~~II.~~III. DESCRIPTION OF THE EXISTING CONDITIONS, POTENTIAL IMPACTS AND PROPOSED MITIGATION MEASURES

~~II.~~III. DESCRIPTION OF THE EXISTING CONDITIONS, POTENTIAL IMPACTS AND PROPOSED MITIGATION MEASURES

A. PHYSICAL ENVIRONMENT

1. Existing and Surrounding Land Use

a. Existing Conditions

The approximately 636-acre Master Plan area is located approximately fourteen (14) miles southwest of Wailuku and four (4) miles southeast of Lāhainā Town.

In a regional context, Olowalu has historically been a settlement area. ~~Prior~~Within Olowalu Valley and along the original stream route, traditional Hawaiian agricultural practices were fairly intense and based primarily on *lo`i* agriculture. There were approximately 1,124 *lo`i kalo*, 28 *`uala* (potato) patches, 27 kula (open field or pasture), and 31 plots of land with unspecified land uses. When examining this level of agricultural intensity during the mid-1800s, and its correlation to population, Marion Kelly presents missionary estimates for the productivity of *lo`i kalo* as a minimum of 10 to 30 individuals per acre (Kelly, 1989). Based on the intensity of agriculture and these estimates, prior to western contact it, is estimated that up to 2,000 Hawaiians were living and thriving in Olowalu. As recently as the 1930s, Olowalu was a thriving plantation ~~town~~camp which included employment related to the agricultural use of the land, housing for employees, a school, medical facilities, stores, theater, recreational facilities and places of worship (Ainsworth, 2011). Olowalu, during the hey-day of the plantation era, was a multi-cultural and multi-generational community. The closure of the Olowalu Mill in August 1931 and the subsequent relocation and consolidation of mill operations ~~to~~with Pioneer Mill in Lāhainā Town marked the decline of the once thriving Olowalu community (Ainsworth, 2011).

Prior to the closure of Pioneer Mill in 1999, lands within the Olowalu area were cultivated in sugarcane. Today, land uses found in Olowalu include

Olowalu Church, Olowalu General Store, Camp Olowalu ~~(formerly known as Camp Pecusa)~~, which is available to fee paying guests, Olowalu Cultural Reserve (OCR), and Kapa`iki, encompassing single-family residences reminiscent of the plantation era of the Olowalu area. The former plantation manager's residence and other plantation-era single-family residences are located makai of Honoapi`ilani Highway, across from the Olowalu General Store. The former manager's residence and grounds are used for special functions under a Conservation District Use Permit issued by the Board of Land and Natural Resources. The Olowalu Mill Site and Olowalu Wharf (consisting of a pier and breakwater) formerly used for the loading and unloading of sugar into barges, are located along the shoreline. A State beach access, including an unpaved driveway, dirt and gravel parking and portable toilets are located adjacent ~~otto~~ the Olowalu Mill ruins.

Additional existing uses include residential subdivisions. Subdivision of portions of the Olowalu region have been completed with some parcels sold to individual purchasers. These include the Olowalu Makai Komohana Subdivision, Olowalu Makai Hikina Subdivision, and the Olowalu Mauka Subdivision. While a majority of the former lands used for sugarcane cultivation now lie fallow, limited agricultural endeavors exist on portions of the Olowalu lands.

b. <u>Potential Impacts and Mitigation Measures</u>

~~The proposed action calls for~~Alternatives 1 and 2 propose the establishment of a sustainable master-planned community in the once thriving Olowalu plantation town offering approximately 1,500 residential units to be implemented in phases spanning approximately 10 years. ~~The proposed project~~Alternatives 1 and 2 will include a mix of residential and commercial uses in a neighborhood town setting, providing for a similar mix of uses that were present during the plantation era in Olowalu. The land use principles employed in the planning and design of ~~the proposed Master Plan~~Alternatives 1 and 2 are intended to address quality of life, economic sustainability, environmental protection and preservation parameters.

Key resources ~~within the Master Plan~~ are being preserved in the OCR. The OCR includes Olowalu Stream, Olowalu Valley and many of the archaeological, historic, and cultural sites, including Pu`u Kilea, Ka`iwaloa

Heiau, and the Olowalu petroglyphs.

The Master Plan design ~~is~~for Alternatives 1 and 2 is based on smart growth and sustainable land use principles. The spatial layout of land uses is based on careful consideration of varying densities, vehicular and pedestrian connectivity, and balance of uses to create a mixed-use community. The resulting Master Plan ~~is~~for Alternatives 1 and 2 is compatible with surrounding land uses. The highest density uses are centered around neighborhood town centers, which provide for a range of business and employment opportunities. Residential land uses surround the neighborhood town centers at decreasing densities as distance from the center increases. Parks or agricultural and rural lots are situated along the outskirts of the development, providing a transition zone between the surrounding agricultural uses and neighborhood town centers. Land uses surrounding the existing Kapa`iki and Olowalu Church include parks and open space as well as low density single-family homes. Lands surrounding the Olowalu General Store are planned for town center and residential development. The other town center uses surrounding the Olowalu General Store may include business and commercial establishments consistent with the existing general store. The spatial layout of the proposed Master Plan ~~was~~in Alternatives 1 and 2 was carefully designed taking into consideration existing surrounding land uses. Adverse impacts to surrounding land uses are not anticipated as a result of the ~~proposed project~~Master Plan. Infrastructure support systems will be constructed concurrently with the project, ensuring that the proposed development is adequately served by basic services.

2. Climate

a. Existing Conditions

Maui is characterized by a semi-tropical climate containing a multitude of individual microclimates. The mean annual temperature of the island is about 77 degrees Fahrenheit. A high proportion of the rainfall that Maui receives each year falls on the northeast facing shores leaving the south and west coastal areas relatively dry. The Master Plan area for Alternatives 1 and 2 is located within one of these drier areas of West Maui.

Olowalu is generally sunny, warm and dry throughout the entire year. Annual temperatures in the region (from the Kapalua Airport) average in the ~~mid to~~

~~high 70~~'shigh 60's to low 80's (Maui County Data Book, ~~2010~~2012). June through September are historically the warmer months of the year, while the cooler months are December through March. During the summer months, average daily temperatures in the region typically range from the ~~mid~~low-70's to the ~~high 70's~~mid-80's. During the winter months, average daily temperatures in the region typically range from the mid-60's to high 70's (Maui County Data Book, 2012).

Average rainfall distribution in the region averages approximately ~~fifteen (15)~~29 inches per year (Maui County Data Book, ~~2010~~2012). Rainfall in the Olowalu region is highly seasonal, with most of the precipitation occurring in the winter months (~~December~~November through ~~February~~January). Between October and March, the southerly winds and heavy rainfall from Kona storms may be experienced.

b. Potential Impacts and Mitigation Measures

From an environmental standpoint, replacement of vegetative surfaces with hardscapes associated with roadways, housing units, and commercial buildings may yield a tendency towards slightly increasing ambient air temperatures. To address this so-called "heat island" effect, open spaces and park lands are integrated as significant components of the Master Plan for Alternatives 1 and 2. Landscape designs and planting plans will be employed to provide shading. Building designs, as well, will utilize green building principles following the Leadership in Energy and Environmental Design for Neighborhood Development (LEED ND) standards which take advantage of solar and natural wind conditions within the Master Plan areas for Alternatives 1 and 2. The Master Plan for Alternatives 1 and 2 proposes to utilize Olowalu's abundance of direct exposure to the sun as a sustainable source of solar energy and photovoltaic energy. With respect to the current land cover characteristics within the area, the development of the Master Plan for Alternatives 1 and 2 is not anticipated to create adverse impacts to the area's microclimate.

3. Topography

a. Existing Conditions

Most of the Olowalu area was formerly utilized for sugarcane cultivation with much of the land now fallow. Near the shoreline, the topography is generally

flat to slightly sloping. Proceeding mauka, the land slopes gently higher to the foothills of the West Maui mountains. Elevations in the Olowalu area generally range from near sea level to approximately 500 feet above mean sea level. The topography of the Master Plan areas for Alternatives 1 and 2 encompasses a range of topographic conditions from the generally flat coastal area makai of Honoapi`ilani Highway, to steeper riverine conditions along Olowalu Stream. The topography or slope of the property ranges from five (5) percent to 15 percent slope near the mauka limits, to three (3) percent to five (5) percent slope near the mid-section of the property, and near level to three (3) percent along the coastal portions of the property. See **Appendix "BC"**.

The steep valleys and mountain slopes and terrain surrounding the project site serve as natural geographic and physical boundaries to contain the project limits and prevent outward sprawl.

b. Potential Impacts and Mitigation Measures

In general, the higher density residential areas and neighborhood town centers are planned for areas having favorable development slope conditions of less than five (5) percent. Steep or sensitive landforms are to be preserved as natural features or open space areas.

Grading work will be undertaken to set roadway grades and adjacent grades of developable parcels. Future design work for ~~the project~~Alternatives 1 and 2 will utilize existing topography to minimize grading of steep slopes and extensive cuts and fills. Significant landform transformations in terms of cut and fill requirements are not anticipated. All grading work will comply with applicable requirements of Chapter 20.08, Soil Erosion and Sedimentation of the Maui County Code (MCC). The proposed project is not anticipated to present any significant adverse impacts on the existing topography and landform of the surrounding area.

4. Agricultural Land Characteristics and Soils

a. Existing Conditions

(1) Agricultural Land Characteristics

State Land Use District

As previously mentioned, the Master Plan area is designated as "Agricultural" and "Conservation" by the State Land Use Commission. Approximately ~~621~~609 acres in Alternative 1 and 568 acres in Alternative 2 are designated as "Agricultural", while ~~1~~527 acres in Alternative 1 and 22 acres in Alternative 2 are classified as "Conservation". Island wide, "Agricultural" land totals approximately ~~235,770~~242,720 acres, representing just over 50 percent of the island. The "Agricultural" lands within the Master Plan area for Alternative 1 comprise less than approximately ~~0.2~~0.3 percent and 0.2 percent for Alternative 2 of the total "Agricultural" lands on the island.

Important Agricultural Lands

Although Chapter 205 of Hawai`i Revised Statutes mandates the Counties to recommend to the State Land Use Commission certain lands for designation as Important Agricultural Lands ("IAL"), the County has not designated such lands. Presumably, these lands will include the higher-quality farmlands on Maui. However, State law does not allow the Counties to recommend lands for IAL designation if those lands have been designated for urban use by any State or County plans, such as the MIP.

The Urban and Rural components of Alternative 1 that are *mauka* of the existing Honoapi`ilani Highway, and all of the Urban and Rural components of Alternative 2, are within Maui County's Growth Boundaries. As such, these lands would not be recommended by the County for IAL designation. However, the Urban components of Alternative 1 that are *makai* of the highway could be eligible for consideration of an IAL designation.

Agricultural Lands of Importance to the State of Hawai`i (ALISH)

In 1977, the State Department of Agriculture developed a classification system to identify Agricultural Lands of Importance to the State of Hawai`i (ALISH). The classification system is based primarily, though not exclusively, upon the soil characteristics of the lands. The three (3) classes of ALISH lands are: "Prime", "Unique", and "Other Important" agricultural land, with all remaining lands termed "Unclassified".

When utilized with modern farming methods, "Prime" agricultural lands have a soil quality, growing season, and moisture supply necessary to produce sustained crop yields economically. "Unique" agricultural lands possess a combination of soil quality, growing season, and moisture supply to produce sustained high yields of a specific crop. "Other Important" agricultural lands include those that have not been rated as "Prime" or "Unique", but are of statewide or local importance for agricultural use.

~~Approximately 62,000~~Excluding lands used for country estates and golf courses, approximately 59,390 acres, or ~~26~~approximately 24 percent, of Maui's ~~235,770~~242,720 acres of State Land Use Commission designated "Agricultural" lands is characterized as "Prime" and "Unique" lands by the ALISH system. Within the proposed Master Plan for Alternative 1, approximately 19 percent of the project's 636 acres are classified as "Prime" agricultural lands, while ~~39~~about 40 percent is considered "Other Important" agricultural lands and the remainder has no designation under the ALISH system. In Alternative 2, approximately 20 percent of the project's 591 acres are classified as "Prime" agricultural lands, approximately 43 percent is considered "Other Important" agricultural lands, and the remainder is not designated under the ALISH system. ~~The remaining 42 percent of the Master Plan area is not designated by the ALISH system.~~ See **Figure 911** and **Table ~~78~~**.

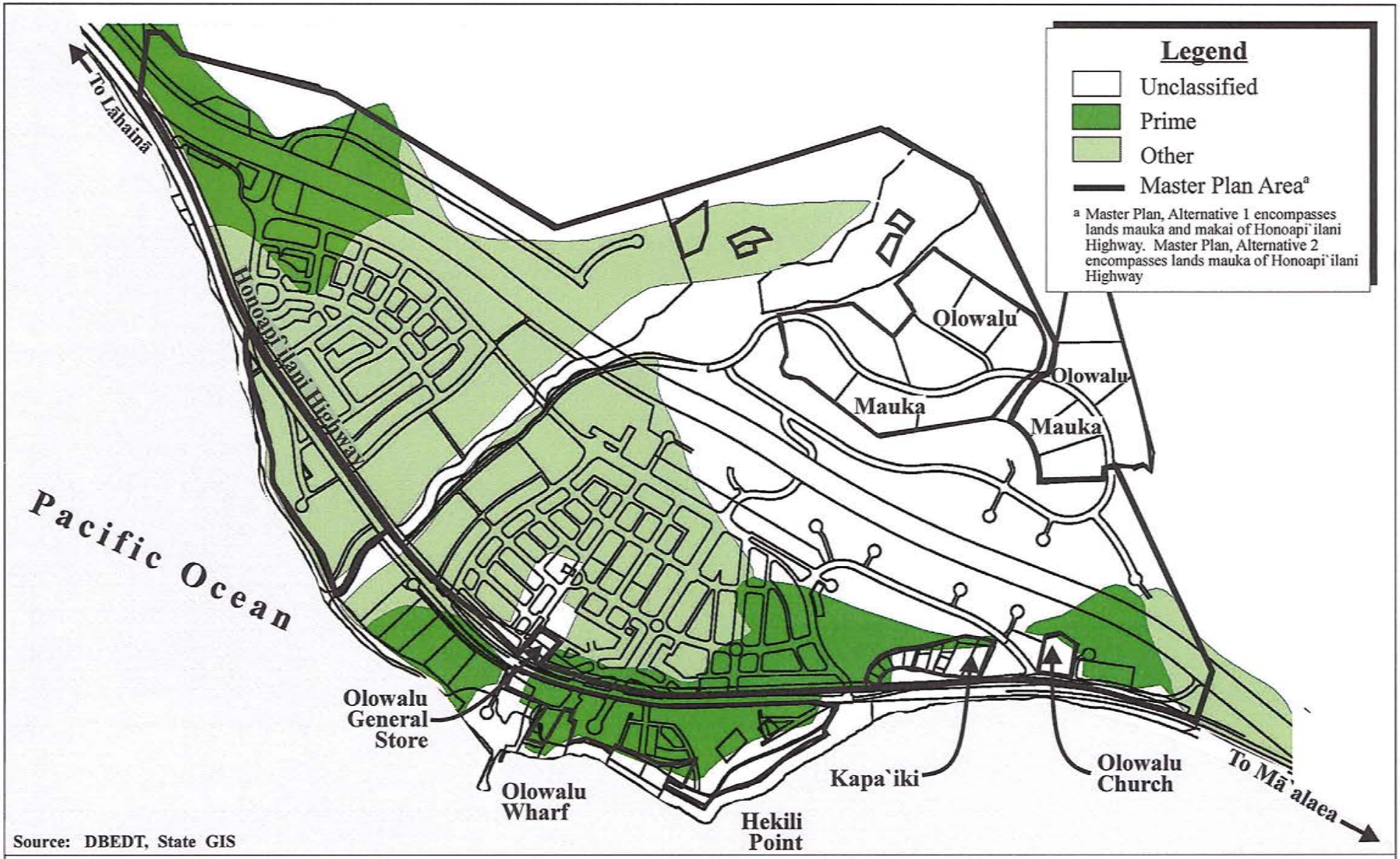


Figure ~~9~~11

Proposed Olowalu Town Master Plan

Agricultural Lands of Importance to the State of Hawai`i Map

NOT TO SCALE

MUNEKIYO HIRAGA

Prepared for: Olowalu Town, LLC and Olowalu Ekolu, LLC

Olowalu Town/MasterPl/Final EIS/alish

Table ~~7~~8. Agricultural Lands of Importance to the State of Hawai`i

	~~Acres Within Master Plan~~	~~Percent of Total~~
~~Prime~~	~~121~~	~~19~~
~~Other~~	~~247.6~~	~~38.9~~
~~Not Classified~~	~~267.2~~	~~42~~
~~Total~~	~~635.8~~	~~100~~

	Acres Within Alternative 1	Percent of Total	Acres Within Alternative 2	Percent of Total
Prime	119	18.7	119	20.1
Other	252	39.6	252	42.6
Not Classified	265	41.7	220	37.2
TOTAL	**636**	**100**	**591**	**100***

* Totals are not exact due to rounding to the nearest number
Source: Plasch Econ Pacific LLC and Munekiyo Hiraga, 2015

Land Study Bureau (LSB) Overall Productivity Rating

The University of Hawai`i, Land Study Bureau (LSB) developed the Overall Productivity Rating, which classified soils according to five (5) levels, with "A" representing the class of highest productivity soils and "E" representing the lowest. These letters are followed by numbers which further classify the soil types by conveying such information as texture, drainage, and stoniness. ~~On~~Excluding lands used for country estates and golf courses, on the island of Maui, "A" and "B" designated lands comprise approximately ~~21 percent~~47,600 acres of the island's State Land Use "Agricultural" lands.

The Master Plan areas ~~is~~for Alternatives 1 and 2 is located on lands primarily designated as "A71i", "B72i", "B87i", "E73" and "E95" by the LSB. See **Figure ~~10~~12**. The "A" and "B" designations reflect lands at the higher range of productivity. The specific designation of "A71i" indicates that these lands are non-stony, moderately fine and well-drained, while the "B72i" designation reflects lands which are stony, moderately fine and well-drained. The "B78i" category represents lands which are characterized as stony to very stony, fine

Source: Land Study Bureau

Figure ~~10~~12

Proposed Olowalu Town Master Plan

Land Study Bureau Land Classifications Map

NOT TO SCALE

MUNEKIYO HIRAGA

Prepared for: Olowalu Town, LLC and Olowalu Ekolu, LLC

and well-drained. The "E73" category reflects lands with rocky and well-drained conditions. Finally, areas designated as "E95" are typified as non-stony to rocky and well-drained. Overall, lands with an "A" designation represents ~~42~~approximately 43 percent of the 636-acre ~~Mater~~Master Plan for Alternative 1 and approximately 38 percent of the 591-acre Alternative 2, while "B" lands account for approximately 39 percent in Alternative 1 and approximately 42 percent in Alternative 2.

Approximately 19 percent of the Master Plan area ~~is~~for Alternative 1 and 20 percent of the area for Alternative 2 are designated as "E", the lowest productivity rating. See **Table 89**.

Table 89. Land Study Bureau Overall Productivity Rating

	~~Acres~~	~~Percent of Total~~
~~A~~	~~264.6~~	~~41.6~~
~~B~~	~~250.1~~	~~39.3~~
~~E~~	~~121.1~~	~~19~~
~~**Total**~~	~~**635.8**~~	~~**100**~~

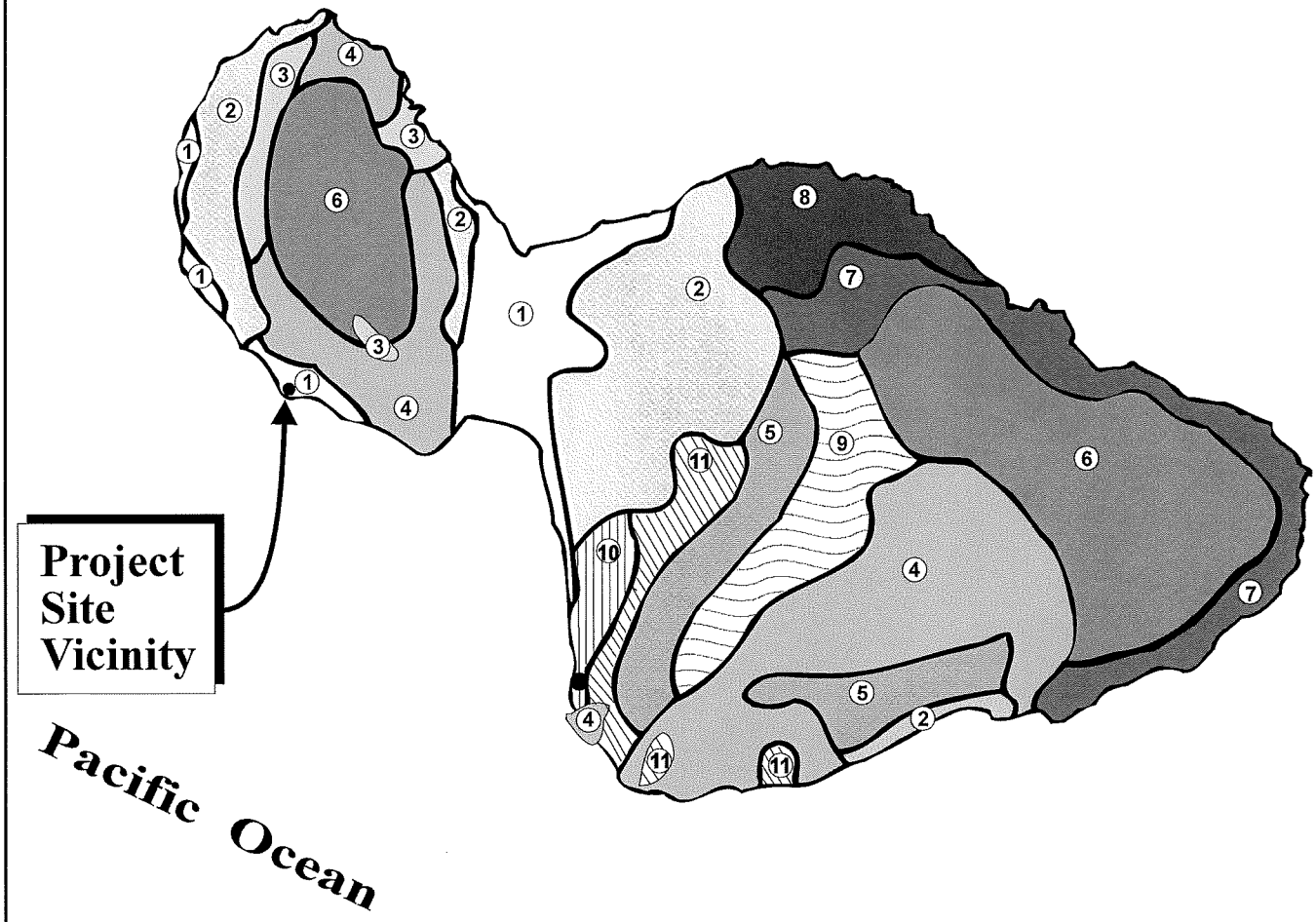
	Acres Within Alternative 1	**Percent of Total**	**Acres Within Alternative 2**	**Percent of Total**
A	270	42.5	227	38.4
B	245	38.5	245	41.5
E	121	19	119	20.1
TOTAL	**636**	**100**	**591**	**100**
Source: Plasch Econ Pacific LLC and Munekiyo Hiraga, 2015				

(2) Soil Characteristics

According to the U.S. Department of Agriculture (USDA), Soil Conservation Service (SCS), underlying the Master Plan areas for Alternatives 1 and 2 is the Pulehu-Ewa-Jaucas association. See **Figure ~~11~~13**. This series consists of well-drained soils on alluvial fans and stream terraces and in basins. These soils were developed in alluvium washed from basic igneous rock. The soil types specific to the area are delineated in **Figure ~~12~~14**. General characteristics of the soil types within the Master Plan area are presented in **Table 910**.

LEGEND

- (1) Pulehu-Ewa-Jaucas association
- (2) Waiakoa-Keahua-Molokai association
- (3) Honolua-Olelo association
- (4) Rock land-Rough mountainous land association
- (5) Puu Pa-Kula-Pane association
- (6) Hydrandepts-Tropaquods association
- (7) Hana-Makaalae-Kailua association
- (8) Pauwela-Haiku association
- (9) Laumaia-Kaipoipoi-Olinda association
- (10) Keawakapu-Makena association
- (11) Kamaole-Oanapuka association



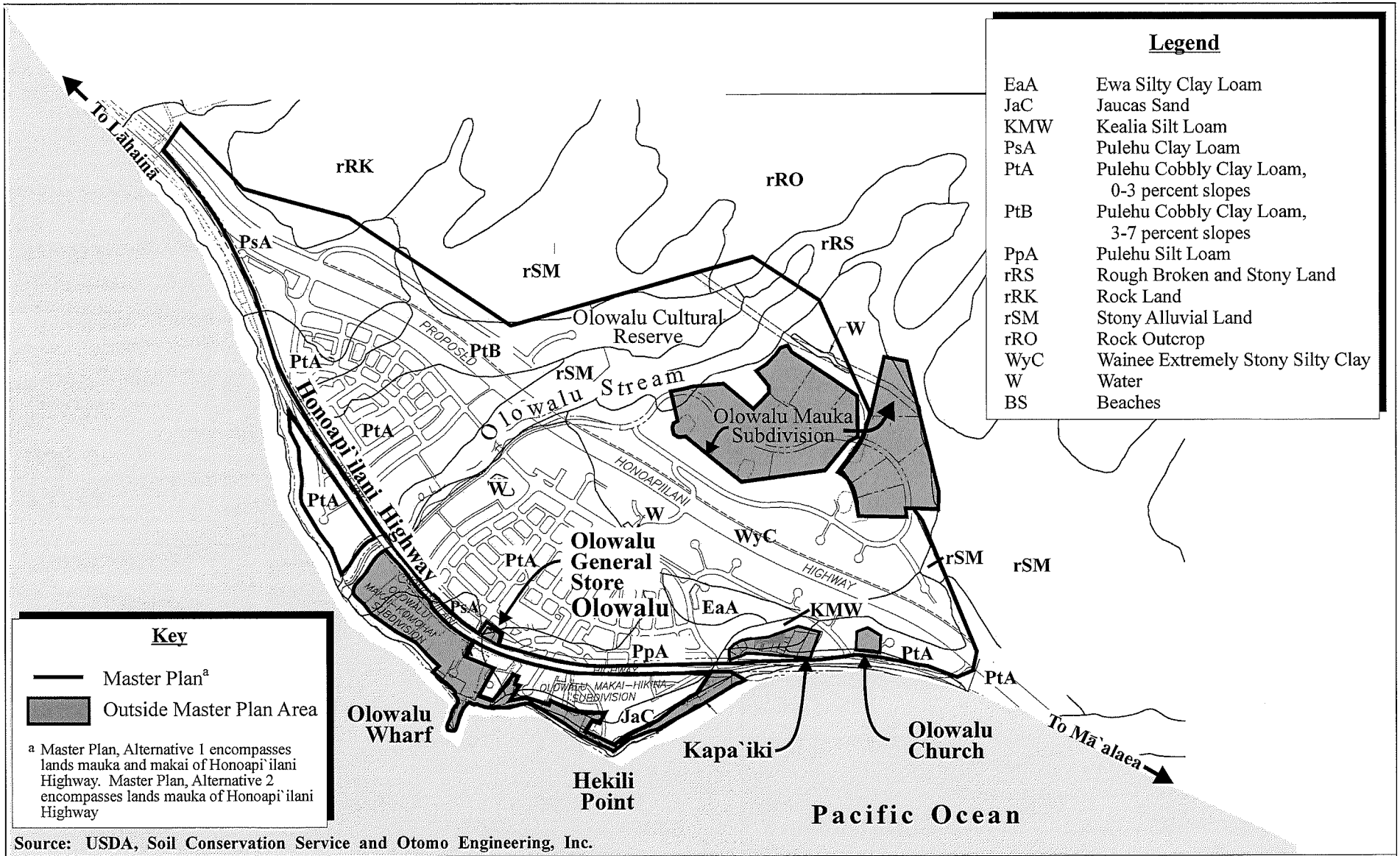
Base Map Source: U.S.D.A., Soil Conservation Service

Figure ~~11~~13 Proposed Olowalu Town Master Plan
Soil Association Map

NOT TO SCALE

MUNEKIYO HIRAGA

Prepared for: Olowalu Town, LLC and Olowalu Ekolu, LLC



Source: USDA, Soil Conservation Service and Otomo Engineering, Inc.

Figure ~~12~~14 Proposed Olowalu Town Master Plan

Soil Classification Map

0 200 400 800 Feet

MUNEKIYO HIRAGA

Prepared for: Olowalu Town, LLC and Olowalu Ekolu, LLC

Olowalu Town/MasterPl/Final EIS\SOILCLAS

Table 910. Olowalu Town Master Plan Soil Characteristics

		Master Plan Area Alternative 1		Master Plan Area Alternative 2		Land Capability Classification[a]	
Soil Series	**General Soil Characteristics**	**Acres**	**Percent of Total**	**Acres**	**Percent of Total**	**Non-Irrigated**	**Irrigated**
Ewa Silty Clay Loam, 0-3 percent slopes (EaA)	Runoff is very slow and erosion hazard is no more than slight.	25	~~43.9~~	25	4	IVc	I
Jaucas Sand, 0-15 percent slopes (JaC)	Soil is neutral to moderately alkaline; permeability is rapid, and runoff is very slow to slow; hazard of water erosion is slight, but wind erosion is a severe hazard where vegetation has been removed.	14	~~2.3~~2.2	6	1	VIIs	--
Kealia Silt Loam (KMW)	Soil is poorly drained and has a high content of salt. Ponding occurs in low areas after a heavy rain. Slopes range from 0 to 1 percent.	3	~~0.4~~0.15	3	0.5	VIIw	--
Pulehu Clay Loam, 0-3 percent slopes (PsA)	Soil is found on alluvial fans, and stream terraces and basins. Permeability is moderate, runoff is slow, and erosion hazard is no more than slight.	~~6266~~	~~9.8~~10.4	64	10.8	IVc	I
Pulehu Cobbly Clay Loam, 0-3 percent slopes (PtA)	This soil is similar to Pulehu clay loam (PsA) except that it is cobbly.	~~204209~~	~~32.2~~32.9	194	32.8	IVs	IIs
Pulehu Cobbly Clay Loam, 3-7 percent slopes (PtB)	On this soil, runoff is slow and erosion hazard is slight. Some areas have thin, stratified layers of sand and gravel at a depth of 20 to 36 inches.	58	9.1	57	9.6	IVs	IIe
Pulehu Silt Loam, 0-3 percent slopes (PpA)	This soil is similar to Pulehu clay loam (PsA), except that the texture is silt loam.	~~4342~~	~~6.7~~6.6	27	4.6	IVc	I
Rough Broken and Stony Land (rRS)	Consists of very steep and stony gulches. Runoff is rapid and geologic erosion is active.	~~1918~~	3	17	2.9	--	--
Rock Land (rRK)	Made up of areas where exposed rock covers 25 to 90 percent of the surface. Rock outcrops and very shallow soils are the main characteristics.	~~76~~	~~1.1~~0.9	6	1	VIIs	--
Stony Alluvial Land (rSM)	Consists of stones, boulders, and soil deposited by streams along the bottom of gulches and on alluvial fans. In most places, slopes range from 3 to 15 percent.	55	~~8.7~~8.6	53	9	VIIs	--
Rock Outcrop (rRO)	Consists of areas where exposed bedrock covers more than 90 percent of the surface.	4	0.7	4	0.7	--	--
Wainee Extremely Stony Silty Clay, 7-15 percent slopes (WyC).	This soil is moderately sloping and occurs on smooth, alluvial fans. Permeability is moderately rapid, runoff is slow to medium, and erosion hazard is slight to moderate.	~~136132~~	~~21.4~~20.8	132	22.3	VIs	VIs
Water (W)	Water	2	~~0.4~~0.3	2	0.3	--	--
Beaches (BS)	Beach sand	2	0.3	---	---	--	--
	Grand Total	**~~634~~[b]636**	**~~100.1~~99.6[b]**	**590[b]**	**99.5[b]**		

Notes:

[a] Land Capability Classification ranges from 1 (highest) to VIII (lowest). Letters *e*, *w*, and *s* represent subclasses.
Subclass *e* is made up of soils for which the susceptibility to erosion is the dominant problem or hazard affecting their use.
Subclass *w* is made up of soils for which excess water is the dominant hazard or limitation affecting their use.
Subclass *s* is made up of soils that have soil limitations within the rooting zone, such as shallowness of the rooting zone, stones, low moisture-holding capacity, low fertility that is difficult to correct, and salinity or sodium content.
Subclass *c* is made up of soils for which the climate (the temperature or lack of moisture) is the major hazard or limitation affecting their use.

[b] Totals are not exact due to rounding to the nearest number

Source: U.S. Department of Agriculture, Soil Conservation Service

The Pulehu Cobbly Clay Loam, 0-3 percent slopes (PtA) soil and Wainee Extremely Stony Silty Clay, 7-15 percent slopes (WyC) comprise the majority of the Master Plan area. PtA soil is a cobbly soil characterized by moderate permeability, slow runoff, and slight erosion hazard. WyC soil is an extremely stony soil characterized by moderately rapid permeability, slow to medium runoff and slight to moderate erosion hazard.

Land Capability Classification

The USDA Natural Resources Conservation Service (NRCS) rates soils using its Land Capability Classification System. The system rates soils on the basis of their capability to produce common cultivated crops and pasture plants without deteriorating over a long period of time. The NRCS rates soils into eight (8) classes ranging from I (highest capability) to VIII (lowest capability). The definitions of the classes are presented below:

- *Class I* soils have slight limitations that restrict their use.
- *Class II* soils have moderate limitations that reduce the choice of plants or require moderate conservation practices.
- *Class III* soils have severe limitations that reduce the choice of plants or require special conservation practices, or both.
- *Class IV* soils have very severe limitations that restrict the choice of plants or require very careful management, or both.
- *Class V* soils have little or no hazard of erosion but have other limitations, impractical to remove, that limit their use mainly to pasture, range, forestland, or wildlife food and cover.
- *Class VI* soils have severe limitations that make them generally unsuited to cultivation and that limit their use mainly to pasture, range, forestland, or wildlife food and cover.
- *Class VII* soils have very severe limitations that make them unsuited to cultivation and that restrict their use mainly to grazing, forestland, or wildlife.

- *Class VIII* soils and miscellaneous areas have limitations that preclude their use for commercial plant production and limit their use to recreation, wildlife, or water supply or for esthetic purposes.

The higher-quality soils (Rated I and II) are: EaA, PsA, PpA, PtA, and PtB. Excluding lands used for country estates and golf courses, approximately 39,300 acres of the State Agricultural lands are high-quality soils. For each alternative, approximate acreages by NRCS soil rating and project component are as shown in **Table 11**:

Table 11. NRCS Soil Ratings

	I	II	VI to VIII	TOTAL
Alternative 1	133	266	237	636
Alternative 2	116	252	223	591
Source: Plasch Econ Pacific LLC and Munekiyo Hiraga, 2015				

Each class may be assigned a subclass designation. The subclasses are defined below:

- *Subclass e* is made up of soils for which the susceptibility to erosion is the dominant problem or hazard affecting their use. Erosion susceptibility and past erosion damage are the major soil factors that affect soils in this subclass.

- *Subclass w* is made up of soils for which excess water is the dominant hazard or limitation affecting their use. Poor soil drainage, wetness, a high water table, and overflow are the factors that affect soils in this subclass.

- *Subclass s* is made up of soils that have soil limitations within the rooting zone, such as shallowness of the rooting zone, stones, low moisture-holding capacity, low fertility that is difficult to correct, and salinity or sodium content.

- *Subclass c* is made up of soils for which the climate (the temperature or lack of moisture) is the major hazard or limitation affecting their use.

The Land Capability Classification for the soils found within the project site is presented in **Table 910** above. Three (3) soil types,

representing approximately 20 percent of the Master Plan area, are designated as Class I, the highest classification, when irrigated. When irrigated, the PtA soil has a Land Capability Classification of Class IIs while the WyC soil has a classification of VIs. These two (2) soils, which account for the majority of the Master Plan area, both have the "s" subclass designation due to their rocky nature.

b. Potential Impacts and Mitigation Measures

~~The~~Generally, the Master Plan ~~area, for the most part,~~areas for Alternatives 1 and 2 lies within the State Agricultural district and is largely designated for agricultural uses by the West Maui Community Plan and Maui County zoning. ~~These~~Historically, these designations represented the former larger-scale cultivation of sugarcane by Pioneer Mill whose last harvest of large-scale sugarcane in Olowalu occurred in 1999, the same year Pioneer Mill closed its operations. ~~However~~Today, ~~the majority~~most of the lands formerly used for agricultural cultivation are currently vacant and not in active agricultural production.

Agricultural activities are an important part of Alternative 1's and 2's goal of becoming a sustainable development. Of the approximate 636 acres of the Master Plan for Alternative 1, approximately 175 acres or 28 percent will remain in agriculture. Of the approximate 591 acres of the Master Plan for Alternative 2, approximately 173 acres or 29 percent will remain in agriculture~~approximately 161 acres will remain in agriculture primarily along Olowalu Stream~~. Additionally, the OCR, which accounts for 74 acres of the Master Plan areas, for Alternatives 1 and 2 will provide an opportunity to cultivate traditional native crops, such as taro.

The LSB designates a significant portion of the OCR as "E" lands which ALISH identifies as "Unclassified". Within the OCR *"kalo"* and other traditional Hawaiian crops have shown to be productive. These lands are important to traditional Hawaiian crops in the context of its location adjacent to Olowalu Stream within the OCR. Also, lands to be redistricted into the Rural District include "A" and "B" lands identified by ALISH as "Prime" and "Other" which does not preclude future owners to conduct agricultural pursuits.

Within the traditional neighborhoods future residents will be given the opportunity to establish "neighborhood or community gardens" to supplement self-sustainability in terms of communities growing their own food.

As previously noted, in Alternative 1, approximately 19 percent of the project's 636 acres is classified as "Prime" agricultural lands by ALISH, while approximately 40 percent is classified as "Other Important" and approximately 42 percent is not classified. In Alternative 2 approximately 20 percent of this alternative's 591 acres is classified as "Prime" agricultural lands by ALISH, while approximately 43 percent is classified as "Other Important" and approximately 37 percent is not classified. Approximately 43 percent of the Master Plan for Alternative 1 and approximately 38 percent of Alternative 2 are classified as "A" by the LSB; approximately 39 percent and approximately 42 percent, respectively, as "B"; and approximately 19 percent in Alternative 1 and approximately 20 percent in Alterative 2 as "E". The development of the Olowalu Town Master Plan (OTMP) for Alternatives 1 and 2 involves the loss of agricultural land that includes prime and other important agricultural lands with agriculturally suitable soil characteristics.

Table 12 and **Table 13** show a breakdown of the lands by ALISH, and **Table 14** and **Table 15** are a breakdown of the lands classified by the LSB Overall Productivity Rating for Alternative 1 and Alternative 2, respectively:

Table 12. ALISH Classification for Alternative 1

ALISH	Urban (Acres)	Rural (Acres)	Agricultural (Acres)	Conservation (Acres)	Total (Acres)
Prime	76	18	25	1	119*
Other	152	38	62	1	252*
Unclassified	38	112	88	25	265*
TOTAL	**266**	**168**	**175**	**27**	**636**

* Totals are not exact due to rounding to the nearest number
Source: Plasch Econ Pacific LLC and Munekiyo Hiraga, 2015

Table 13. ALISH Classification for Alternative 2

ALISH	Urban (Acres)	Rural (Acres)	Agricultural (Acres)	Conservation (Acres)	Total (Acres
Prime	76	18	25	0	119
Other	152	38	61	1	252
Unclassified	0	112	87	21	220
TOTAL	**228**	**168**	**173**	**22**	**591**

Source: Plasch Econ Pacific LLC and Munekiyo Hiraga, 2015

Table 14. Land Study Bureau Classifications for Alternative 1

LSB	Urban (Acres)	Rural (Acres)	Agricultural (Acres)	Conservation (Acres)	Total (Acres)
A	205	25	33	7	270
B	50	119	76	2	245*
E	11	24	66	18	121*
TOTAL	**266**	**168**	**175**	**27**	**636**

* Totals are not exact due to rounding to the nearest number
Source: Plasch Econ Pacific LLC and Munekiyo Hiraga, 2015

Table 15. Land Study Bureau Classifications for Alternative 2

LSB	Urban (Acres)	Rural (Acres)	Agricultural (Acres)	Conservation (Acres)	Total (Acres)
A	167	25	31	3	227*
B	50	119	75	2	245*
E	11	24	67	17	119*
TOTAL	**228**	**168**	**173**	**22**	**591**

* Totals are not exact due to rounding to the nearest number
Source: Plasch Econ Pacific LLC and Munekiyo Hiraga, 2015

In Alternative 1 and 2, the NRCS Soil Ratings are identified in **Tables 16** and **17**, respectively.

Table 16. NRCS Soil Ratings for Alternative 1

Component	I	II	VI to VIII & Unrated	Total
Urban (Petition Area)	80	162	24	266
Rural (Petition Area)	20	42	106	168
Agricultural	33	60	82	175
Conservation	0	2	25	27
Project Total	**133**	**266**	**237**	**636**
Source: Plasch Econ Pacific LLC and Munekiyo Hiraga, 2015				

Table 17. NRCS Soil Ratings for Alternative 2

Component	I	II	VI to VIII & Unrated	Total
Urban (Petition Area)	64	148	16	228
Rural (Petition Area)	20	43	105	168
Agricultural	32	59	82	173
Conservation	0	2	20	22
Project Total	**116**	**252**	**223**	**591**

Productive farmland is used to describe land that meet one or more of the soil-rating criteria listed below in **Table 18** and **Table 19**:

Table 18. Summary Soil Ratings for Alternative 1

Component	NRCS I & II	ALISH Prime	LSB A or B	Productive Farmland
Urban (Petition Area)	242	76	255	255
Rural (Petition Area)	62	18	144	154
Agricultural	93	25	109	123
Project Total	397	119	508	532
Source: Plasch Econ Pacific LLC and Munekiyo Hiraga, 2015				

Table 19. Summary Soil Ratings for Alternative 2

Component	NRCS High	ALISH Prime	LSB A or B	Productive Farmland
Urban (Petition Area)	212	76	217	220
Rural (Petition Area)	63	18	144	154
Agricultural	91	25	106	121
Project Total	366	119	467	495
Source: Plasch Econ Pacific LLC and Munekiyo Hiraga, 2015.				

Of the approximate 636 acres of State Agricultural district lands in Alternative 1, approximately 532 acres are potentially productive farmland of which approximately 504 acres (409 acres Petition area and 95 acres highway, parks, etc.) are proposed for development with approximately 28 acres of high-quality farmland kept as small farms. In Alternative 2, of the approximate 591 acres of State Agricultural district lands approximately 495 acres are potentially productive farmland of which approximately 468 acres (374 acres Petition area and 94 acres for highway, parks, etc.) are proposed for development with approximately 28 acres of potentially productive farmland kept as small farms. For comparison, the loss of approximately 500 acres of high-quality farmland amounts to less than 0.7 percent of the 72,100-acre supply of high-quality farmland on Maui Island. Also on the MIP, approximately 3,540 acres of high quality farmland or about 4.9 percent of the island-wide supply of such lands are designated for future development. Not all proposed projects will be developed and the loss of high-quality farmland will be gradual depending on the demand for new homes and visitor units.

While the proposed development will commit agricultural land, some of which has been identified as prime, to non-agricultural use, the loss will not significantly affect the overall availability of land to farmers in the County and State. The project will result in the loss of agricultural lands that could be used for diversified agriculture. However, the decline of plantation agriculture on Maui and statewide, has made additional land available for diversified agriculture. The project will convert underutilized fallow lands into a sustainable, mixed-use community. A more detailed discussion assessing impacts to agriculture from a socio-economic standpoint is provided in Chapter III, Section B.3.

Best Management Practices (BMPs) will be implemented both prior to and during grading and construction to minimize opportunities for soil erosion at the site. Upon completion of construction, landscaping will be installed which will stabilize the ground on a permanent basis. With implementation of the foregoing mitigation measures, the proposed project is not anticipated to present significant adverse impacts on soil conditions within the Master Plan areas. Moreover, the soil types found on the property do not present any limitations to the constructability of the proposed Master Plan project.

5. Pesticides, Fertilizer Use, and Hazardous Substances

a. Existing Conditions

The Olowalu region has a history of wide-spread and long-term sugarcane cultivation. Prior to the ~~a~~Applicants obtaining the property, the previous landowner conducted a limited Phase I environmental site assessment in 1998. At that time, consultation with the State Office of Hazard Evaluation and Emergency Response (HEER) was conducted. HEER commented that pesticides used by the sugarcane industry in recent times and their residuals should not pose a significant human health risk because of their rapid decomposition in soil. Indicators of potential risks from past agricultural use are typically found in the soil, surface water and groundwater. The existing ~~potable~~drinking water well source has not detected levels of chemical contaminants established as unsafe for human habitation by the Environmental Protection Agency (EPA) and State Department of Health (DOH).

The Master Plan ~~area is~~areas for Alternatives 1 and 2 are located south-east of the former Olowalu Sanitary Landfill, a 53-acre facility that was closed in 1992 and is now covered with grass. The landfill was closed in accordance with EPA and DOH requirements at the time by the County of Maui, Department of Environmental Management (DEM). The former landfill is physically separated from the Master Plan areas for Alternatives 1 and 2 by the steep topography and ridgeline of the West Maui Mountains.

There is no evidence that leaching of pollutants from the landfill are occurring. According to the Impact on Water Resources Study prepared by Tom Nance Water Resource Engineering, sample data of groundwater collected in 2010 from the existing wells included detectable levels of nitrogen, phosphorus,

silica and salt which are typical background constituents. It did not contain other detectable chemicals typical of leachate associated with an unlined landfill. As such, it does not appear that chemical pollutants from the closed landfill are leaching into the groundwater resources at Olowalu. See ~~**Exhibit "C"**~~**Appendix D"**.

Further, the Assessment of Marine Water Chemistry and Biotic Community Structure for Olowalu prepared by Marine Research Consultants, Inc. identified only nutrients associated with groundwater and stormwater discharges, which indicate leaching of chemical pollutants from the closed landfill is not occurring offshore. ~~See **Exhibit "D"**~~Refer to **Appendix "E"**.

b. Potential Impacts and Mitigation Measures

The project site has not been in active sugarcane production for over 10 years since the closure of Pioneer Mill in 1999. Since that time, the area has largely remained fallow. There has been no large-scale use of pesticides or fertilizers on the property for over 10 years, as such no adverse significant impacts are anticipated.

The use of fertilizers for landscape maintenance within the Master Plan for Alternatives 1 and 2 will be minimal. Drainage improvements for the proposed project are designed to ensure that increases in runoff due to the development are retained on-site and do not impact downstream properties and nearshore marine environments.

6. Natural Hazards

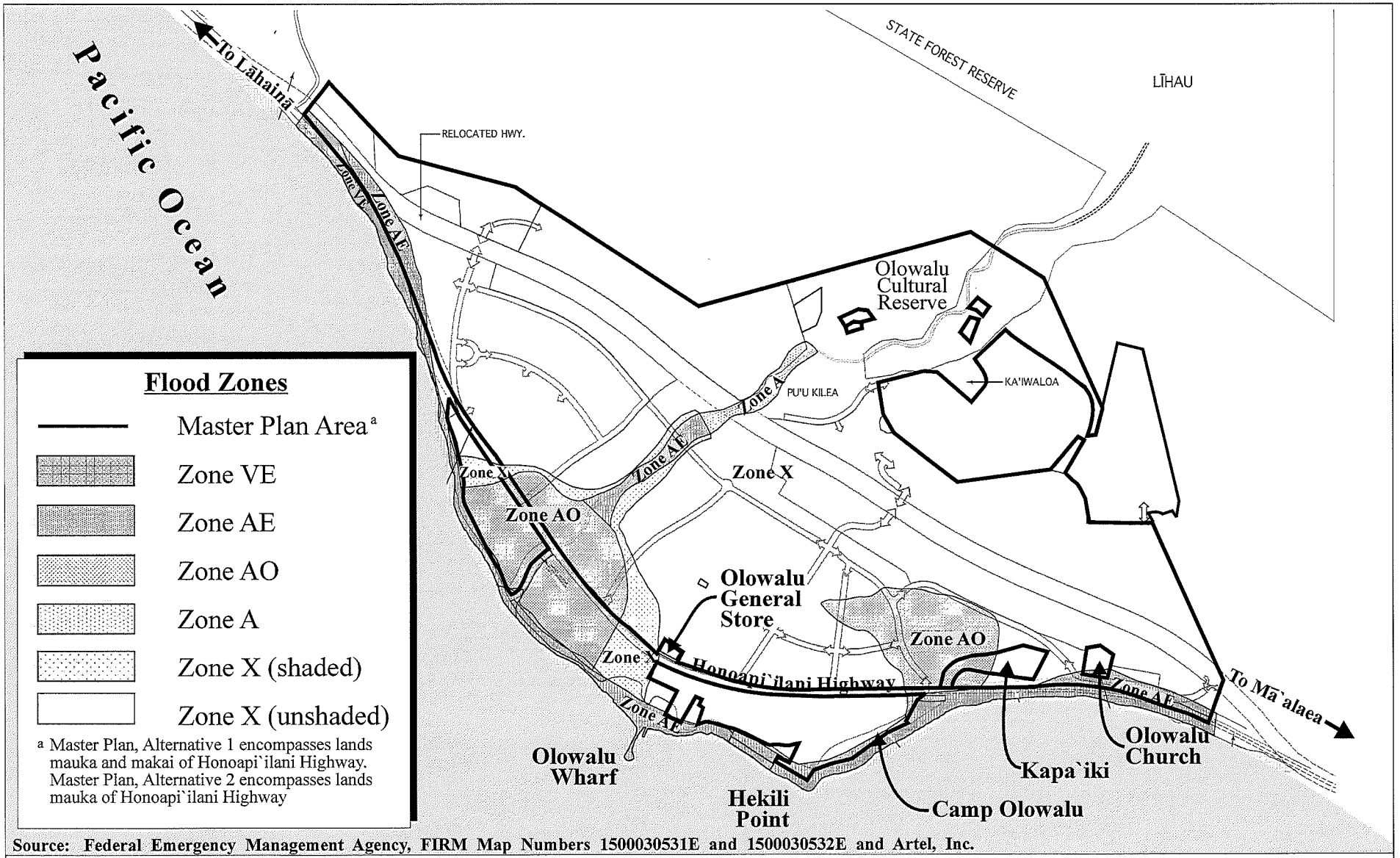
a. Existing Conditions

The Federal Emergency Management Agency (FEMA) manages the National Flood Insurance Program under which flood-prone areas are identified and flood insurance is made available. FEMA produces Flood Insurance Rate Maps (FIRM), an insurance and floodplain map that identifies the areas subject to flooding during a 1 percent annual chance (100-year) flood event, as well as areas inundated by the 0.2 percent annual chance flood. The 100-year floodplain is the boundary of the flood that has a 1 percent chance of being equaled or exceeded in any given year, while the 500-year floodplain is

the boundary of the flood that has a 0.2 percent chance of being equaled or exceeded in any given year. FEMA's Flood Insurance Rate Map (FIRM) adopted by the County of Maui on September 19, 2012, indicates ~~The~~the Master Plan ~~area is~~areas in Alternatives 1 and 2 are located in Flood Zone "X" (unshaded), Zone "X" (shaded), Zone "A", Zone "AE", Zone "AO", and Zone "VE". See **Figure 15**.

Zone "X" (unshaded) is an area of minimal flooding, while Zone "X" (shaded) is an area of moderate flood hazard with average depths of less than 1 foot, usually the area between the limits of the 100-year and 500-year floods. Zone "X" (shaded) is located on the outer fringes of Olowalu Stream. Zone "A" are areas with a 1 percent chance of flooding; Zone "AE" is the base floodplain where base flood elevations are provided; and Zone "AO" is river or stream flood hazard areas and areas with a 1 percent or greater chance of shallow flooding with a depth of 1 foot. Zones "A", "AE" and "AO" are located along the shoreline and along Olowalu Stream and Gulch and an area near Kapa`iki. Zone "VE" is the coastal flood area located along the shoreline and are coastal areas with a 1 percent or greater chance of flooding and an additional hazard from storm waves. The flood elevation in this area is 7 feet above mean sea level (amsl). ~~See~~Refer to **Figure ~~13~~15**.

Maui's coastal lands, along with other coastal areas around the world, are susceptible to erosion, accretion and sea level change. Because significant variability in sea level can occur, determining global mean sea level changes are complex. Nevertheless, numerous studies have sought to measure sea level rise. Global sea level rise is assumed to be caused by melting of ice reservoirs in Greenland and Antarctica, as well as various other alpine glaciers and ice sheets, and thermal expansion of the upper ocean water column due to heating of the atmosphere. ~~In Olowalu, erosion rates and potential impacts from sea level rise have not been identified.~~



Source: Federal Emergency Management Agency, FIRM Map Numbers 1500030531E and 1500030532E and Artel, Inc.

Figure ~~13~~15 Proposed Olowalu Town Master Plan

Flood Insurance Rate Map

NOT TO SCALE

MUNEKIYO HIRAGA

Prepared for: Olowalu Town, LLC and Olowalu Ekolu, LLC

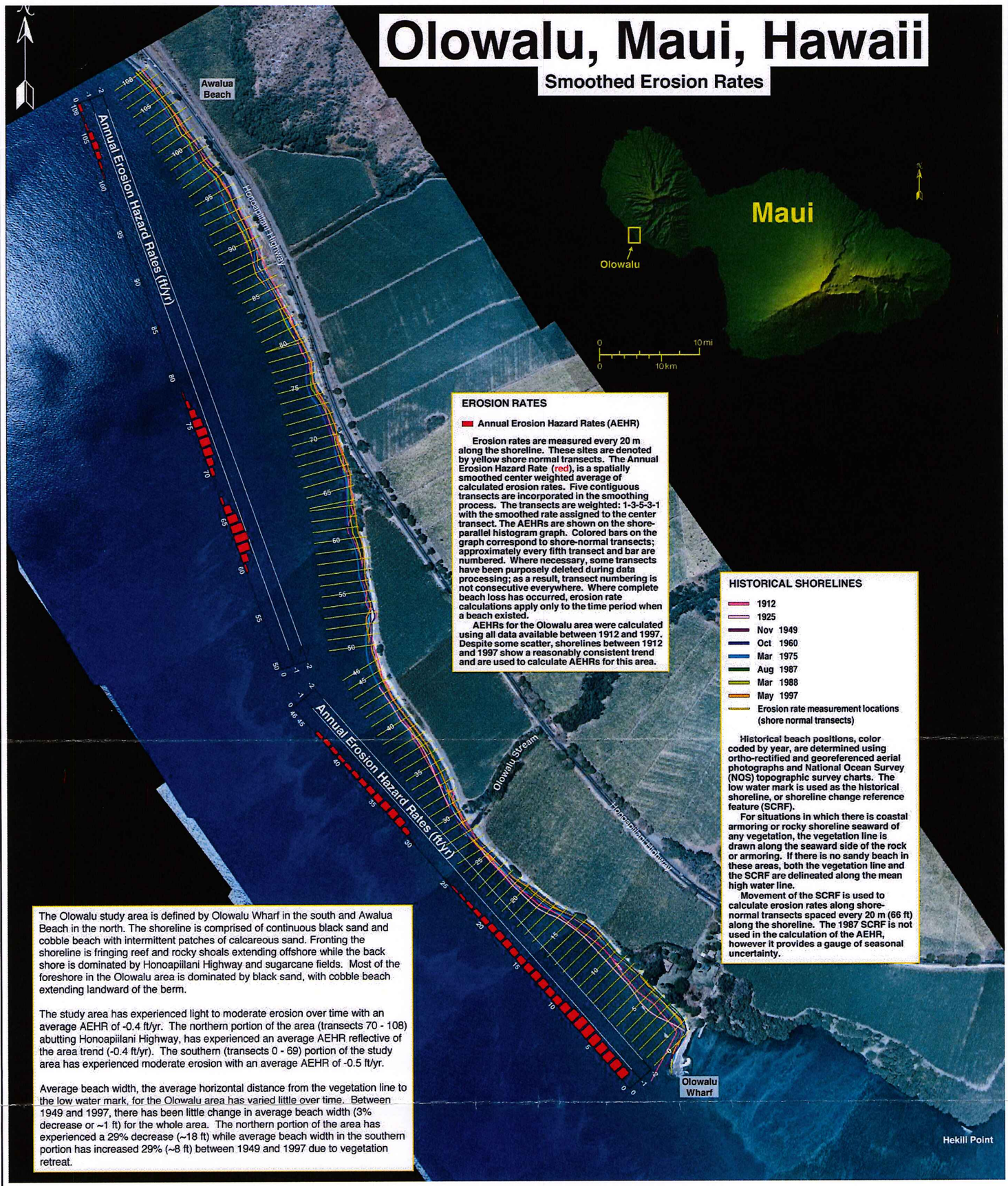
Olowalu Town/MasterPl/Final EIS\FIRM

Since the preparation of the Draft EIS, the County of Maui has adopted erosion rate maps for Olowalu. According to the Erosion Maps prepared for the County of Maui Department of Planning, the Olowalu study area is defined by Olowalu Wharf and Hekili Point. Olowalu Wharf erosion map encompasses the shoreline segment from Olowalu Wharf to the south to Awalua Beach to the north while the Hekili Point erosion map encompasses the shoreline segment from Olowalu Wharf to the north to Ukumehame Gulch to the southwest. The shoreline on the Olowalu Wharf erosion map is comprised of continuous black sand beach and cobble beach with intermittent patches of calcerous sand, while the Hekili Point erosion map is comprised of both sand and cobble beaches. Fronting the shoreline is a fringing reef and rocky shoals extending offshore while the back shore is dominated by Honoapi`ilani Highway and former sugarcane fields and kiawe trees. See **Figure 16** and **Figure 17**.

The Olowalu Wharf erosion map study area experiences light to moderate erosion over time with an average Annual Erosion Hazard Rate (AEHR) of -0.4 ft/year. The northern portion of the area (transacts 70-108) abutting Honoapi`ilani Highway has an average AEHR reflective of the trend of -0.4 ft/yr. The southern area (transects 0-69) has experienced moderate erosion with an average of -0.5 ft/ yr. Refer to **Figure 16**.

Average beach width, the average horizontal distance from the vegetation line to the low water mark, for the Olowalu Wharf erosion map area has varied little over time. Between 1949 through 1997, there has been little change in average beach width (3 percent decrease or 1 foot) for the whole area. However, the northern portion of the area has experienced a 29 percent decrease (~18 ft) while average beach width in the southern portion has increased 29 percent (~8 ft) between 1949 and 1997 due to vegetation retreat.

The Hekili Point erosion map study area as a whole has experienced a consistent trend of moderate erosion with an average AEHR of -0.7 ft/ yr. The shoreline along the western portion of the area (transects 105-210) is dominated by stands of kiawe trees. This section has experienced moderate erosion over time reflecting the area trend (-0.7 ft/yr). The eastern portion (transects 24-104) is backed by Honoapi`ilani Highway. Here, several sections of the highway are directly threatened by shoreline change. This



The Olowalu study area is defined by Olowalu Wharf in the south and Awalua Beach in the north. The shoreline is comprised of continuous black sand and cobble beach with intermittent patches of calcareous sand. Fronting the shoreline is fringing reef and rocky shoals extending offshore while the back shore is dominated by Honoapiilani Highway and sugarcane fields. Most of the foreshore in the Olowalu area is dominated by black sand, with cobble beach extending landward of the berm.

The study area has experienced light to moderate erosion over time with an average AEHR of -0.4 ft/yr. The northern portion of the area (transects 70 - 108) abutting Honoapiilani Highway, has experienced an average AEHR reflective of the area trend (-0.4 ft/yr). The southern (transects 0 - 69) portion of the study area has experienced moderate erosion with an average AEHR of -0.5 ft/yr.

Average beach width, the average horizontal distance from the vegetation line to the low water mark, for the Olowalu area has varied little over time. Between 1949 and 1997, there has been little change in average beach width (3% decrease or ~1 ft) for the whole area. The northern portion of the area has experienced a 29% decrease (~18 ft) while average beach width in the southern portion has increased 29% (~8 ft) between 1949 and 1997 due to vegetation retreat.

Source: Coastal Geology Group, School of Ocean and Earth Science and Technology, University of Hawai`i at Manoa

Figure 16

Proposed Olowalu Town Master Plan

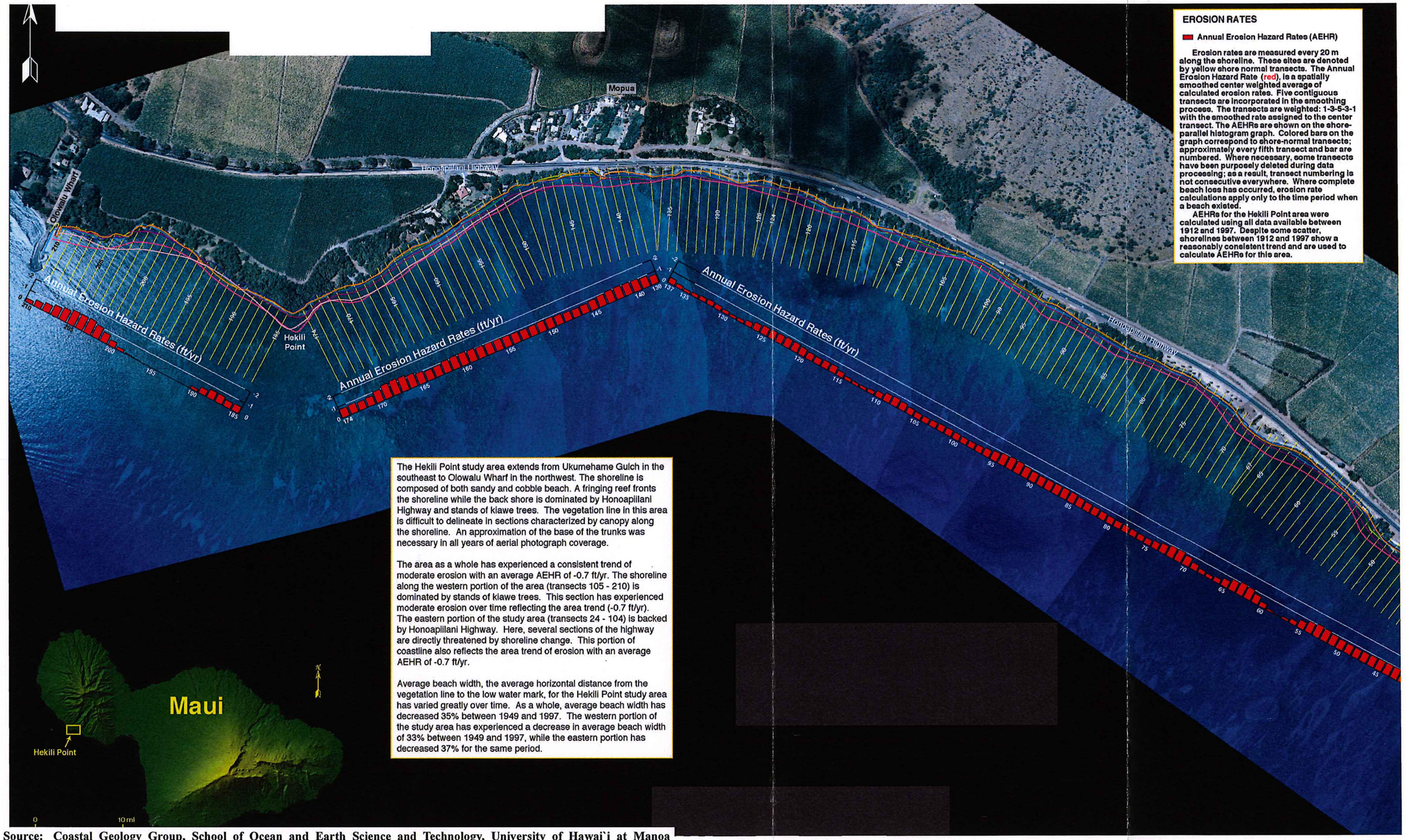
Olowalu Wharf Shoreline Erosion Rates Map

NOT TO SCALE

Prepared for: Olowalu Town, LLC and Olowalu Ekolu, LLC

MUNEKIYO HIRAGA

Olowalu Town\MasterPl\Final EIS\OlowaluShoreErosionl



Source: Coastal Geology Group, School of Ocean and Earth Science and Technology, University of Hawai`i at Manoa

Figure 17

Proposed Olowalu Town Master Plan
Hekili Point Shoreline Erosion Rates Map

NOT TO SCALE

Prepared for: Olowalu Town, LLC and Olowalu Ekolu, LLC

MUNEKIYO HIRAGA

OlowaluTown/MasterPl/Final EIS/HekiliShoreline

portion of coastline also reflects the area trend of erosion with an average AEHR of -0.7 ft/yr. Refer to **Figure 17**.

Average beach width for the Hekili Point study area has varied greatly. As a whole, average beach width has decreased 35 percent between 1949 and 1997. The western portion has experienced a decrease in average beach width of 33 percent between 1949 and 1997, while the eastern portion has decreased 37 percent for the same period.

In addition, the U.S. Geological Survey (USGS) Technical Hazard Map for the Olowalu region between Launiupoko Point and the southern limits of Ukumehame State Beach Park has an overall hazard rate from moderate to high which is a direct function of the low coastal slope of this area. To the east, where the individual hazards are mitigated by the increase in coastal slope and harder substrate, it is reduced to moderate to low (USGS, 2002).

The tsunami hazard is ranked high along this entire low-lying coastal terrace. It is reduced to moderately high for the steeper rocky head-lands to the east. The stream-flooding hazard is moderately high for the Ukumehame Beach area and moderately low only along the steep head-lands to the east. Along the Olowalu coast, it is ranked high where larger streams drain the increasingly wetter mountains to the west. The threat from high waves is ranked moderately low here where the greatest waves reaching the shoreline are associated with the southern swell. The storm hazard however, is ranked moderately high along this coast which faces south-west toward the majority of passing storms that track to the west. Erosion is greatest along the lowest-lying beach areas between Ukumehame Beach and Mōpua, where it is ranked high. Sections of the coastal highway, the sole southern access to West Maui, are threatened by coastal erosion and have been protected with armoring by the State Department of Transportation (HDOT). At Mōpua, the rocky point partly mitigates erosion, so this hazard is reduced to moderately low. Beyond Hekili Point, the erosion threat is ranked moderately high. The sea level and volcanic/seismic hazards are moderately high because of the low coastal slope and Olowalu's location within seismic hazard zone 2 (USGS, 2002).

The tsunami evacuation zone for Olowalu is the area seaward (makai) of Honoapi`ilani Highway near Olowalu General Store. See **Figure 18.** The zone moves 400 feet mauka of the highway in areas where the highway is close to the shoreline mainly south of Kapa`iki and north near the County's Recycling and Refuse Convenience Center. The sloping topography of the mauka lands provides higher ground for evacuation purposes through the existing Olowalu roadways.

According to the University of Hawai`i (UH) Sea Grant College Program, *"Sea-Level Rise and Coastal Land Use in Hawaii: A Policy Tool Kit for State and Local Governments, 2011"* report sea levels are rising due to climate change. Over the past century, global mean sea level rose about six (6) to eight (8) inches and the rate of global sea level rise has doubled since 1990. According to the report, it recommends using sea level rise benchmarks of 1-foot by year 2050 and 3-feet by 2100 for Hawai`i.

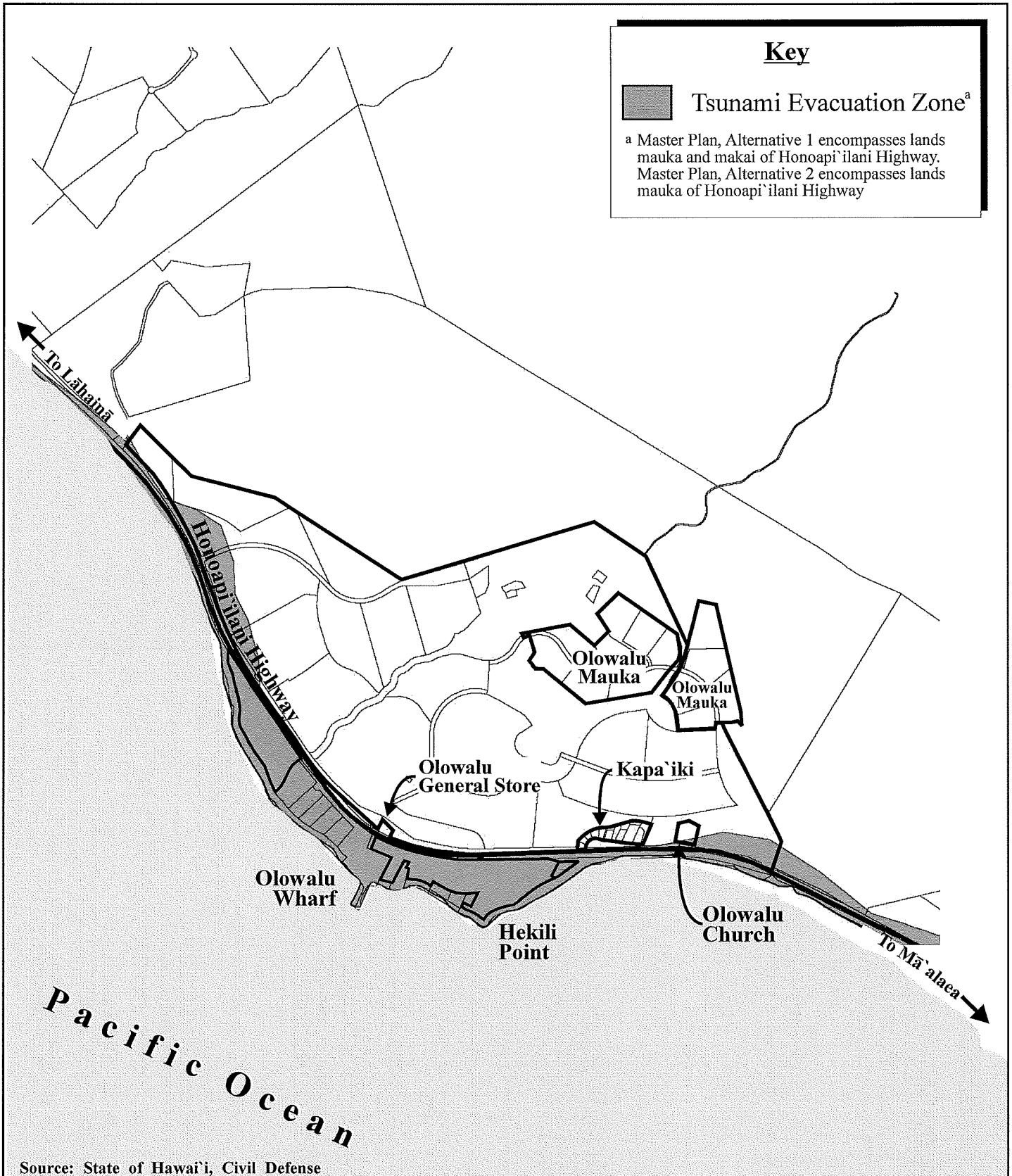
Three (3) basic approaches to sea-level rise adaptation have been identified:

- *Accommodation.* Adjustment of an existing system to changing natural conditions (e.g., strengthening flood-proofing regulations or expanding hazard zones).

- *Protection.* Hardening of a system in its existing location to withstand impacts from changing conditions (e.g., shoreline hardening such as seawalls and revetments).

- *Retreat.* Relocating existing structures to avoid impacts.

Located in Hawai`i, the project site is also susceptible to hurricanes. The Central Pacific hurricane season starts on June 1st and ends on November 11th. The Hawai`i State Civil Defense operates a system of outdoor sirens throughout the State to alert people of emergencies and natural hazards, including hurricanes and tsunamis. There is an existing siren on the makai side of Honoapi`ilani Highway (entering Olowalu from Mā`alaea) near Camp Olowalu.



Source: State of Hawai`i, Civil Defense

Figure 18

Proposed Olowalu Town Master Plan

Tsunami Evacuation Map

NOT TO SCALE

MUNEKIYO HIRAGA

Prepared for: Olowalu Town, LLC and Olowalu Ekolu, LLC

Olowalu Town\MasterPl\Final EIS\TsunamiEvacuation

The region of West Maui that the project is located in is susceptible to wild fire hazards, particularly during the long dry seasons. Lands that were formerly cultivated for sugarcane in West Maui have reverted to dry grassland and shrubland following the end of sugar production in the region. Also, State lands abutting these areas are not maintained and are also susceptible to wildfires. Dry vegetation on these private and State lands serve as a fuel hazard for fires. In 2007, a large fire in the area of Olowalu and Launiupoko swept up into the nearby West Maui Natural Area Reserve and in May 2010, another fire broke out in the region.

b. Potential Impacts and Mitigation Measures

~~As previously noted, portions of the Master Plan fall within flood hazard areas. The proposed Master Plan does not involve any development within the portion of the Master Plan area that is within Flood Zone VE, the area along the shoreline with a 1 percent or greater chance of flooding and additional hazards from storm waves. Portions of the Master Plan will be located in Zones AO (Depth 1 foot) and X (shaded) which may be prone to shallow flooding.~~

A major portion of the Master Plan area for Alternatives 1 and 2 is located within Flood Zone "X" (unshaded), an area of minimal flooding and outside of the 0.2 percent annual chance flood. In Alternative 1, the remaining portion of the Master Plan is located within Flood Zone "X" (shaded) along Olowalu Stream and Special Flood Hazard Areas Zones "A" along the upper portion of Olowalu Stream in the OCR, "AE" along the shoreline mainly in the 150 shoreline setback area, "AO" along Olowalu Stream, and "VE" coastal flood area with velocity hazard (wave action). Refer to **Figure 15**.

In Alternative 2 the areas makai of Honoapi`ilani Highway are not included in the Master Plan, therefore, Alternative 2 is not located within Zones "AE" and "VE". Portions of the Master Plan for Alternative 2 mauka of the highway are located in the flood zones similar to Alternative 1. Refer to **Figure 15**.

Generally, lands of the Master Plan for Alternatives 1 and 2 which lie within the Special Flood Hazard Area are envisioned for agriculture, OCR, or parks and open space. Construction within ~~other~~special flood hazard areas will be

in compliance with Section 16.62.060, MCC, relating to standards for development within special flood hazard areas. Flood Hazard Area Development Permits will be obtained prior to the initiation of construction activities, as applicable.

~~While it is difficult to forecast specific sea-level rise patterns in the future, the applicant recognizes that changes in global sea-levels are an ongoing process that may cause changes to coastal landscapes. As such, the~~According to the National Oceanic and Atmospheric Administration's (NOAA) digital coastal map, by year 2100 a 3-feet or 1-meter sea level rise for the Olowalu coastline will be limited to the area of the Master Plan in Alternative 1 along the shoreline. See **Figure 19** (Hekili Point) and **Figure 20** (Olowalu). The northern side of the Olowalu coast line appears to have the greater inland inundation.

The proposed Master Plan ~~provides for a~~for Alternative 1 observes an existing 150-foot setback from the coastline within which no development will occur. See **Figure 21**. The 150-foot shoreline setback is an existing condition that was established as part of a Special Management Area (SMA) Use Permit approved in 2000. See **Appendix "S"**. The anticipated inundation zone from sea level rise by the year 2100 is located near the shoreline in many cases on the beach area. As such, the 150-foot setback area is adequate to ensure that development is not adversely affected by future sea level rise.

To mitigate potential impacts associated with natural disasters, all buildings within the proposed Master Plan for Alternatives 1 and 2 will comply with the Uniform Building Code, as amended for Maui County, and provided for in Section 16.26 of the MCC. In addition, the ~~a~~Applicants will coordinate with the Hawaii State Civil Defense agency to determine whether public facilities within the Master Plan for Alternatives 1 and 2 meet public shelter specifications and can serve as a shelter during emergencies, including wildfire, tsunami or hurricane events. As appropriate, the Applicants will coordinate with the Hawai`i State Civil Defense agency to develop an evacuation plan that would include, at minimum, appropriate signage directing the public to safe locations in the event of an emergency.