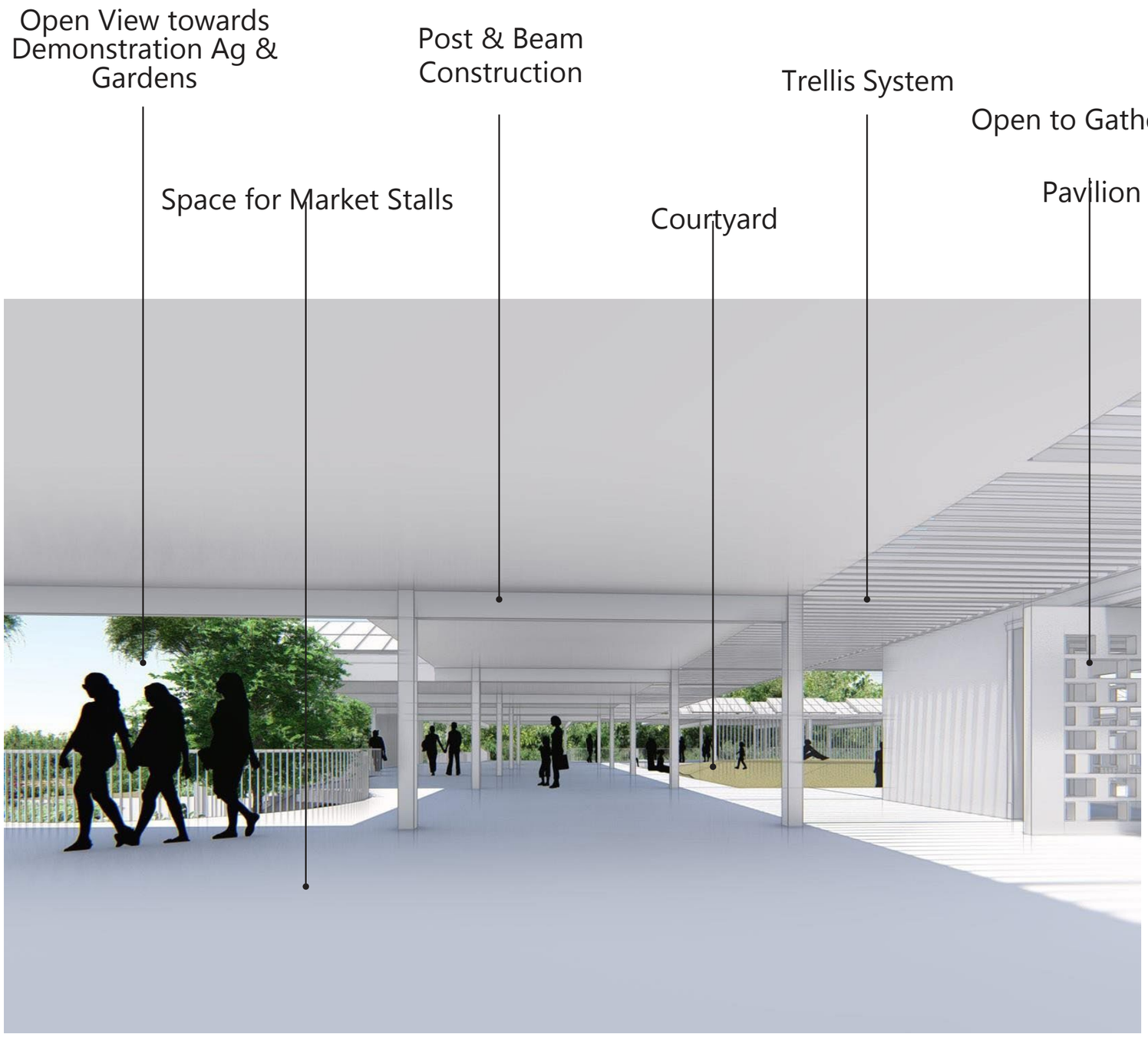
3
Drop Off (B)

Key:



4

Lifted Lanai



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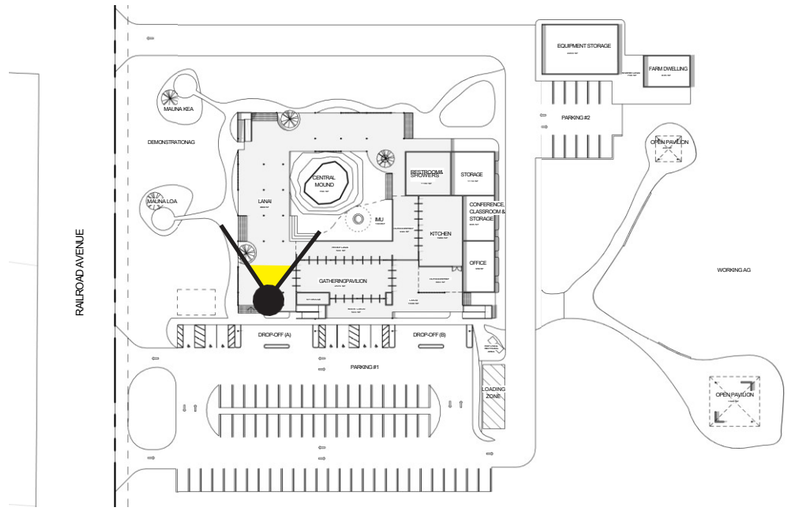
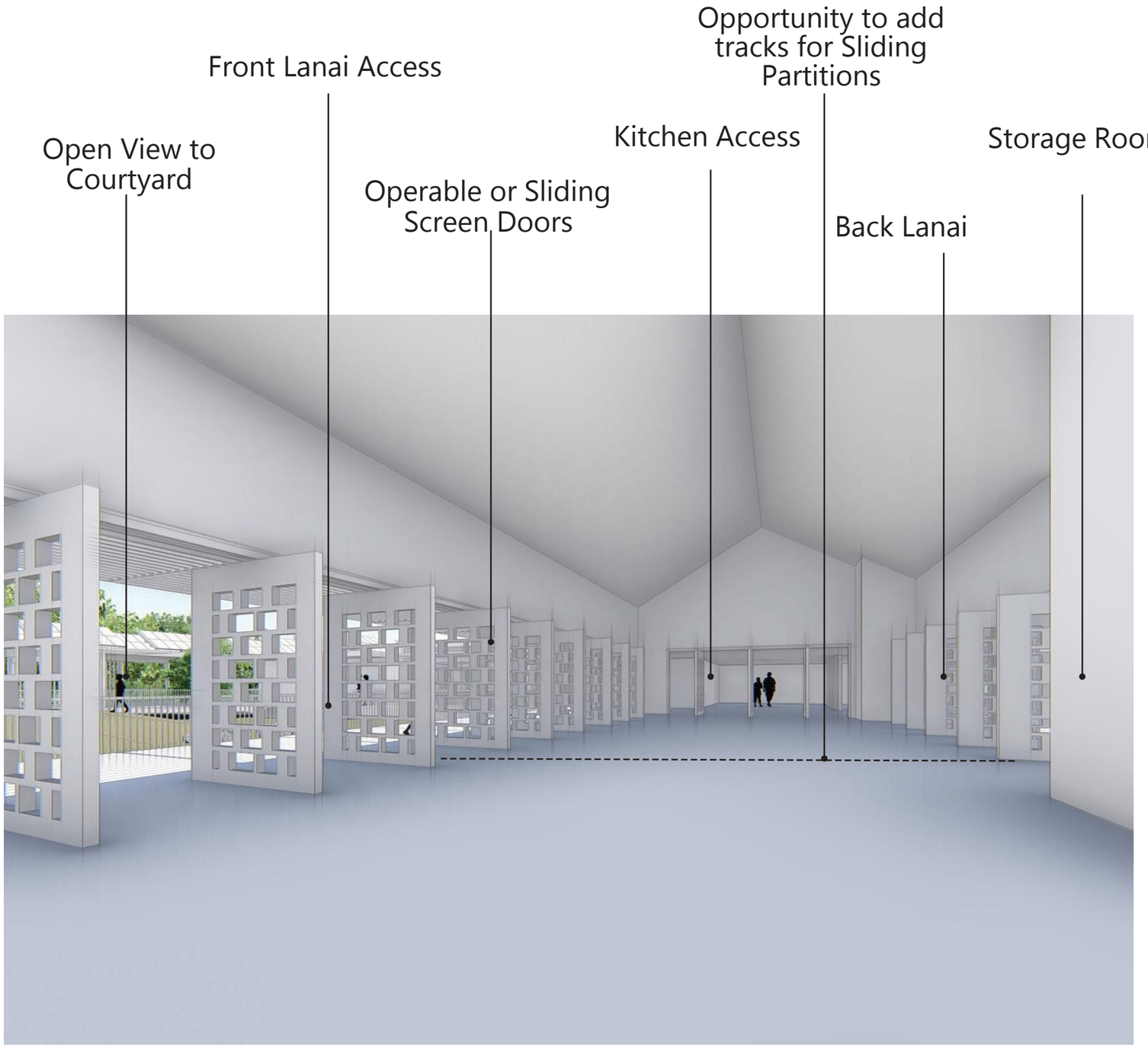


5
Gathering Pavilion



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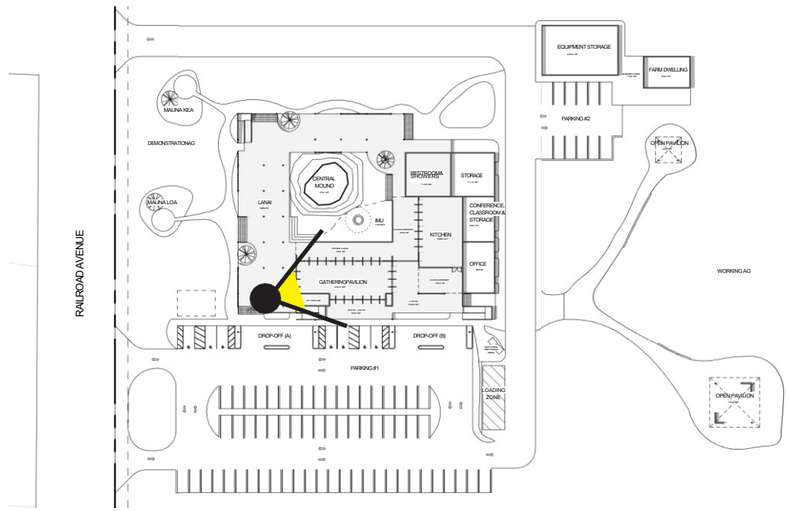
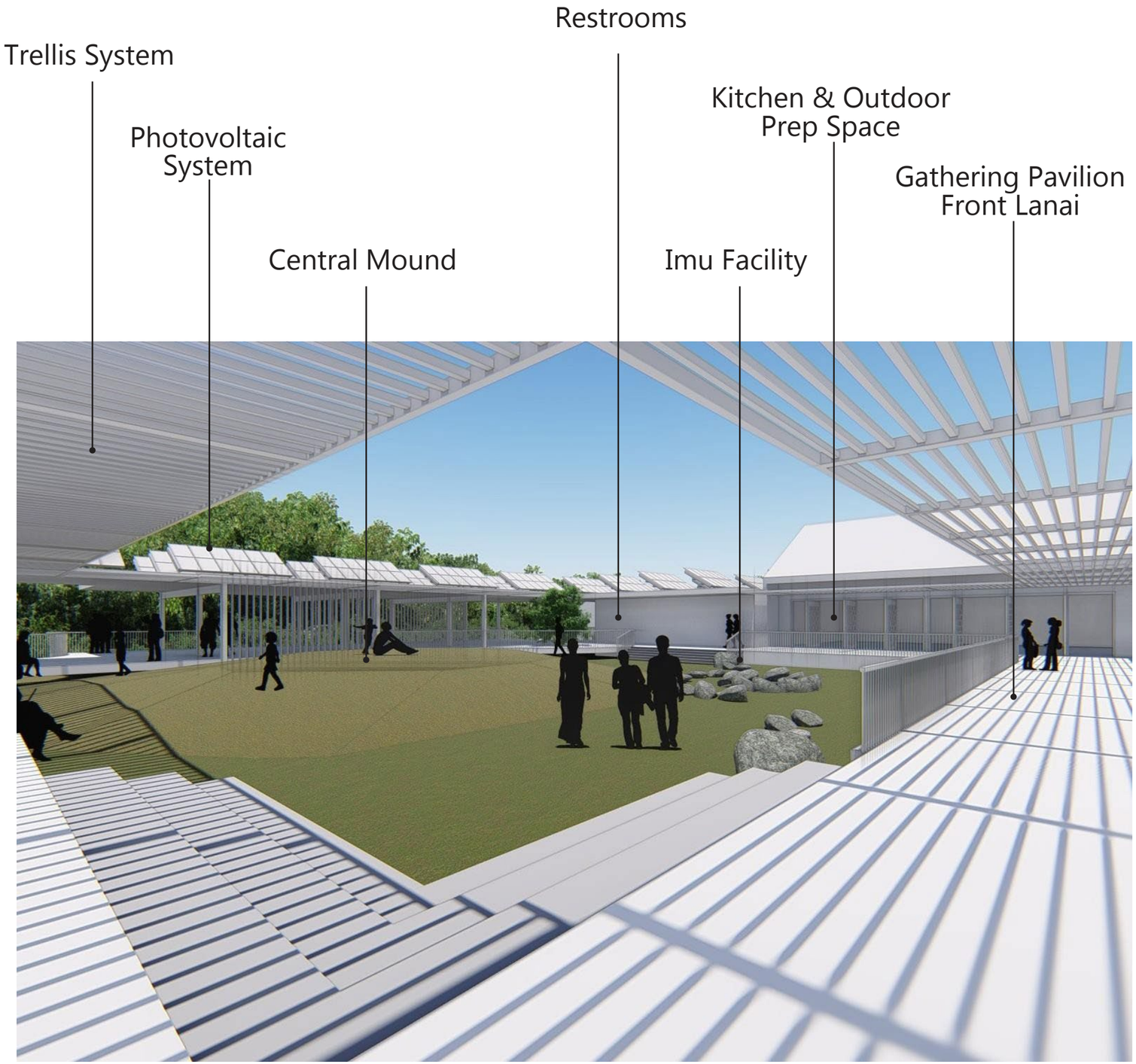


6
Courtyard



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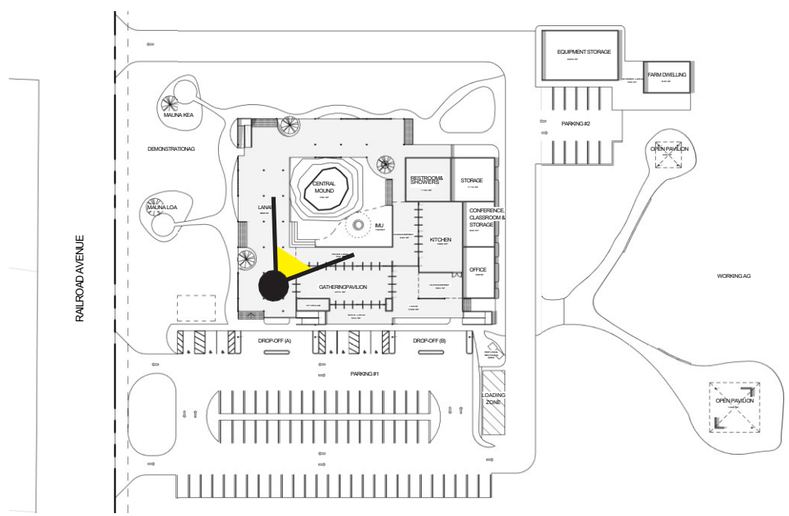
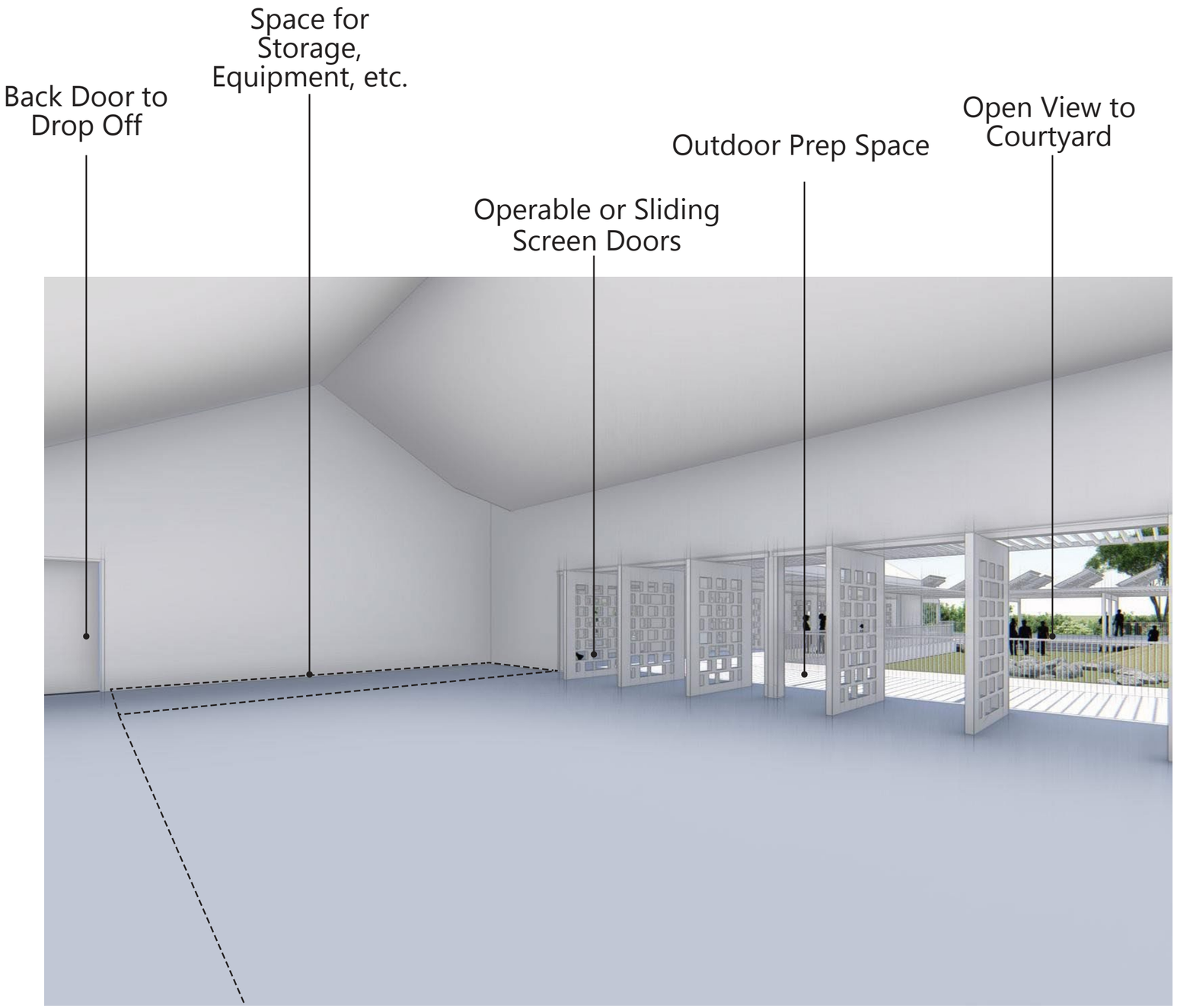


7
Commercial Kitchen



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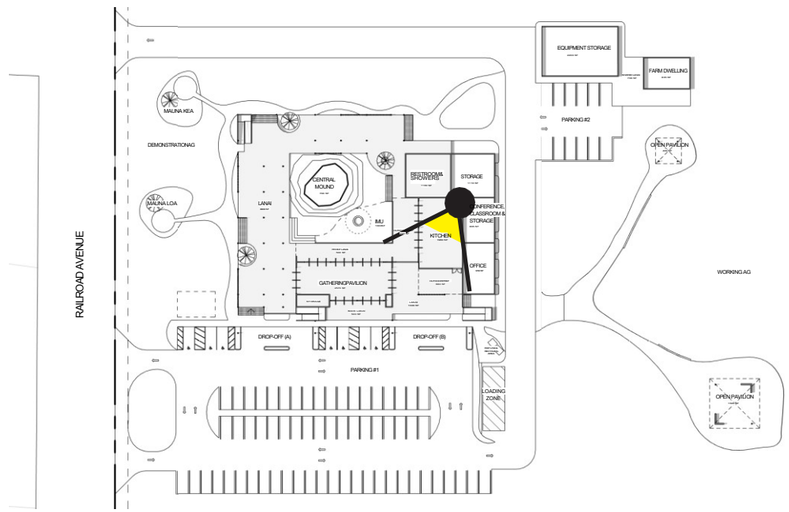
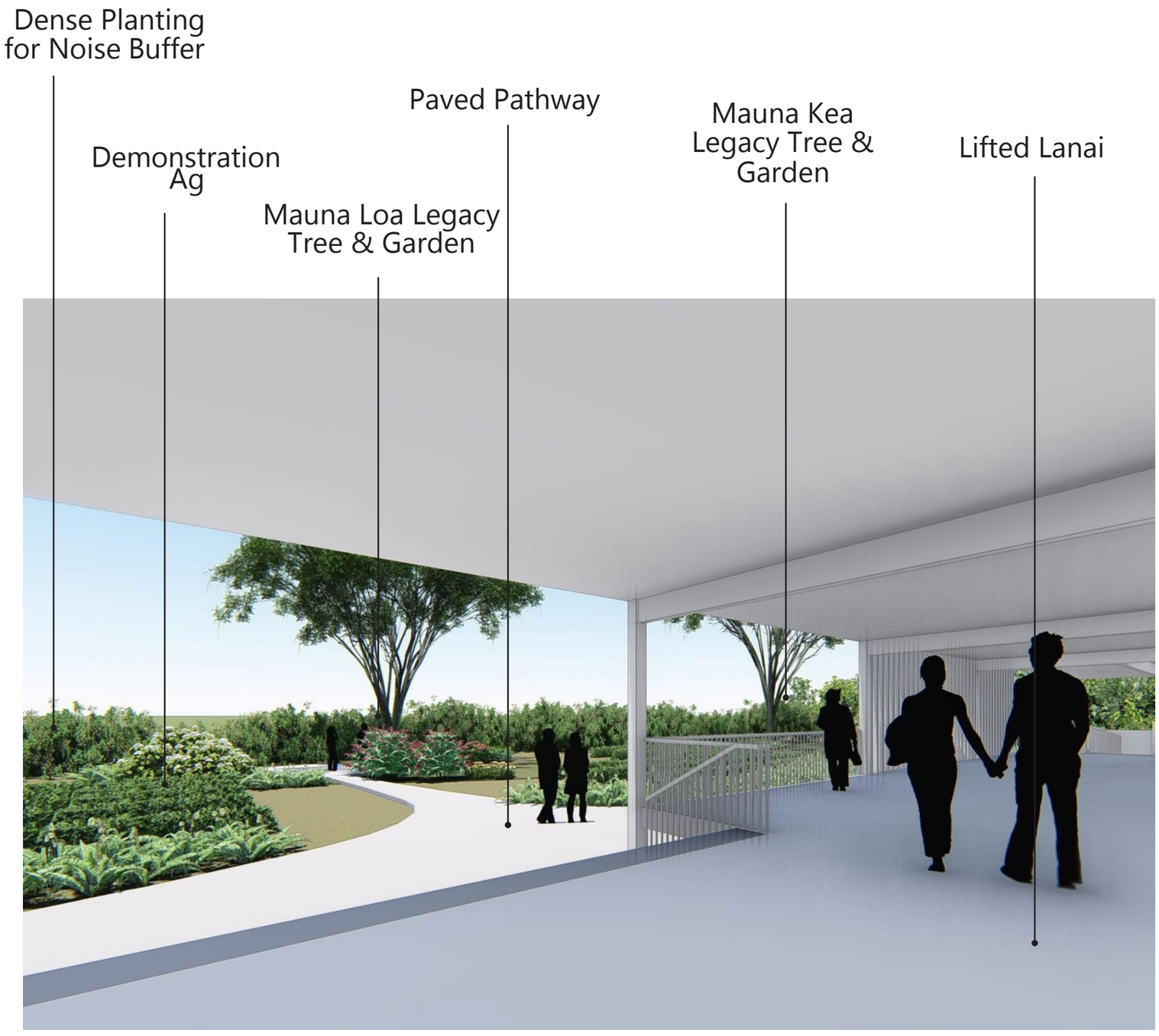


8
Ag & Gardens



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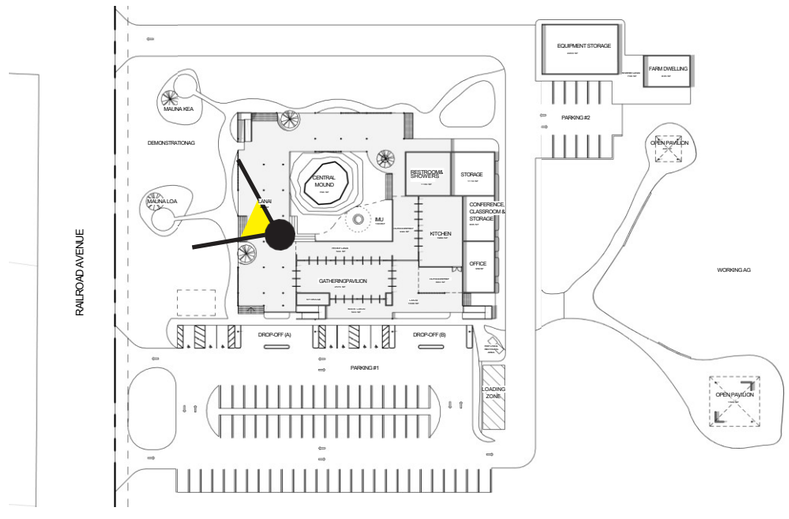
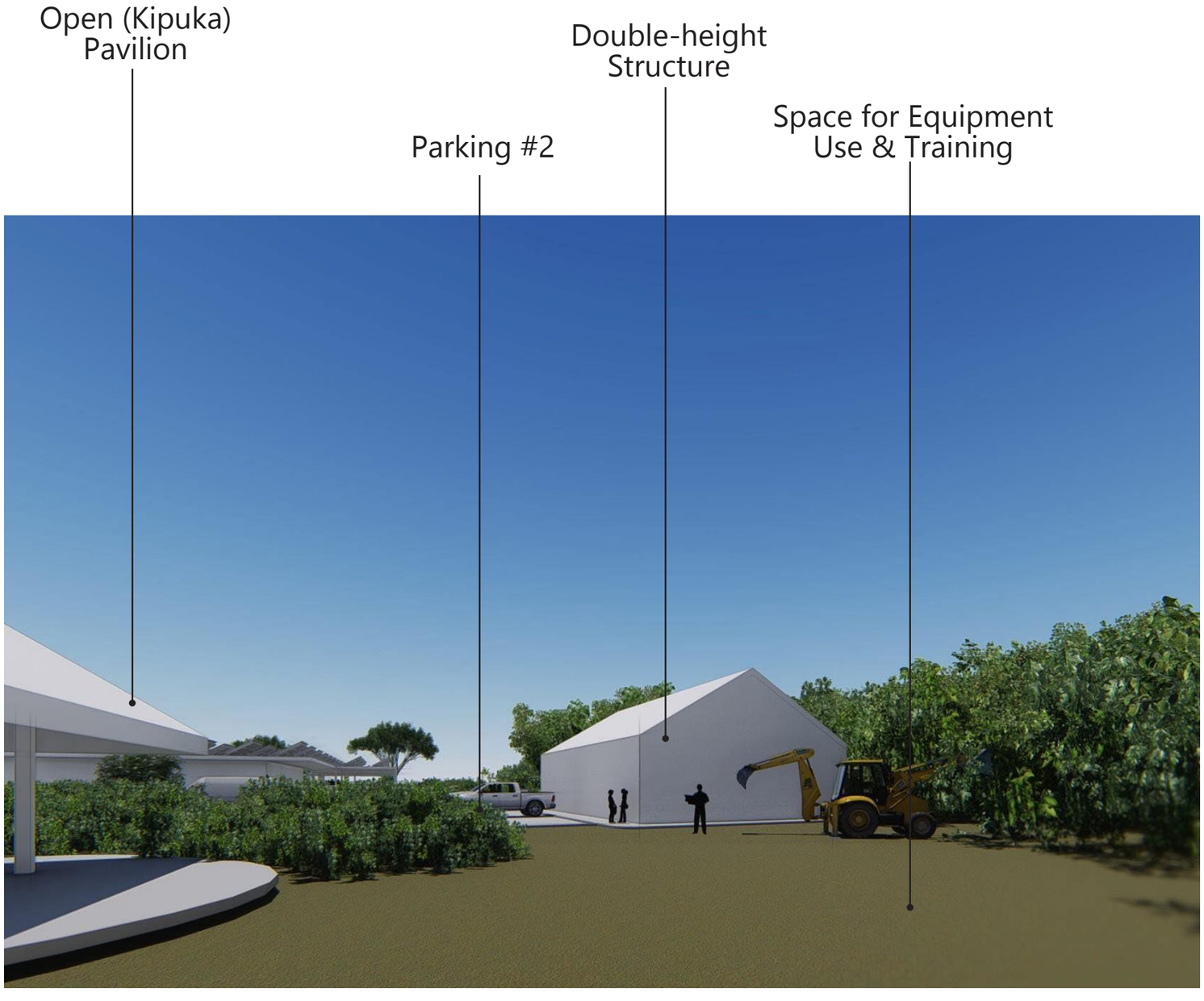


9
Equipment Warehouse



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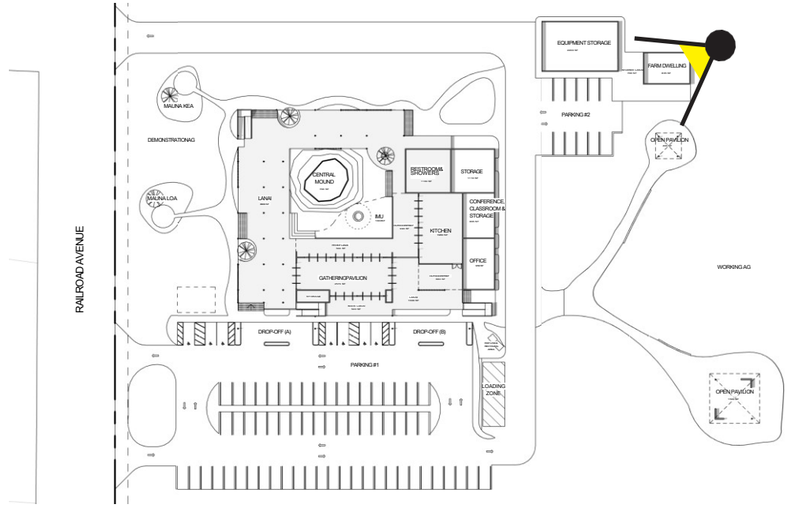
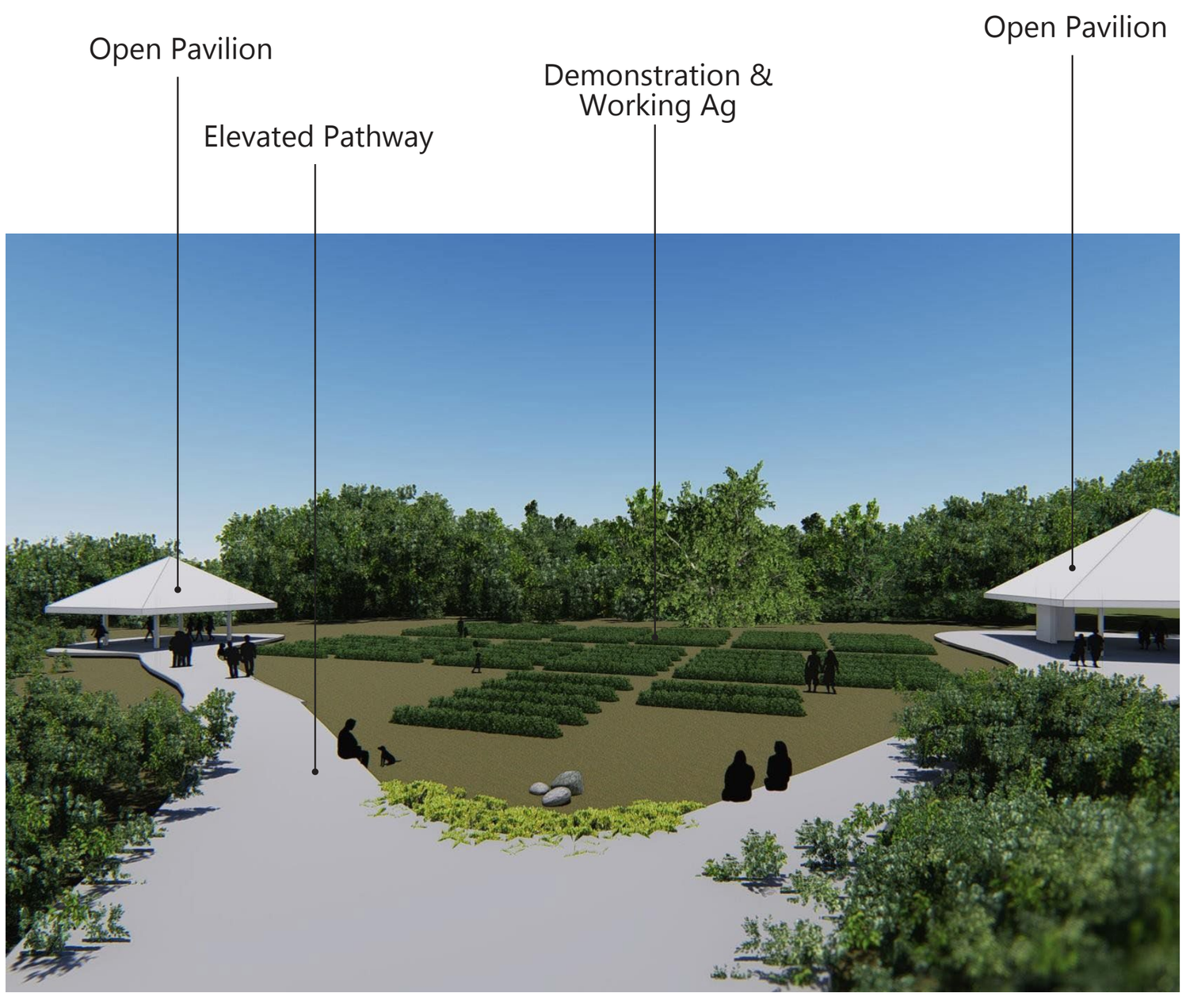


10
Open Pavilions



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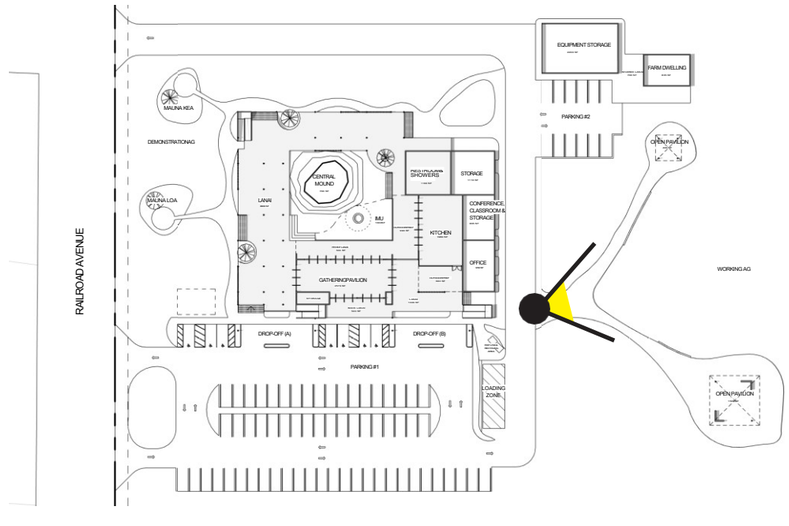


KEAUKAHA PANA‘EWA FARMERS ASSOCIATION

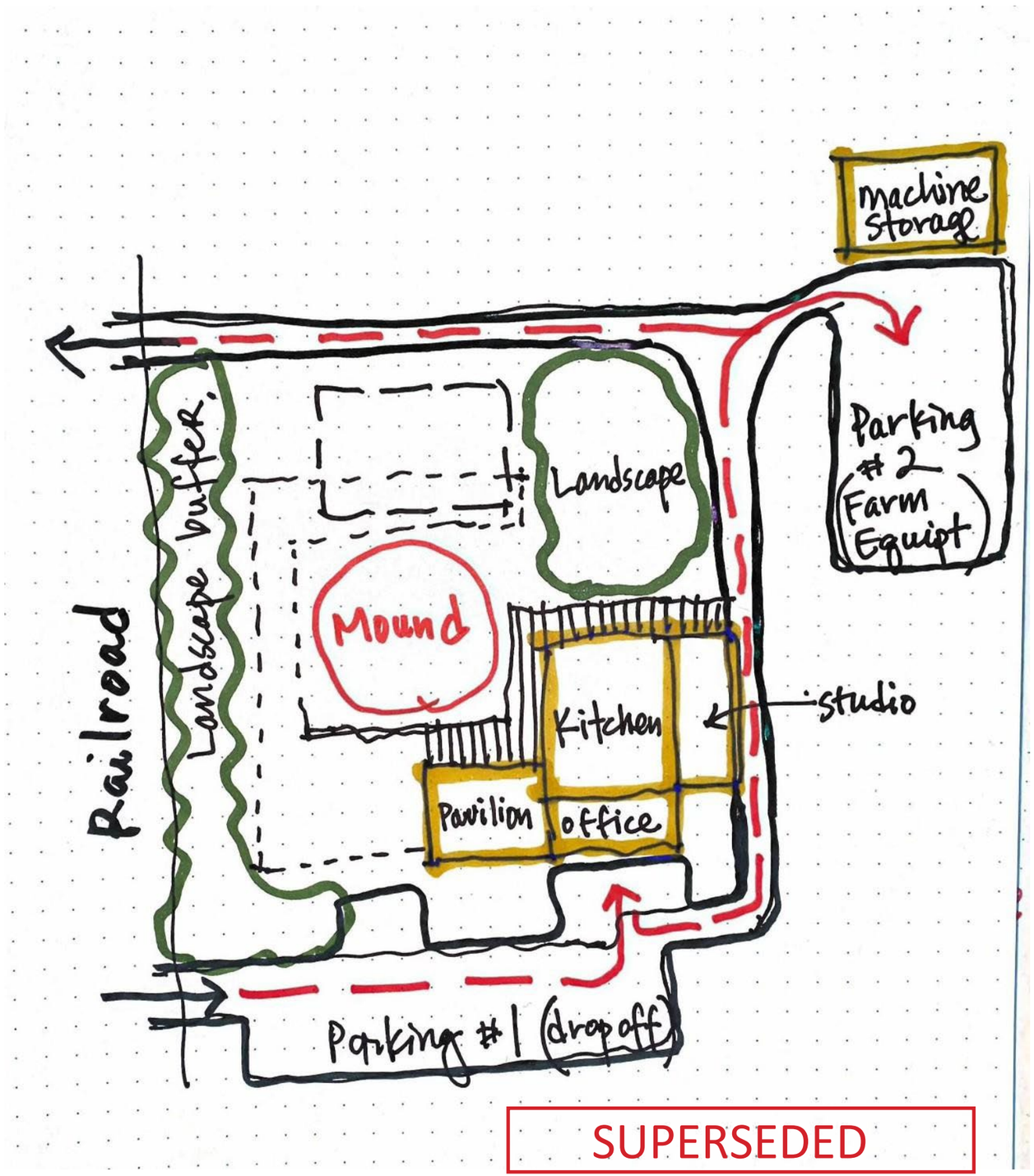
Resiliency & Agricultural Innovation Hub

SITE FEATURES	AREA
Agriculture (Green)	**152,460 SF (3.5 ACRES)**
Central Mound	**5,000 SF**
Lifted Lanai (Covered, Open-Air)	**23,000 SF**
Parking #1 70 Stalls (Standard + ADA) Two Drop-Offs	**30,000 SF**
Parking #2 10 Stalls	**3,000 SF**

PROGRAM	AREA
Gathering Pavilion 200 ppl max	**3,500 SF**
Commercial Certified Kitchen Imu Facility Process & Store/Refrigeration Vendor Stations Emergency Food Storage Backup Power Storage	**3,500 SF**
Restrooms Male - Min. 3 stalls Female - Min. 3 stalls ADA - Min. 1 stall	**1,200 SF**
Office Storage Files	**1,000 SF**
Sleeping Quarters Min. One Bedroom	**800 SF**
Storage (Energy & Water storage)	**1,200 SF**
Equipment Storage/Warehouse	**3,000 SF**
Kipuka Pavilions Community Use Educational Use	**1,900 SF**
Total =	**16,100 SF**

SUPERSEDED

60' 30' 0' 60' 120'



SUPERSEDED

Notes from Charrette
(6/21/2021)

Programs happening on site:

- Agricultural workshops – Agricultural Education & Resource Center to include market
- Resiliency Center - Disaster preparedness training
- Community meetings, celebrations
- IT Resource & internet services– "Bring resources to community"
- Kupuna programming
- Facilities rentable to other organizations for their programming specific to neighbor/native Hawaiian community (would need revenue for maintenance)

Part of Phase one

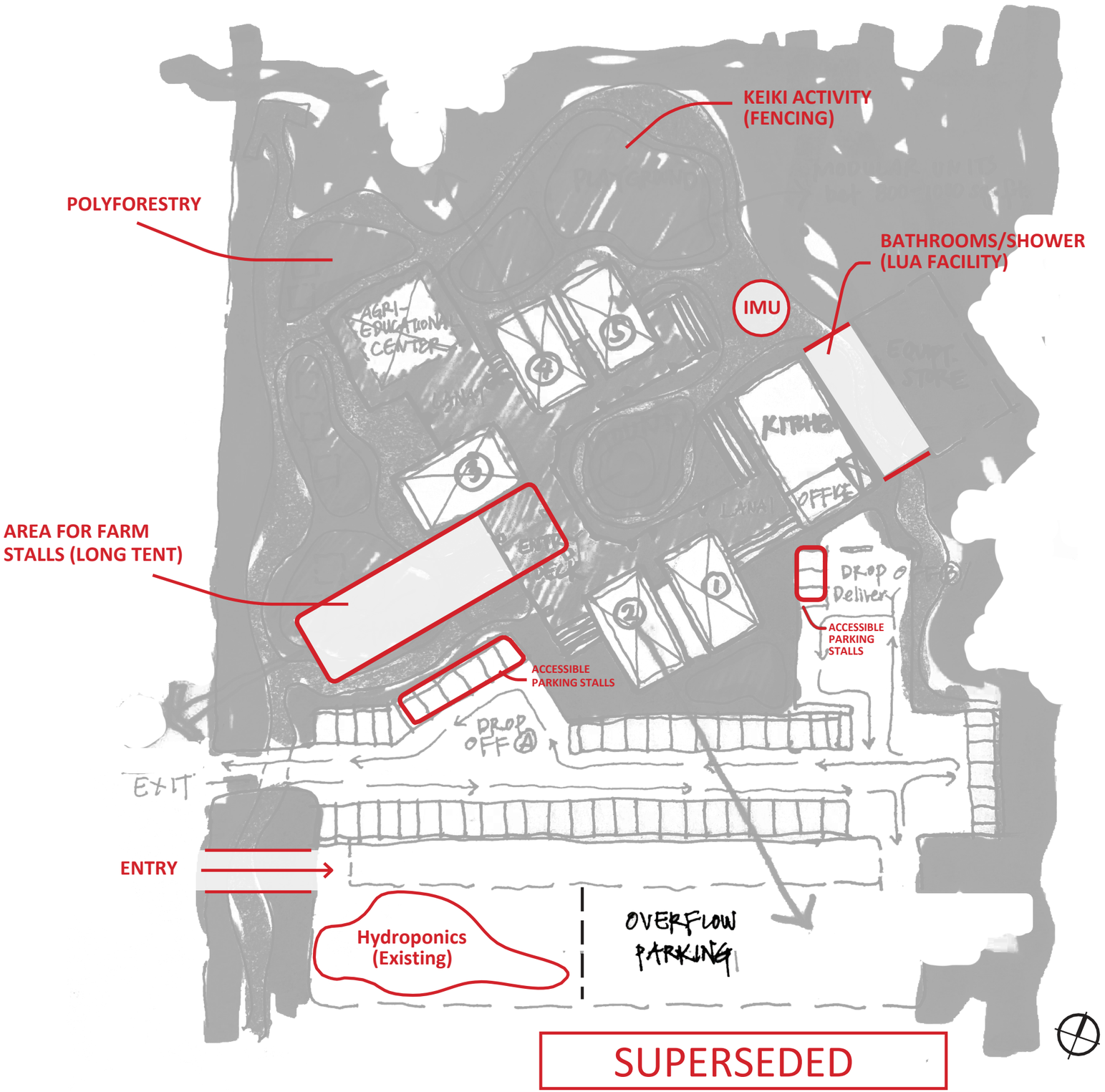
- To clear one acre and complete polyforestry demonstration project
- Continue hydroponics training

Phase 1: Kitchen, storage, office

- Provide economic food security
- To have own Ag Homestead community to build sustainable food source
- Large community garden with educational resource center

Current masterplan

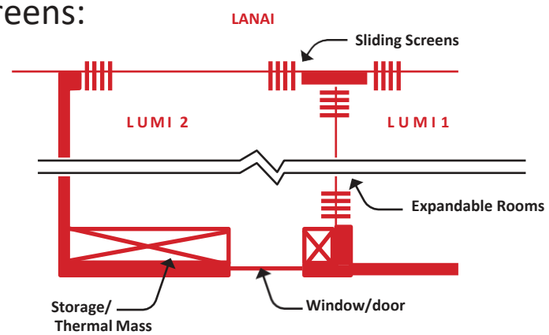
- Consider road noise, create larger setback or landscape buffer
- Consider PV at awning or covered parking stalls



SUPERSEDED

Notes from Charrette
(10/17/2020)

- Masterplan to show future expansion from 1 acre to 10 acres (site is 2 acre X 5 acre deep), strategic planning needed for phase 2
- Parking capacity = 100 max.
- Occupancy capacity = 80 ppl max. (phase 1), 300 ppl max (*Lūʻau*/weddings)
- Site to act as resilient hub for long and short term disasters
- Solar panels and backup energy systems to be integrated, storage for batteries needed
- Rainwater catchment & recycling system to be integrated, consider integrating with Agri-educational Center for *keiki* education
- Existing hydroponics to be retained
- *Imu* needed for fundraisers and rental
- Consider security - metal gates to close off portions of site
- Each *Lumi* Pavilion to have independent storage space (tables/chairs) & sliding screens:

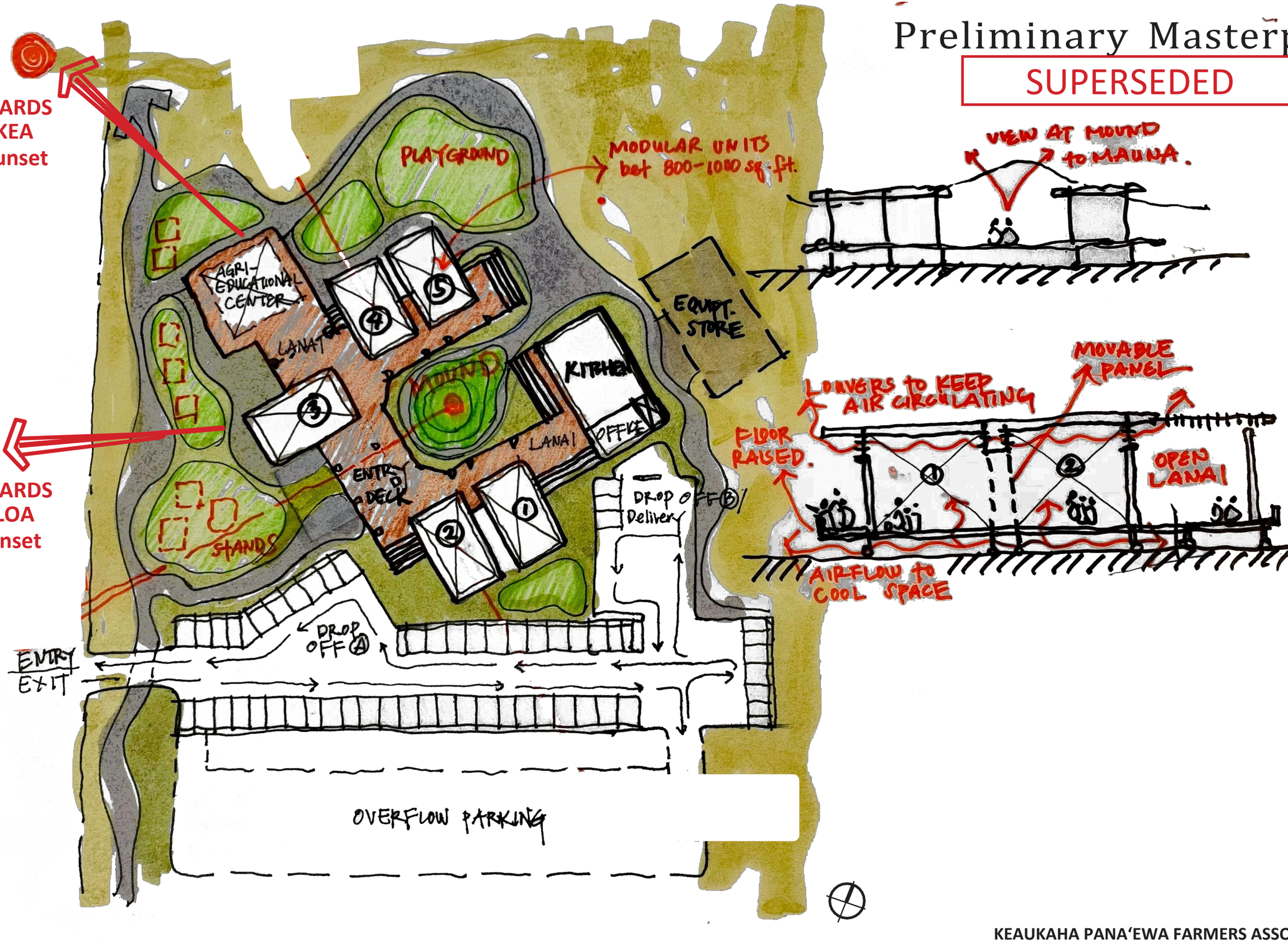


Preliminary Masterplan

SUPERSEDED

VIEW TOWARDS
MAUNA KEA
Summer Sunset

VIEW TOWARDS
MAUNA LOA
Winter Sunset



Appendix E

Hawaiian Homes Commission Meeting/Workshop Agenda

STATE OF HAWAI'I
DEPARTMENT OF HAWAIIAN HOME LANDS

HAWAIIAN HOMES COMMISSION MEETING/WORKSHOP AGENDA

91-5420 Kapolei Parkway, Kapolei, O'ahu, Hawai'i, and Zoom: Meeting ID: 609 754 2925
Tuesday, January 17, 2023, at 9:30 a.m. to be continued, if necessary, on
Wednesday, January 18, 2023, at 9:30 a.m.
Livestream available at www.dhhl.hawaii.gov/live

Note: Commission Meeting Packets will be available at dhhl.hawaii.gov by Thursday, January 12, 2023.

I. ORDER OF BUSINESS

A. Roll Call
B. Approval of Agenda
C. Approval of Minutes:
   a. December 19 & 20, 2022 Regular Meeting
   b. April 11 & 12, 2016 and May 23 & 24, 2016 Regular Meeting Minutes
D. Public Testimony on Agendized Items – see information below

Public testimony on any item **relevant to this agenda** may be taken at this time, or a testifier may wait to testify at the time the agenda item is called for discussion. Pursuant to section 92-3, Hawaii Revised Statutes, and section 10-2-11(c), Hawaii Administrative Rules, the Chair of the Commission has the authority to impose reasonable conditions to ensure an orderly and efficient meeting.

II. ITEMS FOR DECISION MAKING

A. CONSENT AGENDA

Homestead Services Division

D-2 Approval of Consent to Mortgage (see exhibit)
D-3 Ratification of Loan Approvals (see exhibit)
D-4 Approval of Homestead Application Transfers / Cancellations (see exhibit)
D-5 Approval to Certify Applications of Qualified Applicants for the Month of December 2022 (see exhibit)
D-6 Approval of Assignment of Leasehold Interest (see exhibit)
D-7 Approval of Amendment of Leasehold Interest (see exhibit)
D-8 Approval to Issue Non-Exclusive Licenses for Rooftop Photovoltaic Systems for Certain Lessees (see exhibit)
D-9 Commission Designation of Successor – **DANNY K. PALIMOO**, Residential Lease No. 2231, Lot No. 161, Kewalo, Oahu
D-10 Request for Additional Time Extension in the Matter of Commission Designation of Successor, **POHAIKEALOHA DYMOND**, Residential Lease No. 11042, Lot No. UNDV041, Anahola, Hawaii
D-11 Approval of Subdivision and Transfer of a Portion of Residential Lease No. 2907, Lot No. 30, Nanakuli, Oahu – **JACOB JOHN KU, JR.**

B. REGULAR AGENDA

Office of the Chairman

C-1 Approval of Legislative Proposal to Extend the Lapse Date in Act 279 (SLH 2022)
C-2 Approval of Chairman Designate Ikaika Anderson's Five-Point Plan

Land Management Division

F-1 Approval to Amend Right of Entry Permit No. 482, Keaukaha Panaʻewa Community Alliance, Waiakea, S. Hilo, Island of Hawaii, TMK: (3) 2-1-025:091
F-2 Approval to Issuance of License to Kanuikapono Public Charter School, Anahola, Island of Kauaʻi, TMK No.: (4) 4-8-003:019 (por.)

III. EXECUTIVE SESSION

The Commission anticipates convening an executive meeting pursuant to Section 92-5(a)(4), HRS, to consult with its attorney on questions and issues pertaining to the Commission's powers, duties, privileges, immunities, and liabilities on the following matters:

1. Discussion on DHHL Informational Briefing before the Senate Committees on Ways and Means, and Hawaiian Affairs
2. Discussion on the potential for mortgage grants to DHHL beneficiaries.
3. Discussion on delinquent right of entry permits issued for use of Hawaiian home lands in Kalaeloa, Island of Oahu
4. Update on discussions with Department of Interior regarding Act 236 (SLH 2021)

IV. ITEMS FOR INFORMATION/DISCUSSION

A. REGULAR ITEMS

Homestead Services Division

D-1 HSD Status Reports
A.-Homestead Lease and Application Totals and Monthly Activity Reports
B.-Delinquency Reports
C.-DHHL Guarantees for FHA Construction Loans

B. WORKSHOPS

Planning Office

G-1 For Information Only – Briefing on United States Department of Agriculture (USDA) Federal Funds for Water System Development
G-2 For Information Only – Briefing on DHHL Beneficiary Consultation Policy

V. ANNOUNCEMENTS AND RECESS

1. No DHHL Community Meeting in January

STATE OF HAWAI‘I
DEPARTMENT OF HAWAIIAN HOME LANDS
HAWAIIAN **HOMES COMMISSION MEETING/WORKSHOP** AGENDA
9 I -5420 Kapolei Parkway, Kapolei, O‘ahu, Hawai‘ i, and Zoom: Meeting ID: 609 754 2925
Wednesday, January 18, 2023, at 9:30 a.m.
Livesfream available at ivn!w.dhhl.hcrwaii. yes!/live

I. ORDER OF BUSINESS

A. Roll Call
B. Public Testimony on Agendized Items - see information below

Public testimony on any item relevant to this agenda may be taken at this time, or a testifier may wait to testify at the time the agenda item is called for discussion. Pursuant to section 92-3, Hawaii Revised Statutes, and section 10-2-1 I(c), Hawaii Administrative Rules, the Chair of the Commission has the authority to impose reasonable conditions to ensure an orderly and efficient meeting.

II. ITEMS FOR INFORMATION/DISCUSSION

A. GENERAL AGENDA

Requests to Address the Commission

I-1 Kilia Purdy-Avell ino — Hoolehua Lease
J-2 Kekoa Enomoto - Maui/Lanai Mokupuni Council and Pa‘upena Community Development Inc.
1-3 Bo Kahui - La‘iopua Development Corporation
J-4 Homelani Schaedel - Various Concerns
1-5 Blossom Feiteira — Various Concerns
1-6 Allen Cardines -- Nanakuli Community Securtiy Watch

III. ANNOUNCEMENTS AND ADJOURNMENT

A. Next HHC Meeting - February 21 & 22, 2023, (Tuesday & Wednesday) Hale Pono‘i, Department o(Hawaiian Home Lands, Kapolei, Oaliu
B. Next DHHL Community Meeting — February 21, 2023 (No Community Meetingin Januag)
C. Adjournment

Ikaika Anderson, Chairman Designate
Hawaiian Homes Commission

COM MISSION MEMBERS

Randy K. Awo, Maui
Patricia A. Teruya, O‘ahu
Pauline N. Namu‘o, O‘ahu
Michael L. Kaleikini, East Hawai‘i
Zachary Z. Helm, Moloka‘ i
Vacant, West Hawai‘i
Dennis L. Neves, Kaua‘i
Russell K. Ka‘upu, O‘ahu

Commercial Use

CHAPTER 343 – ENVIRONMENTAL ASSESSMENT:

Triggers:

Use of State Lands

In accordance with the Department of Hawaiian Home Lands Comprehensive Exemption List as Reviewed and Concurred Upon by the Environmental Council on June 30, 2015, the Right of Entry permit request is exempt from the preparation of an environmental assessment pursuant to Exemption Class #5, "Basic data collection, research, experimental management, and resource evaluation activities which do not result in serious or major disturbances to an environmental resource."

Panaewa Regional Plan (2017)

The site is designated for Industrial Use consistent with the Panaewa Regional Plan (2017)

AUTHORIZATION / LEGAL REFERENCE:

§171-55, Hawaii Revised Statutes, as amended, a "permit on a month-to-month basis may continue for a period not to exceed one year from the date of issuance; provided that the commission may allow the permit to continue on a month-to-month basis for additional one-year periods."

RECOMMENDATION

Land Management Division respectfully recommends approval of the requested motion/action as stated.

Exhibit "A"
Item No. F-1

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS

RIGHT-OF-ENTRY NO. 482

This Right-of-Entry ("ROE") No. 482 is dated this 29th day of June, 2015, by and between the State of Hawaii, DEPARTMENT OF HAWAIIAN HOME LANDS, whose place of business is 91-5420 Kapolei Parkway, Kapolei, Hawaii, 96707, and whose mailing address is P. O. Box 1879, Honolulu, Hawaii 96805, hereinafter as "PERMITTOR," and KEAUKAHA PANAEWA COMMUNITY ALLIANCE (formerly known as KEAUKAHA PANAEWA FARMERS ASSOCIATION) Attn: Mr. Kihei Ahuna, President, whose mailing address is P.O. Box 6844, Hilo, Hawaii 96720 (Phone #808.854.0077), hereinafter the "PERMITTEE."

PERMITTOR hereby grants to PERMITTEE a Right-of-Entry upon that certain parcel of Hawaiian home lands in Waiakea, South Hilo, Island of Hawaii, for the exclusive, benefit use of approximately 1.0 Acre (21,780 square feet) of Hawaiian home lands, identified as Tax Map Key No. (3) 2-1-025:091 (por.), and further shown as cross-hatched area on the map attached hereto as Exhibit "A," subject to the following conditions:

1. TERM. The term of the ROE shall be month-to-month up to twelve (12) months, effective July 1, 2013. This ROE may be cancelled by PERMITTOR, at PERMITTOR'S sole discretion and for any reason whatsoever, at any time during the twelve month period, upon 30 days advance notice in writing to PERMITTEE.

2. PERMITTED USE. The Premises shall be used for PERMITTEE TO OPEARTE A FARMERS MARKET AND AGRICULTURAL USE. No other uses or sub-tenancy shall be permitted without the express written approval of PERMITTOR. PERMITTEE'S use shall comply with all applicable governmental laws, regulations, rules and permitting requirements, pertaining to such use.

3. FEE. PERMTTEE shall pay to PERMITTOR a fee of $20.00 per month ($240.00 per annum), plus a non-refundable processing and documentation fee of $175.00.

4. CONSTRUCTION AND MAINTENANCE. During the period of the ROE, PERMTTEE shall keep the Premises and all improvements thereon in a strictly clean and sanitary and orderly condition, and shall not make, permit nor suffer any waste, spoil, nuisance, nor any unlawful, improper or offensive use of the Premises. PERMTTEE shall comply with all rules, regulations, ordinances and/or laws of the State of Hawaii and any other municipal and/or Federal Government authority applicable to the Premises and improvements thereon.

5. RIGHT TO ENTER. PERMTTEE shall allow PERMITTOR, and the agents and representatives thereof, at all reasonable times, free access to the Premises for the purpose of examining the same and/or determining whether the covenants herein are being fully observed and performed, or for the performance of any public or official duties. In the exercise of such rights, PERMITTOR and government officials shall not interfere unreasonably with PERMTTEE and PERMTTEE'S use and enjoyment of the Premises.

6. NO TRANSFER, MORTGAGE, AND SUBLEASE. This ROE shall be non-transferable, and PERMTTEE may not in any manner transfer to, mortgage, pledge, sublease, sublet, or otherwise hold or agree so to do, for the benefit of any other person or persons or organization of any kind, its interest in this ROE, the premises and the improvements now or hereafter erected thereon.

7. EXPIRATION. Upon the expiration of the ROE, or its sooner termination as herein provided, PERMTTEE shall peaceably and quietly leave and surrender and deliver up to PERMITTOR possession of the premises. This includes the clean-up and removal of all property belonging to PERMTTEE.

8. TERMINATION/ABANDONMENT. Upon termination or abandonment of the specified purposes for which this ROE is granted, all interests granted by this ROE and any approved improvement constructed by PERMTTEE on the Premises shall revert to, and become the property of PERMITTOR.

9. PREMISES. The term "Premises", when it appears herein, includes and shall be deemed to include the lands described above and all improvements whenever and wherever erected or placed thereon.

10. INSURANCE. PERMTTEE shall, at its own expense, effect, maintain and keep in force throughout the life of this ROE, a comprehensive public liability insurance policy, with limits of not less than $1,000,000.00 for each occurrence, including property damage, personal injury and advertising

DHHL-LND

DHHL-LND

injury;][00,b0D.00 for fire **damages to th•** Premises for anY **Qne fire; 510,000.00 in medical expenses** lor any one person, **and en $9sroga be limit oE $2,000,000.00 per policy year.** The **epectfteacion** of these limits **os contained [ereln shall not be oon9trued ln any way to be a limitation on the amount of liability O[PERMTTEE [or fees, interest or other charges na*r ‹hi* ROE.**

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ezRRiT5l at ita own expense shall mdintalo anB keeg in ferca Automobile Insurgnce, covering all ownad, non-owned and hired outomobilea in the followlnQ amounts: Bodily Injury: $1,0QD,000.00 par person and $1,000,000.OU ger OCcufrence; Property Oamage: $l,OOO,OOO.00 ger accident; Qr g combined elngle limit of 51,000,000.00

PERDTTEA shall provide certiticatetsl 0t insuF8DCe heCe&BH1/ to evidence comglignce with thy lngurance provisions of this ROE. PERMTTEE shall keep such insurance in effect and the csrt1I lenta(s) On dspos1k w1 th PERII1T2OR dueEng the en c i re **term o[this** ROe.

In addition:

a. rat i ur« oc PERiriins to Prov iae and lceep in I cx ce such Insurance are i I be regazfled as rrta t Rrl a1 del au1 t unfier Lhls ROE. P£iRfdZ7TOR shall be en l i fled to euercise any or a11 of the recte8tes provided In Lh1s ROE For Sta:Eau1 C o£ P8RN'I'7E£.

b. **The procuring of such requI*eU Insurance Policies 6hall ngt be construed to limit P@RMCTEB'S in4omo*<*cetion oDlizatione und°r this "oE**

c. esmivioR i s a (let r ins-ered sence aaenor. PSMTDE 's :Lnsuranca sha11 be pr imazy. I\ny i naurance ma tn ta ineB **by PERMITTOE Ond/or the stmte of Hawaii shall &pp1y in axceaa af.** na **«Call n0t contribute** with, **Insurance provided Dy PERMTTEE.**

Such insurance policy shall (a) be issued by in insuranCe company oz euretr conmaoy euthozimed to do busTn•ss in the gtate gf Hgwgli or approved in writing the ChaLrmen, Hawaiian Home$ [ommlRsion; {b) #**e the state of Hawaii apd its DEPARTMENT DP HAWAILRN HONE LJUWOS aa an losured; (c) provide thac the DRPARTMVC OF HAWAIJAW EON[ANDs ShAll be notified at lea9t thirty (30) days prior to any termination, ooneellation or material change in the insurance coverage; anB ld) cover all injuries, loases or damoQes arising from, growing out oE or causaa by any acts or omissions of **PSRNTTS[, its officers, *gents, MB'oyee•, lnvitas6 or licensees in connection with PERMTTEE' use** or **occupancy** of the Premises

PERMTTEE shall insure during the term of this ROE the ent(re P£emlBeB, including *11 buildings now exiut*ng and hereafter built or located on the Premlges imgrovzments and grounas, enB all r0adwoya and sidewalks on or aa#a end to the Promises in the control or use of the PRRMTTEE. The tnsuranco ghall zover long o damage by fire And other hazards, casualties and contingencies, including vandalism and malie(ou6 ml6chisf. Tho insurance shall be for Dhe full insursb1e val ue of' sucft 1.cpxovefren¢B ,

PERMTTEE ghgll twrnigh to PERMITTOR ugon the GXBcutiOn Of Lhiz ROE, certifiCebea showing Such inBurdnce poliey Or Bo*Wisscobeln[avor of eEeigoQandto belnforco,ana shell furnish liho cerLi[ic$tes upon each renewal the*eoD. In the event of loss, damage os destruction. PQRMITTOx shall retain from the proceeds of the policies such amounts deemed by it **Lg be necessary** to cover **the loss, damage or deetruction af ox ko the improvements and the balanco** o[such proceeds, if any, shall be delivered to PERMTTEE.

The : ro curing sI thi s esti cv she11 no t i ct eese or re I I eye PERHTT£E oI ri ts sspons1h11 1 ky under Chi s RoE a• set for kh **herein or limit the amount of its liability under this ROS**

PERMTTEE ahall provide proof o(liability insurance for auch acc lvi t i es pr xor co the ef fec t ive date o f thJs ROIII, or I:h i a ROE sha ll be nul l and vo.td.

11. DeZensa ana Inaem1t . PERNITEE aball relea8e, defend, *naemnify and hOlB harmless PERNITTOR, its officers, emgloyese, and agenkg from and ggaingt all liability, lo9s, damage, cost, aad emaenne, including •11 a€cornevu' tees, and all claims, suita, and demands therefore, arising oUt o1 ov resulting £‹ om the ects er omissions oI EsRmTTOS

end/or QARMT028's officers, employees, agents. or oontraotorB occ»zzlng during or in connection with the oxercise of tbiB R0[. The grovi0lono of thi6 paragraph ghall remain in full force and effect nocwithstan4ing the expirdtloM or eBfly tpKMingtiOn O1 thig ROE.

12. HAZARDOUS MATERIAL. PERMTTEE ahall not cause or remit the egcape, disposal, or release ot Any hazardous materials. PRsxcigg shall not bllow the storage or use oC such materials in any manner ngt 6gnetioned by law or by the highest standards prevailing in the industry for the storage and uBe of aucn oaterlalg, nor allow to be bought onto the premises any such m•teriala excsP6 to uao in the ordinBry oovree o[PRRMTTEE'S buaineas, end tWen only after written notisa iB givcn tO th$ PSRBITTOR 0£ che 16ontItY of guch piskgrials enB upon P[RMtCCOR'S consent, which content may be withheld Bt the P8RMITTOR'S aole ana mt*o1»<e discretion. If: any larder or governmencal agency shall ever feguire testing to ascertain whether or not there hea been any release o[hazs*dovs m$te*IOls by PERMTTEE, [hey P[RNTTER shall be re6gonaible for the soote thezeoC. In oaaition, PERmTTRz email exeeuDe gffltlgvlps, regre6ent&tions and the [1ke from time to tims st PERNITWOR'S request to»corning PEkMTTEE'5 best knowledge and belief regarding tha presence Qf hazardous materlals On the Premiaea placed oz released Dy P[RMT][E.

PRRJ TTEg eg rsta ko lndemn 1 2y , i:la f and i and hold **haul ess esAS[TTOR, its officers, emoloyee$,** and agents Irom and **eg8in9c all liablllcy, loss, aemage, cost, md expense,** inc:1u8-¡rig all aC t o drier'a I see , and all c la lms , s ui I a , and a«oands eheref:or, ar i 81ng one oI or ce8u I Cinq fro»i as use **or release of ho*Ar8oua mAtoriels** on **the premises occurring** while **P]RMTVS[is in BOsBeaeion, or elaewEe s lE causad by PERMTTEE OF pArSOn8 Brtlng Und9F PERMTTEE. The8e COVPEBWt8** shah i, eucv ive the exp.icat1or o r ear I ter terming tion of th• ROE.

For the purpose of thiB ROE, the term "hazardovu mitarlal" as uge8 hQrQln &hall Include •ny substance, waete or material designated aa hazardous or tuxic or *rad[oackLve* or other simil8z term by any progent oz Sutura federal, acate or Jocal $tatuteO, reBulation 0f 0Fd1M$MCe, aUCh 06 kh* Resource Conservation aTiG Recgvery Act. as amended, the ComgFghgnslve Snvlrgnnental ReBgonBe, CaaBsnsation, 8nd z1ah1l1 ky nc c , as amended, ana cue reuara 1 i21eari Wa t sr Act ,

afl amended from time to time, end also includinQ but not TTm*t*a cn *c oleh, O* roI*um tasea **substances, aebe9toa,** polychlocina k ed-by@horiy1 S { •Pcs • , Nocue1 8 ehyde , and also including any sub6ca»co acs* nat*a by €eaeral. state or loea) re9uletTona, nnw or in be tutuxe, oe presenting a risk zo human health or the environmenc.

Prior to the termination of the ROW, PERMTTBS -y be required to conduct a Levol One (1) Hazard0us Waste Evaluation and **condvcz * complete abacemenz** ana **4%P osel. if neca•sary, satisfactory to the standards required Dy the** fie8eyal :znvlzonnent;e1 sro t ccclon Aganey , khe Deparcnsnc off Hea 1 Lh and PI2RFII TTOR .

13. **gNTIRE AGRsYM@flT. Thie ROE c0ntains all o2 the [erms and** agresmsnca be uwean cho pa r clnz eel a Linp en the aubjecc matter hereof and surezsede$ end omncels any and all ot:her conflicting prior agraemmnos, promises, and negoti$ttona between thsb. xgthinQ eontalnod herein shall *limLt* any claims Ly PsRBTTTOR against PDfiNTTes arlninQ under grloz agre*N*nD*, nor llmik PERMTTEE pgntinulng obligations uodor prior aQreement8, inCludiog lfl8u[AMC$, lndEChltY, dnd hazerdou6 weste obligatlooe.

14. **SPECIAL C0MDSTlON6.**

A. Reoooxazion of Demtsed Premises. In the event ot e breoch, abandonment or tezmlmetlon, PRRMTTEE ehall, within thirty 130) doye o[thc tewlnpgion of *thL6* ROE, restore, az ita own cost and riBk, the Premises to a condition Bimilor to thsE which risked grlor to chg effective date of this ROR (or at PERMICTO'R's electlon, pvlor go PERMTTEE' first oocupanoy of the Premizea}, <eBnonable anB o BinBry wear anB teer and damage by 4Cta oz ooa exce tea, a::m geace]ully svrr•naer goeeeseion thmr*o£ to PEEAITTOR. This may inclvds the removal of any complete oz incomplete otructure construct0d hy PzRmTTsE. In the event PExxmTEE falls to effectuate such restoration of the Premises, P@RMITTOR reserves the right to oecomplieb lhe sems by Sta own employee or by anindeBendent concraco end to assess PE8N[mzEthe total copte thereof.

B. **PERMTTEE 8hall be responsible tor and 6hall pay any and** all taxes, fees, charges and assessments pertaining to

thQ Premises, including without limitation, all utility charQes and gro9erty taxes.

C. PERMITTEE Iu rebut ed to remove and grooerlv 6innose of ony unwsn£ed overgzowtW, trees, rubbish, d*lapidated fencing, old lrriggtion llnes, 8ereliut vehicles gnd equipment and other junk form the property Ac their own expense.

D. **PRRxITCBE shall keep and maintain Premise** ana any and **all eQuipment** and **their personal propert'°6 "B°" the Rremloe6 in a strictly clean, neat,** orderly, and san£t:try eondi. tion, £ ree ol sae ce, ri4bDi th ana **doBri8** and sha I I prov i de her she sa I•e and nan i ta rv haadJ.inc and *dLapeual* of alt trasll, garhage and othrer e:tua's yesut t ine f ros i ca ac et vi t I es on or of f oi the Pr ainl so•.

E. PERMTTEE 8hall bm ro6ponsiblm for the security of the Premises (to include, Qroper signage, feneinB an8 pate installation gnd controll ang all Of PEAM1CE£' pereonol grogerty stored thereon.

F. Th Is ROE i e subs ec k co other recus and ciond i t I ous tha c may be deemed ¡Qruden L by The Char man of the usxoi i en Homes l2Ort6 1 a I in.

[REMAINDER OF PAGE BLAWK SIGNATURE PAGE rOLLOWE]

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APPROVI2@ BY JE }4H3
AT ITS MEETING HELD ON
July 22, 2013

APP kOVEQ AS *TC B'OBI:4*:

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Ste cc of Hawaii

9tate O(Hawail
DEPAnTMEN'f OF HANA17 AH HO14E FUNDS

By
Jobie M. K. Masagatani, Chairman
Hawaiian Homes Commission

P6BRlTTOR

KEAUKAHA PANAEWA COMMUNITY ALLIANCE

By
Kihei Ahuna, President

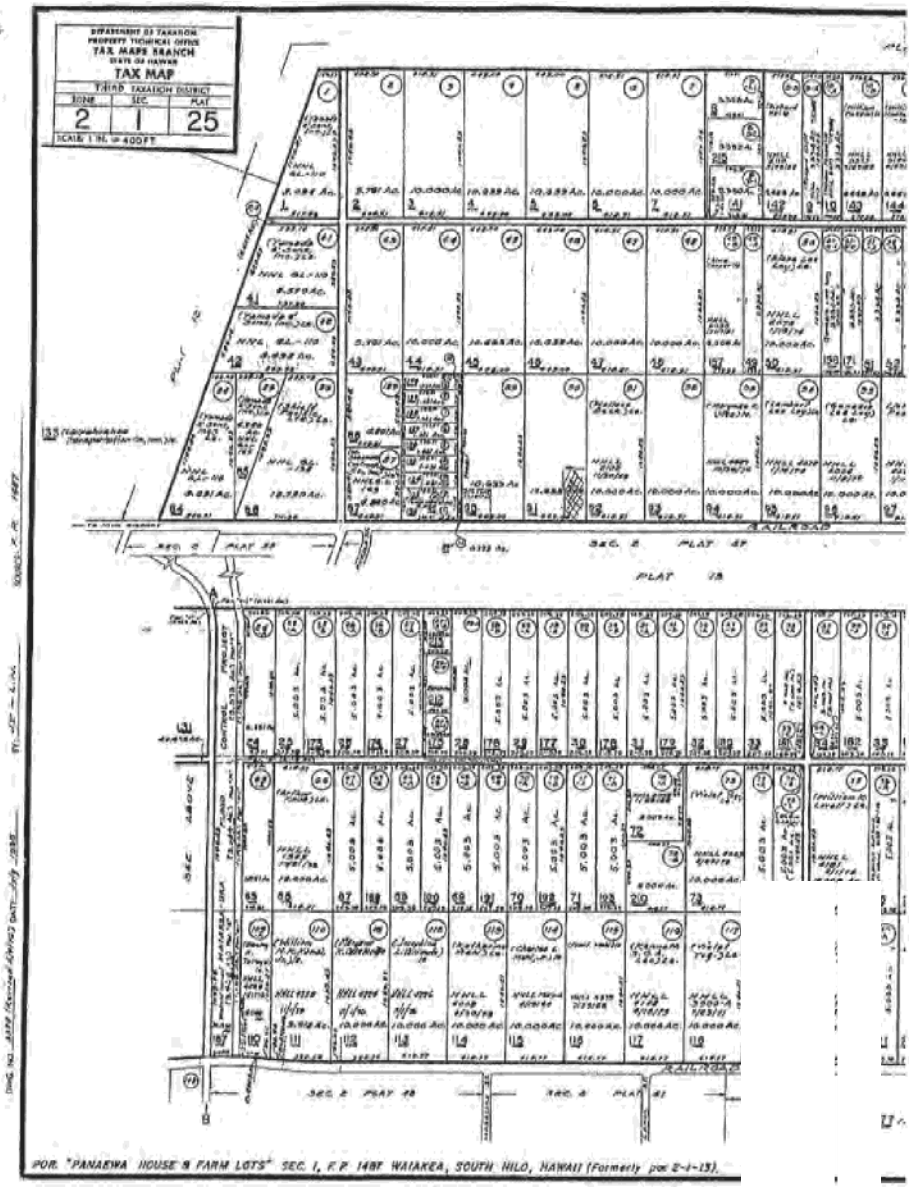


EXHIBIT "A"

STATE OF HAWAII)
) SS.
COUNTY OF HAWAII)

On this 24th day of June, 2015, before me appeared Kihei A Abuna, ———,

to me personally known, and

of Hawaii

Tatsuno

November 8, 2018

Document Identification or Description:
HI Driver License #10024696 2
and 12-28-2017

Doc. Date: _____ or ☒ Undated at time of notarization

No. of Pages: 9 Jurisdiction: Third Circuit
(in which notarial act is performed)

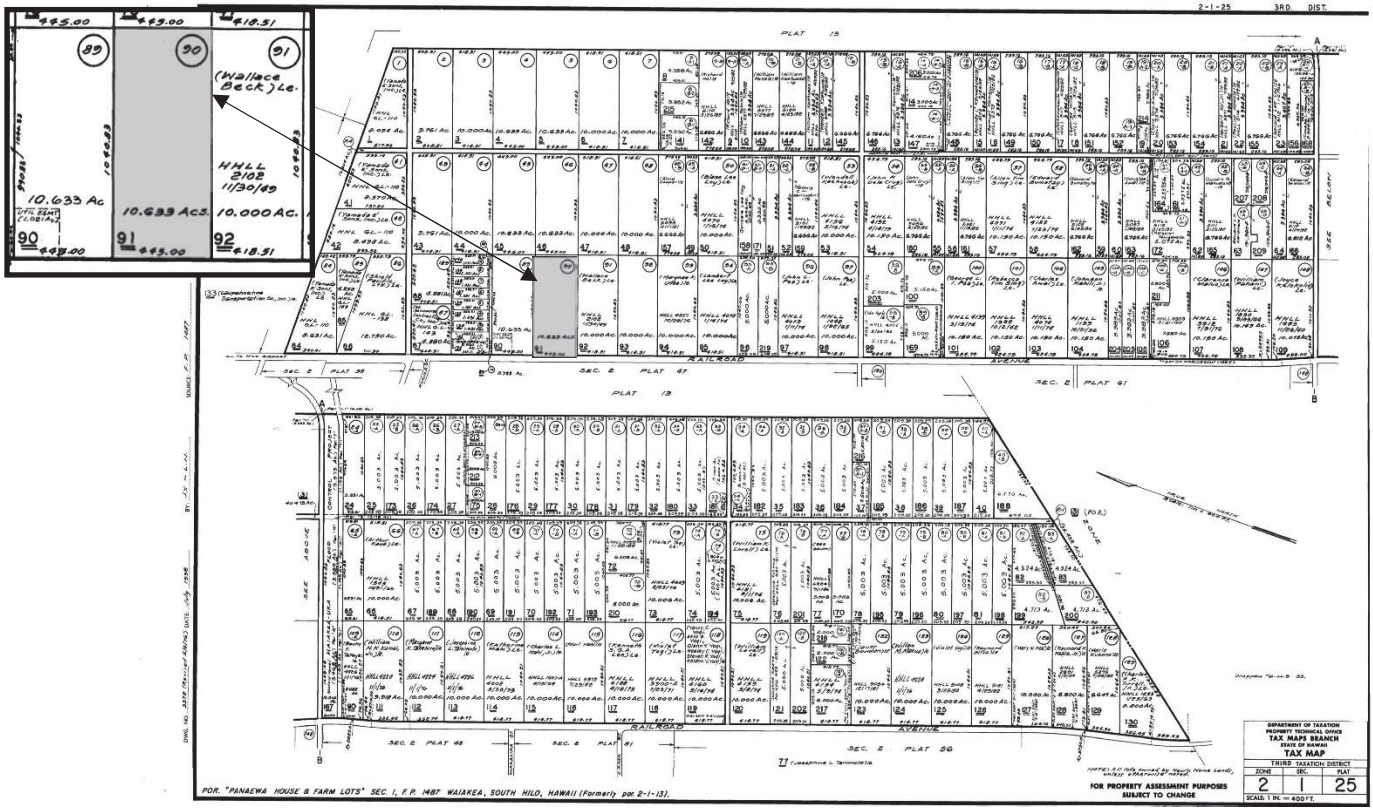
6-29-15

Signature of Notary Date of Notarization and Certification Statement

Debra Tatsuno

Printed Name of Notary

DEBRA TATSUNO NOTARY PUBLIC 98-571 STATE OF HAWAII



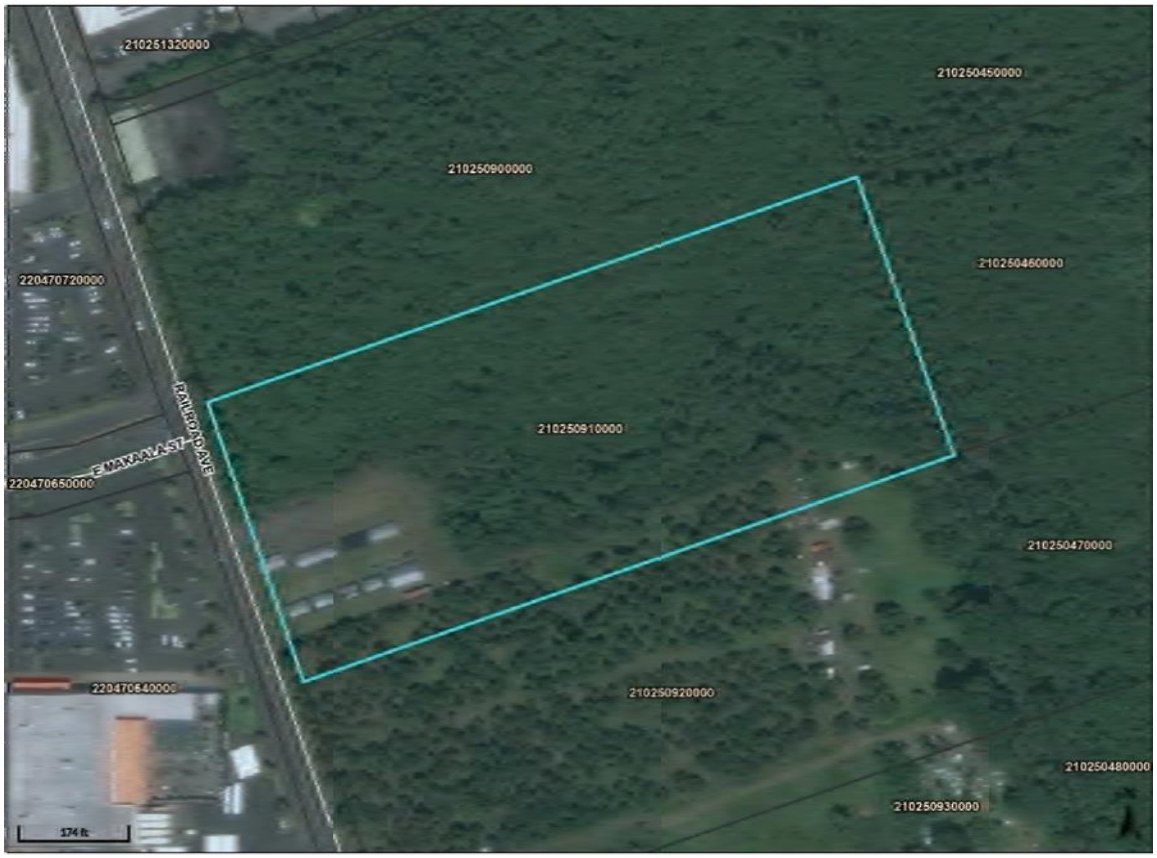


Exhibit "B"
Item No. F-1

Department of Hawaiian Home Lands
NON-PROFIT ORGANIZATION APPLICATION FOR LONG-TERM USE OF DHHL LANDS
Application

INSTRUCTIONS

PURPOSE OF APPLICATION

The Hawaiian Homes Commission Act (HHCA) Section 204(2) and 207(c) authorizes DHHL to dispose of lands for non-homesteading purposes on the same terms, conditions, restrictions, and uses applicable to the disposition of public lands as provided in Hawaii Revised Statutes (HRS) Chapter 171. HRS 171-43.1 authorizes DHHL to dispose of lands to eleemosynary organizations by direct negotiation without requiring a competitive solicitation process.

Per HRS 171-43.1, eleemosynary organizations must be certified to be tax exempt under sections 501(c)(1) or 501(c)(3) of the Internal Revenue Code of 1986, as amended. The lands shall be used by such eleemosynary organizations for the purposes for which their charter was issued and for which they were certified by the Internal Revenue Service.

This application is meant for IRS 501(c)(1) or IRS(501)(c)(3) non-profit organizations that are interested in long-term utilization of DHHL land for the purposes of providing programs and services to DHHL beneficiaries to further their rehabilitation and well-being.

This application is NOT meant for:

- For-profit entities and for-profit purposes. For-profit proposals must go through a different process that requires a competitive solicitation process as outlined in HRS Chapter 171.
- Individual use of Hawaiian Home Lands
- Organizations and individuals that are interested in use or access of Hawaiian Home Lands for less than 30-days (short-term use). Interested organizations or individuals interested in short-term use of Hawaiian Home Lands should contact the DHHL Land Management Division for a Limited Right-of-Entry Permit application.

APPLICATION PROCESS

There are two main parts to this application process: (1) Completion of Pre-Application Form and (2) Application.

Part I -- Pre-Application Form

Pre-application intended to minimize risk of investing significant time and resources for the applicant and give DHHL a better idea about proposal and applicant potential capacity to implement.

The Pre-Application Project Proposal Form also ensures that the proposed area of use is consistent with DHHL Island Plan Land Use Designations. DHHL Island Plans can be found at: http://dhhl.hawaii.gov/po/island-plans/ DHHL will **only** be accepting proposals for its lands that

Exhibit "C"
Item No. F-1

are designated for (1) Community Use, (2) General Agriculture, (3) Conservation, or (4) Special District.

The Pre-Application Project Proposal Form will also help DHHL determine whether the proposed project requires a DHHL beneficiary consultation meeting. Project proposals that are identified as priority projects in DHHL Regional Plans do **not** require additional DHHL beneficiary consultation.

NOTE TO POTENTIAL APPLICANTS: DHHL funding and staff technical assistance is NOT guaranteed. DHHL might consider providing funding assistance to projects that can attract other sources of funding. Projects that rely primarily on DHHL resources (other than land) for implementation will not be considered.

Submitting the Pre-Application Packet

There are questions on the Pre-Application Form that can be filled out on the form. However, the majority of the questions on the form will require typed written responses on a separate page. When answering questions on a separate page, please indicate the question number and question you are responding to prior to your written response.

Overview of the Pre-Application Form

There are four sections to the Pre-Application Form:

1. **Applicant Information** – This section helps DHHL identify **who** the applicant organization is and the applicant organization's history and experience with providing programs and services to DHHL beneficiaries.

2. **Project Information** – This section helps DHHL identify **what** the project is, **why** the project is needed, and **how** it will benefit DHHL and its beneficiaries. The section also asks whether the proposed project is a DHHL Regional Plan Priority Project to determine beneficiary support for the project. If it is not a DHHL Regional Plan Priority Project, additional beneficiary consultation is needed to determine beneficiary support for the project.

3. **Project Location** – This section helps DHHL identify **where** the project is located. DHHL will make determinations whether the proposed project is consistent with its Island Plan Land Use Designation and whether the proposed project is a compatible use with the surrounding area.

4. **Timeframe** – This section helps DHHL identify **when** and **how long** the applicant's proposed project will take to implement. More importantly, it helps DHHL and the applicant to identify major benchmarks and phases in the proposed project.

Department of Hawaiian Home Lands
NON-PROFIT ORGANIZATION APPLICATION FOR LONG-TERM USE OF DHHL LANDS
Application
INSTRUCTIONS

A completed Pre-Application Packet must include:

- Signed Application Instructions Form (See the bottom of this form)
- Filled-out and signed Pre-Application Form
- Enclosed with the filled-out and signed Pre-Application Form, on separate pages, applicant responses to the information requested on the Pre-Application Form.

Please submit your pre-application packet either via mail to:

DHHL Land Management Division
91-5420 Kapolei Parkway
Kapolei, HI 96707

Part II --APPLICATION

After DHHL review of a completed Pre-Application Project Proposal and positive recommendation by staff is made, and if comments from beneficiary consultation meetings are positive, staff will make a recommendation to the Hawaiian Homes Commission to approve a Right-of-Entry Permit for the applicant to access DHHL land to conduct further due diligence work. Terms and conditions of the ROE permit will also be negotiated with the applicant at this time. The due diligence work is project dependent but typically consists of:

- Master Plan
- Business Plan
- HRS Chapter 343 Environmental Assessment or Environmental Impact Statement

NOTE TO POTENTIAL APPLICANTS: DHHL funding and staff technical assistance is NOT guaranteed to complete any of the above due diligence work. DHHL might consider providing funding assistance to projects that can attract other sources of funding. Projects that rely primarily on DHHL resources (other than land) for implementation will not be considered.

Department of Hawaiian Home Lands
NON-PROFIT ORGANIZATION APPLICATION FOR LONG-TERM USE OF DHHL LANDS
Application
INSTRUCTIONS

ISSUANCE OF A LONG-TERM DISPOSITION (License or General Lease)

After successful completion of the due diligence studies, DHHL will negotiate terms and conditions of a long-term disposition with the applicant and make a recommendation to the HHC for approval of a long-term disposition. Please note, each disposition will most likely include a set of special conditions that must be fulfilled by the applicant. Special conditions will be unique for each project and will be negotiated between DHHL and the applicant.

In addition to special conditions, **standard conditions** that will be included in every disposition instrument include:

- Requiring the licensee or lessee to possess a valid limited liability insurance policy that can cover up to $1 million in damages to DHHL property or persons that are accidently injured on DHHL land;
- Requiring the licensee or lessee to comply with all applicable federal, state, and county laws;
- Realistic project milestones that demonstrate the growing capacity of the licensee or lessee; this may include limiting the size of the area that was originally requested by the applicant in the pre-application form to a smaller more manageable size in the first several years of the license or lease and gradually increasing the size of the area in the license or lease over time as project milestones are reached.
- Requiring the licensee or lessee to demonstrate that it is proactively making its best effort to recruit more DHHL beneficiaries to participate in the programs and services being provided on the DHHL property for which it has a license or lease to.

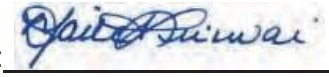
DHHL has a fiduciary responsibility to ensure that the applicant's use of DHHL property does not harm DHHL's ability to help other current and future beneficiaries. Please note that the special conditions and standard conditions that are included in dispositions are meant to mitigate harm to the DHHL Trust from unforeseen andlor unfortunate incidences that may occur on the licensed or leased property and ensure that all interested DHHL beneficiaries may participate in programs or services being offered through the use of DHHL property by the applicant.

Department of Hawaiian Home Lands
NON-PROFIT ORGANIZATION APPLICATION FOR LONG-TERM USE OF DHHL LANDS
Application
INSTRUCTIONS

APPLICATION PROCESS ESTIMATED TIMEFRAME

Application Step	Timeframe	Responsible Entity
1. DHHL receives pre-application packet and notifies applicant if pre-application packet is complete	Up to 30 days	LMD
2. DHHL reviews completed project proposal and schedules review meeting with applicant to review questions, concerns, staff may have	Up to 90 days	PO & LMD
3. DHHL schedules beneficiary consultation meeting if project is not a regional plan priority project. The applicant's pre-application will be placed on the DHHL Land Management Division webpage for public review.	Meeting scheduled 3 months before on island HHC meeting. For example, if you are applying for DHHL land on Kauai, the beneficiary consultation meeting would be scheduled 3 months before the HHC meeting on Kauai. HHC meeting calendar go to: http://dhhl.hawaii.gov/hhc/	PO & Applicant
4. HHC ROE approval for due diligence	3 months after beneficiary consultation meeting	LMD & HHC
5. Conduct due diligence studies*	12-24 months	Applicant*
6. HHC approves FONSI	TBD	PO & HHC
7. HHC approves long-term disposition	TBD	LMD & HHC
8. Monitoring and reporting	TBD	Applicant & PO & LMD

[To be signed by person identified in Pre-Application Form Question #1] I hereby acknowledge that I have read and understand the above application instructions. I understand that this form is being submitted electronically and my typed name on the signature line will qualify as my signature for purposes of the above certification.

Signature:  Date: 12/17/2022
Printed Name: Maile Lu'uwai Title: President
Organization: Keaukaha Pana'ewa Farmers Association

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P. O. BOX 1879
HONOLULU, HAWAII 96805

Department of Hawaiian Home Lands

NON-PROFIT ORGANIZATION APPLICATION FOR LONG-TERM USE OF DHHL LANDS

PRE-APPLICATION FORM

This form should be used by non-profit organizations who are interested in securing a long-term license agreement for the use of DHHL lands to better serve native Hawaiian beneficiaries, their families, and the homestead community. Please review the Pre-Application Guidelines and Instructions document before you fill out this form because it provides detailed instructions and it explains all the steps involved in securing a long-term license agreement.

APPLICANT INFORMATION

Name of Organization: Keaukaha Pana'ewa Community Alliance
Date of Incorporation: 11/16/2012 IRS Tax-Exempt #: 31622

1. Please identify one individual who will be the point of contact for this application:
   Contact Name: Maile Lu'uwai Title: President, Keaukaha Pana'ewa Farmers Association
   Email Address: maile@luuwailaw.com Phone: 808-280-0083

2. What is the mission/vision of your organization?
   [Please provide your typed responses on a separate page]

3. Please describe the history of your organization.
   [Please provide your typed responses on a separate page]

4. How has your organization previously served beneficiaries of the Hawaiian Homes Commission Act?
   [Please provide your typed responses on a separate page]

5. Describe past experiences, projects, or programs in the last five years that illustrate consistency with your organization's mission/vision statement.
   [Please provide your typed responses on a separate page]

6. Please provide references (name and contact information) and/or Letters of Support for this application for non-homestead use of Hawaiian Home Lands.
   [Please provide your typed responses on a separate page]

7. If you are developing your project in partnership with another organization(s), please describe the roles and responsibilities of each organization during project development, implementation, and long-term management.
   [Please provide your typed responses on a separate page]

PROJECT INFORMATION

8. Describe the project. What are your project goals and objectives? What kinds of activities, programs, and/or services will you provide? Describe the need for your project and how it will benefit the DHHL trust, homestead lessees, and/or waitlist applicants.
[Please provide your typed responses on a separate page]

9. Please share your current thinking about the following project elements:
   a. The planning process and your efforts to include beneficiaries.
   b. Beneficiary involvement throughout the duration of the project.
   c. Design and construction costs for major improvements (if any).
   d. Long-term management and operation of project facilities and the requested land area.
   e. Long-term maintenance and repairs.
   [Please provide your typed responses on a separate page]

10. Is the proposed project a Regional Plan Priority Project? YES O NO □

11. How do you intend to secure funding and other needed resources for the project?
[Please provide your typed responses on a separate page]

PROJECT LOCATION

12. Identify the parcel(s) of land your organization is requesting.
Tax Map Key Number(s): (3) 2-1-025:091 Acres: 10.63
Homestead Area: Pana'ewa Regional Plan Area: Pana'ewa
Island Plan Land Use Designation: *check all that apply below*
Community Use □ General Agriculture □ Conservation □ Special District □ Other O

13. Please attach a map that marks the boundaries of the area of land you are requesting. Please also identify on a separate map the conceptual layout and siting of proposed uses.

See Exhibit A. Resiliency & Agricultural Innovation Hub Design Charrette Executive Summary, Page 11, Figure 1.

14. What are the existing uses in the surrounding area? Please describe how your proposed use is consistent with the existing surrounding uses.
[Please provide your typed responses on a separate page]

15. Why do you want to implement your project at this site? Describe the characteristics of the site and surrounding area that make it an ideal location for your project.
[Please provide your typed responses on a separate page]

TIMEFRAME

16. What is the general timeframe for implementing the project (estimated years)? Please identify major benchmarks and phases.
[Please provide your typed responses on a separate page]

I hereby acknowledge that I have read this application and certify that the information provided in our responses are correct. I understand that this form is being submitted electronically and my typed name on the signature line will qualify as my signature for purposes of the above certification.

Signature:  Date: 12/17/22
Printed Name: Maile Lu'uwai Title: President
Organization: Keaukaha Pana'ewa Farmers Association

Department of Hawaiian Home Lands
NON-PROFIT ORGANIZATION APPLICATION FOR LONG-TERM USE OF DHHL LANDS
Application

INSTRUCTIONS

PURPOSE OF APPLICATION

The Hawaiian Homes Commission Act (HHCA) Section 204(2) and 207(c) authorizes DHHL to dispose of lands for non-homesteading purposes on the same terms, conditions, restrictions, and uses applicable to the disposition of public lands as provided in Hawaii Revised Statutes (HRS) Chapter 171. HRS 171-43.1 authorizes DHHL to dispose of lands to eleemosynary organizations by direct negotiation without requiring a competitive solicitation process.

Per HRS 171-43.1, eleemosynary organizations must be certified to be tax exempt under sections 501(c)(1) or 501(c)(3) of the Internal Revenue Code of 1986, as amended. The lands shall be used by such eleemosynary organizations for the purposes for which their charter was issued and for which they were certified by the Internal Revenue Service.

This application is meant for IRS 501(c)(1) or IRS(501)(c)(3) non-profit organizations that are interested in long-term utilization of DHHL land for the purposes of providing programs and services to DHHL beneficiaries to further their rehabilitation and well-being.

This application is NOT meant for:

- For-profit entities and for-profit purposes. For-profit proposals must go through a different process that requires a competitive solicitation process as outlined in HRS Chapter 171.
- Individual use of Hawaiian Home Lands
- Organizations and individuals that are interested in use or access of Hawaiian Home Lands for less than 30-days (short-term use). Interested organizations or individuals interested in short-term use of Hawaiian Home Lands should contact the DHHL Land Management Division for a Limited Right-of-Entry Permit application.

APPLICATION PROCESS

There are two main parts to this application process: (1) Completion of Pre-Application Form and (2) Application.

Part I -- Pre-Application Form

Pre-application intended to minimize risk of investing significant time and resources for the applicant and give DHHL a better idea about proposal and applicant potential capacity to implement.

The Pre-Application Project Proposal Form also ensures that the proposed area of use is consistent with DHHL Island Plan Land Use Designations. DHHL Island Plans can be found at: http://dhhl.hawaii.gov/po/island-plans/ DHHL will **only** be accepting proposals for its lands that

Name of Organization: Nonprofit Fiscal Sponsor: Keaukaha Pana‘ewa Community Alliance
Sponsored Organization: Keaukaha Pana‘ewa Farmers Association

APPLICANT INFORMATION

1. Please identify one individual who will be the point of contact for this application:

Contact Name: Maile Lu‘uwai Title: President, Keaukaha Pana‘ewa Farmers Association
Email Address: maile@luuwailaw.com Phone: 808.280.0083

2. What is the missionlvision of your organization?

Nonprofit Fiscal Sponsor: Keaukaha Pana‘ewa Community Alliance (KPCA):
In 2012, the Keaukaha Pana‘ewa Farmers Association (KPFA) incorporated KPCA to serve as KPFA’s non-profit 501(c)(3) partner fiscal sponsor. KPCA is operated exclusively for the exempt purposes set forth in its articles of incorporation. KPCA serves as KPFA’s fiscal sponsor for DHHL community benefit funds, private, state, and federal grants.

Sponsored Organization: Keaukaha Pana‘ewa Farmers Association (KPFA):
KPFA’s mission is to “support, motivate and educate Keaukaha Pana‘ewa agricultural lessees to establish a viable, sustainable farm community; preserve Hawaiian culture; achieve self-sufficiency; and strengthen pono management and respect for the 'aina”.

KPFA is organized to encourage, promote, and support all agricultural activities pertinent to the Pana‘ewa farm lot homestead lessees and their ‘ohana, and all other Hawaiians on the waiting list for Pana'ewa agricultural homestead leases.

3. Please describe the history of your organization.

Located in South Hilo, the Keaukaha Hawaiian Homestead was the first residential homestead developed on Hawai‘i Island in 1921.

In 1976, the Keaukaha Pana‘ewa Homestead was established. The first agricultural land awards for this homestead were awarded to fifty Keaukaha native Hawaiians, who were forced to relinquish their homes and relocate due to the construction of the Hilo International Airport. KPFA was established to serve Keaukaha Pana‘ewa Homestead lessees on DHHL agricultural lands in Pana‘ewa.

KPFA is a Hawaiian Homes Commission Act Beneficiary Association controlled by beneficiaries, as defined by the Hawaiian Home Land Recovery Act, 109 §537, and is registered with the U.S. Department of the Interior, 43 CFR §§47.10 and 48.6. KPFA is also recognized by the State of Hawai‘i Department of Hawaiian Home Lands as the representative organization for DHHL beneficiaries and their ‘ohana on Pana‘ewa Hawaiian Home Land trust lands.

In 2012, KPFA incorporated KPCA to serve as KPFA's non-profit 501(c)(3) partner entity and fiscal sponsor for grants.

KPFA currently manages the Pana'ewa Resiliency & Agricultural Innovation Hub (Pana'ewa Hub); formerly known as the Pana'ewa Farmer's Market. The Pana'ewa Hub is a one-acre site located at 363 Railroad Avenue. The site is operated under a Right-of-Entry Permit No. 482 between fiscal sponsor KPCA and DHHL.

This long-term license application is requesting 10.63 acres to fully develop the Pana'ewa Hub in accordance with its Conceptual Master Plan (Master Plan). The Master Plan is a 299-page document KPFA completed with consultant G70 in October 2021. The Master Plan includes a biological assessment, traffic assessment, archeological assessment, and utilities and infrascture preliminary assessment. For a summary of the Master Plan, see Exhibit A. The Resiliency & Agricultural Innovation Hub Design Charrette Executive Summary.

4. **How has your organization previously served beneficiaries of the Hawaiian Homes Commission Act (HCCA)**?

   KPFA provides programs to beneficiaries at the Pana'ewa Hub. KPFA has secured grants and established partnerships to provide agricultural and community workshops, as well as provide resources, to beneficiaries and their 'ohana. Detailed information regarding KPFA programs and beneficiaries served is provided in Exhibit B. 2017-2022 KPFA Programs.

5. **Describe past experiences, projects, or programs in the last five years that illustrate consistency with your organization's missionlvision statement.**

   For KPFA Programs in the last five years that illustrate consistency with KPFA's mission and vision, *see* Exhibit B. 2017-2022 KPFA Programs.

6. **Please provide references (name and contact information) andlor Letters of Support for this application for non-homestead use of Hawaiian Home Lands.**

   Not applicable. This application is for homestead community use of Hawaiian Home Lands.

7. **If you are developing your project in partnership with another organization(s), please describe the roles and responsibilities of each organization during project development, implementation, and long-term management.**

   Keaukaha Pana'ewa Community Alliance (KPCA) will serve as the project fiscal sponsor. Keaukaha Pana'ewa Community Alliance (KPFA) is not developing the project in partnership with another organization.

PROJECT INFORMATION

8. Describe the project. What are your project goals and objectives? What kinds of activities, programs, andlor services will you provide? Describe the need for your project and how it will benefit the DHHL trust, homestead lessees, andlor waitlist applicants.

KPFA is proposing to develop a Resiliency & Agricultural Innovation Hub (Pana‘ewa Hub) for a 10.63-acre parcel on Hawaiian Home Lands, identified as Tax Map Key (3) 2-1-025:091 located on 363 Railroad Avenue in Hilo Hawaii. This application is for a long-term license for the 10.63-acre parcel.

The Pana‘ewa Hub will consist of a series of pavilions connected by a lanai deck encompassing a central mound (piko). The pavilions will be designed as flexible spaces that can accommodate a range of programs. A kitchen and equipment storage area will also be included to support KPFA operations. The grounds surrounding the hub will be utilized for parking, outdoor learning spaces, innovative agricultural demonstration areas, and a community garden.

The Pana‘ewa Hub purpose is twofold. First, in accordance with KPFA’s community driven strategic plan, the Pana‘ewa Hub will be our own ‘space and place’; a community serving facility with a commercial kitchen and facilities for keiki to kupuna programming; agricultural training; and include an agricultural demonstration area to support ‘ohana enrichment, community economic sustainability, and economic food security.

Second, the Pana‘ewa Hub, in its design and capacity, can be activated to support the community, coordinate communication and resources, and ensure that physical and social needs can be met in preparation of, during, and post-recovery of a natural disaster or pandemic related event. The primary resources will include water, food security, off-grid energy production, access to clean drinking water, emergency communication technologies, storage for emergency equipment, and training for disaster preparedness and response.

9. Please share your current thinking about the following project elements:

a. The planning process and your efforts to include beneficiaries.

KPFA beneficiaries and their ‘ohana were invited to two all-day strategic planning workshops in 2018 and 2019. Via these strategic planning workshops, the community identified a community facility and innovative agriculture as top priorities for the selected site. The Pana‘ewa Hub facility was selected as the number one strategic priority by KPFA community members.

In 2020, KPFA secured G70 to lead KPFA beneficiary visioning workshops to create a Design Charette for the Pana‘ewa Hub. The Design Charette was completed in November 2020.

In 2021, KPFA secured G70 to lead KPFA beneficiary workshops to develop a Conceptual Master Plan based on KPFA beneficiary driven strategic priorities and incorporating the Design Charette. The Master Plan, a 299-page document, was completed in October 2021.

In 2022, KPFA secured G70 to continue the Master Plan work to include the Environmental Assessment (343 HRS) and Historic Preservation Review (6E HRS). The KPFA Board will be included in G70 status reports for both projects.

KPFA is currently working on the proposal scope for the next stage of the Master Plan: Design Tasks, Permit Set, Permitting/Bid Process, Construction, and Community Vulnerability Assessment. KPFA beneficiaries will be included in the final design process and the community vulnerability workshops.

b. Beneficiary involvement throughout the duration of the project.

See above.

c. Design and construction costs for major improvements.

As stated above, KPFA is working on the proposal scope for the next stage of the Master Plan which includes Design Tasks. The Design Task Phase includes a Permit Set and Final Construction Documents. Upon KPFA approval of the Permit Set design, final design documents will be generated for construction pricing. At this time, design and construction costs for major improvements will be identified.

d. Long-term management and operation of project facilities and the requested land area.

We are developing a business plan that will be submitted upon completion of the environmental assessment. The business plan will provide a framework for the long-term management and operation of the Panaʻewa Hub.

e. Long-term maintenance and repairs.

The business plan includes plans for long-term maintenance and repairs.

10. Is the proposed project a Regional Plan Priority Project? YES O NO □

11. How do you intend to secure funding and other needed resources for the project?

KPFA is currently working on the proposal scope for the next stage of the Master Plan: Design Tasks, Permit Set, Permitting/Bid Process and Community Vulnerability Planning. KPFA beneficiaries will be included in the final design process and the community vulnerability workshops.

KPFA proposal scope will be included in the State GIA request for funding that is due on January 22, 2023.

12. Identify the parcel(s) of land your organization is requesting.

Tax Map Key Number(s): (3) 2-1-025:091
Acres: 10.63
Homestead Area: Panaʻewa
Regional Plan Area: Panaʻewa

Island Plan Land Use Designation: *check all that apply below*

Community Use □General Agriculture □ Conservation □ Special District □Other O

The information that follows is from Exhibit A. Pana'ewa Resiliency & Agricultural Innovation Hub Design Charrette Executive Summary, Page 4, Table 1. Summary of Environmental Conditions.

Tax Map Key (TMK)	(3) 2-1-025:091
Ahupua'a	Waiākea
Island	Hawai'i Island
State Land Use District	Urban
Hawai'i County Zoning	MG-1a (General Industrial District)
Department of Hawaiian Home Lands (DHHL) Land Use Classification	Commercial
Land Use Pattern Allocation Guide (LUPAG)	Urban Expansion
Topography	Relatively flat, undulating ground with an elevation change of 6 ft
Rainfall	About 140 inches per year
Soils	Papai extremely cobbly highly decomposedplant material, 2 to 10 percent slopes
Land Study Bureau (LSB)	No Classification
Agricultural Lands of Importance to the State of Hawai'i (ALISH)	**Prime**
Flood Hazard	Zone X, minimal flood hazard
Sea Level Rise Exposure Area (SLR-XA)	This parcel is located outside of the SLR-XA
Tsunami Evacuation Zone	This parcel is located outside of the tsunami evacuation zone
Lava Hazard Zone	2

13. Please attach a map that marks the boundaries of the area of land you are requesting. Please also identify on a separate map the conceptual layout and siting of proposed uses.

See Exhibit A. Resiliency & Agricultural Innovation Hub Design Charrette Executive Summary, Page 11.

14. What are the existing uses in the surrounding area? Please describe how your proposed use is consistent with the existing surrounding uses.

The surrounding area includes commercial and industrial uses. The current one-acre site is used by KPFA's is used for community and agricultural workshops and for a hydroponics center. The rear of the site is not developed. The adjacent southeast site is used for agriculture. The adjacent northwest site is not developed.

15. Why do you want to implement your project at this site? Describe the characteristics of the site and surrounding area that make it an ideal location for your project.

In 2014, this site was identified by KPFA, with the support of DHHL, as an exceptional site to locate KPFA's Farmers Market and for community workshops and activities. Although, DHHL Land Use Classification for site is commercial, the Agricultural Lands of Importance to the State of Hawai'i (ALISH) is prime agricultural land. The site characteristics supports our Masterplan.

16. What is the general timeframe for implementing the project (estimated years)? Please identify major benchmarks and phases.

Estimated Timeframe

June 2023	Environmental Assessment (343 HRS) Issue FEA/FONSI to conclude EA Review
April 2023	6E HRS Historic Preservation Review SHPD Review Period/Letter of Concurrence
July 2024	Community Vulnerability Assessment Community workshops
Dec 2024	Design Tasks: Geotechnical Study, Topo Survey, Schematic Design, Design Development, Permit Set, Final Construction Documents
March 2025	Permitting/ Bid Process
Oct 2025	Begin Construction

Name of Organization: Nonprofit Fiscal Sponsor: Keaukaha Pana‘ewa Community Alliance
Sponsored Organization: Keaukaha Pana‘ewa Farmers Association

APPLICANT INFORMATION

1. Please identify one individual who will be the point of contact for this application:

Contact Name: Maile Lu‘uwai Title: President, Keaukaha Pana‘ewa Farmers Association
Email Address: maile@luuwailaw.com Phone: 808.280.0083

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Island Plan Land Use Designation: *check all that apply below*

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Tax Map Key (TMK)	(3) 2-1-025:091
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Department of Hawaiian Home Lands (DHHL) Land Use Classification	Commercial
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Rainfall	About 140 inches per year
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Land Study Bureau (LSB)	No Classification
Agricultural Lands of Importance to the State of Hawai'i (ALISH)	**Prime**
Flood Hazard	Zone X, minimal flood hazard
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13. Please attach a map that marks the boundaries of the area of land you are requesting. Please also identify on a separate map the conceptual layout and siting of proposed uses.

See Exhibit A. Resiliency & Agricultural Innovation Hub Design Charrette Executive Summary, Page 11.

14. What are the existing uses in the surrounding area? Please describe how your proposed use is consistent with the existing surrounding uses.

The front of one-acre site is used by KPFA's is used for community and agricultural workshops and for a hydroponics center. The rear of the site is not developed. The adjacent southeast site is used for agriculture. The adjacent northwest site is not developed. The surrounding area includes commercial and industrial uses.

15. Why do you want to implement your project at this site? Describe the characteristics of the site and surrounding area that make it an ideal location for your project.

In 2014, this site was identified by KPFA, with the support of DHHL, as an exceptional site to locate KPFA's Farmers Market and for community workshops and activities. Although, DHHL Land Use Classification for site is commercial, the Agricultural Lands of Importance to the State of Hawai'i (ALISH) is prime agricultural land. The site characteristics supports our Masterplan.

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Estimated Timeframe

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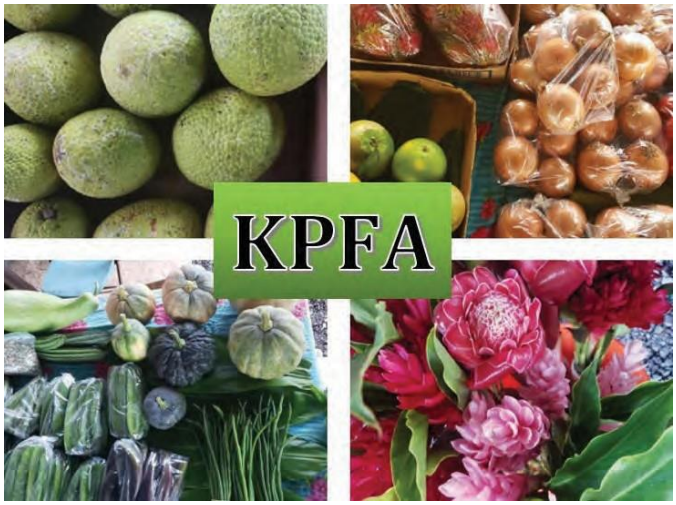
Exhibit A
Resiliency & Agricultural Innovation Hub Design Charrette Executive Summary

KEAUKAHA PANA‘EWA FARMERS ASSOCIATION



RESILIENCY & AGRICULTURAL INNOVATION HUB
DESIGN CHARRETTE
EXECUTIVE SUMMARY

Waiākea, Island of Hawai‘i,
Hawai‘i

Tax Map Key: (3) 2-1-025:091

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Executive Summary

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PROJECT DESCRIPTION

Located in South Hilo, the Keaukaha Hawaiian Homestead was the first residential homestead developed on Hawai‘i Island in 1921. In 1976, the Keaukaha Pana‘ewa Homestead was established. The first agricultural land awards for this homestead were given to fifty Keaukaha native Hawaiians, who were forced to leave their homes and relocate due to the construction of the Hilo International Airport. Now named the Keaukaha Pana‘ewa Farmer’s Association (KPFA), its mission is to support, motivate and educate the Keaukaha Pana‘ewa agricultural lessees to establish a viable sustainable farm community; preserve Hawaiian culture; achieve self-sufficiency, pono management, and respect for the ‘ăina (land).

KPFA is a Hawaiian Homes Commission Act Beneficiary Association controlled by beneficiaries, as defined by the Hawaiian Home Land Recovery Act, 109 §537, and is registered with the U.S. Department of the Interior, 43 CFR §§47.10 and 48.6. KPFA is also recognized by the State of Hawai‘i Department of Hawaiian Home Lands as the representative organization for DHHL beneficiaries and their ‘ohana on Pana‘ewa Hawaiian Home Land trust lands.

In 2012, KPFA incorporated the Keaukaha Pana‘ewa Community Alliance (KPCA) to serve as KPFA’s non-profit 501(c)(3) partner entity and fiscal sponsor for private, state, and federal grants. KPFA also manages the Ho‘oulu ‘Ăina Community Project (HACP), which encourages Native Hawaiian homesteaders to actively farm for cultural, economic, health and self-sufficiency benefits. In addition to community engagement workshops and instructional, hands-on demonstrations, HACP has documented oral histories and farming practices of Hawaiian homesteaders.

KPFA currently operates the Pana‘ewa Farmer’s Market and Resource Hub. KPFA has secured grants and established partnerships to provide agricultural workshops and resources for community members. KPFA coordinated the distribution and delivery of food, PPE, keiki supplies during the height of the COVID pandemic from 2020 to 2021 and continues to provide COVID testing kits to the community.

KPFA is proposing to develop a Resiliency & Agricultural Innovation Hub (Pana‘ewa Hub) for a 10.63- acre parcel on Hawaiian Home Lands, identified as Tax Map Key (3) 2-1-025:091 located on 363 Railroad Avenue in Hilo Hawaii. The Pana‘ewa Hub will consist of a series of pavilions connected by a lanai deck encompassing a central mound (piko). The pavilions will be designed as flexible spaces that can accommodate a range of programs. A kitchen and equipment storage area will also be included to

support KPFA operations. The structures will be orientated to honor the direction towards Mauna Kea and Mauna Loa. The grounds surrounding the hub will be utilized for parking, outdoor learning spaces, innovative agricultural demonstration areas, and a community garden.

Resilience Hub

After a tumultuous Hurricane season several years ago, the volcano's destruction in Pahoa, and KPFA's community experience with COVID, KPFA community members recognized that they needed their own resilient 'place and space', as well as a safe haven to support our community members to prepare for, during, and post-recovery from a natural disaster and community crisis like COVID-19.

Through intensive community driven strategic planning, the Pana'ewa Hub evolved as the number one community priority. The Pana'ewa Hub purpose is twofold. First, in accordance with KPFA's strategic plan, the Pana'ewa Hub will be a community serving facility with a commercial kitchen and facilities for keiki to kupuna programming; agricultural training; and agricultural demonstration area to support 'ohana enrichment, community economic sustainability, and economic food security.

Second, the Pana'ewa Hub will provide training, community care and coordinate resource distribution services before, during, or after a hazardous event. The primary resources will include: water, food security, off- grid energy production, access to clean drinking water, emergency communication technologies, storage for emergency equipment, and training for disaster preparedness and response.

Table 1: Summary of Environmental Conditions

Tax Map Key (TMK)	(3) 2-1-025:091
Ahupua'a	Waiākea
Island	Hawai'i Island
State Land Use District	Urban
Hawai'i County Zoning	MG-1a (General Industrial District)
Department of Hawaiian Home Lands (DHHL) Land Use Classification	Commercial
Land Use Pattern Allocation Guide (LUPAG)	Urban Expansion
Topography	Relatively flat, undulating ground with an elevation change of 6 ft.
Rainfall	About 140 inches per year
Soils	Papai extremely cobbly highly decomposed plant material, 2 to 10 percent slopes
Land Study Bureau (LSB)	No Classification
Agricultural Lands of Importance to the State of Hawai'i (ALISH)	Prime
Flood Hazard	Zone X, minimal flood hazard
Sea Level Rise Exposure Area (SLR-XA)	This parcel is located outside of the SLR-XA
Tsunami Evacuation Zone	This parcel is located outside of the tsunami evacuation zone

Lava Hazard Zone	2
Wildfire Ignition Density	High (2.18 sq. mi/yr.)
Census Tract	206 Hilo: Keaukaha-Panaʻewa
Total Population	6,282
Native Hawaiian Population	1263 (20.11%)
Medan age	34
Avg. Family Income	58,516
Below Poverty	629
Housing: Rented	491
Housing: Owned	3339

For maps related to environmental conditions, see Appendix A.

Methodology and Timeline

The Project was scoped for site condition analysis, conceptual master plan, infrastructure, and utilities assessment, three technical studies (Flora/Fauna, Traffic, Archaeology), and three workshops with KPFA community members and stakeholders. See Table 2 below.

Date	Name	Affiliation
Oct. 17, 2020	Charrette #1	KPFA Community Members & Stakeholders
Aug. 11, 2021	Justine Kamelamela	Hoʻoulu ʻĀina Community Project
Aug. 21, 2021	Charrette #2	KPFA Community Members & Stakeholders
Sept.17, 2021	Dotty Kelley-Paddock	Hauʻula Community Association (HCA)
Sept.17, 2021	Sean Naleimaile	State Historic Preservation Division (SHPD)
Sept. 25, 2021	Charrette #3	KPFA Community Members & Stakeholders
Oct. 1, 2021	Dr. Noa Lincoln	University of Hawaiʻi Department of Plant and Soil Sciences

CONCEPTUAL MASTER PLAN AND PROGRAMMING

The conceptual masterplan was formed through KPFA community member workshops that were specific to KPFA's mission and goals for the site. The workshops defined who they are and why this project is unique to them. In the process of collecting foundational words and stories from KPFA, a vision statement was created to describe the project:

> *Our Keaukaha Panaʻewa Farmers community honors the first Panaʻewa Nui homesteaders by carrying on the vision of a sovereign and thriving people committed to the guardianship of our resources in this puʻuhonua of well-being, gratitude, and growth.*

Within the balance between the existing site (abundance of water, sun, and life) and the origins of the site (ancestors who pioneered the land), lives legacy and honor. This vision is translated into the project's very own masterplan DNA where the spirit of the community coming together is embraced through creating a space for resiliency and agricultural innovation. Additionally, honoring the importance of Mauna Kea and Mauna Loa was incorporated into the site design. This simple, yet powerful, relationship anchors the hub and sits within the natural landscape of the site.

KPFA Resiliency & Agricultural Innovation Hub Masterplan DNA:

1. **Resilience –** The project is a place that represents shelter and the unique feeling of being safe, a Resiliency Hub that serves the community with protection and provision when they are in need. As a resilient strategy against hurricanes, flooding and other natural disasters, the site focuses on nature- based solutions that help mitigate wind and water. Surrounding the property are native tree species that are resilient to strong winds, and a moat to divert water or prevent flooding; all natural barriers that protect the site. Innovative agricultural areas will be located behind and intertwined around the Hub facility. As a result, the hub and innovative agricultural areas will remain safe and protected throughout all seasons.

2. **Central Mound** – A Central Mound creates a communal space, further expressing the feeling of coming together and being protected. This open space can house small to large group activities and performances. A central location for demonstration activities such as Hula, Kilo Hoku, Kilo Honua, Lă'au Lapa'au (native plants), and Ho'okani Pila (music) - an open space for amphitheater and stepped seating. The Central Mound also offers an open view towards Mauna Kea and Mauna Loa.

3. **Lumi (Pavilion)** – In extension to the Central Mound, is the Lumi (pavilion). Depending on their use, each Lumi can grow and be flexible using sliding walls and screens.
    a. LUMI 1: Kupuna/Keiki engagement activities, 'Ohana gatherings, agricultural workshops (i.e., Indigenous Polyforestry)
    b. LUMI 2: Commercial Certified Kitchen, Restrooms, Storage, Office, Sleeping Quarters
    c. LUMI 3: Equipment Storage & Warehouse
    d. LUMI 4 & 5: Spaces for educators to host Kilo and Agriculture programs.

4. **Lifted Lanai** – The Lifted Lanai allows spaces to stay cooler and enables the ground underneath to help with rain and water mitigation. A protected indoor-outdoor deck connects all the Lumi pavilions together, providing additional spaces that can be used during private and public events. The Lanai ensures ease for Kupuna to find their way to their next class.

    The programming and demographic workshops brought the understanding that the hub will meet a variety of community needs. Applying the strategy of flexibility and modularity, the conceptual masterplan incorporates large indoor-outdoor gathering spaces built on a structural grid; most of which are covered for protection and integrated with sustainable systems, such as photovoltaic panels for power, and rain collection for water. The full KPFA agricultural innovation and resilience hub site features and programming can be found in Table 3, Site Features and Programming.

Table 3. Site Features and Programming

Site Features	Area
Agriculture Innovation Projects (Green)	304,920 sf (7 Acres) Approximate
Central Mound	700 sf
Lifted Lanai (Covered, Open-Air)	8,000 sf
Parking #1 70 Stalls (Standard + ADA) Two Drop-Offs	30,000 sf
Parking #2 – Update- this area is included in the 2-Acre Agricultural Innovation Project. Figure 1 will be updated to reflect this change.	3,000 sf
Others (Paving & Decks)	TBD

Program	Area
Gathering Pavilion Front Lanai Back Lanai 250 people max Total	2,570 sf 500 sf 500 sf 3,570 sf (250 people max)
Commercial Certified Kitchen Outdoor Prep Process & Store/Refrigeration Vendor Stations Emergency Food Storage Backup Power Storage Total	1,960 sf 1,670 sf 3,630 sf
Imu Facility (Outdoor)	1,300 sf
Restrooms & Showers Male – Min. 3 stalls Female – Min. 3 stalls ADA – Min. 1 stall	1,160 sf
Office Storage Files	950 sf
Conference Room Classrooms & Storage	835 sf
Storage (Energy & Water Storage)	1,110 sf
Equipment Storage/ Warehouse	2,220 sf
Farm Dwelling	835 sf
Open (Kipuka) Pavilions Community Use Educational Use	1,900 sf
Program Total	17,490 sf

The project site is located within the DHHL Commercial district, which is designated for retail, business, and commercial activities. The purpose of this land is to provide revenue to DHHL Trust and/or Homestead Community Associations. Mixed uses are allowed. Permitted uses and minimum infrastructure on DHHL Commercial land must meet county standards. The programming is also applicable to Hawai‘i State and County zoning. State Urban districts include activities or uses as provided by ordinances or regulations of the respective county. Likewise, permitted uses in the County MG-1a district include, but are not limited to: agricultural products processing, aquaculture, broadcasting stations, catering establishments, commercial parking lots, community buildings, food manufacturing, and greenhouses.

SUMMARY OF REPORTS

Archaeological Reconnaissance Survey

An Archaeological Reconnaissance Survey (ARS) was conducted by Keala Pono on July 12-13th, 2021. The pedestrian survey covered approximately 91% of the study area. One acre (9%) of the parcel was not walked due to impenetrable brush. One archaeological site (Site 1) was identified and consists of three abandoned cars, structural remains, and historic artifacts. The site as a whole likely dates to the 1960s or later, with the cars and at least one artifact probably dating to the 1950s. The site is in fair to poor condition, with all features heavily deteriorated. An archaeological inventory survey or data recovery program is recommended to document the site and more fully identify the cars and artifacts.

A consultation with the State Historic Preservation Division (SHPD) recommends completing an Archaeological Inventory Survey (AIS) to further document the sites. It is anticipated that documentation of the site would be adequate in moving towards a “no historic properties affected” determination.

Biological Assessment

A walk-through survey was completed by Hui Ku Maoli Ola and G70 on July 21st, 2021. The perimeter survey identified 59 plant taxa and three fungi taxa, of which seven species (~11%) may be considered native (either indigenous to Hawai‘i or of Polynesian introduction). Eight species of avifauna and four species of terrestrial fauna were identified, all of which have been introduced to Hawai‘i. There were no proposed or endangered species observed.

Strawberry guava dominated the vegetation of the project’s forested area. See Figure 3. Other abundant plant species include octopus tree, gunpowder tree, fruit trees, miconia, and bingabing. Indigenous plants include pockets of ‘ohia lehua, pepeiao, popolo, forked fimbry, and moa. Avifauna observed include cattle egret, red cardinal, zebra dove, spotted dove, red-billed leiothrix, house sparrow, saffron finch, and common mynah. Of the terrestrial fauna, green anole lizards and feral pigs were observed, and coqui frogs could be heard from the project area.

The report recommends the removal of invasive plant species to the extent possible, primarily, strawberry guava, miconia, bingabing, and a patch of juvenile gunpowder trees. Cleared areas should immediately be replanted and/or monitored to prevent invasive plants from reestablishing presence. The planting of traditionally cultivated plants that are compatible with the parcel, such as kukui, mai‘a (banana), niu (coconut), noni, ‘ohi‘a ‘ai (mountain apple), ‘ulu (breadfruit), ‘awa, kalo (taro), ki, ko (sugarcane), mămaki, ‘olena (tumeric), ‘uala (sweet potato), and uhi (yam), is recommended. Furthermore, invasive species control is recommended for feral pigs and little fire ants. Project site should be monitored for possible Rapid ‘Ohi‘a Death (ROD) and potential ‘Ope‘ape‘a (Hawaiian Hoary Bat) populations.

Traffic Assessment Report

A Traffic Assessment Report (TAR) was conducted from August 11th, 2021 to August 15th, 2021 by Traffic Management Consultants to analyze the existing peak hour traffic in vicinity of the project site. Turning movement traffic count surveys were conducted at the intersections of:

a) Maka'ala Street and Railroad Avenue
b) The Home Depot Driveway and Railroad Avenue
c) Pu'ainako street and Railroad Avenue

A highway capacity analysis was used to determine Levels of Service (LOS) ranging from best LOS “A” to the worst LOS “F”. LOS “D” is the minimum acceptable LOS according to Hawai‘i County Code “Concurrency Requirements”. A traffic count survey was conducted on Railroad Avenue to determine peak periods of traffic.

Peak weekday traffic hours occur from 7:15 AM to 8:15 AM and again from 3:15 PM to 4:15 PM. During peak AM traffic, Maka'ala Street and Railroad Avenue operated at LOS “D”. Pu'ainako Street and the Home Depot Driveway operated at LOS “C” and “D”, respectively. During peak PM hours, Maka'ala Street and Railroad Avenue operated at LOS “D”. Pu'ainako Street and the Home Depot Driveway operated at LOS “C”. Weekend traffic was higher on Saturday, and the peak hour of traffic on Saturday is from 10:45 AM to 11:45 AM. During this hour, Maka’ala Street operated at LOS “D”. Pu’ainako Street and the Home Depot Driveway operated at LOS “C” and “B”, respectively.

Utilities and Infrastructure

Proposed Site Access, Parking and Safety

The property will continue to be accessed off of Railroad Ave. Proposed improvements will include three new driveway aprons off of the public roadway, including a driveway in and a driveway out of the proposed parking lot. A third driveway will be located across the intersection with Maka’ala Street, which will function more as a service entry to the farm. For proposed driveway access points and parking lot, see Figure 1.

Pedestrian access will continue to be limited with no surrounding public sidewalks serving the project site.

Proposed Water Infrastructure

The property is currently serviced by the County of Hawai‘i Department of Water Supply (DWS). The existing 5/8-inch domestic water meter and lateral would likely be replaced with a larger service to meet the needs of the facility. In addition, it is expected that the building may need to have a fire sprinkler, which will require a new fire service lateral and backflow preventor to be installed off of the existing 12” public water main on Railroad Avenue.

Proposed Wastewater Infrastructure

Since municipal wastewater service is not available from the County, onsite wastewater treatment systems are required and will need to be design and constructed as required by State regulations.

Due to the anticipated amount of wastewater generated, it is likely that a wastewater treatment plant (WWTP) is required. It is likely that some form of aerobic treatment would be used along with disposal of effluent in a large absorption field to be located somewhere on the property. Due to the variable flow expected as well as redundancy requirements an equalization tank and emergency generator are recommended.

Proposed Electrical/Telecom

The property does not currently appear to have electrical or telcom service. However, at the appropriate time, a service request can be submitted to the utilities to bring in service to the proposed building and other facilities. The new service would likely come in off of the existing pole on the northwest corner of the property and run overhead to the building.

Proposed Drainage Infrastructure

The project site generally slopes from south to north and is heavily vegetated, except in the area currently cleared for the 1 -acre farmer's market. There is no existing drainage infrastructure onsite.

The proposed drainage infrastructure for the project will be limited to swales, culverts, rain gardens and drainage sumps. Runoff will flow overland to swales and through culverts, then into landscape or farm areas. Rain gardens and sumps will be created in these areas to manage runoff, allowing for evapotranspiration and infiltration into the ground. Improvements will be designed and constructed as required by County Standards.

CONCLUSION

The Keaukaha Pana'ewa Farmers Association (KPFA) is proposing to develop a Resiliency & Agricultural Innovation Hub for a 10.63-acre parcel on Hawaiian Home Trust Lands located on 363 Railroad Avenue in Hilo, Hawaii. Resilience Hubs are community serving facilities that support residents and coordinate resource distribution and services before, during or after a hazard event.

Three design charrettes with KPFA were held, and four additional consultations were conducted. An Archaeological Reconnaissance Survey, Biological Assessment, Preliminary Traffic Assessment Report, and Conceptual Utility and Infrastructure Study have been conducted for the parcel. The proposed conceptual masterplan is consistent with DHHL land use designations as well as State and County zoning. With consultant G70, KPFA will complete an environmental assessment and preliminary engineering plan by late fall or early summer 2023.

The KPFA Pana'ewa Hub Program DNA embodies resiliency through central components, including a central mound or piko, lumi pavilions, lifted lanai and agricultural sites encompassing the site. The pavilions will be designed as flexible spaces that can accommodate a range of agricultural, cultural, and educational programs. Through community-run programming and services, the Resilience & Agricultural Innovation Hub will further the community's vision of becoming a sovereign and thriving people acting in guardianship of their own pu'uhonua.

Pana‘ewa Resiliency & Agricultural Innovation Hub

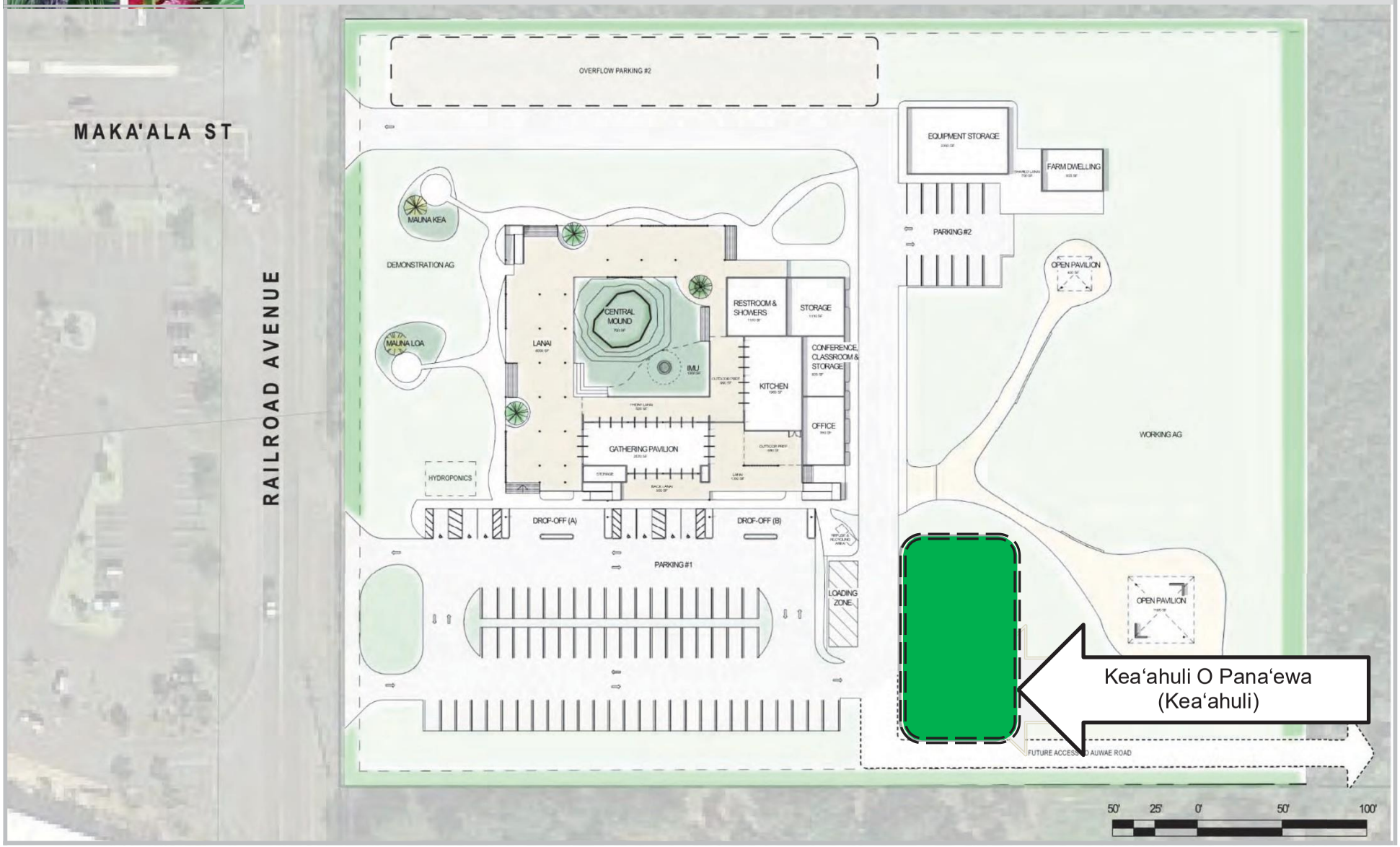

Figure 1. Conceptual Master Plan

Exhibit B
2017-2022 KPFA Programs

PANA‘EWA HUB REPORT: 2017-2022

Prepared by Justine Kamelamela for the Keaukaha Pana‘ewa Farmers Association

PH 2017 - PRESENT

YEAR	PARTICIPANTS	NATIVE HAWAIIAN	DHHL LESSEE	VOLUNTEER(S)	TOTAL VOLUNTEER HRS
2017	832	208	208	728	2080
2018	888	252	251	737	2109
2019	965	231	228	714	2105.5
2020	3627	2924	2616	286	986
2021	698	470	372	83	864
2022	908	619	502	134	245
TOTAL	**7918**	**4704**	**4177**	**2682**	**8389.5**

2017

DATE	EVENTI ACTIVITY	PARTICIPANTS	NATIVE HAWAIIAN	DHHL LESSEE	NO. OF VOLUNTEERS	VOLUNTEER HRS	TOTAL HRS
01-12/2017	Hydroponics: Wednesdays (52 Weeks)	260	104	104	260	3	780
01-12/2017	Hydroponics: Saturdays (52 Weeks)	416	52	52	416	3	1248
01-12/2017	Pana‘ewa Farmers Market (Every Saturday, 52 weeks)	156	52	52	52	1	52
	2017 TOTAL	**832**	**208**	**208**	**728**	**-**	**2080**

2018

DATE	EVENTI ACTIVITY	PARTICIPANTS	NATIVE HAWAIIAN	DHHL LESSEE	NO. OF VOLUNTEERS	VOLUNTEER HRS	TOTAL HRS
01-12/2018	Hydroponics: Wednesdays (Every Saturday, 52 Weeks)	260	104	104	260	3	780
01-12/2018	Hydroponics: Saturdays (52 Weeks)	416	52	52	416	3	1248
01-12/2018	Pana‘ewa Farmers Market (52 weeks)	156	52	52	52	1	52
9/22/2018	Site Blessing for Ho‘oulu ‘Āina Community Project (HACP)	5	5	4	3	1	12
10/6/2018	HACP Mālama Mahi‘ai: Meet Your Extension Agent	9	5	5	1	3	3
11/10/2018	HACP Malama Mahi‘ai: ‘Awa Propagation	3	2	2	1	2	6
11/17/2018	HACP Aloha Pana‘ewa: Community Leadership	18	16	16	1	2	2
11/24/2018	HACP Mālama Mahi‘ai Agroforestry Systems: Integrating Forest Trees and Crops	5	4	4	1	2	2
12/15/2018	HACP Huaka‘i: Huaka‘i i Wailuku | Wahi Pana o Humu‘ulu	13	10	10	1	2	2
12/22/2018	HACP Mālama Mahi‘ai: ‘Awa Mentorship and Talk story	3	2	2	1	2	2
	2018 TOTAL	**888**	**252**	**251**	**737**	**-**	**2109**

2019

DATE	EVENTI ACTIVITY	PARTICIPANTS	NATIVE HAWAIIAN	DHHL LESSEE	NO. OF VOLUNTEERS	VOLUNTEER HRS	TOTAL HRS
01/2019-12/2019	Panaʻewa Farmers Market (Every Saturday, 52 weeks)	156	0	0	0	0	0
01/2019-12/2019	Hydroponics: Wednesdays (52 Weeks)	260	104	104	260	3	780
01/2019-12/2019	Hydroponics: Saturdays (52 Weeks)	416	52	52	416	3	1248
1/5/2019	HACP Aloha Panaʻewa: History of the Department of Hawaiian Home Lands(DHHL)	12	**11**	**11**	1	2	2
2/9/2019	HACP Mălama Mahiʻai: Composting 101	8	5	5	1	2	2
03/02-04/13/2019	Hydroponics: For the Home Gardener(5 Classes)	55	10	10	15	1.5	22.5
3/9/2019	HACP Malama Mahiʻai: Learn to Graft	6	5	5	1	2	2
4/13/2019	HACP Mălama Mahiʻai: Grow Your Own Laʻau Garden	8	7	6	1	2	2
4/16 - 4/20/2019	HACP Community Impact Research Trip: Huakaʻi i Molokaʻi	8	8	7	1	10	10
6/25/2019	HACP Mălama Mahiʻai: ʻAwa Mentorship and Talk Story	3	2	2	1	2	2
6/29/2019	HACP Malama Mahiʻai: Mahina	10	8	7	1	2	2
8/24/2019	HACP Malama Mahiʻai: Lă ʻOhana	15	14	14	15	2	30
12/15/2019	Hui Mălama Ola Na ʻOiwi Garden Workshop: Grow Your Own Lă'au	8	5	5	1	3	3
	2019 TOTAL	**965**	**231**	**228**	**714**	**-**	**2105.5**

2020

DATE	EVENTI ACTIVITY	PARTICIPANTS	NATIVE HAWAIIAN	DHHL LESSEE	NO. OF VOLUNTEERS	VOLUNTEER HRS	TOTAL HRS
02-12/2020	Panaʻewa Farmers Market(44 Weeks)	176	44	44	0	0	0
1/4/20	Hydroponics: Wednesdays (18 Weeks)	90	0	0	5	3	270
1/7/2020	Hydroponics: Saturdays (17 Weeks)	136	0	0	8	3	408
04-05/2020	Keiki Care Packs(3 rounds)	180	140	120	9	2	18
4/22/2020	Earth Day Community Plant Giveway	40	20	8	1	3	3
5/8/2020	Show Aloha Challenge: Kupuna Bento	30	28	28	6	1	6
5/14/2020	Ola Nă Iwi Kupuna Food and Hygiene Bags	50	49	45	2	2	4
05-06/12/2020	Show Aloha Challenge: Kupuna Bento(5 rounds)	240	220	212	24	1	24
07/2020-08/2021	Hoʻoulu ʻĂina Community Project(HACP) - Funded by the Pawanka Fund	25	25	25	0	0	0
8/5/2020	Ola Nă Iwi Kupuna Food and Hygiene Bags	50	49	45	2	2	4
09/25-12/10/2020	PFM & Resiliency Hub Meal Distribution & Delivery(50 meals x 2/wk. x 26 wks.)	2600	2340	2080	221	1	221
9/26/2020	CPR Training	5	5	5	4	4	16
11/7/2020	Volunteers Work Day	5	4	4	4	3	12
	2020 TOTAL	**3627**	**2924**	**2616**	**286**	**-**	**986**

2021

DATE	EVENTI ACTIVITY	PARTICIPANTS	NATIVE HAWAIIAN	DHHL LEESEE	NO. OF VOLUNTEERS	VOLUNTEER HRS	TOTAL HRS
01/02/2021-11/6/2021	Panaʻewa Farmers Market(Every Saturday, 45wks)	180	45	45	0	0	0
01/25-01/29/2021	Grant Onboarding with Vibrant Hawaii Grant Team(4 days)	2	2	1	1	4	16
01/27-10/27/2021	Panaʻewa Neighborhood Watch Meeting: 01/27/2021, 04/28/2021, 07/28/2021 & 10/27/2021	59	25	25	4	2	8
01/05/2021-05/29/2021	Vibrant Hawaiʻi Leadership Academy Cohort (1x/month)	2	2	1	2	3	30
02/09-05/29/2021	KPFA Hydroponics Program - Supported by Grant with Vibrant Hawaiʻi	6	6	4	6	2	12
03/26/2021	Plant Donation Received: ʻUala slips & Huli (60 plants)	2	2	1	1	1	1
2/12/2021	Panaʻewa Hydroponics Program	5	5	5	4	3	12
2/13/2021	Volunteer Day: Organize Container	2	2	1	1	2	2
2/16/2021	Panaʻewa Hydroponics Program	5	5	5	4	2	8
2/19/2021	Panaʻewa Hydroponics Program	5	5	5	4	2	8
03/27/2021	KPFA Community & General Membership Meeting	40	40	34	1	4	4
03/27/2021	Community Distribution: Huli - 3 varieties, Kou, Kupukupu, Leafy Green Starts, Lemongrass, Maʻo Hau Hele, Māmaki, Niu and ʻUala - 2 varieties (~150 plants)	40	39	34	1	4	4
04/03/2021	Workshop: Growing Canoe Plants to Increase Food Security with Kaiana Runnels	22	7	3	1	4	4
04/23/2021	Plant Donation Received: Huli (Palehua)	2	2	2	1	1	1
05/01/2021	Food Distribution: KPFA Hydroponics Program	30	30	25	2	2	4
05/17-05/18/2021	Mural Painting with Susan Champeny (2 days)	8	4	3	7	4	56
05/29/2021	Workshop: Building Soil 101 with Donna Mitts	14	6	3	1	5	5
06/05/2021	Food Distribution: KPFA Hydroponics Program	30	27	25	2	2	4
06/08-08/20/2021	Volunteer Work Days (2x/wk. for 19wks)	6	6	4	6	2	384
06/26/2021	Workshop: Māmaki Forum	13	5	2	1	4	4
06/26/2021	Donation Received: Māmaki (40 plants)	2	1	0	0	0	0
08/21/2021	Community Distribution: Māmaki Plants	10	8	5	0	0	0
09/03/2021-11/05/2021	Volunteer Work Day (2x/wk. for 10wks)	6	6	4	6	2	240
09/09/2021	Donation Received: Māmaki (40) & Alaʻala wai nui (20)	2	1	1	1	1	1
09/24/2021	Donation Received: Pots and Seedling Trays	1	0	0	1	1	1
09/24/2021	Community Distribution: Pots and Seedling Trays	8	5	2	0	0	0
10/05/2021	Community Distribution: Kupuna Produce Boxes (Partnership with Hawaii Rise Foundation, Hawaii Eco Experiences & the Panaʻewa Hub)	30	30	26	2	2	4
10/23/2021	Plant Donation Received: Chive Starts	1	0	0	1	1	1
10/31/2021	Panaʻewa Hub Reservation: Da Chop Sui Hui	9	6	3	1	1	3
11/05/2021	Community Distribution: 20 sets of Hydroponic Pot System	20	20	20	1	1	1
11/06/2021	Community Distribution: Māmaki Plants	2	2	2	1	1	1

11/12/2021	Volunteer Day: Organization of Storage Container	2	2	1	1	2	2
11/13/2021	Pana'ewa Hub Reservation: Ke Kula Nui O Waimanalo	42	38	19	0	0	0
11/13/2021	Community Distribution: 40 Plants. Mămaki, Uhi and ‘Ala ‘ala wai nui	42	38	19	1	1	1
11/19/2021	Volunteer Day: Harvesting of ‘Olena	6	6	4	5	2	10
11/26/2021	Volunteer Day: Cleaning and Harvesting of Kupukupu	6	6	4	5	2	10
11/28/2021	‘Ăina Mauna Legacy Program Distribution	30	30	30	6	2	12
12/03/2021	Volunteer Day: Pulling weeds and watering plants	6	6	4	5	2	10
	2021 TOTALS	**698**	**470**	**372**	**83**	**-**	**864**

2022

DATE	EVENTI ACTIVITY	PARTICIPANTS	NATIVE HAWAIIAN	DHHL LEESEE	NO. OF VOLUNTEERS	VOLUNTEER HRS	TOTAL HRS
01-9/17/2022	Pana'ewa Farmers Market (Every Saturday, 37 weeks)	148	37	37	0	0	0
01/14/2022	Volunteer Day: PH Maintenance	6	6	4	5	2	10
01/22/2022	PH Site Reservation: KPFA Ag. Committee Meeting	4	4	3	3	2	6
01/22/2022	Community Distribution: Free Covid-19 Test Kits (Total 600 Kits)	150	135	135	6	2	12
01/22/2022	Community Distribution: Pots and ‘Olena	2	2	2	0	0	0
01/26/2022	Pana'ewa Neighborhood Watch Meeting: 01/26/2022	9	9	8	1	2	2
01/28/2022	Volunteer Day	4	4	2	3	2	6
02/05/2022-2/26/2022	Pana'ewa Farmers Market (Every Saturday, 6 -10am x 4wks)	16	4	4	0	0	0
02/04/2022	Volunteer Day	6	6	4	5	2	10
02/05/2022	Community Distribution: Pots and Huli	2	2	2	0	0	0
02/05/2022	Donation Received: 60 Huli (3 varieties)	1	1	1	0	0	0
02/09/2022	Volunteer Day - Gather trash around site and in hot houses	2	2	1	1	1	2
02/11/2022	Volunteer Day - Truck trash to dump	4	4	2	3	2	6
02/12/2022	Community Distribution: Huli(30)	2	2	2	0	0	0
02/16/2022	Volunteer Day - Weeding of garden areas	5	5	3	4	1	4
02/18/2022	Volunteer Day - Hoʻomaʻemaʻe Nursery tent	4	4	2	3	1	3
02/19/2022	Pana'ewa Community Nursery: Distribution Huli(20)	1	1	1	0	0	0
02/23/2022	Volunteer Day - Hoʻomaʻemaʻe Nursery tent and construct nursery tables	4	4	2	3	2	6
02/25/2022	Volunteer Day - Huki Kalo	6	6	4	6	2	12
02/26/2022	KPFA General Membership + Community Meeting	60	60	60	6	2	12
02/26/2022	Community Distribution: Plants(30) and Produce(6)	25	25	25	3	3	6
03/02/2022	Volunteer Day: Weeding & Watering	1	1	1	1	2	2
03/04/2022	Volunteer Day: Harvested Lemongrass and repotting.	5	5	3	5	2	10
03/05-3/26/2022	Pana'ewa Farmers Market (Every Saturday, 6 -10am x 4wks)	16	4	4	0	0	0
03/05/2022	Community Nursery: Plant distribution - 40 (green onion, chives, ‘uala, miniature pomeranate, peace lilly, lemongrass, huli)	5	4	2	0	0	0

03/09/2022	Volunteer Day: Weeding & Watering	6	6	4	5	1.5	7.5
03/11/2022	Volunteer Day: Potting up plants for community nursery.	6	6	4	5	1.5	9
03/19/2022	Community Nursery: Plant distribution - 40 (green onion, culantro, ʻuala, lemongrass, huli)	6	3	2	0	0	0
03/23/2022	Volunteer Day: Weeding & Watering	6	6	4	5	1.5	7.5
03/25/2022	Volunteer Day: Huki ʻUala. Made slips and cuttings to replant.	7	6	4	6	2	12
03/26/2022	Volunteer: Kanu ʻolena(Hawaiian Sun & Black)	6	6	6	5	1	5
03/26/2022	Community Nursery: Plant Distribution - 10	4	1	1	0	0	0
03/30/2022	Volunteer Day: Weeding, watering & amending soil beds	4	2	2	3	1.5	4.5
04/01/2022	Volunteer Day: Weeding, harvesting and cleaning Ki	4	4	1	3	1.5	4.5
04/02/-04/30/2022	Panaʻewa Farmers Market(5 days)	20	5	4	1	5	5
04/02/2022	Community Nursery: 20 Plants	4	3	2	0	0	0
04/06/2022	Volunteer Day: Dump run	3	3	2	2	1.5	3
04/08/2022	Volunteer Day: Weeding and Watering	4	4	1	3	1.5	4.5
04/08-04/09/2022	Community Distribution: 300 at Home COVID Test Kits	75	50	30	0	0	0
04/08/2022	Community Nursery: 10 Plants	1	1	1	0	0	0
04/13/2022	Volunteer Day: Potting ʻUala	5	5	3	4	1.5	4.5
04/22/2022	Volunteer Day: Weeding, watering and harvesting lau Ki	5	5	3	4	1.5	4.5
04/23/2022	Community Distribution: 150 At Home COVID Test Kits	38	30	25	0	0	0
04/27/2022	Neighborhood Watch Meeting	13	9	9	1	1.5	1.5
04/29/2022	Volunteer Day: Potting ʻUala	5	5	3	4	1.5	4.5
04/30/2022	Community Distribution: 84 At Home COVID Test Kits	21	15	13	0	0	0
04/30/2022	Community Nursery: Green Onion(4 bunches, sold + 3 kupuna)	5	2	2	0	0	0
05/07-05/28/2022	Panaʻewa Farmers Market(4 days)	16	4	4	2	5	10
05/06/2022	Volunteer Day: Weeding and Watering	3	3	1	2	1.5	3
05/07/2022	Community Distribution: 64 At Home COVID Test Kits	16	13	5	0	0	0
05/13/2022	Volunteer Day: Dump run	3	3	1	2	1.5	3
05/14/2022	Community Nursery: Plant distribution	2	2	2	0	0	0
05/28/2022	Community Distribution: 126 At Home COVID Test Kits	30	24	6	0	0	0
06/04-06/25/2022	Panaʻewa Farmers Market(3 days)	11	3	3	2	5	10
06/03/2022	Volunteer Day: Clean front fence line	4	4	4	3	1.5	4.5
06/04/2022	Community Distribution: 300 At Home COVID Test Kits	50	26	15	0	0	0
06/10/2022	Volunteer Day: Weeding Māla Laʻau	4	4	4	3	1.5	4.5
06/11/2022	Community Nursery: Plant Distribution	2	2	0	0	0	0
06/17/2022	Volunteer Day: Weeding Garden beds(along Puna side)	4	4	4	3	1.5	4.5
07/02-07/30/2022	Panaʻewa Farmers Market(5 days)	19	5	5	2	5	10

07/22/2022	Volunteer Day: Repotting	4	4	4	3	1.5	4.5
07/29/2022	Volunteer Day: Weeding	4	4	4	3	1.5	4.5
08/13/2022	Community Nursery: Plant donation(Kou and Milo)	2	2	2	0	0	0
08/18/2022	Community Nursery: Plant donation(Malabar Chestnut)	2	2	2	1	1	1
08/20/2022	Volunteer Day: Maintenance on Hydroponic tents (weedwacking and organizing)	3	3	3	3	4	12
8/27/2022	Volunteer Day: Weeding and replanting front raised bed	2	2	1	2	2	4
8/24-9/17/2022	Community Distribution: 600 At Home COVID Test Kits	343	-	-	-	-	-
08/30/2022	Kea‘ahuli O Pana‘ewa Blessing with NOAA x KPFA	32	17	15	2	5	10
09/12/2022	PH Hosted Sustainable Molokai	6	6	4	1	1	1
09/15/2022	Kupuna Produce Box Distribution	30	30	30	0	0	0
09/17/2022	Community Nursery: Donation (Pots, 200 and Trays, 100)	1	0	0	1	1	1
	TOTAL	**908**	**619**	**502**	**134**	**-**	**245**

Exhibit "D"
Item No. F-1

DCCA State of Hawaii

[illegible]

Business Information

[illegible]

Annual Filings

FILING YEAR	DATE RECEIVED	STATUS
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
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Officers

NAME	OFFICE	DATE
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[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

DCCA State of Hawaii

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Business Information

[illegible]

Annual Filings

FILING YEAR	DATE RECEIVED	STATUS
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Officers

NAME	OFFICE	DATE
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STATE OF HAWAII

DEPARTMENT OF HAWAIIAN HOME LANDS

January 17-18, 2023

To: Chairman and Members, Hawaiian Homes Commission

Thru: Peter Kahana Albinio, Jr., Acting Administrator,
Land Management Division KA

From: Kaipo Duncan, Land Agent
Land Management Division KD

Subject: Approval to Issuance of License to Kanuikapono Public Charter School, Anahola, Island of Kaua'i, TMK No.: (4) 4-8-003:019 (por.)

APPLICANT
Kanuikapono Public Charter School

RECOMMENDED MOTION/ACTION
That the Hawaiian Homes Commission (HHC) approves the issuance of a license agreement to Kanuikapono Public Charter School (KPCS) for thirty (30) years, or until such time as Kanuikapono Public Charter School ceases to operate a charter school, whichever occurs sooner, for the right and privilege to enter and use a portion of land in Anahola, island of Kaua'i, Hawai'i, identified as Tax Map Key No. (4) 4-4-8-003:019 (por.) (*See* Exhibit "A"), consisting of approximately 10.5 acres (457,380 square feet) of land for the purpose of operating and maintaining a public charter school, subject to the following conditions:

1. The term of the license shall be for thirty (30) years, effectively commencing on February 1, 2023, and expire effectively as of January 31, 2053.

2. The purpose of this license and use of the site is strictly for LICENSEE to continue, maintain, and operate its Hawaii Public Charter School purpose and related services which directly benefits Hawaiian homestead beneficiaries and the broader native Hawaiian community.

3. LICENSEE shall pay to LICENSOR an annual license fee established at ONE THOUSAND FIVE HUNDRED SIXTY AND NO/100 DOLLARS ($1,560.00) which, shall not in any event, during the term of this license be less than this established per annum fee. The annual fee as established shall be payable in monthly installments to LICENSOR.

4. NO RESIDENTIAL USE SHALL BE PERMITTED, including temporary, overnight occupancy of the premises.

Appendix F

Infrastructure Assessment Memo

111 S. King Street
Suite 170
Honolulu, HI 96813
808.523.5866
www.g70.design

Date: **October 28, 2021**
Project: **Keaukaha Panaewa Farmers Association**
Project No: **220033-01**
Subject: **Infrastructure Assessment Memo**

I. INTRODUCTION

A. Project Location and Description

The project site is located at 363 Railroad Avenue in Hilo, Hawai'i on State of Hawaii Department of Hawaiian Home Lands property, Tax Map Key (3) 2-1-025:091. The property is approximately 10.63 acres (463,173 sf) in size and is located within the "Urban" State Land Use District (SLUD) and the "MG-1a General Industrial District" County of Hawaii Zoning District.

(See Figure 1: Project Location Map)

II. EXISTING CONDITIONS

A. Existing Site Access, Parking and Safety

The project site is generally bound by Railroad Ave to the west, and adjacent undeveloped industrial properties to the north, east, and south. Primary vehicular access to the site is through an approximately 25' wide gravel driveway along Railroad Ave. There is no secondary vehicular access point to the site.

Pedestrian access is limited with no surrounding public sidewalks serving the project site.

B. Existing Water Infrastructure

The property is serviced by the County of Hawaii Department of Water Supply (DWS). The existing DWS water system provides both domestic and fire protection water through an existing 12-inch waterline within the east shoulder of Railroad Avenue. DWS records indicates that the property is currently served through a 5/8-inch domestic water meter (Meter No. 17223245) and 1.5-inch service lateral.

Fire Hydrants (FH) are located along Railroad Ave and appear to meet the 300-foot minimum spacing required by DWS. The nearest Fire Hydrant is fronting the property along Railroad Ave, approximately 92 ft north of the southwest corner of the property.

(See Figure 2: Existing Water Main Locations Map)

C. Existing Wastewater Infrastructure

Based on correspondence with the Department of Health Wastewater Branch, the site has no cesspool, septic tank, or approved/recognized wastewater system on file.

The County of Hawaii Wastewater Division has confirmed that they currently do not have service available to this property.

D. Existing Drainage Infrastructure

The project site is relatively flat with elevations ranging from approximately 83 to 89 feet above mean sea level (MSL). The site appears to gently slope from the southern property line towards the north side of the parcel, parallel to the fronting street.

There is no existing onsite drainage infrastructure onsite.

E. Existing Electrical/Telcom

The property does not currently appear to have electrical or telcom service. However, the existing overhead electrical and telcom lines along Railroad Ave seem to indicate that service could easily be obtained. If requested, the utilities could be consulted and a service request could be submitted at the appropriate time.

III. PROPOSED CONDITIONS

A. Proposed Site Access, Parking and Safety

The property will continue to be accessed off of Railroad Ave. Proposed improvements will include three new driveway aprons off of the public roadway including a driveway in and a driveway out of the proposed parking lot. A third driveway will be located across the intersection with Makaala Street, which will function more as a service entry to the farm. The proposed driveway access points and parking lot is shown on Figure X.

Pedestrian access is will continue to be limited with no surrounding public sidewalks serving the project site.

B. Proposed Water Infrastructure

The property is currently serviced by the County of Hawaii Department of Water Supply (DWS). The existing 5/8-inch domestic water meter and lateral would likely be replaced with a larger service to meet the needs of the facility. In addition, it is expected that the building may

need to have a fire sprinkler, which will require a new fire service lateral and backflow preventor to be installed off of the existing 12" public water main on Railroad Avenue. A possibly location for these services is shown on Figure X

C. Proposed Wastewater Infrastructure

Since municipal wastewater service is not available from the County, onsite wastewater treatment systems are required and will need to be design and constructed as required by State regulations.

Due to the anticipated amount of wastewater generated, it is likely that a wastewater treatment plant (WWTP) is required. It is likely that some form of aerobic treatment would be used along with disposal of effluent in a large absorption field to be located somewhere on the property. Due to the variable flow expected as well as redundancy requirements an equalization tank and emergency generator are recommended. Proposed wastewater improvements are show in concept on Figure X.

D. Proposed Drainage Infrastructure

The project site generally slopes from south to north and is heavily vegetated except in the area currently cleared for the 1.5 acre farmer's market. There are no existing onsite drainage infrastructure onsite.

The proposed drainage infrastructure for the project will be limited to swales, culverts, rain gardens and drainage sumps. Runoff will flow overland to swales and through culverts and into landscape areas or farm areas. Rain gardens and sumps will be created in these areas to manage the runoff allow runoff to evapotranspirate and infiltrate into the ground. Improvements will be design and construction as required by County Standards. Possible locations for these improvements are shown on Figure X.

E. Proposed Electrical/Telcom

The property does not currently appear to have electrical or telcom service. However, at the appropriate time, a service request can be submitted to the utilities to bring in service to the proposed building and other facilities. The new service would likely come in off of the existing pole on the northwest corner of the property and run overhead to the building. Possible location of the overhead line and service to the building is shown on Figure X.

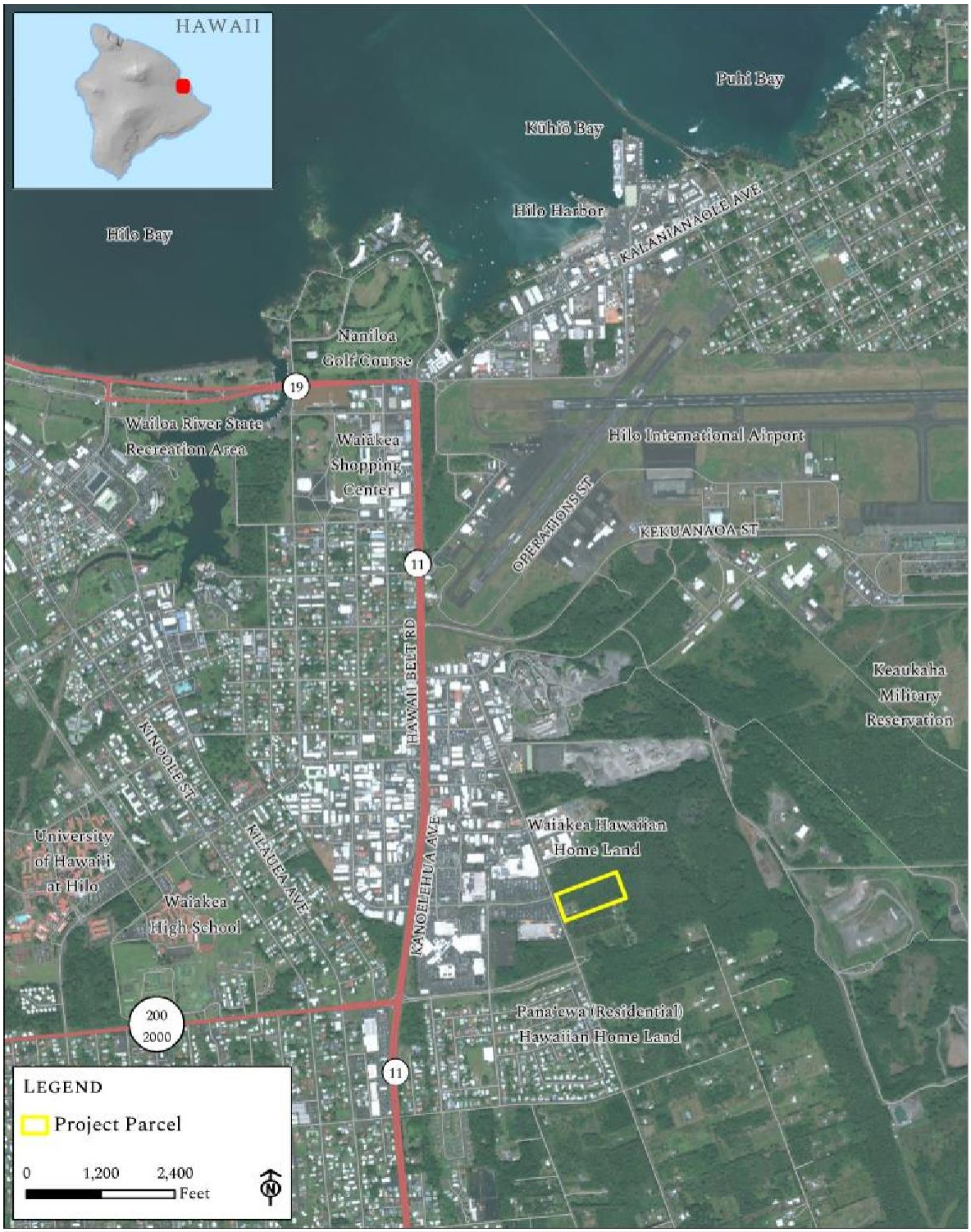

Figure 1: Project Location Map

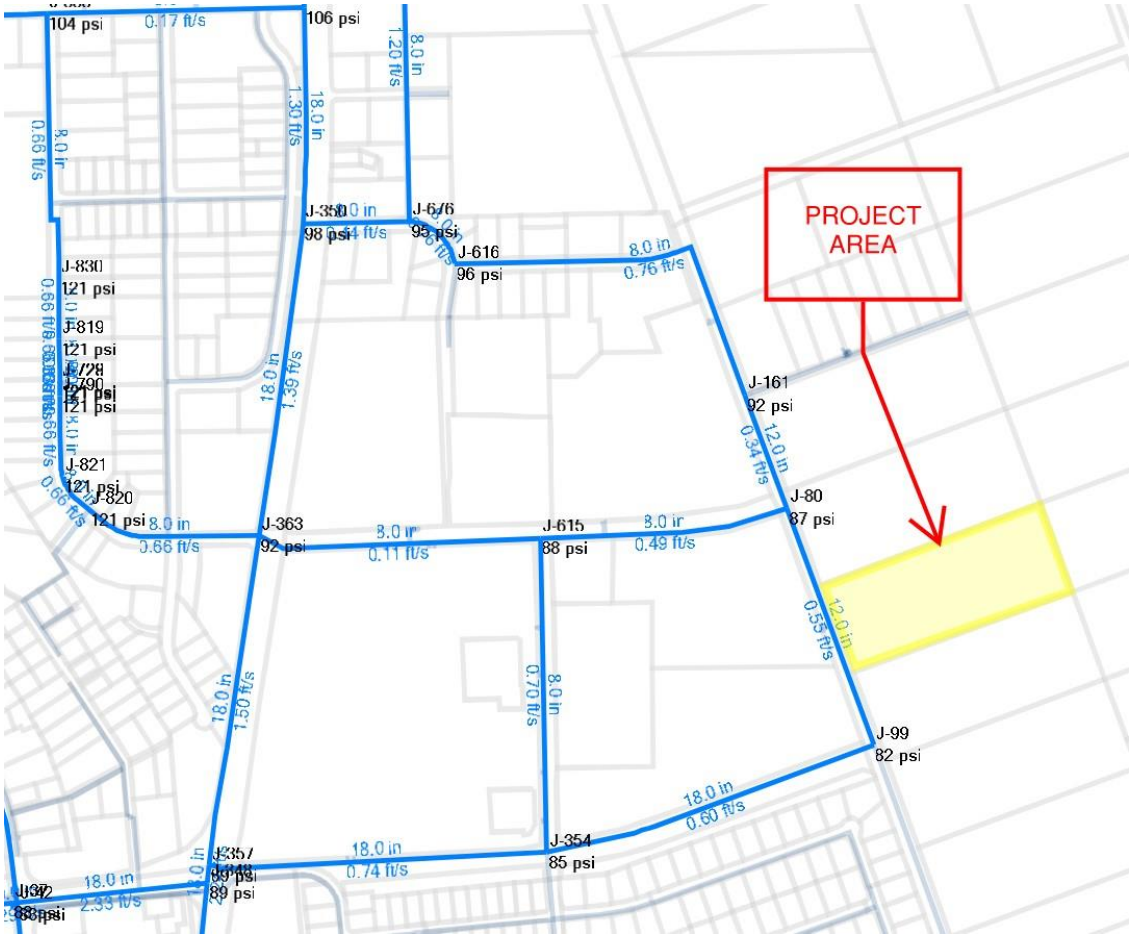

Figure 2: Existing Water Main Locations Map

Appendix G

Preliminary Traffic Assessment Report

PRELIMINARY TRAFFIC ASSESSMENT REPORT

FOR THE PROPOSED

KEAUKAHA PANA`EWA MASTERPLAN

PANA`EWA, HAWAI`I ISLAND

I. Introduction

A. Project Description

The Keaukaha Pana`ewa Farmers Association (KPFA) is developing a preliminary masterplan for its property at 363 Railroad Avenue in Pana`ewa, Hawai`i Island. The project site is located on the east (makai) side of Railroad Avenue, across from The Home Depot. The project site is currently occupied by the Pana`ewa Farmers Market, which is sponsored by the KPFA. The Pana`ewa Farmers Market operates on Fridays from 11:00 AM to 1:00 PM and on Saturdays from 6:00 AM to 10:00 AM. Figure 1 depicts the location map and project vicinity.

The KPFA Masterplan will consist of an open-air amphitheater for music and hula performances, pavilions for farmers' workshops and educational programs, and an indoor/outdoor deck, which can be used for private and public functions for up to 300 attendees. Up to 100 parking stalls are planned. Access is proposed opposite The Home Depot Driveway on Railroad Avenue. The preliminary masterplan is depicted on Figure 2.

B. Purpose and Scope of the Study

The purpose of this preliminary traffic assessment is to analyze the existing peak hour traffic in vicinity of the project site.

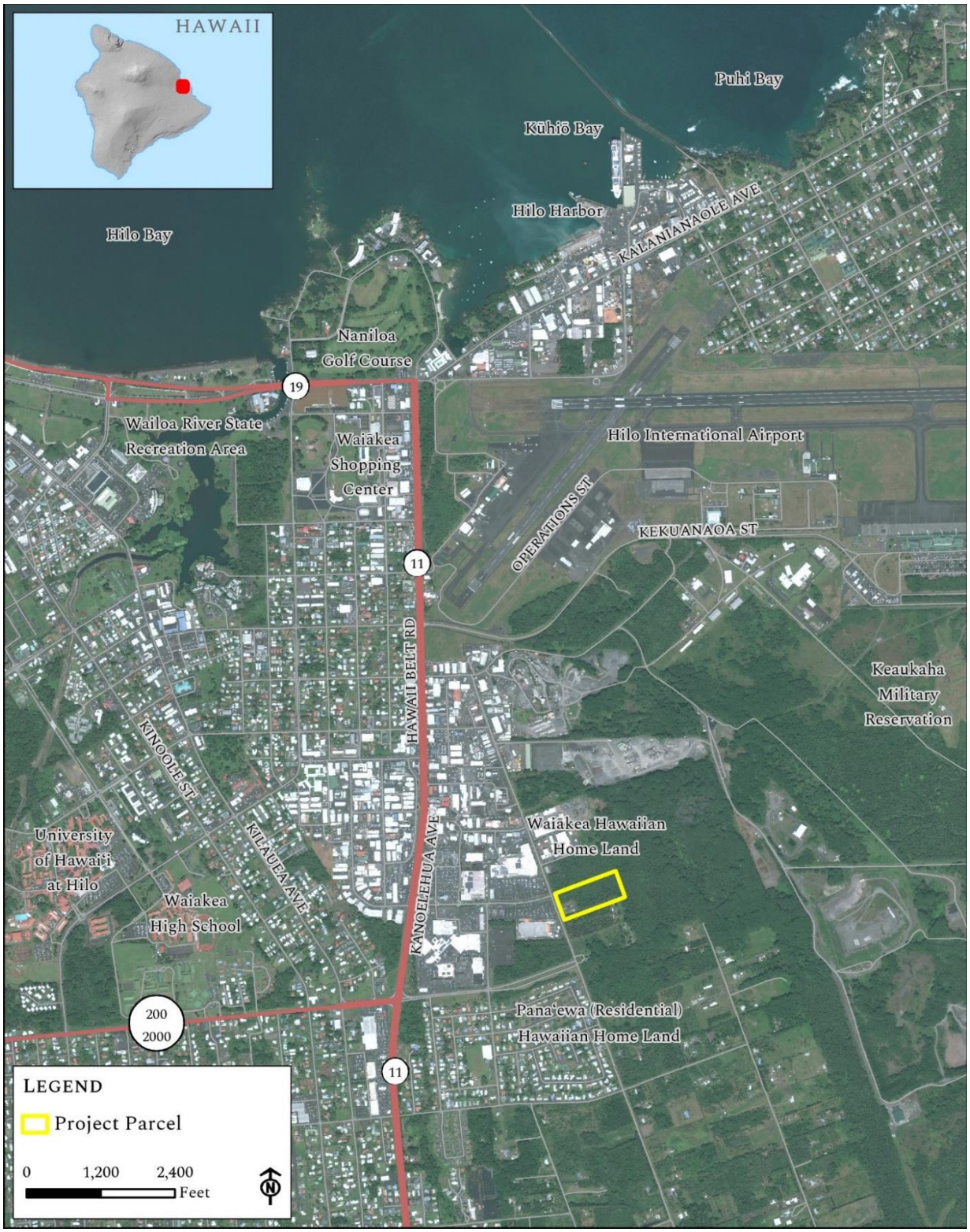

Figure 1. Location and Vicinity Map

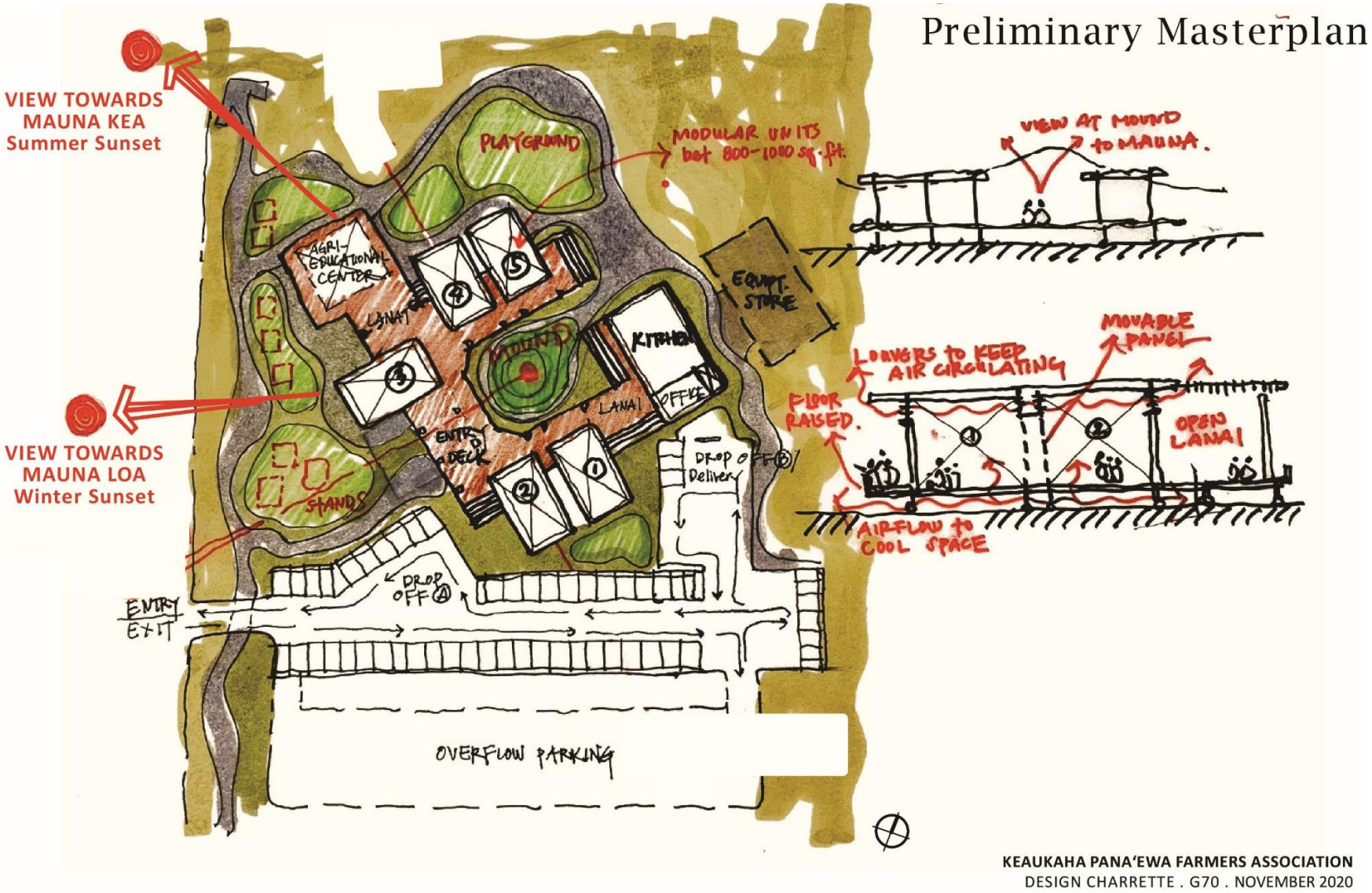

Figure 3. Preliminary Masterplan

C. Capacity Analysis Methodology

The highway capacity analysis, performed in this study, is based upon procedures presented in the Highway Capacity Manual, 6th Edition (HCM), published by the Transportation Research Board. HCM defines the Level of Service (LOS) as "a quantitative stratification of a performance measure or measures representing quality of service." HCM defines the six (6) Levels of Service from the traveler's perspective, ranging from the best LOS "A" to the worst LOS "F". LOS translates the complex mathematical results of the highway capacity analysis into an A through F grading system for the purpose of simplifying the roadway performance for decision-makers.

LOS's "A", "B", and "C" are generally considered to be satisfactory Levels of Service. The Hawai`i County Code "Concurrency Requirements" define LOS "D" as the minimum acceptable Level of Service. LOS's "E" and "F" are considered to be worse than acceptable Levels of Service. The intersection LOS is primarily based upon average delay (d) in seconds per vehicle (sec/veh). The delays at unsignalized intersections, which include stop-controlled intersections and roundabouts, are measured in average seconds per vehicle (d). Table 2 summarizes the HCM LOS criteria.

Table 1. Intersection Level of Service Criteria (HCM)

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

Synchro is a traffic analysis software that was developed by Trafficware. Synchro is an intersection analysis program that is based upon the HCM 6th Edition methodology. Synchro is used to calculate the Levels of Service for the intersections in the study area. Worksheets for the capacity analysis, performed throughout this report, are compiled in the Appendix.

II. Existing Conditions

A. Roadways

Railroad Avenue is a two-way, two-lane roadway, in the vicinity of the project site. The posted speed limit on Railroad Avenue is 35 miles per hour (mph). Exclusive left-turn lanes are not provided on Railroad Avenue.

Makaala Street is a two-way, four-lane divided roadway between Railroad Avenue and Kanoelehua Avenue. Makaala Street intersects Railroad Avenue at a stop-controlled Tee-intersection, with separate left-turn and right-turn lanes.

The Home Depot Driveway provides access to the parking lot from Railroad Avenue. Access to The Home Depot parking lot is also provided on Makaala Street. The Home Depot Driveway is stop-controlled at Railroad Avenue.

Puainako Street is a two-way, four-lane divided roadway between Railroad Avenue and Kanoelehua Avenue. Puainako Street intersects Railroad Avenue at a stop-controlled Tee-intersection, with separate left-turn and right-turn lanes.

B. Existing Peak Hour Traffic Volumes and Operating Conditions

1. Field Investigation and Data Collection

Turning movement traffic count surveys were conducted on Wednesday, August 11, 2021 through Sunday, August 15, 2021 at the following intersections:

a. Makaala Street and Railroad Avenue

b. The Home Depot Driveway and Railroad Avenue

c. Puainako Street and Railroad Avenue

A traffic count survey was conducted on Railroad Avenue on Thursday, August 12, 2021 and on Saturday, August 14, 2021 to determine the peak periods of traffic. The study area is depicted on Figure 3.

2. Existing AM Peak Hour Weekday Traffic

The existing AM peak hour of weekday traffic in the study area occurred from 7:15 AM to 8:15 AM. Railroad Avenue carried about 800 vehicles per hour (vph), total for both directions. Makaala Street carried about 300 vph, total for both directions, at Railroad Avenue. Puainako Street carried over 200 vph, total for both directions. The Home Depot Driveway carried less than 100 vph at Railroad Avenue.

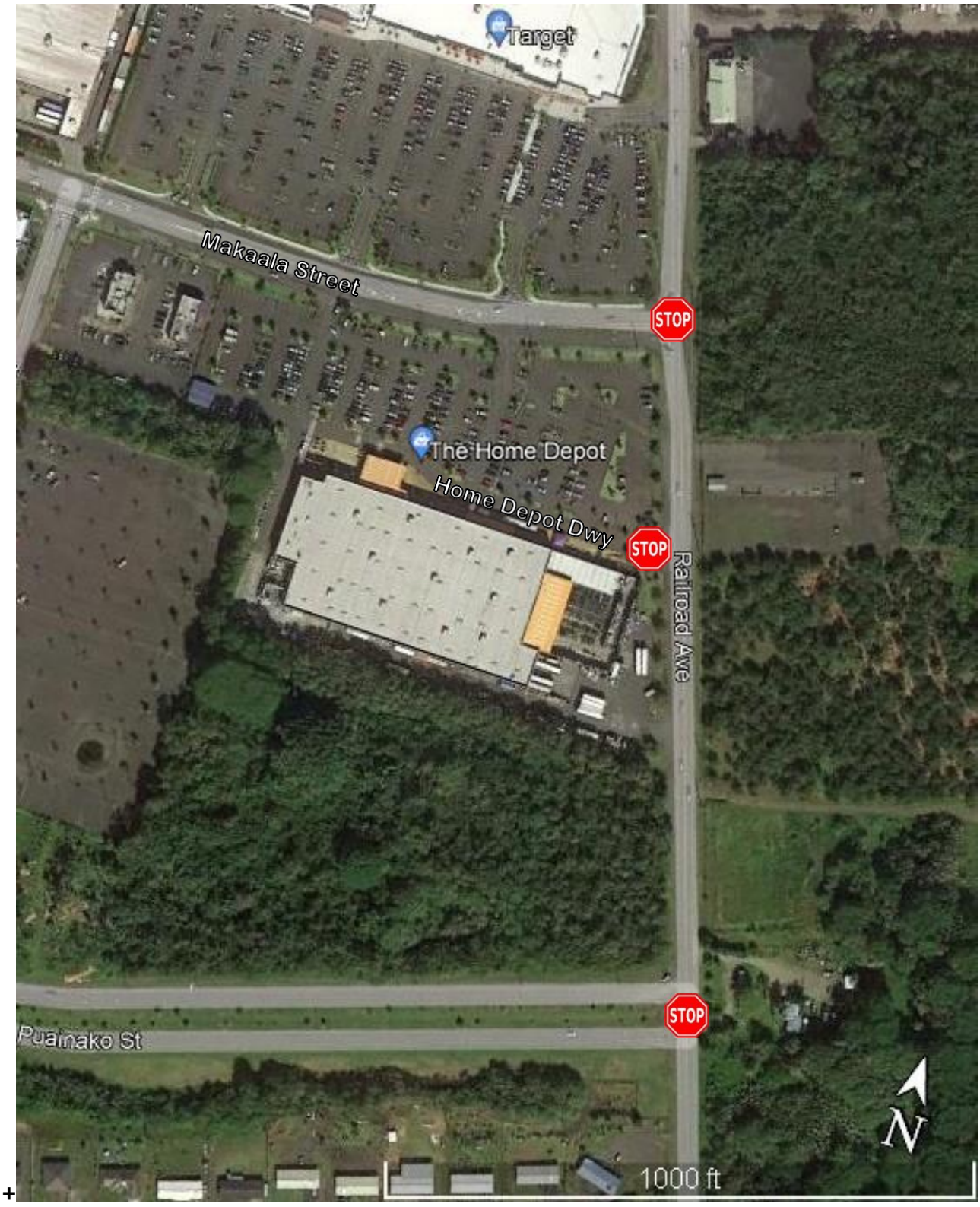

Figure 3. Study Area

During the existing AM peak hour of weekday traffic, Makaala Street operated at LOS "D" at Railroad Avenue. Puainako Street and The Home Depot Driveway operated at LOS "C" and "D", respectively. Figure 4 depicts the existing weekday AM peak hour traffic data.

3. Existing PM Peak Hour Weekday Traffic

The existing PM peak hour of weekday traffic in the study area generally occurred from 3:15 PM to 4:15 PM. During the existing PM peak hour of weekday traffic, Railroad Avenue carried about 900 vph, total for both directions. Makaala Street carried over 400 vph, total for both directions, while Puainako Street carried about 350 vph, total for both directions, at Railroad Avenue. The Home Depot Driveway carried about 150 vph at Railroad Avenue.

Makaala Street operated at LOS "D" at Railroad Avenue, during the existing PM peak hour of weekday traffic. Puainako Street and The Home Depot Driveway operated at LOS "C" at Railroad Avenue. The existing weekday PM peak hour traffic data are depicted on Figure 5.

4. Existing Saturday Peak Hour Traffic

The weekend traffic on Railroad Avenue was higher on Saturday, during the field investigation. The existing peak hour of Saturday traffic in the study area occurred from 10:45 AM to 11:45 AM. Railroad Avenue carried about 750 vph, total for both directions. Both Makaala Street and Puainako Street carried about 400 vph, total for both directions, at Railroad Avenue. The Home Depot Driveway carried over 200 vph at Railroad Avenue.

During the existing peak hour of Saturday traffic, Makaala Street operated at LOS "C" at Railroad Avenue. Puainako Street and The Home Depot Driveway operated at LOS "C" and "B", respectively. Figure 6 depicts the existing Saturday peak hour traffic data.

III. Conclusions

Traffic volumes along Railroad Avenue were steady throughout the weekday between 7:00 AM and 6:00 PM. Saturday and Sunday traffic on Railroad Avenue were lower than the weekday traffic.

Makaala Street operated at LOS "D" at Railroad Avenue, during the AM and PM peak hours of weekday traffic. Puainako Street and The Home Depot Driveway operated at satisfactory Levels of Service, i.e., LOS "C" or better, during the peak hours of weekday traffic. All the intersections in the study area operated at satisfactory Levels of Service, during the weekends.

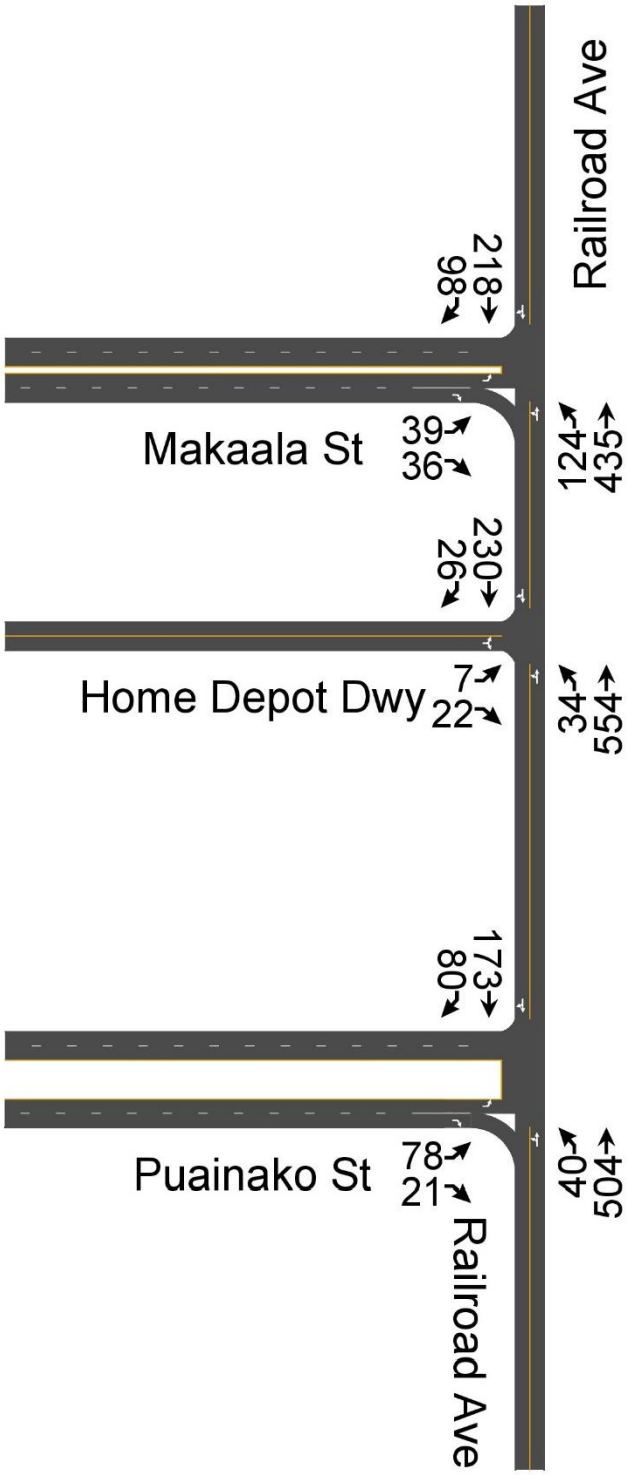

Figure 4. Existing Weekday AM Peak Hour Traffic

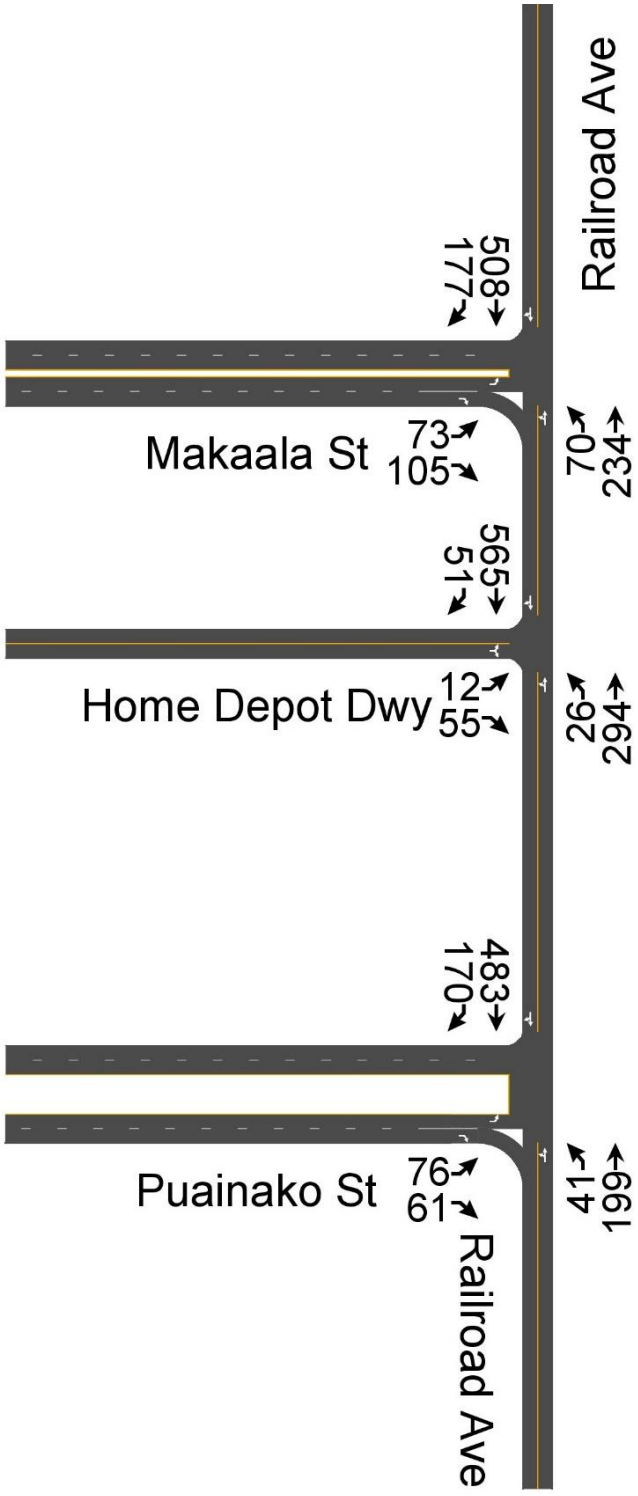

Figure 5. Existing Weekday PM Peak Hour Traffic

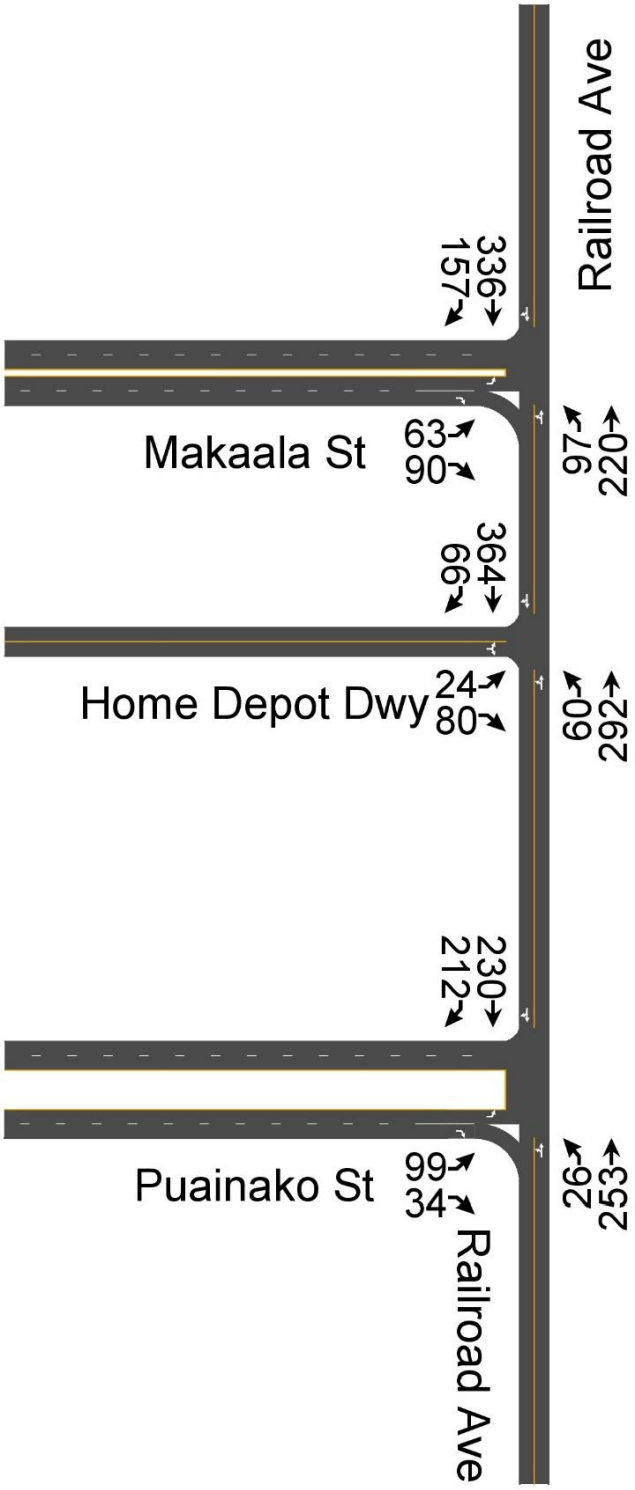

Figure 6. Existing Saturday Peak Hour Traffic