Preliminary Draft Environmental Assessment for the

Honomū Subsistence Agricultural Homestead Community

Honomū, District of South Hilo, Island of Hawai'i

August 2018

Prepared for:
Department of Hawaiian Home Lands

Prepared by:
Townscape, Inc.

Draft Environmental Assessment for the

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Prepared for:

HAWAIIAN HOME LANDS
Hawaiian Homes Commission
Department of Hawaiian Home Lands

Prepared by:

TOWNSCAPE INC

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PROJECT SUMMARY

This Draft Environmental Assessment (EA) has been prepared in accordance with the requirements of Chapter 343, Hawai'i Revised Statutes (HRS) and Hawai'i Administrative Rules (HAR) Title 11-200 *Environmental Impact Statement Rules*. The State's Environmental Impact Statement law is triggered by the use of State lands and funds.

Project Name:	Honomū Subsistence Agricultural Homestead Community
Proposing Agency:	Department of Hawaiian Home Lands (DHHL) P.O. Box 1879 Honolulu, HI 96805 Contact Julie Cachola, (808) 620-9483 julie-ann.cachola@hawaii.gov
Accepting Authority:	Hawaiian Homes Commission (HHC) Department of Hawaiian Home Lands Hale Kalaniana'ole 91-5420 Kapolei Parkway Kapolei, HI 96707
Consultant:	Townscape, Inc. 900 Fort Street Mall, Suite #1160, Honolulu, HI 96813 Contact: Sherri Hiraoka, (808) 550-3892 sherri@townscapeinc.com
Project Location:	Honomū and Kūhua Ahupua'a South Hilo District, Hawai'i Island
TMKs:	(3) 2-8-011:009, 011, 019, and 999
Project Size:	766 acres
Landowner:	State of Hawai'i, Department of Hawaiian Home Lands
Chapter 343, HRS Trigger:	Use of State lands and funds
Existing Land Use:	Pasture and diversified agriculture
State Land Use District:	Agriculture
Hawai'i County General Plan:	Important Ag Lands
Hawai'i County Zoning:	A-20a
Special Management Area:	None
Flood Zone:	Zone X (unshaded)

Permits Required:	Stream Channel Alteration Permit HRS §6E, Historic Preservation Review Clearance HRS Chapter 343 compliance National Pollutant Discharge Elimination System (NPDES) General Permit Individual Wastewater System Approval Noise Variance (possible for construction) Permit to Perform Work Within a State Highway Right-of-Way Agricultural Project District approval Grading and Grubbing Permit Building Permit	
Anticipated Determination:	Finding of No Significant Impact (FONSI)	
Agencies and Parties Consulted:	**Federal**:	U.S. Fish and Wildlife Services (USFWS)
	State:	Department of Land and Natural Resources Department of Land and Natural Resources, State Historic Preservation Division (SHPD) Department of Health (DOH) Office of Planning (OP) Office of Hawaiian Affairs (OHA) Department of Business, Economic Development and Tourism (DBEDT) Department of Agriculture
	County:	Mayor's Office Department of Research and Development Department of Water Supply Department of Planning Department of Mass Transit Department of Public Works Department of Parks and Recreation Hawaii Police Department Hawaii Fire Department Department of Environmental Management Hawaii County Council
	Other:	Honomū Community Association Hāmākua CDP Committee Honomū Neighborhood Watch

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List of Acronyms

ASYA	Aquifer System Area
BMP	Best Management Practice
CIA	Cultural Impact Assessment
CTAHR	College of Tropical Agriculture and Human Resources, University of Hawai‘i
DHHL	Department of Hawaiian Home Lands
DOH	Department of Health, State of Hawai‘i
DSP	Division of State Parks, State Department of Land and Natural Resources
DWS	Department of Water Supply, County of Hawai‘i
EA	Environmental Assessment
EIS	Environmental Impact Statement
ESA	Environmental Site Assessment
GPD	Gallons Per Day
HAR	Hawai‘i Administrative Rules
HDOT	Department of Transportation
HELCO	Hawai‘i Electric Light Company
HHC	Hawaiian Homes Commission
HHCA	Hawaiian Homes Commission Act
HHL	Hawaiian Home Lands
HDOT	State of Hawai‘i Department of Transportation
HHC	Hawaiian Homes Commission
HRS	Hawai‘i Revised Statutes
IAL	Important Agricultural Lands
IWS	Individual Wastewater System
LCA	Land Commission Award
LOS	Level of Service
LRFI	Literature Review and Field Inspection
LUPAG	Land Use Pattern Allocation Guide

List of Acronyms (continued)

MG	Million gallon
MGD	Million Gallon per Day
SCAP	Stream Channel Alteration Permit
SHPD	State Historic Preservation Division
SLH	Session Laws of Hawai‘i
TMK	Tax Map Key
TPDH	Transportation Plan for the District of Hawai‘i
USGS	United States Geological Survey
VPH	Vehicles Per Hour

1 PROJECT DESCRIPTION

The policy of the Hawaiian Homes Commission Act (HHCA) of 1920 is "to enable native Hawaiians to return to their lands in order to fully support self-sufficiency for native Hawaiians and the self-determination of native Hawaiians in the administration of this Act, and the preservation of the values, traditions, and culture of native Hawaiians." The Honomū Subsistence Agricultural Homestead Community seeks to provide native Hawaiians with an opportunity to return to the land and promote self-sufficiency through farming opportunities.

1.1 Project Need and Objectives

The purpose of the Honomū Subsistence Agricultural Homestead Community ("the Project") is to award agricultural lots to beneficiaries on the Agricultural Waitlist. Beneficiary demand for agricultural opportunities is very high; the Agricultural Waitlist is the longest of the three Waitlists for DHHL leases on Hawai'i Island, encompassing 42% of all those waiting for a Hawai'i Island lease in 2014. The top 500 applicants on the Hawai'i Island Agricultural Waitlist have been on the waitlist since between 1952 and 1985.

Figure 1-1 DHHL Lease Application Type by Island (2014)

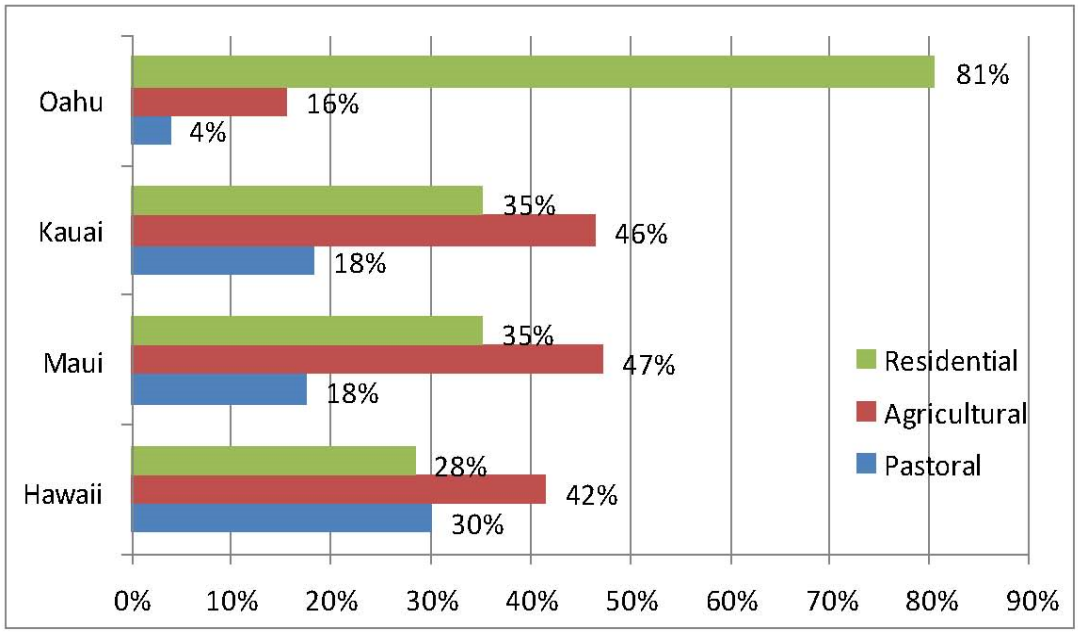
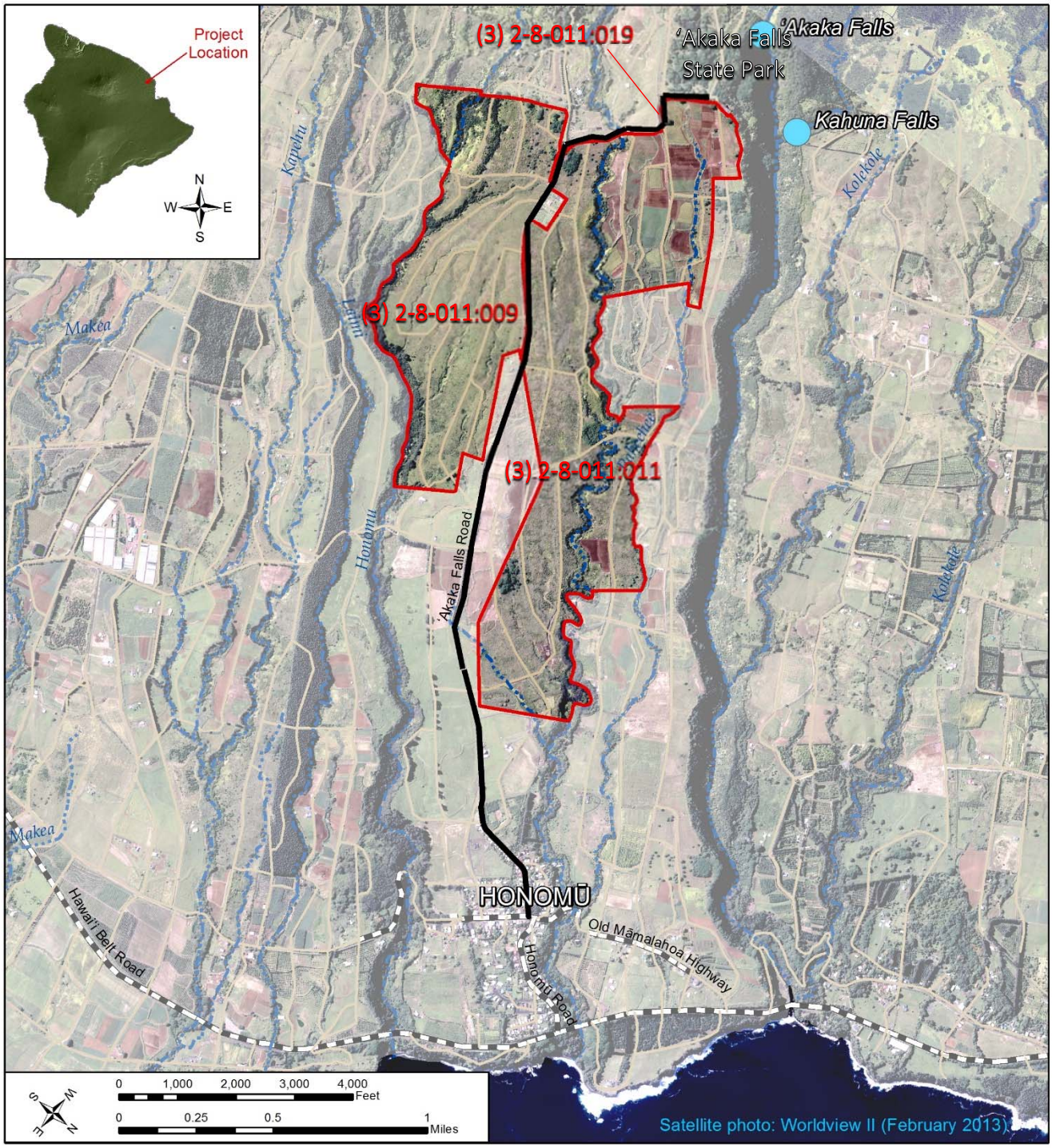


Figure 1-2 Project Location

HONOMŪ SUBSISTENCE AGRICULTURAL HOMESTEAD COMMUNITY



1.2 Project Location

The State Department of Hawaiian Home Lands (DHHL) is proposing to offer subsistence agricultural homestead lots to beneficiaries of the Hawaiian Home Lands (HHL) Trust in the Honomū and Kūhua ahupua'a, South Hilo District, Island of Hawai'i (Figure 1-2). The 766 acres, owned by DHHL, is divided amongst three parcels, TMK: (3) 2-8-011:009, 011, 019, and 999, that straddle 'Akaka Falls Road (State of Hawai'i Department of Transportation Route 220).

DHHL owns 116,963 acres on Hawai'i Island. It develops Island Plans to assess and recommend future uses for its lands. The most recent Hawai'i Island Plan was completed in 2002, before the current subsistence agriculture Administrative Rules were finalized. This 2002 Island Plan originally identified Lower Pi'ihonua as the priority tract for Subsistence Agriculture use. Since then, additional planning revealed that access to the site was hindered by an insufficiently sized bridge that cannot handle significant increases in traffic volume. Improvements necessary to accommodate the projected traffic increases were determined to be cost-prohibitive and DHHL evaluated its other tracts for possible use as a subsistence agricultural homestead community.

This re-evaluation of the DHHL land inventory concluded that the Honomū tract was ideal for a subsistence agricultural homestead community. These lands were not part of the original HHCA allocation that designated land to the Hawaiian Homes Commission (HHC). Instead, the Honomū lands were transferred from the State Department of Land and Natural Resources to DHHL in 1994 (Act 14) as part of a settlement between DHHL and the State of Hawai'i for breaches to the HHL trust. These lands are of higher agricultural quality than the lands originally allocated to the HHC in 1920.[1]

In addition to good soil quality, Honomū was selected for a subsistence agricultural homestead community because it is accessible, has good quality soils, experiences high average rainfall with which to naturally irrigate crops, and is relatively close to agricultural support networks, such as the University of Hawai'i Agricultural Extension and the Soil and Water Conservation District (SWCD). Most of these DHHL lands are currently being used for pasture by two short-term licensees. A small portion of the property is in small-scale vegetable cultivation and about one-quarter of the property is currently unlicensed and fallow.

The project is surrounded by agricultural land uses on all sides. 'Akaka Falls State Park is adjacent to the western corner of TMK parcel (3) 2-8-011:011. Honomū Stream runs along the southern boundary of parcel (3) 2-8-011:009 and Kolekole Stream runs near the northern boundary of the Project. Pāhe'ehe'e Stream runs through the northern parcel.

[1] As a part of the HHCA, certain public lands on each of five major islands were designated as "Hawaiian home lands" and placed under the jurisdiction of the Hawaiian Homes Commission. However, political interests favoring the sugar plantations resulted in prime agricultural lands being excluded from Home Lands designations.

1.3 Description of the Proposed Project

DHHL has historically offered large agricultural lots to beneficiaries for commercial agriculture purposes. Utilization of these agricultural leases was observed to be poor, with many lessees unable to conduct agricultural operations at a commercial scale. In 2017, DHHL updated its Administrative Rules allowing for Subsistence Agriculture, where lots are no larger than three acres in size and where lessees are required to, within three years:

- Actively cultivate subsistence agriculture, OR
- Reside and cultivate subsistence agriculture on their lots.

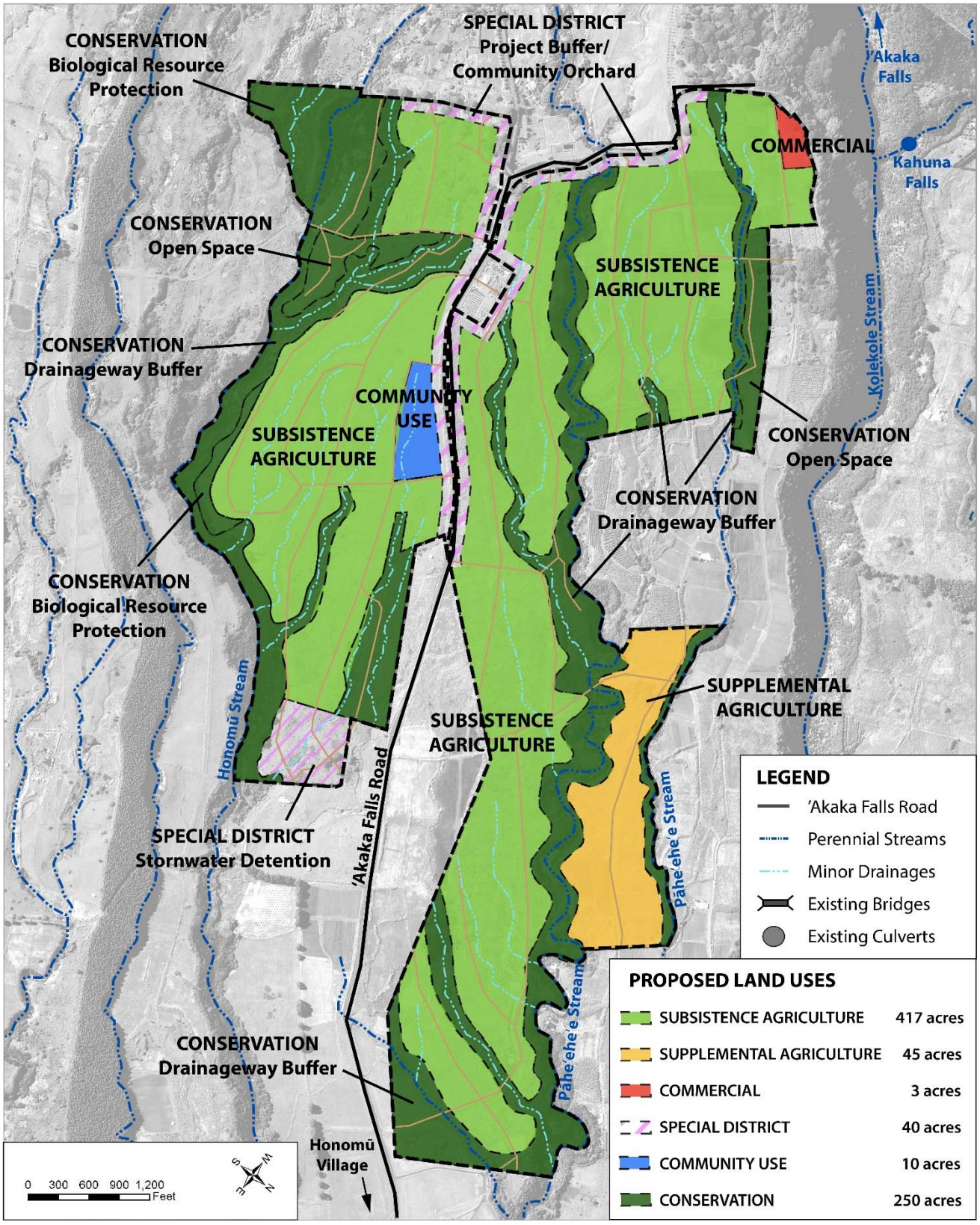
While the primary purpose of this project is to provide agricultural lots to DHHL beneficiaries, DHHL recognizes that other land uses are necessary for protecting natural resources, creating a community for lessees, and providing opportunities for commercial growth. The project proposes the following six land uses, listed in Table 1-1 and shown in Figure 1-3. Each proposed land use are described below.

Table 1-1 Proposed Land Uses and Acres

Land Use	Number of Acres	Percent of Total
Subsistence Agriculture	417	55%
Supplemental Agriculture	45	6%
Commercial	3	0.4%
Community Facilities	10	1%
Special District	40	5%
Conservation	250	33%
TOTAL	766	100%

Figure 1-3 Proposed Conceptual Land Use Plan

HONOMŪ SUBSISTENCE AGRICULTURAL HOMESTEAD COMMUNITY



1.3.1 Subsistence Agricultural Homesteads

The primary land use of this project is subsistence agriculture. As previously mentioned, subsistence agricultural lots are no more than three acres in size and allow for, but do not require, a residence. The planning team determined that for Honomū, the size of each subsistence agricultural lot could range from one to three acres. There is no minimum size for DHHL subsistence agricultural lots, but a minimum lot size of one-acre was determined based on the rural nature of the existing community and feedback from agricultural applicants at the beneficiary meeting in October 2017, current farmers (including those farming on DHHL agricultural lots), and University of Hawai'i College of Tropical Agriculture and Human Resources (CTAHR) agricultural extension agents. All sources confirmed that one-acre lots are sufficient to support subsistence agriculture, allowing enough space for agricultural plots, a house, an on-site wastewater disposal system, a water catchment tank, and stormwater detention.

The actual mix of lot sizes will depend on the existing topography of the site and DHHL beneficiary preference, but the maximum number of lots proposed is 375. This assumes that all lots are one-acre in size and that no additional land is needed for roads or drainage features. The number of lots could be less if two and three acre lots are also offered or if additional land is needed for roads and drainage features during design. To be conservative, project impacts will be assessed based on the maximum lot size of 375.

Based on other DHHL agricultural homesteads, DHHL expects no more than 50% of lessees to reside on their lots. Based on this 50% settlement rate, 188 lessees are expected to build a house on their lot (50% of a maximum of 375 lots). The average household size for DHHL beneficiaries in East Hawai'i is 3.291 persons (*U.S. Census Bureau 2008-2012 American Community Survey*). Therefore, the residential population for the Project is estimated at 188 houses X 3.291 persons per household = 619 people when the Project is fully completed and settled.

Crops grown on subsistence agricultural homestead lots are expected to provide food to be consumed in the home or provide supplemental household income. The subsistence agriculture designation was created to provide agricultural lands that are more manageable than the large lots previously offered under the General Agriculture program, which had resulted in few lessees cultivating the land. DHHL pays for a dedicated CTAHR agent to provide technical services to DHHL beneficiaries on Hawai'i Island in an effort to improve the success of agricultural lessees.

Subsistence agriculture lessees are required to either (1) actively cultivate their land or (2) reside and actively cultivate their land within three years of receiving their lease. Applicants must live on Hawai'i Island. Those applicants not living on Hawai'i Island need to relocate there within three years of receiving their lease.

In order to maintain the agricultural character of these lands, infrastructure in these agricultural homestead communities will be rural in nature. For more on the infrastructure standards that will be implemented, please see the discussion in **Section 1.4**.

1.3.2 Supplemental Agriculture

The supplemental agriculture land use designation is meant for large-lot agriculture and is intended to provide opportunities for agricultural production for supplemental income and home use. The Supplemental Agriculture area will provide the Project's successful subsistence farming lessees with opportunities for additional acreage to grow their crops.

1.3.3 Commercial

DHHL designates commercial lands as those that are suitable for retail, business, and commercial activities. A portion of the Project is adjacent to 'Akaka Falls State Park, which provides an opportunity for complementary land uses. The Department of Land and Natural Resources (DLNR) Division of State Parks (DSP) has shown interest in expanding its existing parking lot, which regularly overflows. As the State charges an entry fee for non-Hawai'i residents,[2] there is an opportunity to generate some revenue either through parking fees or through a lease to DSP. Specific commercial uses will be determined as opportunities arise but will be complementary to the uses in this area. Uses that may be considered include a scenic lookout toward Kahuna Falls, snack shop, souvenir shop, or education kiosk.

1.3.4 Community Use

Community use areas are common areas for shared homestead uses and facilities and may include space for parks, recreation, cultural activities, community-based economic development, utilities, and other facilities and amenities. Specific community uses will be determined by the homestead community.

1.3.5 Special District

Areas requiring special attention because of unusual opportunities and/or constraints are designated as special districts. Two types of special districts are identified in the Project: project buffers and stormwater management.

Project buffers of approximately 100 feet wide are proposed along 'Akaka Falls Road as both a physical and visual barrier between the roadway and the Project. This buffer may be either open space or include some type of vegetation, possibly a homestead community-owned and/or managed orchard. Such spaces could be used as training sites for agricultural best practices.

[2] The Division of State Parks charges an individual fee of $5 per car or $1 per pedestrian to enter the 'Akaka Falls State Park. Commercial PUC vehicles are charged $10 (1-7 passenger vehicle), $20 (8-25 passenger vehicle), or $40 (26+ passenger vehicle). Source: http://hawaiistateparks.org/parks/hawaii/akaka-falls-state-park/ (retrieved 6/19/18)

Honomū experiences high average annual rainfall. In working toward minimizing impacts from runoff and erosion on makai properties, the Project has designated a special district area in the makai portion of the southern parcel for stormwater management, should it be needed.

1.3.6 Conservation

Environmentally sensitive areas are designated as conservation, limiting uses. The Project identified areas with steep slopes, the potential for biological habitat restoration, and challenges for development as conservation and are meant to be kept undeveloped as drainageway buffers, biological resource protection, and open space.

1.4 Proposed Infrastructure

Infrastructure for this project will be designed to provide for the health and safety of residents but be appropriate for a rural area.

1.4.1 Roads and Access

DHHL will coordinate with the State of Hawai‘i Department of Transportation (HDOT) to provide access to the Project off of ‘Akaka Falls Road. Internal roads will include one 10-foot wide travel lane and one 4-foot wide grassed swale and shoulder in each direction. These standards will not allow the roads to be dedicated to the County at this time; therefore, DHHL will be responsible for maintenance. However, DHHL will designate a total road right-of-way of 50-feet wide to allow for possible road upgrades that could allow for future dedication to the County.

1.4.2 Grading and Runoff, Drainage, and Erosion Control

The existing topography will only be altered to the extent necessary for the safe implementation of proposed land uses and will adhere to County of Hawai‘i grading permit requirements. DHHL is also coordinating with the South Hilo Soil and Water Conservation District to develop a Master Drainage Plan to manage runoff and erosion. Lessees will also be expected to maintain on-site stormwater retention areas on each subsistence agricultural lot. Streams and gulches will be designated as conservation lands to maintain existing drainage patterns and retention areas have been identified, if needed.

1.4.3 Water System

Water will be provided via catchment system to be constructed by lessees. The high rainfall in Honomū is expected to provide most, if not all, of the irrigation needs for subsistence agriculture cultivation. Catchment tanks will be necessary for those lessees who choose to build a house on their lot or want to provide for back-up or supplemental irrigation water for their crops. The average cost for materials to construct a 12,000-gallon water catchment system is $4,000; for a 10,000-gallon water catchment system is $3,500; and for a 2,000-gallon water catchment system is $1,500. The actual size of each water catchment system will depend on the use intended by

each lessee (residential, crop irrigation). For irrigation purposes, water demand will depend upon the type of crop grown, the land area cultivated, and the type of irrigation method. These types of details can be developed between the lessee and the CTAHR agent assisting them.

1.4.4 Wastewater System

Wastewater disposal will be the responsibility of each subsistence agriculture lessee. Only subsistence agricultural lots that have a residence are expected to need wastewater disposal and not every lessee is expected to build a house.

DHHL will coordinate with the State Department of Health (DOH) to determine the appropriate wastewater requirements for the project and will provide guidance to lessees that wish to construct wastewater disposal systems. The most common type of Individual Wastewater System (IWS) is a septic system. The average cost for materials and installation of an IWS to serve a 3-bedroom residential home is $8,000.

1.4.5 Solid Waste

Solid waste disposal will be the responsibility of each lessee. Green waste recycling will be encouraged.

1.4.6 Electrical Power

Electrical power will be provided by DHHL via overhead electrical lines along internal roads.

1.4.7 Communications

Communications, such as telephone and internet service, will be the responsibility of each lessee.

1.5 Preliminary Implementation Schedule and Costs

Implementation of Phase I is expected to begin in early 2019 and will include about 15 subsistence agriculture lots. Phase I is purposely designed to be small to work through the process of designing for this particular site. Any lessons learned from this Phase I will inform the design and implementation of subsequent phases. The number, timing, and size of each phase will depend upon engineering master planning, permits and approvals, construction financing, and infrastructure development, but DHHL will work toward awarding the final increment of leases by 2032.

2 AFFECTED ENVIRONMENT, POTENTIAL IMPACTS, AND MITIGATION MEASURES

This chapter describes the natural, man-made, and social environment; the potential impacts that may result from implementation of the Project; and measures proposed to mitigate those impacts.

2.1 Climate

The climate in the project area is similar to other inland areas in the South Hilo region, which is characterized as tropical rainforest, experiencing high rainfall with a mean annual rainfall at approximately 5,200 millimeters (205 inches) according to Giambelluca et al. (2013). The dominant winds in the area are northeast trade winds, with occasional southerly winds that carry volcanic haze or VOG into the area (Juvik and Juvik, 1998).

Potential Impacts and Mitigation Measures

The proposed project is not anticipated to have a significant impact on climate.

2.2 Geology and Topography

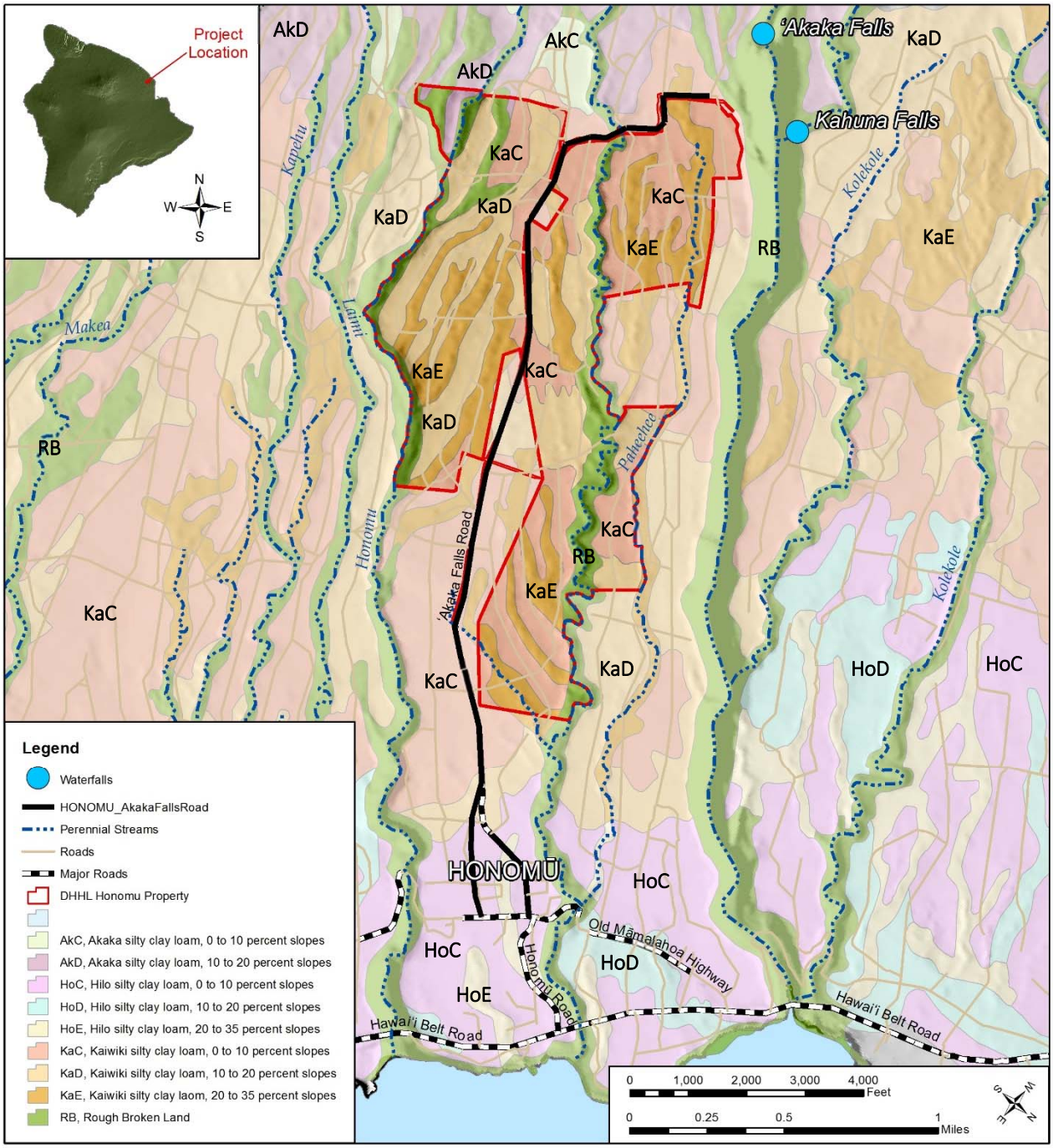
The project area is located approximately 1.7 to 5.3 kilometers (1.1 to 3.3 miles) inland of the northeastern coastline of the island of Hawaiʻi at an elevation between 122 and 381 meters (400 to 1,250 feet) above mean sea level. The overall project site is relatively flat with an overall slope of around 2 percent. Several stream gulches and natural drainages cut through the property, the most substantial of which are the Pāheʻeheʻe Stream and Honomū Stream gulches. Lands in between the gulches are open plateaus used for agriculture, both historically and currently.

The project area mostly crosses volcanic flows from Mauna Kea ranging from 64,000 to 300,000 years in age. A small area in the southeastern section of the project area crosses a younger flow of 11,000 to 64,000 years old, also from Mauna Kea. These flows are topped with a thick layer of volcanic ash from the Kohala and Mauna Kea Volcanoes (USGS-HVO: 2009). The soil from this volcanic ash is highly productive for farming.

According to the U.S. Department of Agriculture Soil Survey Geographic database (2001) and a soil survey gathered by Sato et al (1973), the soils in the project area consist of Kaiwiki silty clay loam, Akaka silty clay loam, and Rough Broken land. Kaiwiki silty clay loams (KaC, KaD, KaE) are well-drained silty clay loams that formed in a series of layers of volcanic ash. These clay loams have a banded appearance, are found low on the windward slopes of Mauna Kea, and have historically been used to grow sugarcane.

Figure 2-1 Honomū Soils and Streams

HONOMŪ SUBSISTENCE AGRICULTURAL HOMESTEAD COMMUNITY



There are some small areas of Akaka silty clay loams (AkD) located in the southwest corner of the project area. They are roughly the same age as the younger Mauna Kea lava flows. They are moderately well-drained and range from gently sloping to steep soils found in the uplands. This clay loam is formed from volcanic ash, and is suitable for pasture, woodland, wildlife habitat and watershed usage. Sugarcane in small quantities may be grown in this soil in areas that are transitional to Kaiwiki soils. This soil is very permeable, has slow runoff, and has slight risk to erosion hazard. Roots can penetrate this soil to 5 feet depth or more.[3]

Rough broken land (RB) is a miscellaneous land type that is found along the gulches with a slope between 35 to 75 percent. It is made up of steep and precipitous land that is broken up by intermittent drainage channels. It is can be used for pasture, woodland, wildlife habitats and recreation areas (Sato et al. 1973:51).[3]

Potential Impacts and Mitigation Measures

The proposed project will have mitigable impacts upon the environment. The gentle slopes within the property are anticipated to require minimal grading and steep gulches and ravines will be protected as conservation lands.

The project area was traditionally used for subsistence agriculture by the native inhabitants and was later used for commercial sugar production. As the proposed project is a subsistence agricultural community, the impact on the soil is anticipated to be less intensive than the commercial agricultural operations that previously dominated the area.

All activities as a part of the proposed project shall comply with the requirements of the Hawaiʻi County Code, Chapter 10 on Erosion and Sedimentary Control. The proposed action will follow Best Management Practices (BMPs) to minimize erosion and sedimentation that may result from site preparation activities. Additionally, DHHL is consulting with the Soil and Water Conservation District to prepare a Master Drainage Plan that will address BMPs for the comprehensive protection and enhancement of the natural drainages within the project area.

There do not appear to be any hazardous materials in the project area, but in response to comments from the State DOH, a Phase I Environmental Site Assessment (ESA) is being conducted to identify whether recognized environmental conditions exist in the project area and to recommend further action, if any are found.

[3] Sato, H.H., W. Ikeda, R. Paeth, R. Smythe, and M. Takehiro, Jr. (1973) *Soil Survey of the Island of Hawaii, State of Hawaii.* U.S. Dept. of Agriculture, Soil Conservation Service in cooperation with the University of Hawaiʻi Agricultural Experiment Station.

2.3 Hydrology and Drainage

Surface Water

There are three perennial streams that are located near the project area (**Table 2-1**). Kolekole Stream is located along the northern end of the project area, Pāheʻeheʻe Stream flows through the center of the northern parcel, and Honomū Stream is located to the south (**Figure 2-1)**. Each of these streams have been listed by the National Park Service as candidates for designation as a Scenic River under the National Wild and Scenic Rivers Act of 1968 which is meant to "preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations." [4]

Table 2-1 Honomū Streams

Stream Name	Length (miles)	(Date) and Reason Identified as a Candidate for Designation as a Scenic River	Permits
Kolekole[5]	12	(1982) Contains the State's highest waterfall, ʻAkaka Falls, which is 420 feet in height.	Stream Diversion Works Permit issued for water drawn from the Kolekole Spring or ʻAkaka Falls Spring to supply the County of Hawaiʻi Department of Water Supply Honomū Water System. This system contains a 0.1 million gallon reservoir tank located mauka of the Honomū community.[6]
Pāheʻeheʻe[7]	29	(1995) Contains a diverse population of sensitive native aquatic species.	N/A
Honomū[8]	8	(1995) Contains a diverse population of sensitive native aquatic species, more specifically the presence of the endemic ʻoʻopu ʻalamoʻo (*Lentipes Concolor).*	After-the-fact Stream Channel Alteration Permit (SCAP) issued for TMK 2-8-011:005 for a stream intake used to wash farm equipment, with a maximum yield of 100 gpd. [9]

[4] https://www.rivers.gov/wsr-act.php

[5] NPS (National Park Service, U.S. Department of the Interior) (1995) Nationwide Rivers Inventory, Hawaiʻi Segments. URL: https://www.nps.gov/subjects/rivers/hawaii.htm

[6] http://www.hawaiidws.org/7%20the%20water/wateruseplan/HWUDP%20Chapter%20802_Final.pdf

[7] NPS (National Park Service, U.S. Department of the Interior) (1995) Nationwide Rivers Inventory, Hawaiʻi Segments. URL: https://www.nps.gov/subjects/rivers/hawaii.htm

[8] NPS (National Park Service, U.S. Department of the Interior) (1995) Nationwide Rivers Inventory, Hawaiʻi Segments. URL: https://www.nps.gov/subjects/rivers/hawaii.htm

[9] http://www.hawaiidws.org/7%20the%20water/wateruseplan/HWUDP%20Chapter%20802_Final.pdf

Ground Water

The project site is located over the Hakalau Aquifer System Area (ASYA) that extends from Pepeʻekeo Point to Nahiwa Point along the coast and reaches up to the summit of Mauna Kea. It has the highest sustainable yield, 150 million gallons per day, of the four ASYAs located within the East Mauna Kea Aquifer Sector Area.[10]

Potential Impacts and Mitigation Measures

Surface Water and Drainage

The proposed project will have mitigable impacts upon the environment. The County requires that no net increase in runoff from the 10-year design storm be discharged from any construction project or new development. The Project will meet this requirement by setting aside property for storm water retention basins, or similar methods on each lot. Grassed swales will be utilized to control and convey runoff generated from the internal roads.

Grading and subdivided lot layouts will consider the existing streams, drainageways, and system of culverts as much as possible to maintain the existing drainage pattern throughout the project site. All grading work will be in accordance with Hawaiʻi County Code Chapter 10, Erosion and Sedimentation Control. Grading plans will incorporate temporary and permanent Best Management Practices (BMPs) as a means of erosion control. BMPs are utilized to protect neighboring properties, downstream areas, and natural and constructed drainageways from sediment and pollution transported via storm water runoff and to stabilize graded earth so that erosion does not occur after grading operations. Some typical examples of BMPs include mulching and grassing, matting, sedimentation basins, silt fences and sediment control logs

On-site surface water retention sites will be recommended on each agricultural lot and surface water retention/detention sites have been set aside near major drainages to collect and hold stormwater runoff. DHHL is also consulting with the Soil and Water Conservation District to prepare a Master Drainage Plan that will develop BMPs to address runoff for the Project as a whole. In addition to addressing surface water runoff, the Master Drainage Plan will also address erosion and polluted runoff control through BMPs.

Ground water

The proposed project will have no impacts upon the environment. The Project will consist primarily of agricultural uses, which will keep much of it in pervious surfaces. This, along with on-site surface water runoff detention/retention features, will promote continued infiltration of water into the aquifers. Additionally, DHHL will coordinate with the DOH to ensure that wastewater disposal systems comply with appropriate regulations. No cesspools will be allowed.

[10] http://www.hawaiidws.org/7%20the%20water/wateruseplan/HWUDP%20Chapter%20802_Final.pdf

2.4 Air Quality and Noise

Air quality in the Honomū area is listed as "Level – Good" on the Air Quality Index (AQI) provided by the Hawaiʻi Department of Health, Environmental Health Division. This level means that air quality is considered satisfactory, and air pollution poses little to no risk.[11] The Project area is surrounded by agricultural and residential uses. Dozens of vehicles travel on ʻAkaka Falls Road on a daily basis. Noise levels in this area are fairly low and are associated with agricultural operations and vehicles traveling along the highway.

Potential Impacts and Mitigation Measures

The proposed project will have mitigable impacts upon the environment. Short-term impacts on air quality and noise are expected to result from construction vehicles traveling to and from the Project site, as well as from fugitive dust during site preparation and construction activities. In a Pre-Assessment Consultation letter, the DOH Environmental Planning Office recommended coordination with the Clean Air Branch to ensure compliance with and regulations associated with fugitive dust emissions and coordination with the Indoor and Radiological Health Branch regarding any noise permits that may be needed.

Dust control measures will be employed in compliance with applicable State and County regulations, including HAR §11-60.1-33 and Chapter 10 of the Hawaii County Code (*Erosion and Sedimentation Control*). Some typical measures recommended by HAR §11-60.1-33 are provided below. The typically wet climate of Honomū will assist in controlling fugitive dust.

- Application of water or suitable chemicals to control fugitive dust
- Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials
- Covering all moving, open-bodied trucks transporting materials which may result in fugitive dust
- Conducting agricultural operations, such as tilling of land and the application of fertilizers, in such manner as to reasonably minimize fugitive dust
- Maintenance of roadways in a clean manner
- Prompt removal of earth or other materials from paved streets which have been transported there by trucking, earth-moving equipment, erosion, or other means.

[11] https://www.airnow.gov/index.cfm?action=airnow.local_city&zipcode=96728&submit=Go

Regarding noise, DHHL will coordinate with the DOH Indoor and Radiological Health Branch to determine the need for a noise permit and to establish best practices to minimize any excessive noise impacts during site preparation and construction.

2.5 Biological Environment

A team of biologists from Geometrician Associates, LLC spent five days at the Honomū project site conducting biological surveys of the area. All portions of the property were investigated, with the exception of the interior of gulches, which will be preserved as a part of the buffer zones for the proposed project.

Flora

The Project site can be classified as lowland and wet forest with dominant species of vegetation likely being ʻōhiʻa trees (*metrosideros polymorpha)*, uluhe fern (*Dicranopteris linearis*), and hāpuʻu fern (*Cibotium spp*.). Because this area has a long history of intensive cultivation, there are almost no traces of original vegetation at the site today. Similar to other locations along the Hāmākua coast, much of these habitats are dominated by non-native species, with just a few widespread native species present in certain areas of the site.

Some other native species of vegetation that occur in these habitats include: neneleau shrubs or trees (*Rhus sanwicensis*), kōlea trees (*Myrsine lessertiana*), and hau trees (*Hibiscus tiliaceus*). In addition to the hāpuʻu and uluhe ferns, other native ferns such as Cretan brake (*Pteris certica*), kikawaiō (*Cyclosorus cyantheoides*), hōʻiʻo kula (*Cyclosorus sanwicensis*), pākahakaha (*Lepisorus thunbergianus*), wahine noho mauna (*Adenophorus tamariscinus*), and palaʻā (*Sphenomeris chinensis*) among others can be found on the site. Table 2-2 describes the dominant vegetation found in the various areas observed during the survey.

Fauna

Hawaiʻi's only native land mammal is the endangered Hawaiian hoary bat, which can be found throughout Kauaʻi, Maui, Oʻahu, and Hawaiʻi islands. They roost in native and non-native trees alike, and often forage in areas like the border between forest and pasture lands, forest road corridors, streams, bays, and inlets. No bats were observed during the survey, but it is assumed that bats are present in the area.

The only native species of bird that was observed was a pair of endangered Hawaiian hawks that were seen circling for a period of ten minutes during the mid-day in the southwestern corner of the property. No ʻamakihi or other native forest birds were seen or heard.

The faunal survey of the project site consisted of an opportunistic survey to document all observed species observed through sight and sound throughout the property. Table 2-3 describes the types of animals that were observed in the project area.

Table 2-2 Main Vegetation Types Observed in Honomū

Area	Dominant vegetation
Active and Fallow farmland	Crops, weedy grasses, sedges, herbs, ferns and low shrubs.
Dense secondary forest	Dominated by invasive Albizia trees (*Falcataria moluccana*).
Gulch margins & riparian areas	Variety of invasive trees and shrubs, along with some native species (uluhe fern, tree ferns, neneleau and hau trees).
Gulches	Invasive trees (rose apple and strawberry guava), native ferns, herbs and in a few locations native trees (ʻōhiʻa and kōlea).
Partially forested pastureland	Invasive trees: albizia, strawberry guava (*Psidium cattleianum*), *Ardisia* spp., alexander palm (*Archontophoenix alexandrae*), *Melochia umbellata* and African tulip (*Spathodea campanulata*) Diverse grasses: Guinea grass (*Megathyrsus maximus*), Lyon's grass (*Themeda villosa*), Hilo grass (*Paspalum conjugatum*) and remnant sugarcane (*Saccharum officanarum*) Native plants: neneleau trees, hāpuʻu fern, and uluhe fern. Warabi ferns (*Diplazium esculenta*), and several other invasive species of herbs, shrubs and trees including *Clidemia hirta*, *Miconia calvesens*, *Hyptis pectinate*, *Desmodium spp.*, and *Indigofera suffruticosa*.
Southwest corner (steep area of land between two tributaries of the Honomū Stream)	Uluhe fern, other native ferns, non-native trees, shrubs, herbs and a some of the few ʻōhiʻa on the property

Table 2-3 Main Faunal Types Observed in Honomū

Type of Fauna	Observation / Description
Non-native birds	Japanese white-eye, red-billed leiothrix, cattle egret, house finch, northern cardinal, yellow-billed cardinal, common myna, spotted dove, zebra dove and peacocks
Native birds	Hawaiian hawk
Native mammals	No Hawaiian hoary bats observed
Non-native mammals	Feral pigs, mongooses, feral cats, (feral) dogs, several species of gecko lizards, and coqui frogs

Potential Impacts and Mitigation Measures

The proposed project will have mitigable impacts upon the environment. These lands have a long history of intensive cultivation and there are almost no traces of original vegetation at the site today, which is dominated by non-native species of vegetation, with just a few widespread native species present.

Intensified farming and agriculture in upland areas does have the potential to affect water quality in streams and gulches, which could impact the native species that rely on these resources. However, it was noted that stream biota was still relatively intact, even when the intensive sugar plantations were in operation. The proposed subsistence agricultural subdivision would operate at a less intense scale than the previous sugar plantations. Additionally, existing buffers along gulch edges, streams, and major tributaries would be maintained, and in some areas, widened, thus providing even more protection for waterways. A Master Drainage Plan will be developed to further identify and implement BMPs to reduce erosion and runoff and DHHL will provide an agricultural extension agent to work with lessees on appropriate BMPs to minimize erosion and runoff.

The Hawaiian hoary bat is vulnerable to habitat loss, pesticides, predation, snagging in barbed wire, and roost disturbance. Roost disturbance most likely occurs when there is clearing, grubbing, or trimming of tall, woody vegetation when female bats carrying pups are less able to vacate roosts quickly during disturbances. They also will leave their pups unattended in their roost while they forage, which could leave them vulnerable if that tree is being felled.

Approximately 17 acres in the southwestern corner of the Project site is dominated by non-native species, but there is extensive growth of the native uluhe fern and this area also contains most of the ʻōhiʻa trees found on the project site. Other species of native vegetation can be found in the gulches in this area and there is potential for the restoration of native plant and animal habitats in this location. The gulches and this area will be preserved as conservation.

DHHL will also provide the following guidance to lessees:

- Avoid clearing vegetation that is taller than fifteen feet during Hawaiian hoary bat pupping season (from June 1 to September 15), to the extent practical.
- Do not use barbed wire for fencing to protect Hawaiian hoary bats from getting snagged.
- Restrict earthmoving or tree cutting during Hawaiian hawk breeding season (from March through September). If this time period cannot be avoided, then a hawk nest search should be conducted by a qualified biologist prior to the start of these restricted activities. If this nest search discovers any in or near the project site, then all land clearing activity will cease until the end of the breeding season.

- Restrict construction lighting or unshielded equipment maintenance lighting will be used after dark between the months of April and October to prevent potential impacts on nocturnally flying seabirds, which can become disoriented by exterior lighting. All permanent lighting will be shielded in compliance with the Hawaiʻi County Outdoor Lighting Ordinance, which reduces ambient glare caused by unshielded lighting.

In a Pre-Assessment Consultation letter, the DOH Environmental Planning Office informed DHHL that Title 11, HAR, Chapter 11-26, "Vector Control" requires that the Project "*shall ascertain the presence or absence of rodents on the property. Should the presence of vectors be determined, the applicant shall eradicate the vectors prior to clearing the site*." DHHL will coordinate with DOH on the appropriate measures to comply with this rule.

2.6 Natural Hazards

Hawai'i Island is subject to various natural hazards, such as flooding, wildfire, volcanic hazards, and earthquakes. The vulnerability of the Project site to such hazards is described below.

Flood Hazard Risk

The Federal Emergency Management Agency identifies the entire Project area as within Flood Zone X (unshaded) in its Flood Insurance Rate Maps, which are used to determine the risk of damage due to flooding. Zone X (unshaded) is determined to be outside the 500-year flood zone, a with minimal risk of flooding.

Wildfire Hazard Risk

The State Department of Land and Natural Resources Division of Forestry and Wildlife identified the Project area as in the "N/A" zone for risk to wildfire hazards.[12] The land located to the north and makai of the project area is classified as "low" risk to wildfire hazard (**Figure 2-2**).

Lava Flow Hazard Risk

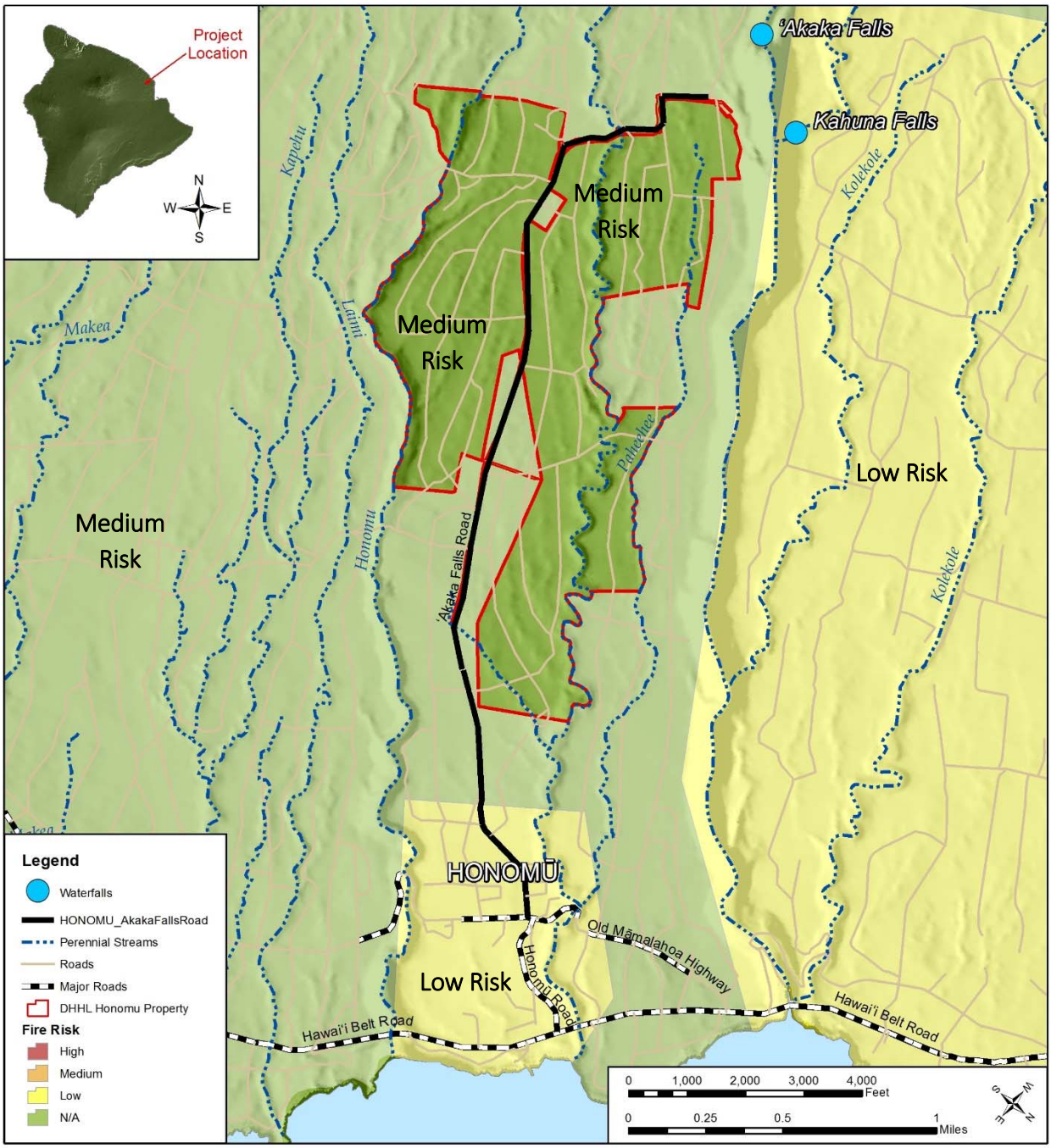
The Project area is located within Zone 8 of the Lava-Flow Hazard Zones for the Island of Hawaiʻi, which is one of the lowest risk zones for lava hazards. There are nine Zones identified, with Zone 1 being the most at risk to lava-flow hazards and Zone 9 being the least at risk. Zone 8 is identified as the remaining part of Mauna Kea volcanic area, with only a few percent of land in this zone having been covered by lava in the past 10,000 years.[13]

[12] Department of Land and Natural Resources, Division of Forestry and Wildlife, Fire Management Program, 2007 http://files.hawaii.gov/dbedt/op/gis/data/FireRisk.pdf (Retrieved 7/2/18.)

[13] U.S. Department of the Interior / Geological Survey (1991) Lava Flow Hazard Zone Maps https://volcanoes.usgs.gov/observatories/hvo/hawaii_lava_flows.html (retrieved 7/2/18).

Figure 2-2 Wildfire Risk

HONOMŪ SUBSISTENCE AGRICULTURAL HOMESTEAD COMMUNITY



Seismic Hazard Risk

Due to the active volcanoes located within the State, the main Hawaiian Islands are at risk for seismic activity. According to a USGS Map of the Seismic Hazard for the State, the Honomū area is located within the Seismic Design Category of D1.[14] This means that there is a probability that the area could experience very strong shaking. Damage to structures would be:

- slight for specially designed structures
- considerable for ordinary substantial buildings with partial collapse
- great in poorly built structures.

On April 26, 1973 Honomū experienced a 6.2 magnitude earthquake on the Richter Scale that originated at a depth of 25 miles below sea level. It injured 11 people and caused $5.6 million of damage. This earthquake is thought to have been unrelated to volcanic activity. These types of earthquakes occur at irregular intervals.[15]

Potential Impacts and Mitigation Measures

The proposed project will have no impact upon the environment. The Project is outside the 500-year flood zone and will implement BMPs to minimize increased runoff from the property impacting downstream land uses.

The risk from wildfire is low due to the rainy climate and the presence of active farms will manage vegetation and increase the likelihood that a wildfire would be observed should it occur and be reported to the County Fire Department.

The risk from lava flows is low, but seismic activity is still a threat. Any structures built on the site will either be required to meet County Building Code or be certified by a licensed structural engineer or architect as meeting industry standards for health and safety.

[14] USGS Volcano Hazards Program. https://volcanoes.usgs.gov/observatories/hvo/hazards_earthquakes.html

[15] Ibid.

2.7 Historic and Archaeological Resources

Cultural Surveys Hawai'i conducted a Literature Review and Field Inspection (LRFI) of the Project site (**Appendix C**) to determine the likelihood that historic properties may be affected by the Project and based on the findings, consider cultural resource management recommendations. The report found that the majority of the Project area has been extensively modified by historic sugar cultivation and subsequent agricultural and ranching activities. No pre-Contact archaeological features were observed, although pre-Contact features may still be present within portions of the stream gulches that could not be accessed during the field inspection.

Historic transportation and sugarcane agriculture-related features were identified, such as 'Akaka Falls Road, Pāhe'ehe'e Mauka Bridge, unpaved cane roads, culverts, minor bridges, and plantation field berms. While no surface remains of the several known historic workers' camps were observed, associated subsurface deposits may still be present.

Early Historic Period

The project area is located in the northern end of the district of Hilo known as Hilo-Palikū, or "Hilo of the upright cliffs." This area extended from Wailuku River to the Kaʻula Gulch and was the division between the district of Hilo and the district of Hāmākua to the north. This area was said to be dangerous because of the ʻōlohe, or skilled fighters and thieves that lived along these trails (Walker and Rosendahl 1994:4).

The project area was described in various reports and notes to have been in unirrigated agriculture, with crops including, at various times, dryland taro, bananas, kukui or candlenut, hala or pandanus, mountain apples, sweet potato, yams, breadfruit, paper mulberry, and sugarcane. King Kalākaua described the Hilo-Palikū area as having abundant rainfall and a fertile plateau, with high sea cliffs at the coast, and the impassable gulches.

Handy and Handy (1972) discuss scattered settlements built above streams that ran between the forested lands, with the population located mostly around the Hilo Bay area. Kalo was cultivated in terraces along the streams and gulches, including in Honomū Stream. (Handy and Handy 1972:538).

In 1823, Reverend William Ellis observed numerous deep ravines, fertile and populous uplands, and bold and rocky coastlines. The upland area was woody, though the trees were not very large. Open areas were filled with long grasses and luxuriant ferns and the houses that were visible from the sea were scattered singly around the cultivated areas. He observed cultivated crops of potatoes or taro in five or six-acre sections and large plantations of sugarcane and bananas. He also stated that the area appeared to be less populated than he had anticipated. (Ellis 2004: 321, 341-344, 352, 354-355).

Based on the observations of Rev. Ellis and with the use of modern environmental data, T. Stell Newman composed an ethno-historical study and map that defined indigenous Hawaiian land use patterns circa 1823. According to this information, the project area had low population density, dispersed coastal settlements, and scattered fields and gardens. No major field systems were described in this agricultural zone.

Mid- to Late-1800's

The Original Belt Highway, also known as the Old Māmalahoa Highway, was reconstructed and mentioned in the 1898 report by the Minister of the Interior. (Hawaii Minister of the Interior: 1989:190). The Honomū Sugar Company established its headquarters northeast of the project area in Honomū. This sugar company was run by C. Brewer & Company until 1946 when the sugar mill was closed, and the operations were merged with Pepeʻekeo Sugar Company (Dorrance & Morgan 2000:98-99). The Pepeʻekeo Sugar Company was successful for 11 years, until it merged into the Mauna Kea Sugar Company in 1957. The Mauna Kea Sugar Company was formed out of what was once five independent plantations in the Hilo district. The company continued to be the sole sugar producer in the Hilo area until its close in 1994 (Dorrance and Morgan 2000:104).

1900's

In 1905, Governor A.L. Atkinson established the Hilo Forest reserve, 110,000 acres of land mauka of the sugarcane plantations. The Board of Agriculture and Forestry conducted research and published a report that described the difficulty of building and maintaining roads as reasons against homesteads in the area. However, homesteads were ultimately approved because of the fair and arable lands, and because the deforestation needed to create the homesteads would have been limited and would not radically affect the forest reserve itself (Report to the Committee of Forestry 16 August 1904; reprinted in Maly and Maly 2006:153).

Approximately 24 homestead lots were established mauka of the Honomū Sugar Company lands. In nearby Laupāhoehoe, homesteaders would grow sugarcane under contract and sold the harvest to the local sugar company (University of Hawaiʻi, Mānoa 2004). It is probable that a similar situation also took place in Honomū between the homesteaders and the Honomū Sugar Company.

Historic Bridges & Railroad Development

In the 42.5 mile stretch of roadway from Hilo to Hāmākua in the north, there are 51 bridges built to cross the innumerable streams and gulches. A handful of historic bridges can be found near the project area (Alvarez 1987:2, 11). The Honomū Stream Bridge was built in the 1910s, though there is conflicting information that says that the bridge was built in 1935. Though originally a historic bridge, it was completely rebuilt in 2002 and therefore the structure that exists today is not considered to be a historic feature (MKE Associates, Fung Associates 2013: 6-237). The

Pāheʻeheʻe Stream Bridge, also called the Pāheʻeheʻe Gulch Bridge, is a highway bridge that is a converted railroad trestle (Laupāhoehoe Train Museum 2009). This bridge is located makai of the project area along the Hawaiʻi Belt Road/Route 19. It is one of a collection of six trestle bridges that are collectively assigned as State Inventory of Historic Places (SIHP) #50-10-16-9090 and added to the National Register of Historic Places, partially due to its ties to the historic railway (Alvarez 1987:131).

The historic rail line called the Hāmākua Division was constructed through this area to support the sugar mills outside of Hilo. This rail line was a 35-mile-long extension running north. The first phase of construction was the Hakalau Extension and it ran from Hilo town to Hakalau Gulch, just north of the current project area. It was along this extension that the Pāheʻeheʻe Stream Bridge was built in 1911. This rail line followed the coastline makai of the government road in the Honomū area. This railway was washed away in the 1 April 1946 tsunami. The Hawaii Consolidated Railway Company decided against a costly rebuild. The Hawaii Territory highway division ultimately purchased the right-of-way and remaining bridges and constructed the Hawaiʻi Belt Road/Route 19 in the 1950s.

Contemporary Land Use

According to the 1966 USGS map and 1977 USGS Orthophoto, much of the plateau land in Honomū and Kūhua was still under sugar cultivation at that time. Cane roads are present in the images, along with a few scattered structures. The bulk of the development was makai of the project area, near Honomū Village. The 1966 USGS map also indicates the site of ʻAkaka Falls State Park. Today, the project area is still in agriculture, with farm lands and pasture lands. Honomū Village is still the primary location of the residences in the area, with a handful of commercial properties near the village center. ʻAkaka Falls Road is frequented with tourists traveling to and from ʻAkaka Falls State Park and is the busier road in the area.

Potential Impacts and Mitigation Measures

The proposed project will have mitigable impacts upon the environment. While no surface remains were found, there is the potential for some pre-Contact features to be found in the gulch areas and historic-era transportation and sugar plantation remains to be found subsurface. The Project designates the gulches as conservation areas that are not to be developed, thus protecting any features that may exist. DHHL will continue to consult with the State Historic Preservation Division (SHPD) to determine what additional historic preservation work might be required, if any, including additional documentation of specific known features.

2.8 Cultural Resources

A Cultural Impact Assessment (CIA) was prepared to identify cultural resources within the Project area, potential impacts to those resources as a result of the proposed project, and recommended measures to mitigate detrimental impacts. Background on the history of Honomū was provided by the archaeological LRFI conducted by Cultural Surveys Hawai'i and community consultations with kūpuna and kama'āina provided information on previous and current cultural resources and practices in the project area. The CIA may be found in Appendix D.

Background on the Honomū Area

1. The Project area is located in the ahupua'a (traditional land division) of Honomū ("silent bay") and Kūhua ("to thicken") in the district of Hāmākua on Hawai'i Island. Honomū and Kūhua are situated north of Hilo Bay in a region traditionally known as Hilo-Palikū, or "Hilo of the upright cliffs." The Hilo-Palikū region was "treacherous to travel through because of the many 'ōlohe (skilled fighters and thieves) who lived along the trails."
2. Mo'olelo (stories, oral histories) and wahi pana (storied places), such as 'Akaka, the "Legend of Ka-Miki," and the epic tale of Hi'iakaokapoliopele, are associated with the Project area, suggesting early settlement of the area by a viable Native Hawaiian population.
3. Early accounts depict the Project area as a fertile land with abundant water, many valleys and agriculture. The Hilo-Palikū area has been described as heavily cultivated and requiring no irrigation. Terraces were observed in Honomū for growing wetland taro.
4. 'Akaka Falls is a prominent waterfall adjacent to the Project area that is the source of many tributaries in Honomū. 'Akaka translates as "a rent, split, chink, separation; to crack, split, scale." 'Akaka is also referenced twice in the Legend of Ka-Miki, first as the skilled competitor and grandson of the chief Kūlanikapele, a counselor and 'ōlohe master who served the chief, Kolekole. The second reference to 'Akaka is as a waterfall.
5. During the Māhele, Honomū was granted to Keohokalole and Kūhua was granted to Kamamalu however, both chiefs relinquished their lands in commutation for lands elsewhere, thus both Honomū and Kūhua were retained by the government. The lack of Land Commission Awards (LCA) records awarded for Honomū or Kūhua, suggests that there might have been less intensive indigenous Hawaiian land use within the Project area. However, 41 land grants were awarded in Honomū and 14 were awarded in Kūhua including land grants to the Honomu Sugar Company.
6. In 1880, the Honomu Sugar Plantation was established on 2,400 acres of land by M. Kirchoff & Company, with C. Brewer & Company, Ltd. as agent. Flumes extended from the upper region of Honomū which was interspersed with small-farm homesteaders growing cane, to the mill located at the coast.

7. In the early 1900s, a homestead of about 24 homes was established above the Project area. It was suggested that homestead settlement was part of efforts by the government to encourage plantation development.
8. Few archaeological studies have been conducted in the vicinity of the Project area and early studies focused on identifying heiau (pre-Contact places of worship) reported finding none in the Honomū vicinity, although there were reports of one heiau near Honomū School.
9. The pedestrian survey conducted for this Project's archaeological LRFI did not find any pre-Contact archaeological features within the Project area. However, numerous historic-era features associated with transportation and sugarcane agriculture, including roads, bridges, culverts, and berms, were identified and described in Appendix C.

Community Consultations

TSI met with four kūpuna (elders) and/or kamaʻāina (Native-born) who participated in talk-story interviews for more in-depth contributions to the cultural impact assessment. The interviews were conducted from June 2017 through June 2018. However, one individual has since passed away, therefore, only three of the four interviews are included in this assessment. Interview summaries are provided in Appendix D. Community consultations indicate:

1. Honomū is bounded by Māmalahoa Highway or the Hawaiʻi Belt Road, Route 19, along the Hāmākua Coast, and extends to ʻAkaka Falls. One kūpuna thought that the name, Honomū, was associated with the many churches in Honomū but was not certain.
2. Honomū is a plantation town that grew around the Honomū Sugar Company when the sugar industry was prevalent on Hawaiʻi Island. Kūpuna remember that sugarcane was "everywhere" and characterized the Honomū landscape, including the Project area.
3. Honomū consisted of various plantation camps that provided free housing and water for plantation workers. Plantation Camps in Honomū that participants remembered included: Stable Camp, Camp 45, Camp 28, Camp 17, Camp 6, Camp 3, Railroad Camp, and Kaʻakepa Camp. References were also made to a Chinese Camp and a Japanese Camp.
4. Workers at the sugar plantation in Honomū consisted predominantly of Filipino immigrants with smaller groups of Japanese, Chinese, and Puerto Rican workers and a few Portuguese, Hawaiians, and Pacific Islanders. "Everybody respected everybody's cultures and lifestyles [and] there was a lot of respect for each ethnicity."
5. Life in Honomū during the Plantation Era is described by participants as a tight-knit community where neighbors would share their food with each other. "Anything he'd [her father] bring back, like fish or pig, he would share with our neighbors and they would give us things from their garden in return. It was a real sharing community," one kupuna

explained. Various events were held annually in Honomū Town that helped bring the community together, such as the annual Honomū Festival, Christmas Beauty Pageant, and Halloween Parade.

6. The Hawaiian population in Honomū was reported by kūpuna to be small. Comments by kūpuna included, "There wasn't a large Hawaiian community… It was mostly Filipino." "I don't remember any other Hawaiian families [in Honomū] until I was in middle school."
7. The previous and existing land use of the Project area was and continues to be agriculture: sugarcane production and cattle ranching, and more recently, the cultivation of food crops like ginger, taro, sweet potato, and pineapple.
8. Hunting, particularly for wild pigs, is a practice that continues to occur in the mountain areas above ʻAkaka Falls and including the Project area. The pork meat is used to make sausages, smoke meat, and pasteles. It was felt that development has and will continue to push pigs out of the area and kūpuna felt that the proposed development will likely impact hunting practices in Honomū.
9. Several native fauna species were previously found in Honomū streams, such as ʻōpae, hīhīwai, and ʻoʻopu. Other species mentioned include mosquito fish, frogs, and freshwater prawns/crayfish. Though one individual thought that ʻoʻopu is no longer prevalent, ʻōpae and hīhīwai are considered to still exist. Kūpuna recalled catching frogs and introduced freshwater prawns from the rivers and streams for consumption.
10. The gathering of ʻōpae from the streams that flowed from ʻAkaka Falls was a practice that used to occur within the Project area. "People used to get the ʻōpae for weddings and funerals and all the streams up to ʻAkaka used to be used by the community for that." "We'd go up at night [to Akaka] to catch ʻōpae." However, the practice has declined with less access to streams due to new settlements and developments in Honomū, as well as the introduction of invasive freshwater prawns.
11. Kūpuna did not believe that there are Hawaiian cultural sites or heiau within the Project area. They felt that any sites that might have existed previously would have been destroyed by the agricultural practices of sugarcane cultivation and cattle ranching that occurred on the property.
12. ʻAkaka Falls is an important landmark, situated adjacent to the Project area, with historical, cultural, ecological, economic, and spiritual value to the people of Honomū:
    (i) ʻAkaka, named for an ʻaliʻi with two mistresses, is associated with Hawaiian royalty, therefore, the site should be given a certain level of reverence;
    (ii) ʻAkaka Falls is attributed as the source of water for Honomū with various tributaries including Kolekole River, that flow into the ocean;

(iii) ʻAkaka was a source of food, historically, and kūpuna recall the presence of ʻōpae, ʻoʻopu, frogs, prawns, and crayfish in the streams that were collected for consumption.

(iv) ʻAkaka Falls was and continues to be a place of recreation for the local community who would often access the pools at the top of the waterfall for swimming;

(v) ʻAkaka Falls is one of the main tourist attractions on the Hāmākua coast of Hawaiʻi Island. Though the waterfall is within a State Park, the site attracts many visitors to Honomū Town which boosts the town's economy;

(vi) ʻAkaka is a special place that gives people life, hope, and a sense of forever, and a kupuna relayed that the memories of childhood experiences at ʻAkaka make her happy.

13. Other distinguishing landmarks of the plantation era in Honomū include the Honomū Theatre, the Old Māmalahoa Highway and the historic buildings along the makai side of the road, remnant plantation camp houses, and the storage building of the Honomū Sugar Company along Highway 19.

14. Honomū was also known for its military and some military features, such as a bunker house that stored ammunition.

15. Agricultural theft and break-ins into tourist vehicles parked at ʻAkaka Falls, is a common occurrence which led to the formation of a Neighborhood Watch program in Honomū, a volunteer community initiative to provide security at ʻAkaka Falls.

16. Honomū Town has experienced numerous changes following the closing of the Honomū Sugar Company in the 1980s. Kūpuna explained that many newcomers have settled in Honomū and that many of the Hawaiian families have either passed or moved away. "Honomū today is very different. Now, newcomers don't know the history and culture of the place. They try bring their own lifestyle and project that onto other people. That's why it's different." Another kupuna noted that "Honomū is not as welcoming anymore… and now you need to lock your doors because there are so many thefts."

17. All participants consulted for this Project perceived the proposed Hawaiian Homestead as a positive development that will bring many benefits to Honomū. "I don't think it will be a problem," said one kupuna. Participants identified potential positive impacts of the Project on Honomū and the larger community which include the following:

(i) The focus on subsistence agriculture will be consistent with the past and present land use of the Project area for agriculture;

(ii) The homestead might bring new projects that could benefit the Honomū community, for example, providing opportunities for local people to sell products to visitors such as at a Farmers' Market, or allow the road-side sale of products along Akaka Road.

Potential Impacts and Mitigation Measures

The proposed project will have mitigable impacts upon the environment. The following cultural impacts and recommendations are based on a synthesis of all information gathered during preparation of this project. This assessment indicated that the Project area is located in an area previously developed for agriculture, therefore, many pre-existing archaeological sites might have been destroyed from sugarcane cultivation and cattle ranching. The most significant cultural impacts from the proposed project include: 1) the possibility of affecting practices that previously occurred on the property for subsistence, such as pig hunting and the gathering of ʻōpae and freshwater prawns/crayfish from the rivers and streams; and 2) disturbing historic-era features associated with transportation and sugarcane agriculture.

All participants consulted for this Project perceived the proposed Hawaiian Homestead as a positive development that will bring benefits to Honomū and the larger community:

1. The focus on subsistence agriculture will be consistent with the past and present land use of the Project area for agriculture;
2. The homestead might bring new projects that could benefit the Honomū community, for example, providing opportunities for local people to sell products to visitors such as at a Farmers' Market, or allow the road-side sale of products along ʻAkaka Road.
3. The DHHL could leverage the visitor industry to generate funds for the Homestead by: 1) creating a parking lot on land adjacent to ʻAkaka Falls State Park and charging visitors for parking, and 2) taking a certain percentage of profits made from the sale of roadside goods to visitors. Funds collected could be used for the development of the homestead, such as infrastructure development, as well as paying for security guards to monitor the area and reduce the incidence of theft.

Therefore, the development of a Hawaiian Homestead that encourages subsistence agriculture will potentially increase the prevalence of Hawaiian cultural practices in agriculture in Honomū. Additionally, the potential influx of native Hawaiians into a town where the native Hawaiian population has been in decline, might bring back many Hawaiian cultural practices, beliefs, and values into the area. In the long term, this project might facilitate the revitalization of Hawaiian culture in Honomū.

To help mitigate the potential adverse impacts of the proposed Project on Hawaiian cultural beliefs, practices, and resources, the following measures will be implemented.

1. No burials were identified in the Project area. However, should cultural or burial sites be identified during ground disturbance, all work will immediately cease, and the appropriate agencies notified pursuant to applicable law. Kūpuna and/or lineal

descendants from the Project area will also be consulted to ensure proper cultural protocol are addressed.

2. Consultation with SHPD will occur to determine the extent of historic preservation work required prior to the development of the proposed Project.
3. DHHL is willing to work with area residents to allow for access to traditional and customary practices, where possible. Streams and gulches will not be developed, and access may be negotiated.
4. Hunting on the Project site will not be allowed for public safety purposes, but access to a public hunting area mauka of the Project (Hilo Forest Reserve, Kaiwiki Section) will not be impeded by the Project.
5. DHHL requires that lessees of the Project actively cultivate their land. To ensure successful agricultural operations, DHHL is providing lessees with a dedicated agent from the University of Hawai'i's College of Tropical Agriculture and Human Resources to assist in planning for appropriate crops, agricultural methods, and resource conservation practices.
6. Community members and organizations will continue to be briefed and consulted as the Project design progresses.

2.9 Viewplanes

The Project site is located along a gentle slope approximately one to three miles inland of the coast. Much of the region was previously under sugar cultivation and remains in agricultural open space, from the rural coastal towns generally located within a half-mile of Hawai'i Belt Road (also called Māmalahoa Highway or State Route 19) up to the forest reserve approximately five miles inland.

Views from the project site are generally of a line of trees on an adjacent property when looking South, trees along the Kolekole Stream to the North, the coastline and ocean when looking East, and the forest reserve when looking West. Mauna Kea may be seen in the distance from some locations. Figure 2-3 provides views from the project site. Figure 2-5 is a map that shows the general locations where the photos in Figure 2-3 were taken.

Public views of the property are generally from 'Akaka Falls Road, which runs makai to mauka through the Project. Views are of pasture lands, trees, and tall grasses and shrubs. In the distance, the Pacific Ocean may be seen when looking makai and Mauna Kea when looking mauka. Figure 2-4 provides views of the project site from 'Akaka Falls Road. Figure 2-5 is a map that shows the general locations from where the views may be seen.

Figure 2-3 Views from the Project Site

Photo location 1
Looking south

Photo location 2
Looking west (mauka)

Photo location 2
Looking north

Photo location 3
Looking east (makai)

Photo location 4
Looking west (mauka)

Photo location 4
Looking east (makai)

Figure 2-3 Views from the Project Site (continued)

Photo location 4
Looking south

Photo location 5
Looking west (mauka)

Photo location 6
Looking east (makai)

Photo location 7
Looking north

Photo location 7
Looking west

Photo location 8
Looking north

Figure 2-4 Views of the Project Site

Photo location 9
Looking west (mauka)

Photo credit: Google Street View
Image capture: September 2011

Photo location 10
Looking east (makai)

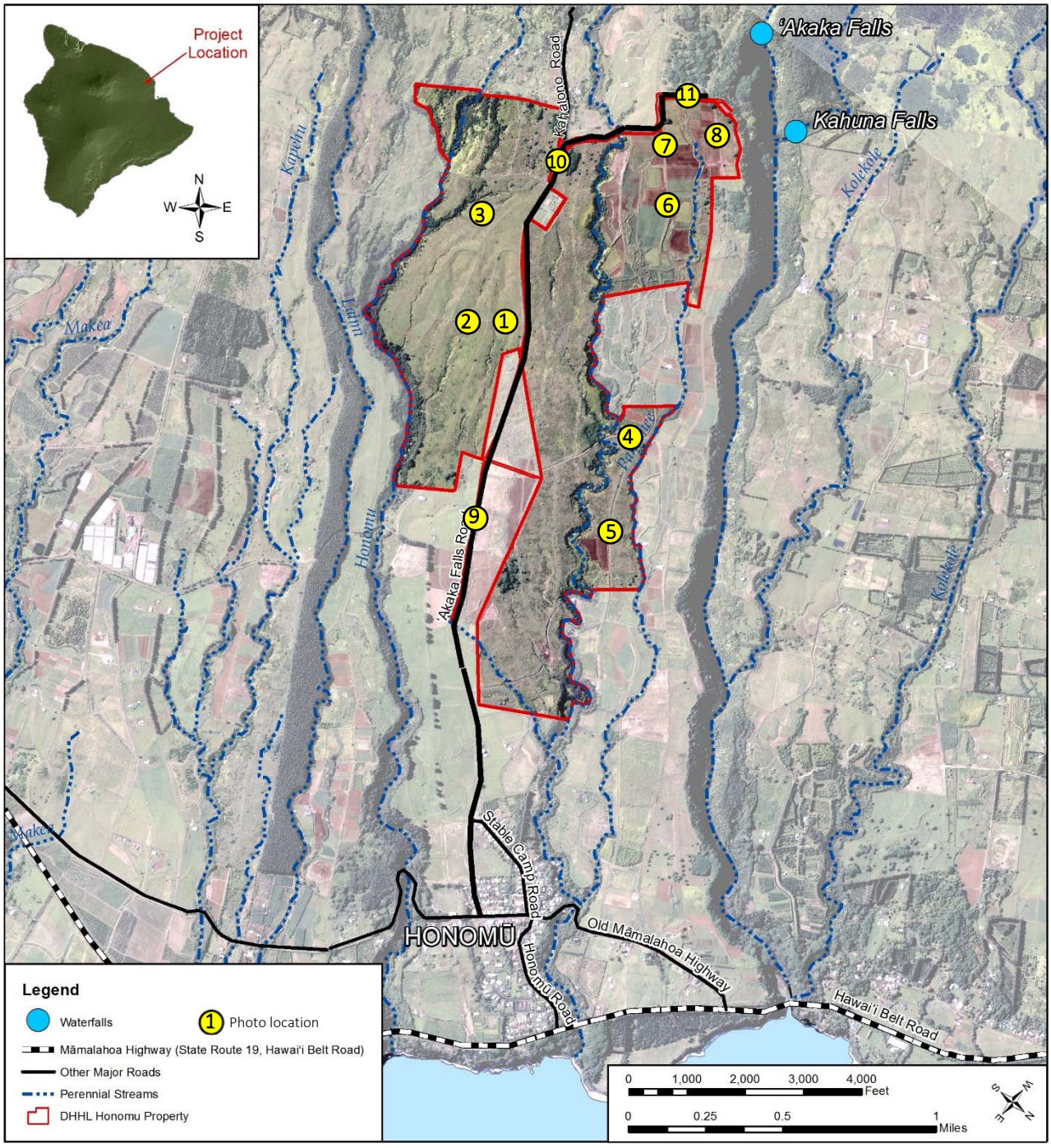
Photo credit: Google Street View
Image capture: September 2011

Photo location 11
Looking east (makai)

Photo credit: Google Street View
Image capture: September 2011

Figure 2-5 Location of Viewplane Photos

HONOMŪ SUBSISTENCE AGRICULTURAL HOMESTEAD COMMUNITY



Potential Impacts and Mitigation Measures

The proposed project will have mitigable impacts upon the environment. The Recommended Hāmākua Community Development Plan (January 2017) states among its values "*Our pristine landscapes and rich agricultural lands from mauka to makai, native forests to coastal waters, streams and watersheds, the sweeping views and open spaces are protected and enhanced*." The Project will alter the existing views of pasturelands as they are converted to homesteads, but the subsistence agriculture land use will be consistent with previous and current agricultural land uses.

Single family homes may be built by lessees but no high-rise buildings will be allowed. Lot sizes will be smaller than in surrounding properties, but buffers along the streams, gulches, and makai portions of the property will keep over a third of the lands in conservation. Additionally, a 100-foot wide corridor will be maintained along ʻAkaka Falls Road providing an open space buffer as one views the property from the road.

2.10 Roads, Bridges, and Culverts

Access to the Project will be provided by ʻAkaka Falls Road, State Highway 220, which extends from Honomū Village mauka to ʻAkaka Falls State Park. Early maps from the 1900's show this road extending further mauka towards the former homestead lots but was later rerouted to provide access to ʻAkaka Falls State Park. Presently, ʻAkaka Falls Road is a two-lane asphalt road with an eighty-foot right-of-way in the vicinity of the Project and a forty-foot right-of-way near Māmalahoa Highway. It has graded shoulders and associated drainage channels, signage and guardrails.

Within the project area there is an extensive network of historic-era cane haul roads. These were initially developed during the usage of the lands as a sugar plantation. The cane roads are typically dirt or grass dual-track roads with some gravelling in certain areas. They are typically five meters wide and are elevated earthen berms or sit flush with the surrounding ground surface.

Pāheʻeheʻe Mauka Bridge is the most prominent bridge within the project area. It is a two-span, concrete slab bridge that allows ʻAkaka Falls Road to cross Pāheʻeheʻe Stream. Originally built in 1927 and rebuilt in 1973, some concrete slabs were observed in the stream gulch located makai of the bridge and are presumably remnants of the original construction left over from the rebuilding. There are two additional concrete, plantation-era bridges located along the cane haul roads in the interior of the Project site. All of the cane haul road bridges are overgrown with vegetation.

Two 36-inch culverts run under (perpendicular to) ʻAkaka Falls Road, upstream of the Pāheʻeheʻe Stream Bridge. Seven additional culverts within the Project site allow for surface water to drain under cane haul roads.

Potential Impacts and Mitigation Measures

The proposed project will have mitigable impacts upon the environment. DHHL will construct internal roads to service the Project. The old cane haul roads, bridges, and culverts will be evaluated for use by the Project and may be upgraded to achieve health and safety standards. Where these features are upgraded or replaced, DHHL will consult with SHPD to ensure the proper protocols are followed for historic-era features.

Intersections along ʻAkaka Falls Road will be coordinated with the State Department of Transportation, which has jurisdiction over the State Highway. The Project will use existing driveways, to the extent practicable.

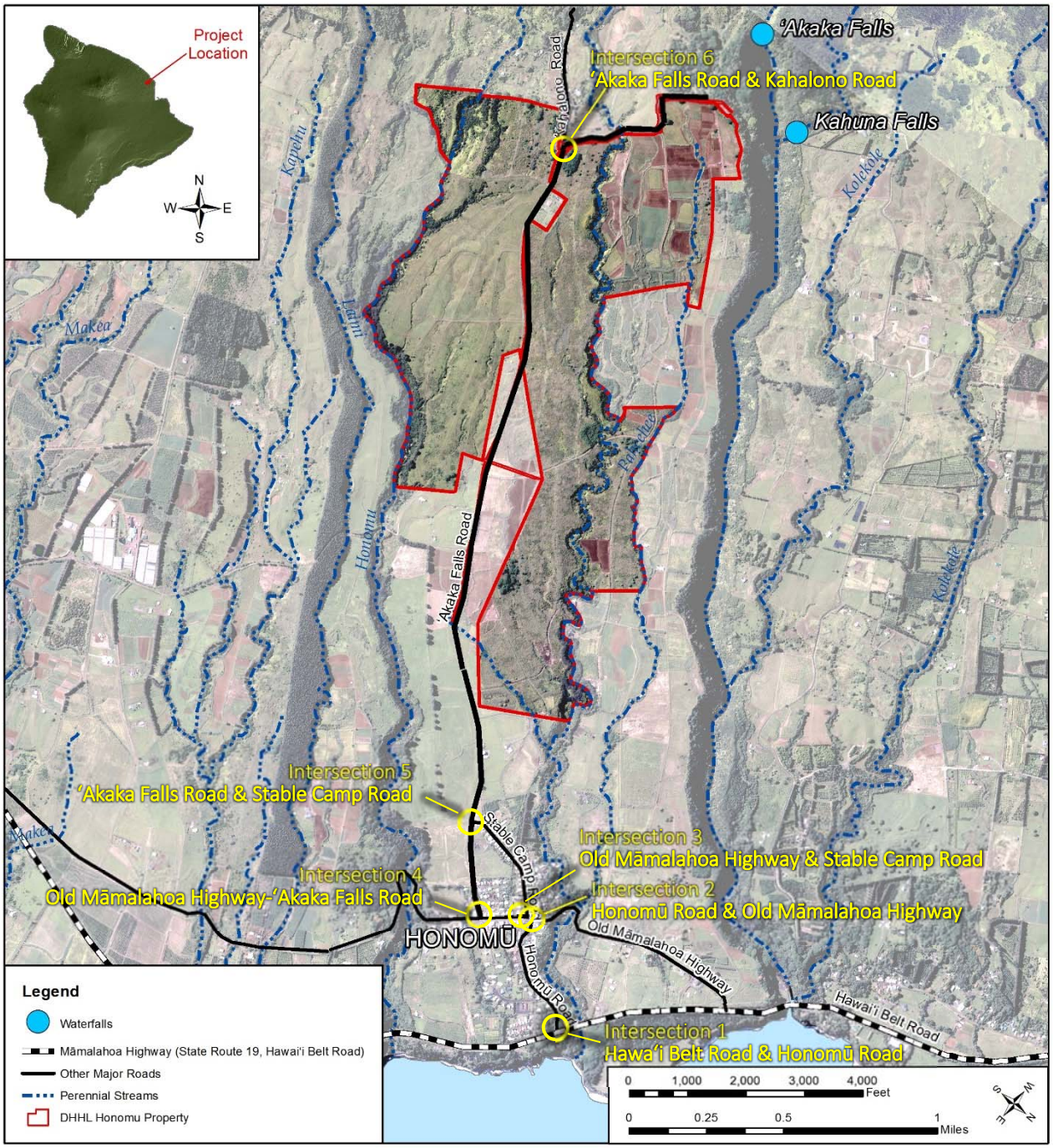
2.11 Traffic

Access to the Project will be provided along ʻAkaka Falls Road, which is accessed from Old Māmalahoa Highway, Honomū Road, and Māmalahoa Highway, also known as the Hawaiʻi Belt Road (State Route 19). To reduce confusion between Māmalahoa Highway and Old Māmalahoa Highway, this document will refer to Māmalahoa Highway as Hawaiʻi Belt Road. The Project straddles ʻAkaka Falls Road (State Route 220), a two-way, two-lane collector road that starts at Old Māmalahoa Highway and ends at ʻAkaka Falls State Park (Figure 2-6). It is stop-controlled at its Tee-intersection with Old Māmalahoa Highway (Intersection 4 in Figure 2-6). Old Māmalahoa Highway is a two-way two-lane roadway that provides access to Honomū Town. It is stop-controlled at its intersection with Honomū Road (Intersection 2 in Figure 2-6).

Honomū Road is a two-way, two-lane collector road between Hawaiʻi Belt Road and Old Māmalahoa Highway. Honomū Road is stop-controlled at its Tee-intersection with Hawaiʻi Belt Road (Intersection 1 in Figure 2-6). It also intersects Old Māmalahoa Highway at an unsignalized Tee-intersection (Intersection 2 in Figure 2-6).

Hawaiʻi Belt Road (also known as Māmalahoa Highway and State Route 19) is a two-way, two-lane arterial highway that does not provide exclusive turning lanes at its intersection with Honomū Road (Intersection 1 in Figure 2-6). The posted speed limit on Hawaiʻi Belt Road in the vicinity of Intersection 1 is 55 miles per hour.

Figure 2-6 Honomū Roads and Intersections



Existing Conditions

The following six intersections were evaluated for the Project: (1) Hawai'i Belt Road and Honomū Road, (2) Honomū Road and Old Māmalahoa Highway, (3) Old Māmalahoa Highway and Stable Camp Road, (4) Old Māmalahoa Highway and 'Akaka Falls Road, (5) 'Akaka Falls Road and Stable Camp Road, and (6) 'Akaka Falls Road and Kahalono Road. Turning movement traffic count surveys were conducted at the study intersections on April 11 - 12, 2017 during the peak periods of traffic, from 6:00 AM to 9:00 AM and from 3:00 PM to 6:00 PM. Traffic count data may be found in Appendix F. The existing peak hour traffic occurred from 7:00 AM – 8:00 AM in the morning and 4:30 PM -5:30 PM in the afternoon.

Table 2-4 Honomū Existing Peak Hour Traffic

	Approximate AM Peak Hour Traffic 7:00 AM – 8:00 AM in Vehicles Per Hour (VPH) Total for Both Directions	Approximate PM Peak Hour Traffic 4:30 PM – 5:30 PM in Vehicles Per Hour (VPH) Total for Both Directions
Hawai'i Belt Road	500 VPH	600 VPH
Honomū Road	90 VPH	180 VPH
Old Māmalahoa Highway	50 VPH	150 VPH
'Akaka Falls Road (at Old Māmalahoa Highway)	28 VPH	100 VPH
'Akaka Falls Road (at Kahalono Road)	10 VPH	80 VPH

During the existing AM and PM peak hour traffic periods, all intersections in the study area operated at a Level of Service of "A," except at Honomū Road at Hawai'i Belt Road during both the AM and PM peak hour traffic and southbound Old Māmalahoa Highway during PM peak traffic hour, which operated at LOS "B" (see Table 2-5Error! Not a valid bookmark self-reference. for descriptions of the Levels of Service).

The existing left-turn demand from northbound Hawai'i Belt Road onto Honomū Road represents about 22 percent of the total northbound demand of about 350 VPH. The southbound traffic demand on Hawai'i Belt Road was about 280 VPH. The existing afternoon peak hour traffic demands met the American Association of State Highway and Transportation Officials guidelines for an exclusive left-turn lane in the northbound direction of Hawai'i Belt Road at Honomū Road.

Table 2-5 Level of Service Descriptions

LOS	Description	Acceptability
A	Control delay is minimal	Satisfactory
B	Control delay is not significant	Satisfactory
C	Stable operation. Queuing begins to occur.	Satisfactory
D	Less stable condition. Increase in delays, decrease in travel speeds.	Acceptable*
E	Unstable operation, significant delays	Worse than acceptable
F	High delays, extensive queuing.	Worse than acceptable

* The Highway Capacity Manual, 6th Edition (HCM6), published by the Transportation Research Board defines six Levels of Service from the traveler's perspective, ranging from the best LOS "A" to the worst LOS "F." Hawaii County Code §25-2-46 Concurrency requirements state that "Acceptable level of service" means that the level of service of a transportation facility at the a.m. and p.m. peak hours is "D" or better. Intersection LOS is primarily based upon the average delay in seconds per vehicle.

Future Traffic Conditions Without the Project

The Federal-Aid Highways 2025 Transportation Plan for the District of Hawaii (TPDH)[16] developed long-range travel forecasts for the island of Hawai'i. The TPDH forecasted traffic on Hawai'i Belt Road to increase at an average annual rate of 0.9 percent. This rate of increase was applied to the project area through 2035, when full occupancy of the Project is expected. Using this forecast, year 2035 AM and PM peak hour traffic volumes are expected to operate at satisfactory Levels of Service (LOS of "C" or better).

Potential Impacts and Mitigation Measures

The proposed project will have mitigable impacts upon the environment. When the project is fully occupied, anticipated at year 2035, Honomū Road is expected to operate at LOS "D" during both the AM and PM peak hours of traffic at Hawai'i Belt Road. All other study intersections are expected to operate at a LOS of "C" or better.

The roadways within Honomū Village currently carry low volumes of traffic. While the Project is expected to generate relatively significant volumes of traffic during the AM and PM peak hours of traffic, the study intersections are expected to operate at acceptable Levels of Service.

[16] The TPDH was prepared for the State of Hawai'i Department of Transportation in cooperation with the County of Hawai'i Public Works, Planning, and Transit Departments in 2014.

As discussed, existing left-turn demand from northbound Hawai'i Belt Road onto Honomū Road met the American Association of State Highway and Transportation Officials guidelines for an exclusive left-turn lane in the northbound direction of Hawai'i Belt Road at Honomū Road. While this is an existing condition and not an impact of the Project, DHHL will coordinate with the State of Hawai'i Department of Transportation (HDOT) to install a left-turn lane in the northbound direction of Hawai'i Belt Road at Honomū Road.

Additionally, Level of Service at Honomū Road onto Hawai'i Belt Road in the northbound direction is expected to reduce LOS to "D" even in the Without Project condition by 2035. Level of Service "D" is still considered "Acceptable" under Hawaii County Code §25-2-46 Concurrency requirements. DHHL will consider improvements to facilitate left turn movements from Honomū Road onto Hawai'i Belt Road in the northbound direction and will discuss options with HDOT.

2.12 Public and Private Utilities

2.12.1 Sewer Services

There are no existing County of Hawai'i Department of Environmental Management sewer lines in the project vicinity and in Honomū town. Honomū wastewater management is serviced through Individual Wastewater Systems (IWS), which consist of cesspools and septic systems.

Potential Impacts and Mitigation Measures

The proposed project will have no impact upon the existing sewer system. The Project will not tie into the County wastewater system therefore, the County system will not need to be upgraded. Cesspools will not be allowed. Those lessees that wish to reside on-property will be required to install septic systems or other IWS that meet DOH approval. DHHL will coordinate with DOH on appropriate wastewater planning.

2.12.2 Water Services

The County of Hawai'i Department of Water Supply (DWS) maintains the Honomū Water System, which provides potable water service to the Honomū Village area. The existing well is located downstream of the Project area and DWS confirmed that there is no existing potable water service in the vicinity of the Project.

There is an existing ductile iron water line within 'Akaka Falls Road that serves as an emergency water source from 'Akaka Falls Spring to Honomū Well. However, the water in this line is not treated and DWS will not allow domestic water service from this water line. Agricultural and residential lots upstream of Honomū Well do not have DWS water service and receive water through individual water catchment systems. Subsequently there are also no existing fire protection lines or fire hydrants in the project vicinity

Potential Impacts and Mitigation Measures

The proposed project will have no impact upon the existing potable water system. Lessees will be required to construct their own water catchment tanks for domestic use if a home is built on-property, and/or for supplemental irrigation needs. DHHL will recommend that lessees who build a catchment system include water-efficient fixtures within the home and/or water efficient irrigation methods. Additionally, DHHL will provide an agricultural extension agent to work with lessees on appropriate agricultural practices, including irrigation water management.

At a future time, potable water service may be needed for the proposed commercial and community land uses. If and when this need arises, DHHL will consider its options, including the possibility of working with the County of Hawai'i to obtain water service. However, commercial and community land uses that require potable water are not anticipated to be implemented until at least eight to ten years from now.

The Project is included in the State Water Projects Plan Update (2017), where it anticipated the need for both potable water for domestic purposes and non-potable water for irrigation. Potable water was expected to come from the County water system and non-potable water was expected to come from ambient rainfall. Water catchment will instead account for most of the expected potable water needs, but ambient rainfall is still expected to provide most, if not all of the water needed for agricultural irrigation. DHHL will coordinate with both the State Department of Land and Natural Resources and the County of Hawai'i to add this Project and its' water needs into the next update to the State Water Projects Plan and the County's Water Use and Development Plan, respectively.

2.12.3 Power and Communications

There are existing joint power and communication poles along the south side of 'Akaka Falls Road, outside the road right-of-way, indicating a Hawai'i Electric Light Company (HELCO) utility easement for the maintenance of the utility poles. There is no legal documentation in place for this utility easement, so HELCO remarked that the easement falls under a "grandfather clause" since construction of the utility corridor was performed prior to land turnover from the Honomū Sugar Company. Hawaiian Telcom also has facilities along 'Akaka Falls Road, but their service capacity is very minimal due to the existing landscape of homeowners in the area.

Potential Impacts and Mitigation Measures

The existing joint utility poles along 'Akaka Falls Road may serve as the main power and communications trunk for the project area. Utility alignments within the Project and the decision to incorporate overhead or underground utility viaducts will be determined during the phased infrastructure improvements design stages. Utility easements will need to be granted to the respective utility companies so that the companies have lawful use and maintenance rights on these properties.

2.13 Public Services

2.13.1 Police Protection

The project site is located within the County of Hawai'i Police Department's South Hilo District. Police service in the South Hilo District is provided by the Hilo Police Station located at 349 Kapiʻolani Street. The district ranges from Hakalau to the north, to Pāpaʻi to the south.

Potential Impacts and Mitigation Measures

The proposed project will have mitigable impacts upon Police service. Agricultural theft is identified as a potential issue for the proposed project. The additional presence of lessees in both a residential and agricultural capacity is expected to deter incidents of agricultural theft. Beneficiaries will be educated about agricultural theft and can work with the County of Hawai'i Police Department on deterring this type of criminal activity. In a Pre-Assessment Consultation letter, the County of Hawai'i Police Department stated that it "does not anticipate any significant impact to traffic and/or other public safety concerns.

2.13.2 Fire Protection

Fire protection for the project site will be provided by the Central Fire Station #1 located approximately 10 miles south of the project site in Hilo, Hawaiʻi at 466 Kinoʻole Street.

Potential Impacts and Mitigation Measures

The proposed project will have mitigable impacts upon Fire Protection services. In a Pre-Assessment Consultation letter, the County of Hawai'i Fire Department requested compliance with Chapter 18 of the Hawai'i State Fire Code, National Fire Protection Association 2006 version, with County of Hawai'i amendments. The project will work with the County of Hawaiʻi Fire Department to ensure that Federal, State and County standards are incorporated to provide for access and level of service. The previously mentioned fire code includes requirements for areas where water catchment systems will be used as a water supply for firefighting.

2.13.3 Medical Services

The major health care facility nearest the project site is the Hilo Medical Center, located at 1190 Waianuenue Avenue. This facility is located approximately 13 miles south of the project site.

Potential Impacts and Mitigation Measures

The proposed project will have no impact upon existing medical services in the area. The project will ensure that access for medical emergencies adheres to County standards.

2.14 Socio-Economic Conditions

The County of Hawai'i's resident population was reported to be 196,428 in 2015, a 17% increase over the 2005 resident population of 28,191 and a 62% increase over the 1990 resident population of 121,572.[17] The District of South Hilo, where Honomū is located, experienced a slower population growth of 6.2 % between 1990 and 2000 and a growth of 7.2% between 2000 and 2010. The 2010 population of Honomū Census Designated Place was 509 people.

Businesses in Honomū are mostly located in the Village area along Old Māmalahoa Highway and are centered around agriculture, retail, and entertainment activities associated with the tourism generated by 'Akaka Falls State Park. Median household income in the Honomū Census Designated Place was $55,795 (2012-2016 average) and the unemployment rate was 1.5%.[18]

Potential Impacts and Mitigation Measures

The proposed project will have mitigable impacts upon the environment. DHHL, under its Administrative Rules, is authorized to provide agricultural lots to beneficiaries. Subsistence agricultural lots are meant to be no larger than three acres, with no minimum lot size. For the Honomū community, it was determined that lots should be at least one acre in size to maintain densities typical to some rural and agricultural areas. Lots may also range in size up to three acres. Additionally, the recommended alternative includes conservation, community, and supplemental agricultural land uses that will further reduce the density of the Project and will enhance the homestead community.

The proposed project will increase the population of Honomū. At full buildout, the Project is anticipated to have a residential settlement of 619 people, more than doubling the 2010 resident population.[19] DHHL plans on a slow initial implementation of this Project with Phase I consisting of only about 15 lots to be able to learn what features are appropriate for this area. Actual phasing size and speed will depend upon site engineering, permitting and approvals, and financing, but DHHL intends on awarding approximately 30% of the lots within the next eight years and the remaining lots by 2032.

[17] Hawai'i County Data Book 2015. Hilo, Hawai'i : County of Hawai'i, Department of Research and Development, 2016

[18] U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates

[19] The projected population of the Project at full buildout was estimated by multiplying the average household size for DHHL beneficiaries (U.S. Census Bureau's 2008-2012 American Community Survey) with 50% of the total number of lots offered. Based on DHHL's other agricultural homesteads, fewer than 50% of lessees build houses, even after several decades.

It is anticipated that the addition of residents to Honomū as a result of this project will provide additional customers to the commercial Village center. During the planning stages of this Project, the Honomū community expressed concern for an earlier proposal to have a larger commercial area designated near ʻAkaka Falls Park, fearing that it would create a second commercial center and draw customers away from the Village. The Project has since reduced the size of the commercial area and intends to restrict uses to those that complement ʻAkaka Falls State Park.

3 RELATIONSHIP TO PLANS AND POLICIES

3.1 Federal Plans and Policies

3.1.1 Archaeological and Historic Preservation Act (16 U.S.C. § 470(F) and National Historic Preservation Act (16 U.S.C. § 470(F)

The Archaeological and Historic Preservation Act is a federal policy that is meant to provide for the preservation of historic American sites, buildings, objects and antiquities of national significance. The National Historic Preservation Act is a federal policy that is meant to preserve historic federal sites, and established the National Register of Historic Places, National Historic Landmarks list, and the State Historic Preservation Offices.

As outlined in Section 2.7, the project area has been used extensively for agricultural operations and there are no known archaeological or cultural features that can be seen on the site today. The project will work with the State Historic Preservation Division (SHPD) of the Department of Land and Natural Resources to determine what additional historic preservation work might be required, if any, including additional documentation of specific known features.

3.1.2 Coastal Zone Management Act (16 U.S.C. § 1456(C)(1)

The Coastal Zone Management Act is a national policy meant to preserve, protect, develop and restore or enhance the resources of the Nation's coastal zone for this and succeeding generations. This act encourages coastal states to create a Coastal Zone Management Program to protect and preserve their specific coastal resources.

The proposed project will adhere to the regulation established by the Federal Coastal Zone Management Act, and subsequent State and County regulation for the protection of coastal resources.

3.1.3 Endangered Species Act 16 U.S.C. §1536(A)(2) and (4)

The Endangered Species Act is a national policy that is designed to protect critically imperiled species from extinction as a consequence of economic growth and development. The Act is administered by the United States Fish and Wildlife Services (FWS) and the Commerce Departments National Marine Fisheries Service (NMFS).

The proposed project will adhere to the regulation established by the Federal Endangered Species Act, and subsequent State and County regulation for the protection of endangered species. Due to a history of intensive cultivation, the Project site is dominated by non-native vegetation. A few widespread native plant species were found during a field investigation and the only native animal species observed was a pair of endangered Hawaiian hawks circling overhead, although it is assumed that the native Hawaiian hoary bat is present in the area.

DHHL will protect stream and gulch areas in conservation, as well as a 17-acre site that was identified as having potential for native habitat restoration. Guidance will be provided to homestead lessees to minimize potential impacts to native bats and hawks.

3.1.4 Fish and Wildlife Coordination Act 16 U.S.C. § 662(A)

The Fish and Wildlife Coordination Act is a national policy that is meant to protect fish and wildlife from the control or modification of a natural stream or body of water. This Act gives authority to the FWS to evaluate impacts to fish and wildlife from proposed water resource development projects.

The proposed project does not intend to make any changes to the natural streams, gulches or other bodies of water in the project area. Any proposed changes to the streams in the project area will adhere to State and County regulation and required permitting.

3.1.5 Wild and Scenic Rivers Act 16 U.S.C. § 1271-1287

The Wild and Scenic Rivers Act of 1968 identifies rivers that possess remarkable value and as such shall be preserved in free-flowing condition, and their immediate environments shall be protected for the benefit of present and future generations. Though Hawaiʻi does not have any rivers listed at present, several rivers within the State have been recognized as being eligible for designation under this Act, including the three streams in the project area.

The Kolekole stream was listed in 1982 as being eligible to be classified as a Scenic River because it includes the State's highest waterfall on the island, ʻAkaka Falls, at 420-feet in height. The Honomū and Pāheʻeheʻe streams were listed in 1995 as being eligible for designation due to their diverse populations of sensitive native aquatic species, including the ʻoʻopu ʻalamoʻo (*Lentipes Concolor)*, the Hawaiian Freshwater Goby.

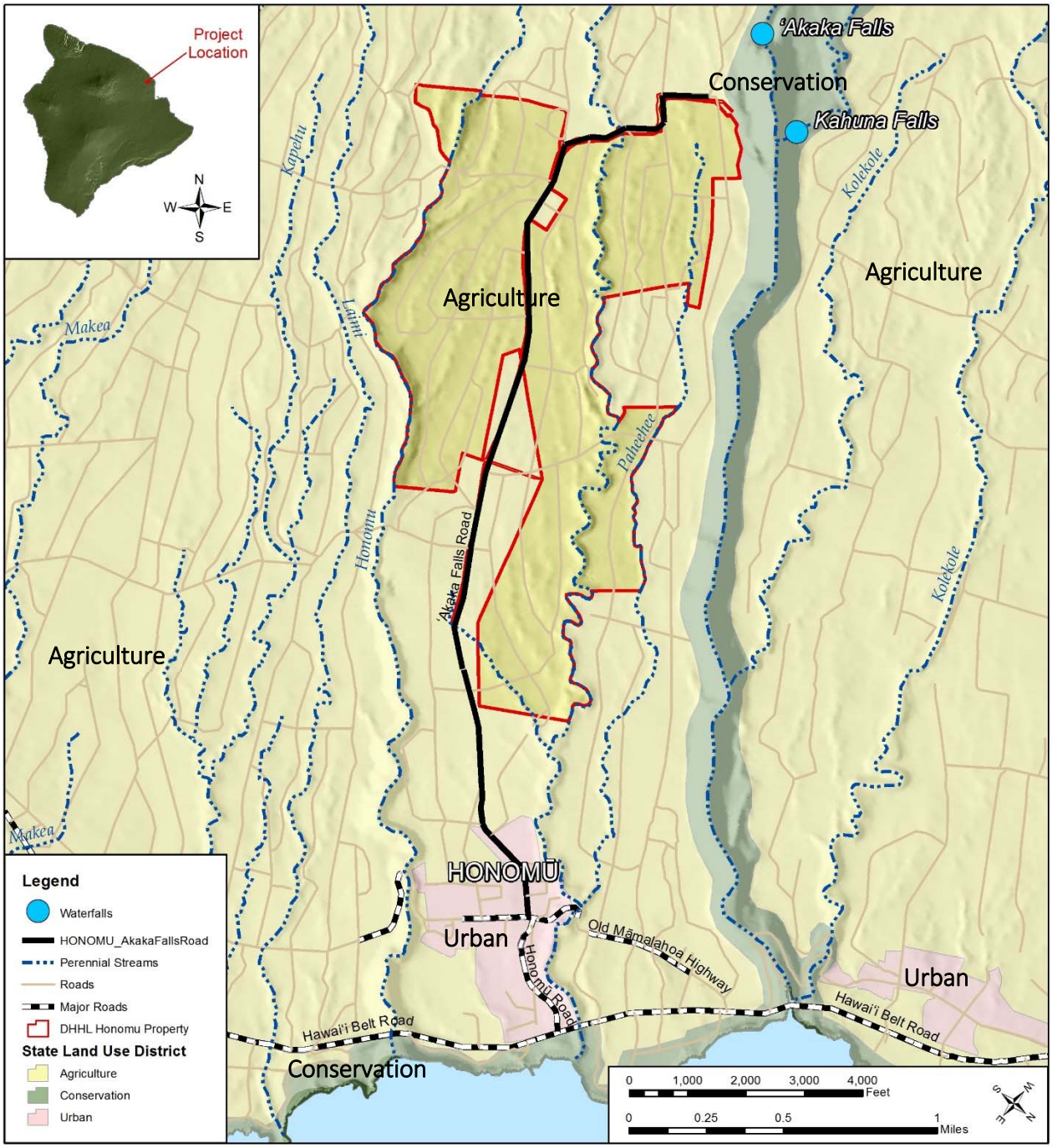
3.2 State of Hawaiʻi Plans and Policies

3.2.1 State Land Use Law, Chapter 205, HRS

The State Land Use Law, Chapter 205 HRS, established the State Land Use Commission, which classifies all lands in Hawaiʻi into four land use districts: Urban, Rural, Agricultural, and Conservation. The project area is located entirely within the Agricultural district (**Figure 3-1**), which allows for a minimum lot size of one acre (HRS §205-5). The proposed project is for a subsistence agricultural homestead community with lot sizes of one to three acres, thus being in alignment with the State Land Use Districts intended use of the lands.

Figure 3-1 State Land Use Districts

HONOMŪ SUBSISTENCE AGRICULTURAL HOMESTEAD COMMUNITY



3.2.2 State of Hawai'i Coastal Zone Management Program, Chapter 205A, HRS

The Hawaii Coastal Zone Management (CZM) Program was created in 1977 through the enactment of Chapter 205A, Hawaii Revised Statutes to coordinate federal, state, and county agency efforts in the comprehensive management of Hawai'i's coastal resources. The Hawai'i CZM Program is administered by the Office of Planning, but each of the four counties are responsible for administering the program locally through Special Management Area (SMA) permits and shoreline setback provisions in their respective counties. The coastal zone encompasses the entire state, as there is no point of land more than 30 miles from the ocean. The proposed project supports the following policies of the CZM:

Recreational Resources. *Objective: Provide coastal recreational opportunities accessible to the public*. The Project is not located along the coast or within the Special Management Area and therefore is not subject to coastal recreation policies. However, the Project will protect coastal water quality by working with the local Soil and Water Conservation District to develop a Master Conservation Plan with best management practices to minimize soil erosion. Additionally, a National Pollutant Discharge Elimination System permit will be required to ensure compliance with BMPs during construction.

Historic Resources. *Objective: Protect, preserve, and, where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture*. An archaeological literature review and field inspection (Appendix C) found no pre-Contact archaeological features in the areas identified for development. Historic transportation and sugarcane agriculture-related features were identified, such as 'Akaka Falls Road, Pāhe'ehe'e Mauka Bridge, unpaved cane roads, culverts, minor bridges, and plantation field berms. While no surface remains of the several known historic workers' camps were observed, associated subsurface deposits may still be present.

Coordination will the State Historic Preservation Division will identify any historic preservation measures that need to be undertaken. DHHL contractors will be required to comply with all state and county rules and laws pertaining to historic preservation. If there are any inadvertent findings of archaeological or historic sites during construction, work will stop immediately in that area and the contractor will contact SHPD to report the finding, assess its significance, and recommend appropriate mitigation measures, if necessary.

Scenic and Open Space Resources. *Objective: Protect, preserve, and, where desirable, restore or improve the quality of coastal scenic and open pace resources*. The Project is located one to three miles inland of the coast and is not expected to have impacts on coastal scenic and open space resources.

Coastal Ecosystem. *Objective: Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on coastal ecosystems*. The Project is not located along the coast and therefore is not expected to impact the coastal ecosystem. However, the Project will protect coastal water quality by working with the local Soil and Water Conservation District to develop a Master Conservation Plan with best management practices to minimize soil erosion. Additionally, a National Pollutant Discharge Elimination System permit will be required to ensure compliance with BMPs during construction.

Economic Uses. *Objective: Provide public or private facilities and improvements important to the State's economy in suitable locations*. The project is not located on the coastline or within the SMA and is therefore not subject to policies regarding coastal economic development.

Coastal Hazards. *Objective: Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence, and pollution*. The Project is located inland from the coast and will not exacerbate coastal hazards. On-site and detention features will also control runoff to streams.

Managing Development. *Objective: Improve the development review process, communication, and public participation in the management of coastal resources and hazards*. The Project is not located along the coast and will therefore will not exacerbate coastal hazards. Coastal resources are not expected to be negatively impacted but best management practices will be implemented to minimize erosion and runoff downstream. Meetings were held with and in the community and DHHL applicants. Additionally, the environmental review process also offered opportunities for public comment.

Public Participation. *Objective: Stimulate public awareness, education, and participation in coastal management*. The Project is not located along the coast or within the SMA. Meetings were held with and in the community and DHHL applicants to share and get feedback on concepts and progress and the environmental review process also offered opportunities for public comment.

Beach Protection. *Objective: Protect beaches for public use and recreation*. The Project is not located along the coast or within the Special Management Area and will not impact beaches. However, the Project will protect coastal water quality by working with the local Soil and Water Conservation District to develop a Master Conservation Plan with best management practices to minimize soil erosion. Additionally, a National Pollutant Discharge Elimination System permit will be required to ensure compliance with BMPs during construction.

3.2.3 Hawai'i State Plan, Chapter 226, HRS

The Hawaiʻi State Plan is a long-range comprehensive plan that was established as a part of the Hawaiʻi State Planning Act of 1978 as a guide for future long-range development within the State. The overall theme of the Hawai'i State Plan incorporates the following principles and values (HRS §226-3):

(1) Individual and family self-sufficiency refers to the rights of people to maintain as much self-reliance as possible. It is an expression of the value of independence, in other words, being able to freely pursue personal interests and goals. Self-sufficiency means that individuals and families can express and maintain their own self-interest so long as that self-interest does not adversely affect the general welfare. Individual freedom and individual achievement are possible only by reason of other people in society, the institutions, arrangements and customs that they maintain, and the rights and responsibilities that they sanction.

(2) Social and economic mobility refers to the right of individuals to choose and to have the opportunities for choice available to them. It is a corollary to self-sufficiency. Social and economic mobility means that opportunities and incentives are available for people to seek out their own levels of social and economic fulfillment.

(3) Community or social well-being is a value that encompasses many things. In essence, it refers to healthy social, economic, and physical environments that benefit the community as a whole. A sense of social responsibility, of caring for others and for the well-being of our community and of participating in social and political life, are important aspects of this concept. It further implies the aloha spirit--attitudes of tolerance, respect, cooperation and unselfish giving, within which Hawaii's society can progress.

As a subsistence agricultural community, the proposed project is able to support the above overall theme of the Hawaiʻi State Plan by allowing beneficiaries to practice self-sufficiency and self-reliance through promoting subsistence agriculture. The Project also includes opportunities for community cohesion (designated community use area) and economic expansion (supplemental agriculture area). Additionally, over one-third of the property are maintained in conservation and open space to protect natural resources.

3.2.4 Complete Streets, Hawai'i State Act 54, Session Laws of Hawaii (SLH) 2009

In 2009, State Act 54, SLH 2009 was passed, requiring state and county transportation departments to "adopt a complete streets policies that seeks to reasonably accommodate convenient access and mobility for all users of the public highways within their respective jurisdictions…including pedestrians, bicyclists, transit users, motorists, and persons of all ages and abilities. The Project is a subsistence agriculture homestead, intended for DHHL beneficiaries who will cultivate the land. Therefore, road standards will include 10-foot wide travel lanes and 4-foot wide grassed shoulders to reflect the rural nature of this project. Under these rural standards, DHHL will maintain ownership and maintenance of the roads. The grassed shoulders would allow for pedestrian travel and the low amounts of traffic expected to be generated by the maximum 375 lots would allow bicyclists to ride along the roads.

3.3 County of Hawai'i Plans and Policies

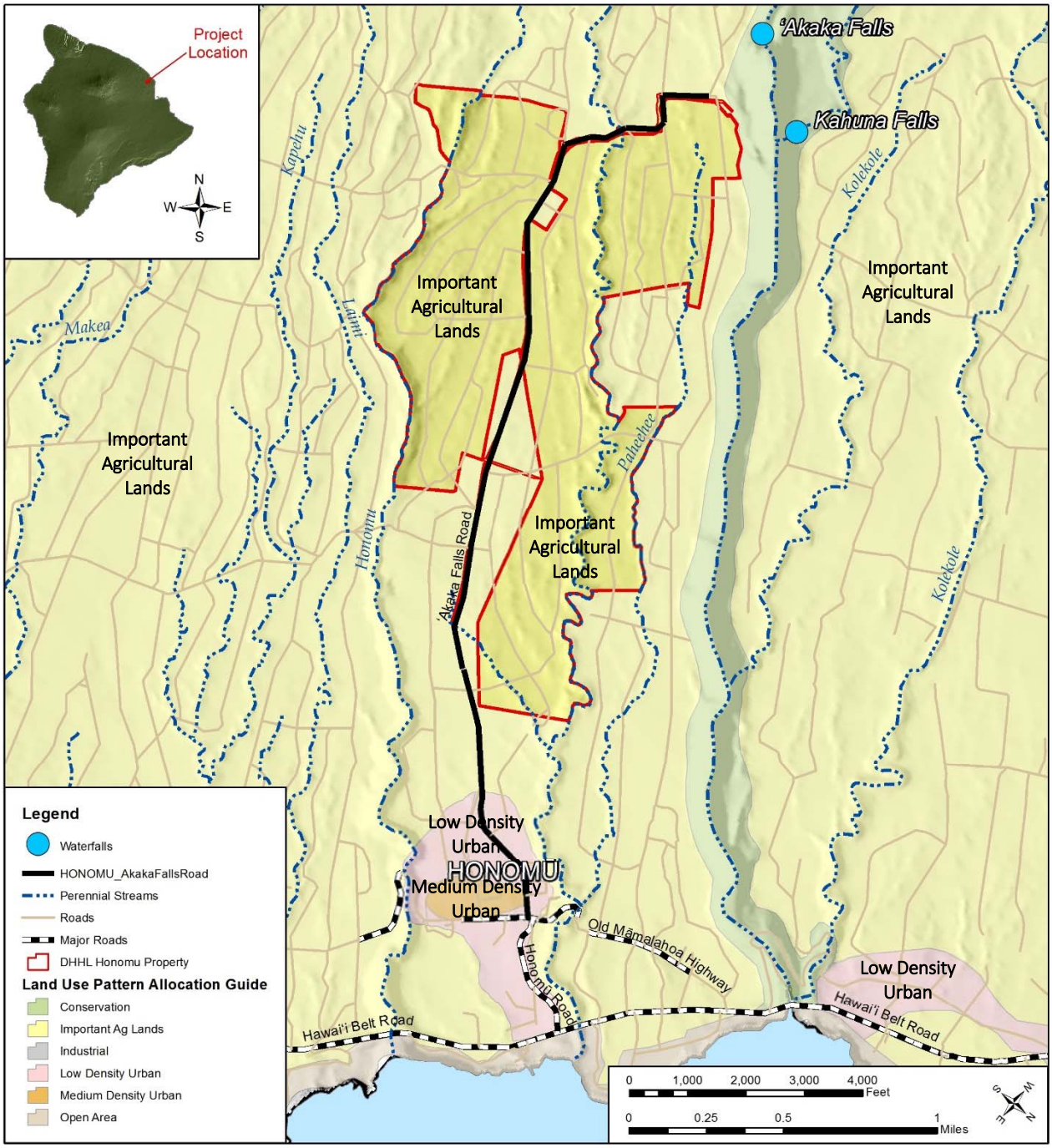
3.3.1 County General Plan

The County of Hawaii's General Plan sets forth the long-range objectives and policies for the welfare of the Hawai'i Island community and provides direction and a framework to guide programs and activities within the County of Hawai'i. The current General Plan was adopted in 2005, with amendments in 2006, 2007, 2009, 2012, and 2014.

The County of Hawai'i **General Plan Land Use Pattern Allocation Guide (LUPAG)** is intended to guide future development in the County of Hawai'i. The LUPAG designates the project site as Important Agricultural Lands (**Figure 3-2**), which are suited for sustained high agricultural yields. As the proposed project is a subsistence agricultural homestead community, the land use is aligned with the County LUPAG as the primary use of the land is for agriculture.

Figure 3-2 Land Use Pattern Allocation Guide (LUPAG) Map

HONOMŪ SUBSISTENCE AGRICULTURAL HOMESTEAD COMMUNITY



County General Plan goals and policies supported by the Project include:

Section 5: Flooding and Other Natural Hazards

5.2 GOALS

(e) Reduce surface water and sediment runoff.

5.3 POLICIES

(e) Promote and provide incentives for participation in the Soil and Water Conservation Districts' conservation programs for developments on agricultural and conservation lands.

(f) The "Drainage Master Plan for the County of Hawaii" shall be reviewed and updated to incorporate new studies and reflect newly identified priorities.

(g) Development-generated runoff shall be disposed of in a manner acceptable to the Department of Public Works and in compliance with all State and Federal laws.

(h) Develop a comprehensive program for the coordinated construction of a drainage network along a single drainage system.

(m) Encourage grassed shoulder and swale roadway design where climate and grade are conducive.

(n) Develop drainage master plans from a watershed perspective that considers nonstructural alternatives, minimizes channelization, protects wetlands that serve drainage functions, coordinates the regulation of construction and agricultural operation, and encourages the establishment of floodplains as public green ways.

(o) Encourage and provide incentives for agricultural operators to participate in Soil and Water Conservation District Programs.

(p) Where applicable, natural drainage channels shall be improved to increase their capacity with special consideration for the practices of proper soil conservation, and grassland and forestry management.

(q) Consider natural hazards in all land use planning and permitting.

The proposed project will consider previous and existing drainage patterns and features to minimize impacts to on-site drainage patterns. Existing streams and major drainages will also be protected as conservation lands. On-site retention features, best management practices, and a Master Drainage Plan, developed in cooperation with the Soil and Water Conservation District (SWCD), will also minimize increases in runoff and erosion from the Project. Lessees will be encouraged to develop conservation plans for their agricultural areas with the SWCD. Proposed road designs include four-foot grassed shoulders and swales to control runoff from the roadway.

Section 8: Natural Resources and Shoreline

8.2 GOALS

(f) Ensure that alterations to existing land forms, vegetation, and construction of structures cause minimum adverse effect to water resources, and scenic and recreational amenities and minimum danger of floods, landslides, erosion, siltation, or failure in the event of an earthquake.

The proposed project will maintain a third of the site in conservation to protect streams, drainageways, and an area identified for possible native plant restoration. Grading will consider previous and existing drainage patterns and a Master Drainage Plan will include BMPs to minimize runoff and erosion. Retention features will also help to contain on-site runoff.

Section 9: Housing

9.2 GOALS

(d) Create viable communities with affordable housing and suitable living environments.

(h) Make affordable housing available in reasonable proximity to employment centers.

(i) Encourage and expand home ownership opportunities for residents.

9.3 POLICIES

(d) Support the construction of housing for minimum wage and agricultural workers.

The proposed project will create a viable subsistence agricultural community in the Honomū area. As the lands are designated to be used for the fulfillment of the Hawaiian Homes Commission Act, these lands will be available for the native Hawaiian ethnic population as defined by the Act. While DHHL applicants are not required to live on-property, those that choose to do so will have the opportunity to create community spaces within the project and supplement household income and food production on-site. Honomū is located approximately 13-14 miles north of Hilo, making it accessible to a main employment center on the island.

Section 13.2: Roadways

13.2.2 Goals

(a) Provide a system of roadways for the safe, efficient and comfortable movement of people and good.

13.2.3 Policies

(j) Transportation and drainage systems shall be integrated where feasible.

(l) Adopt street design standards that accommodate, where appropriate, flexibility in the design of streets to preserve the rural character of an area and

encourage a pedestrian-friendly design, including landscaping and planted medians.

(m) Develop minimum street standards for homestead and other currently substandard roadways that are offered for dedication to the County to ensure minimal levels of public safety.

The Project proposes rural standard roadways that are appropriate for the agricultural setting of the project and include grassed shoulders and swales that will help to contain runoff. A right-of-way of 50 feet will be established to allow for upgrades that may make the roadways eligible for future dedication to the County.

Section 14: Land Use – Overview

14.1.2 Goals

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

(b) Protect and encourage the intensive and extensive utilization of the County's important agricultural lands.

(c) Protect and preserve forest, water, natural and scientific reserves and open areas

The proposed project is primarily a subsistence agricultural homestead that will keep the former sugar plantation lands in agricultural cultivation. It will also include community spaces and agricultural expansion areas to promote community cohesion and provide opportunities to expand economic agricultural opportunities. Natural drainageways and areas identified as having the best potential for native plant restoration have been designated as conservation lands that will remain undeveloped.

Section 14: Land Use – Agriculture

14.2.2 Goals

(a) Identify, protect and maintain important agriculture lands on the island of Hawaii.

(b) Preserve the agricultural character of the island.

14.2.3 Policies

(a) Implement new approaches to preserve important agricultural land.

(d) Agricultural land may be used as one form of open space or as green belt.

(j) Ensure that development of important agricultural land be primarily for agricultural use.

The proposed project is primarily a subsistence agricultural homestead that will keep the former sugar plantation lands in agricultural cultivation. It will also include community spaces and agricultural expansion areas to promote community cohesion and provide opportunities to expand economic agricultural opportunities. The course of action identified by the General Plan for North Hilo/Hāmākua is to "Encourage large landowners to make agricultural lands available for agriculture." DHHL is making their lands available to applicants on the Hawai'i Island agricultural wait list.

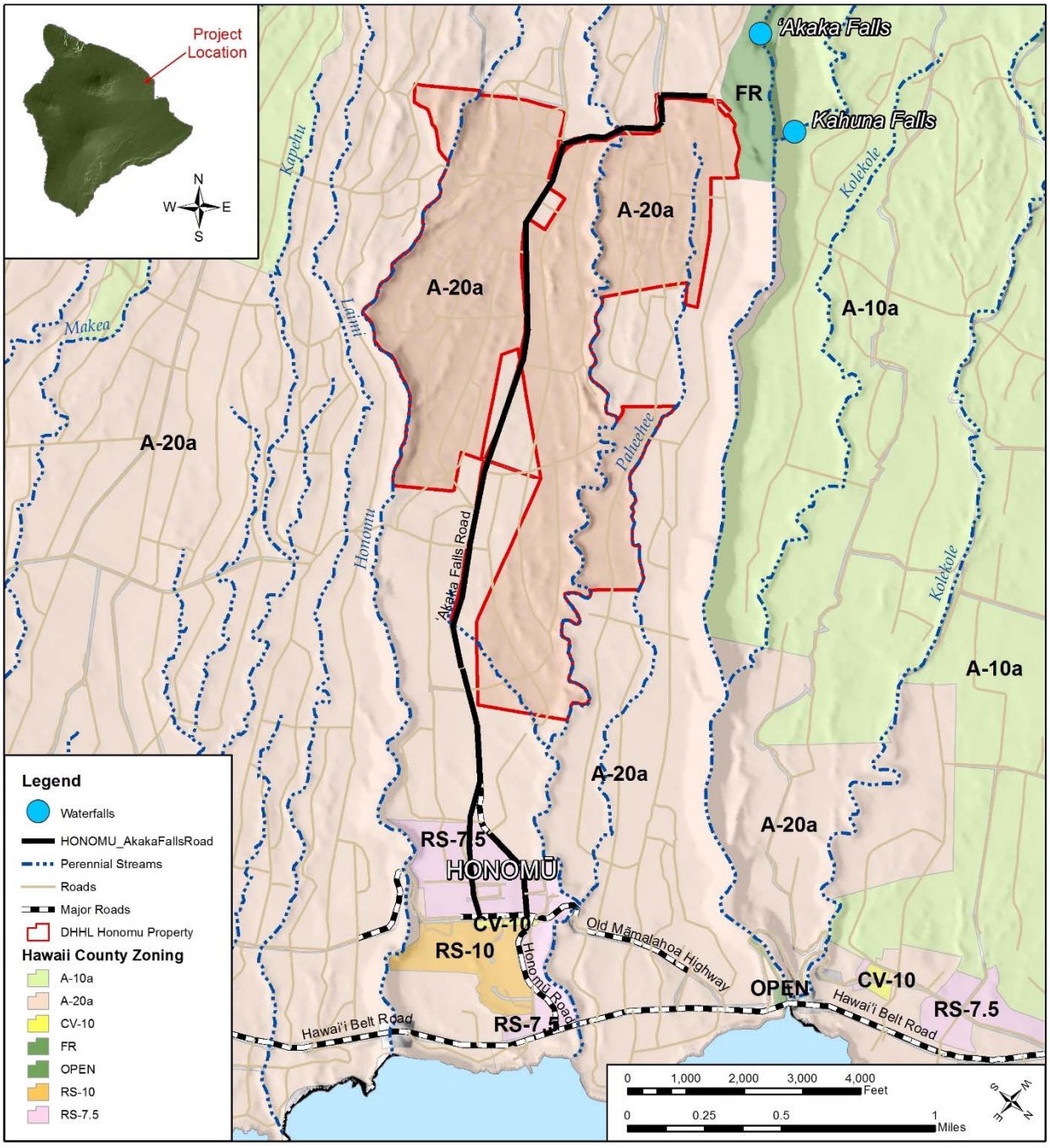
3.3.2 Zoning, Chapter 25, Hawai'i County Code

Chapter 25 of the Hawaiʻi County Code is known as the zoning code. It is applied and administered within the framework of the County General Plan, a long-range plan that guides the future development of the County. The project site is zoned A-20a, which is and agricultural district with a minimum building site area of 20 acres. The proposed project will have lots that are between one and three acres in size and will therefore have lots that are smaller than the minimum lot size dictated by the County zoning.

Attorney General Opinion 72-21 found that "Hawaiian home lands needed for purposes of the [Hawaiian Homes Commission] Act are to be used and disposed of in accordance with the Act and are not subject to county zoning requirements." Therefore, because these lands are to be used to fulfill the purposes of the HHCA, DHHL is not subject to county zoning. However, according to Hawaii Revised Statutes Chapter 205 Land Use Commission, Article 5 Zoning, the minimum lot size for agricultural district lands is no less than one acre. The proposed project will meet this minimum lot size of one acre.

Figure 3-3 County Zoning

HONOMŪ SUBSISTENCE AGRICULTURAL HOMESTEAD COMMUNITY



A-10a Agricultural District, 10-acre minimum building site area
A-20a Agricultural District, 20-acre minimum building site area
CV-10 Village Commercial District, 10,000 square foot minimum building site area
FR Forest Reserve
OPEN
RS-10 Single-family residential district, 10,000 square foot minimum building site area
RS-7.5 Single-family residential district, 7,500 square foot minimum building site area

3.3.3 Hāmākua Community Development Plan (CDP)

The Hāmākua Community Development Plan (CDP) is an official plan authorized by the County of Hawaiʻi General Plan that translates the broad goals and objectives of the General Plan to the unique needs and conditions of the region. CDPs are adopted by County ordinance and are long-range plans with 20-year planning horizons. The proposed project supports the following objectives of the *Planning Director's Recommended Hāmākua CDP (2018)*:

Section 1.8.1 Community Objectives

ʻĀina

> Objective 1: Protect, restore, and enhance watershed ecosystems, sweeping views, and open spaces from mauka forests to makai shorelines, while assuring responsible public access for recreational, spiritual, cultural, and sustenance practices.
>
> Objective 2: Protect and restore viable agricultural lands and resources. Protect and enhance viewscapes and open spaces that exemplify Hāmākua's rural character.

The proposed project is aligned with the ʻĀina Objectives as the project will protect watershed resources, which will be outlined in the Master Drainage Plan for the site. The project will protect viable agricultural lands and resources by the creation of a subsistence agricultural homestead community which will utilize the lands primarily for agriculture. The project will attempt to minimize the loss of viewscapes and open spaces to the extent possible by keeping the land in agriculture and providing buffers along the streams and roadway.

Community

> Objective 4: Protect and nurture Hamakua' s social and cultural diversity and heritage assets, including sacred places, historic sites and buildings, and distinctive plantation towns.
>
> Objective 6: Develop and improve critical community infrastructure, including utilities, healthcare, emergency services, affordable housing, educational opportunities and recreational facilities to keep our ʻohana safe, strong, and healthy.

The proposed project will provide opportunities for native Hawaiians to return to their agricultural roots. Necessary infrastructure including roadways and electricity will be provided and the homestead community will be provided with the land and opportunity to shape community, recreational, and economic facilities within the project site.

Economy

> **Objective 8**: Promote, preserve and enhance a diverse, sustainable, local economy.
>
> **Objective 9**: Encourage the increase and diversity of employment and living options for residents, including living wage jobs and entrepreneurial opportunities that allow residents to work and shop close to home and that complement Hamakua' s ecology, rural character, and cultural heritage.
>
> **Objective 11**: Enhance and promote local and sustainable agriculture, farming, ranching, renewable energy, and related economic support systems.
>
> **Objective 12**: Preserve traditional subsistence practices and encourage a reciprocity (e.g. bartering) economy as a sustainable complement to Hāmākua's resource-based economy.

As the proposed project is for the establishment of a subsistence agricultural homestead community, the project will enhance and promote local and sustainable agriculture, farming, ranching, and related economic systems. As a subsistence community, it is aligned with the objective to preserve traditional subsistence practices and provides homesteaders with the opportunity to supplement their incomes with agricultural products grown on their lots. DHHL's CTAHR agent will provide technical assistance to homesteaders to maximize successful agricultural operations.

3.3.4 County of Hawai'i Special Management Area (SMA)

The Special Management Area (SMA) permitting system is a county regulatory function that is a part of the CZM program. The SMA permit was established in 1975 with the enactment of Act 176 on shoreline protection. SMA lands are those lands that are in close proximity to the shoreline. SMA permits regulate land uses within these designated areas. The project site is not located within the SMA.

3.4 Approvals and Permits

The following approvals and permits are anticipated to be needed for completion of the Project:

Commission on Water Resource Management

- Stream Channel Alteration Permit

State Historic Preservation Division

- HRS §6E, Historic Preservation Review Clearance

Office of Environmental Quality Control

- HRS Chapter 343 compliance

State Department of Health

- National Pollutant Discharge Elimination System (NPDES) General Permit
- Individual Wastewater System Approval
- Noise Variance (possible for construction)

State Department of Transportation

- Permit to Perform Work Within a State Highway Right-of-Way

County Planning Department

- Agricultural Project District approval

County Department of Public Works

- Grading and Grubbing Permit
- Building Permit

4 PROJECT ALTERNATIVES

Three alternatives to the proposed action were considered to meet the purpose of the Project, which is to provide agricultural homesteads to native Hawaiians on the Hawai'i Island Agricultural Waitlist. The purpose of considering project alternatives is to see if there are other options that can meet the purpose of the project while having a lesser detrimental effect on the environment. The three alternatives to the proposed action are:

- No Action Alternative
- Maximum Density of Subsistence Agricultural Lots Alternative
- Alternative Location

4.1 No Action Alternative

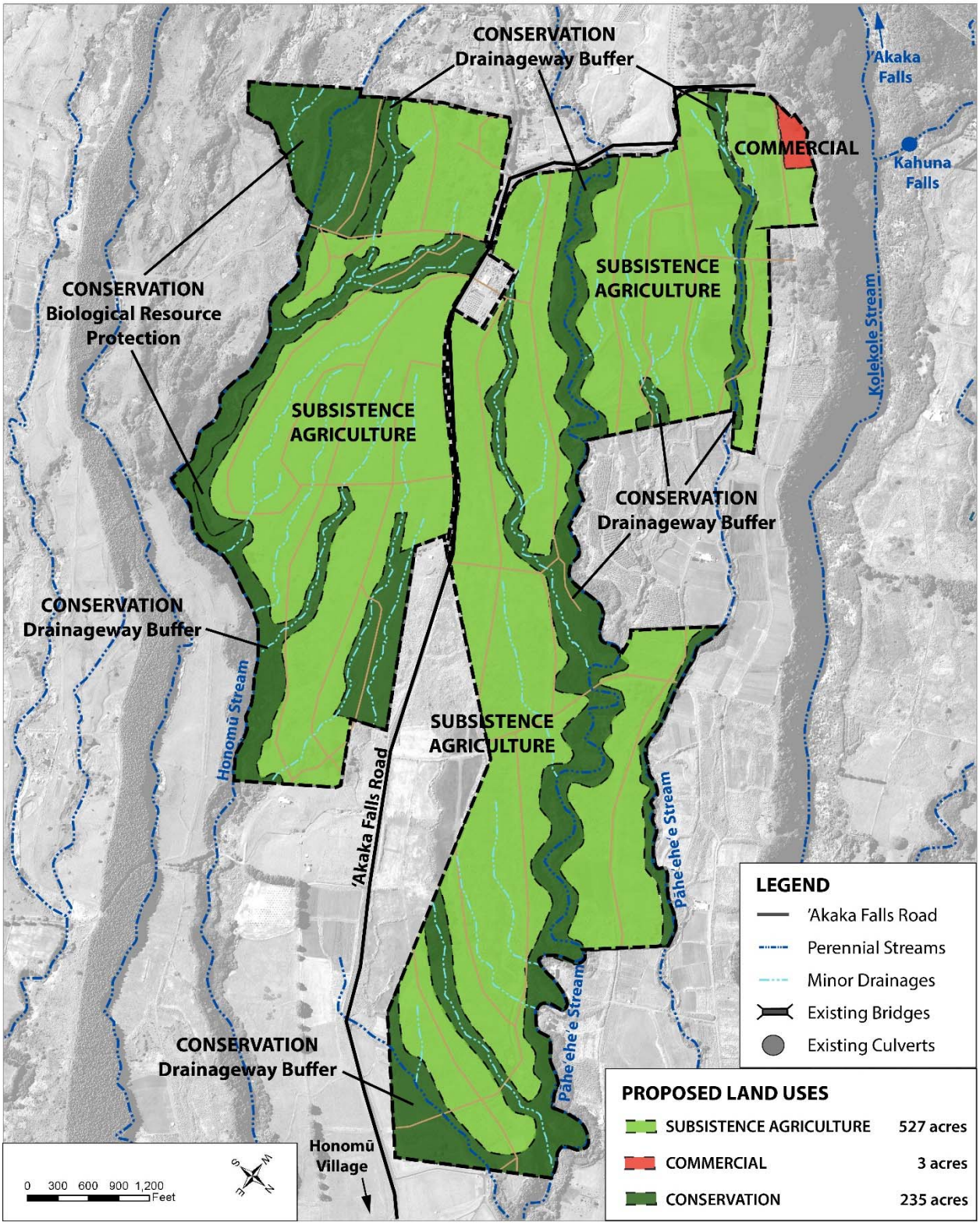
Under the "No Action" alternative, there would be no change from the current situation where the land is used by a few licensees. Meanwhile, DHHL beneficiaries, some of whom have been on the waitlist for over 30 years, continue to wait for agricultural leases. The 7,000+ long agricultural Waitlist for Hawai'i Island will continue to grow while good farm land is used by few farmers/ranchers who may not necessarily be beneficiaries of the Hawaiian Homes Trust. Additionally, no land use improvements would be made to further protect waterways and mitigate runoff, as the Department could not justify substantial investments in land that does not directly meet its mandate "to enable native Hawaiians to return to their lands."

4.2 Maximum Density of Subsistence Agricultural Lots Alternative

Another alternative would be to maximize the number of agricultural leases that could be awarded, providing the greatest benefit to the over 7,000 applicants on the Agricultural Waitlist for Hawai'i Island. This alternative commits 527 acres (67%) of developable lands to subsistence agricultural homesteading (Figure 4-1).

In order to maximize the number of lots available to applicants, all lots would be approximately one acre in size, resulting in approximately 474 lots that would be available to applicants on the Waitlist. This alternative would result in 99-349 more lots being made available to applicants on the DHHL's Hawai'i Island agricultural waitlist than in the preferred alternative. During the planning process, some of the applicants on the Waitlist advocated for this alternative and while providing more leases was a compelling reason to select this alternative, DHHL also considered environmental and social impacts when making its decision.

Figure 4-1 Maximum Density of Subsistence Agricultural Lots Alternative



From a social standpoint, the additional lots would potentially increase the 2010 residential population of Honomū by 780 people, an increase of 153%. This is 161 more residents than in the higher estimate of new residents projected in the preferred alternative (Table 4-1). DHHL sought to balance their mandate "to enable native Hawaiians to return to their lands," with impacts to the existing community.

Table 4-1 Comparison of Acres, Lots, Houses, and New Residents between the Maximum Density of Subsistence Agricultural Lots Alternative and the Preferred Alternative

	Maximum Density of Subsistence Agricultural Lots Alternative	Preferred Alternative
Acres available for Subsistence Agriculture	527	417
Estimated number of subsistence agricultural lots	474	125-375
Estimated number of houses	237	63-188
Estimated number of new residents	780	207-619

Additionally, 110 acres of various land uses were converted to subsistence agriculture in this alternative, resulting in the loss of opportunities for economic expansion, open space, visual buffers, and community cohesion. These outcomes are presented in more detail in Table 4-2.

Table 4-2 Outcomes of Converting Some Land Uses to Subsistence Agriculture

Acres	Land Use in the Preferred Alternative	Land Use in This Alternative	Outcomes
45	Supplemental Agriculture	Subsistence Agriculture	Lessees would lose the opportunity to expand successful subsistence agriculture to commercial farming within the same homestead community
15	Conservation	Subsistence Agriculture	Loss of open space in areas that are more difficult to either access or develop within the property.
10	Community Use	Subsistence Agriculture	Lessees would lose the opportunity to develop facilities for gathering and other community uses.
40	Special District	Subsistence Agriculture	Loss of an open space area that could be utilized for additional surface water detention and open space buffers that would shield views from ʻAkaka Falls Road to the subsistence agricultural homestead lots.

4.3 Alternative Location

The DHHL Hawai'i Island Plan (2002) identifies Lower Pi'ihonua as the preferred location for subsistence agriculture in the East Region of Hawai'i Island. This tract was selected because it has vehicular access, good rainfall, moderate slopes, and a history of agricultural use. DHHL did evaluate this tract for a subsistence agricultural homestead community, but upon further study, it found that access to the site was hindered by an insufficiently sized bridge that cannot handle significant increases in traffic volume. Improvements necessary to accommodate the projected traffic increases were determined to be cost-prohibitive. DHHL then reexamined their inventory of suitable agricultural lands and found that Honomū provided an opportunity for subsistence agriculture, as it had similar favorable qualities as the Lower Pi'ihonua tract.

Honomū was an even more attractive site due to the high quality of the soils in comparison to the marginal ones identified at Pi'ihonua. DHHL and its beneficiaries have typically had to make due with marginal and low-quality lands with little access to resources. The Honomū site, with its access to water, fertile soils, markets, and technical expertise, provided the best opportunity for applicants to be successful at subsistence agriculture.

5 Findings and Anticipated Determination

5.1 Anticipated Determination

Based upon an analysis of the affected environment, potential impacts, and mitigation measures, the Department of Hawaiian Home Lands anticipates a Finding of No Significant Impact (FONSI). A discussion of this analysis against 13 significance criteria is provided below.

5.2 Significance Criteria

A project is evaluated against 13 significance criteria outlined in Hawai'i Administrative Rules §11-200-12 to determine if a project will have significant effect on the environment. As defined in Hawai'i Revised Statutes §343-2, "'Significant effect' means the sum of effects on the quality of the environment, including actions that irrevocably commit a natural resource, curtail the range of beneficial uses of the environment, are contrary to the State's environmental policies or long-term environmental goals as established by law, or adversely affect the economic welfare, social welfare, or cultural practices of the community and State." The expected impacts of the Honomū Subsistence Agricultural Homestead Community have been evaluated and discussion on how the Project relates to the significance criteria is provided below.

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

A biological survey found no threatened or endangered plants or animals and few native species. However, streams and gulches are designated as conservation areas within the project, protecting native habitat. Additionally, DHHL lessees will be informed of the potential for native plants and animals, primarily birds, to inhabit and pass through the property. Proper protocol for managing such species will be developed with lessees.

The property was previously under intensive sugar cultivation and has since been used for farming and pasture, limiting the expectation of finding pre-Contact archaeological or cultural features, or significant native habitats. An archaeological reconnaissance study found no pre-Contact features but did recognize historic features relating to sugar plantation infrastructure: plantation roads, culverts, and berms. While few archaeological features are still visible on-site, DHHL will work with the State Historic Preservation Division to develop an acceptable path forward for those plantation-era features that are determined to be historic in nature. Any additional features found during construction will similarly be referred to SHPD for proper compliance with regulatory requirements.

Interviews with kūpuna mentioned few native Hawaiian residents historically living in Honomū and the only cultural practices mentioned were pig hunting and gathering of ʻōpae in the streams. Hunting on the DHHL property will not be allowed but DHHL will not restrict access to the State public hunting area (Hilo Forest Reserve, Kaiwiki Section), located mauka of the site. The streams will be designated as conservation areas, protecting their biological integrity. Access to streams for cultural practices may be negotiated with the DHHL, lessees, and community association, if one if created.

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

The Project seeks to provide a more beneficial use of the site by placing native Hawaiians on the land and by designating streams, gulches, and areas with the potential for native habitat restoration as conservation.

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

The purpose of the policy established by HRS Chapter 344 is to "encourage productive and enjoyable harmony between people and their environment, promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of humanity, and enrich the understanding of the ecological systems and natural resources important to the people of Hawaii." This proposed project does not conflict with the state's long-term environmental policies or goals and guidelines.

Potential adverse impacts are associated with short-term construction activities that will be mitigated through compliance with regulatory guidelines and use of best management practices. In the long term, the Project conserves natural resources by protecting potentially sensitive environments on the property and provides an opportunity for native Hawaiians to improve their quality of life through agricultural subsistence.

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

The proposed project will be beneficial to the economy and social welfare of the state by providing opportunities for native Hawaiian beneficiaries to obtain low-cost leases for lots to engage in subsistence agriculture and to possibly reside. The lessees are expected to provide an additional customer base for the existing commercial businesses within Honomū Village and other nearby towns.

(5) Substantially affects public health;

The proposed project will have short-term construction-related impacts on noise and air quality, but they will be mitigated by compliance with Department of Health regulations. Wastewater disposal will be accommodated by individual wastewater disposal systems that are approved by the DOH.

Surface water runoff will comply with the County floodplain management regulations. Additionally, DHHL will work with the Soil and Water Conservation District to develop a master drainage plan to address runoff and erosion issues. DHHL is also providing an agricultural extension agent to work with its Hawai'i Island agricultural lessees on crop selection and agricultural practices on a long-term basis.

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

The Project will increase the population of Honomū, but based on experience on previous DHHL agricultural homesteads, only 50% of the lots are expected to result in residences. However, all of the lessees, regardless of whether or not they ultimately reside in Honomū, will be required to pay property taxes on their lot, which will contribute toward public facilities and services.

Traffic improvements will be necessary and DHHL will work with the State DOT and County Department of Public Works to determine the appropriate mitigation necessary. Wastewater will be managed through DOH-approved individual wastewater systems so there will be no impact on public wastewater treatment facilities. Similarly, water will be supplied by individual catchment systems, so that the current County water system will not be impacted.

(7) Involves a substantial degradation of environmental quality;

Construction activities will cause some impacts to air quality, noise, and traffic in the area of the project, but these are temporary in nature and will be mitigated by best management practices in accordance with the State Department of Health, State Department of Transportation, and County of Hawai'i guidance. Potential impacts to surface water and drainage will be mitigated by a master drainage plan that is being developed to minimize erosion and manage runoff. DHHL is also providing an agricultural extension agent to work with its Hawai'i Island agricultural lessees on crop selection and agricultural practices on a long-term basis. Furthermore roughly 30 percent of the project site will be dedicated to conservation to protect streams and drainageways and to provide areas for surface water detention/retention during high rainfall events.

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

The project will reestablish farming on the property, which was previously an intensive large-scale sugar plantation. DHHL does not have any other projects in the vicinity and this project does not commit DHHL or others to additional actions.

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

Other than a pair of endangered Hawaiian hawks that were observed circling overhead, there are no known threatened or endangered species or associated habitats on or near the property. Even then, the stream gulches and southwestern corner of the property, which has the potential for native plant habitat restoration, is proposed for conservation. Additionally, best practices will be carried out to protect against potential impacts to the Hawaiian hoary bat, Hawaiian hawk, and seabirds that may fly over the property.

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

Construction activities will cause some impacts to air quality, noise, and surface water in the area of the project, but these are temporary in nature, will follow appropriate regulations, and will be mitigated by best management practices in accordance with State Department of Health and County of Hawai'i guidance. Potential impacts to surface water quality will be mitigated by a master drainage plan that is being developed to minimize erosion and manage runoff.

After construction, the Project is not expected to have a detrimental impact on air quality or noise levels. There may be a slight increase in impervious surfaces due to the construction of roads, houses, and community facilities, but any additional runoff will be contained on-site through drainage features identified during the development of a master drainage plan. This master drainage plan will identify features and practices to minimize erosion. DHHL is also providing an agricultural extension agent to work with its Hawai'i Island agricultural lessees on crop selection and agricultural practices on a long-term basis.

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

The Project is not located in an environmentally sensitive area. It is located outside of the flood plain, tsunami zone, beach area, geologically hazardous land, estuary and coastal water. While there are perennial streams that run through and near the property and there is the potential for some erosion on-site and in the gulches, a master drainage plan is being developed to manage both runoff and erosion. Conservation areas have also been designated around the gulches.

(12) Substantially affects scenic vistas and view planes identified in county or state plans or studies; or,

The site is not located in an area that has been identified as a scenic view plane or area of natural beauty by the County or State and it contains no significant geographical points, such as puʻu. The area was previously under intensive sugar cultivation and is proposed for subsistence agriculture. Lessees may choose to build a house on their lots, but they will be restricted to single family homes. An open space buffer is proposed to shield views from ʻAkaka Falls Road to the subsistence agricultural lots.

(13) Requires substantial energy consumption.

The new agricultural activities and homes will increase energy consumption but is not anticipated to require substantial energy requirements when compared with other similar projects.

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