Draft Environmental Impact Statement

PROPOSED MA`ALAEA MAUKA RESIDENTIAL SUBDIVISION AND RELATED IMPROVEMENTS

(TMK (2) 3-6-001:018/ TMK (2) 3-6-004:003(por.))

VOLUME I OF II

Prepared for:

Ma`alaea Properties LLC

Accepting Authority:

State of Hawai`i,
Land Use Commission

November 2007

MUNEKIYO & HIRAGA, INC.

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This document was prepared under my supervision and the information submitted, to the best of my knowledge, fully addresses document content requirements as set forth in sections 11-200-17 and 11-200-18 of the Hawai`i Administrative Rules, as appropriate.

Michael T. Munekiyo, A. I. C. P.
Project Manager

November 2007

MUNEKIYO & HIRAGA, INC.

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Executive Summary

Project Name:	Proposed Ma`alaea Mauka Residential Subdivision and Related Improvements
Type of Document:	Draft Environmental Impact Statement
Legal Authority:	Chapter 343, Hawai`i Revised Statutes
Agency Determination:	Environmental Impact Statement to be Prepared
Applicable Environmental Assessment Review "Trigger":	Use of State Lands (work within Honoapi`ilani Highway right-of-way); Construction of Wastewater Treatment Facility
Location:	TMK: 3-6-001:18 and 3-6-004:003(por.) Ma`alaea, Wailuku Maui Island
Landowner:	Ma`alaea Properties LLC
Applicant:	Ma`alaea Properties LLC
Accepting Authority:	State Land Use Commission P.O. Box 2359 Honolulu, Hawai`i 96804 Contact: Anthony Ching, Executive Officer Phone: (808) 587-3826
EIS Preparer:	Munekiyo & Hiraga, Inc. (Under contract to Ma`alaea Properties LLC) 305 High Street, Suite 104 Wailuku, Hawai`i 96793 Contact: Mark Alexander Roy Phone: (808) 244-2015
Project Summary:	Ma`alaea Properties LLC proposes the development of Ma`alaea Mauka, a residential subdivision on approximately 257 acres of land at TMK (2) 3-6-001:018. The subdivision would contain approximately 949 dwellings of both single- and multi-family types, including affordable units. The subdivision will also include park lands, a community center, and lands for provision of a quasi-public facility. Through completion of a number of engineering studies, the applicant has identified a range of infrastructure solutions to serve the proposed project. Sewage treatment capacity will be provided

through the proposed construction of a new, privately-developed Wastewater Treatment Plant (WTP) and associated effluent reuse area on a portion of adjoining property, identified by TMK (2) 3-6-004:003. Furthermore, a private well water system (consisting of two (2) production wells, one (1) back-up well and one (1) storage tank) is in the process of being developed by the applicant on lands they own near the project site. Upon completion, the water system will provide enough capacity to meet the full potable and non-potable water needs of the project. A master drainage system will also be engineered with the goal of mitigating existing drainage problems in the area through a net reduction in drainage flows to downstream properties.

Unresolved issues are confined to the completion of water quality testing for two (2) out of the three (3) wells for the water system. The testing is currently in the process of being completed, the results for which will be included in the Final Environmental Impact Statement.

The applicant has evaluated the no action alternative, alternative uses of the site, and infrastructure development alternatives. However, these options will not address the need to provide a range of housing products for Maui residents.

The following entitlement changes are necessary to allow implementation of the proposed project: State Land Use Commission District Boundary Amendment, Change in Zoning, subdivision approval and construction permits. In addition, State Special Use Permit and County Conditional Permit approvals will be necessary for the proposed WTP on TMK (2) 3-6-004:003.

The site is situated in an attractive and central location along Honoapi`ilani Highway in Ma`alaea and is within easy reach of employment centers in West, South and Central Maui. As reflected by the existing project district designation in the Kihei-Makena Community Plan, the project area is considered to be a suitable location for the development of residential housing. Moreover, implementation of the project will provide much needed market and affordable housing supply for Maui's residents. Necessary infrastructure systems can be reasonably provided by the applicant to serve the project. The proposed action is, therefore, not anticipated to result in significant adverse cumulative or secondary impacts.

List of Acronyms

ADWF – Average Dry Weather Flow
AIS – Archaeological Inventory Survey
ALISH – Agricultural Lands of Importance to the State of Hawai`i
AMSL – Above Mean Sea Level
BMP - Best Management Practices
CIZ – Change in Zoning
CP - County Conditional Permit
DBA – District Boundary Amendment
DEM – County Department of Environmental Management
DLNR – State Department of Land and Natural Resources
DOE – State Department of Education
DOH – State Department of Health
DP – County Department of Planning
DPR –County Department of Parks and Recreation
DPW – County Department of Public Works
EA – Environmental Assessment
EIS – Environmental Impact Statement
EISPN – Environmental Impact Statement Preparation Notice
EPA – Environmental Protection Agency
ERA – Effluent Reuse Area
ESA – Environmental Site Assessment
EsB – Ewa Silty Clay
EtB – Ewa Cobbly Silty Clay
FEMA – Federal Emergency Management Agency
HAR – Hawai`i Administrative Rules
HC&S – Hawaiian Commercial & Sugar Company
HCZMP – Hawai`i Coastal Zone Management Program
HDPE – High Density Polyethylene
HRS – Hawai`i Revised Statutes
LOS – Level of Service
LSB – Land Study Bureau
MCC- Maui County Code
MECO – Maui Electric Company
MPD – Maui Police Department
MPH – Miles Per Hour
NPDES – National Pollutant Discharge Elimination System
OCS – Odor Control System
OEQC – State Office of Environmental Quality
PD – Project District
PDR – Preliminary Drainage Report
PER – Preliminary Engineering Report
PtB – Pulehu Cobbly Clay Loam
rSM – Stony Alluvial Land
SCS – Scientific Consulting Services

SFHAD – Special Flood Hazard Area Development
SHPD – State Historic Preservation Division
SLUC – State Land Use Commission
SMA – Special Management Area
SUP – State Special Use Permit
TIAR – Traffic Impact Analysis Report
TMK – Tax May Key
UIC – Underground Injection Control
WRF – Wastewater Reclamation Facility
WTP – Wastewater Treatment Plant

I. PROJECT OVERVIEW

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A. PROJECT LOCATION, OWNERSHIP, AND CURRENT LAND USE

The project involves the use of two (2) parcels of land (hereafter referred to as the "project area") located in Ma`alaea, Maui, Hawai`i. The project area is bordered on the east side by the State of Hawai`i's Honoapi`ilani Highway, beyond which lies the Ma`alaea Triangle commercial complex. To the south of the project area is the Ma`alaea Small Boat Harbor, while agricultural lands are located to the north. State Conservation District lands border the project area to the west. See **Figure 1**. The project area is identified by Tax Map Key (TMK) Numbers (2) 3-6-01:018 and (2) 3-6-004:003 (por.). See **Figure 2** and **Figure 3**.

The project area is owned by Ma`alaea Properties LLC (hereafter referred to as the "applicant").

Portions of the project area are presently being utilized to support agricultural functions, such as cattle grazing. Areas not being utilized for agricultural activities currently lie vacant and underutilized.

B. PROPOSED ACTION

The applicant proposes the development of a 257-acre master-planned residential community (hereafter referred to as the "proposed project") on TMK (2) 3-6-01:018 (hereafter referred to as the "project site"). See **Figure 4** and **Figure 5**. Referred to as the "Ma`alaea Mauka" project, the proposed project involves the master-planned development of single-family and multi-family residential units, community support facilities (i.e. parks and open space), and supporting infrastructure. According to preliminary plans, approximately 949 residential units will be developed on approximately 166 of the 257 total acres in the project site, while the remainder of the parcel will be used for a community center, parks, open space, buffer zones, and collector roadways. Refer to **Figure 5**. The proposed project will comply with applicable affordable housing requirements through a combination of product types, including low-rise condominiums and senior housing. **Table 1** below provides a breakdown of the proposed land uses and allocated areas.

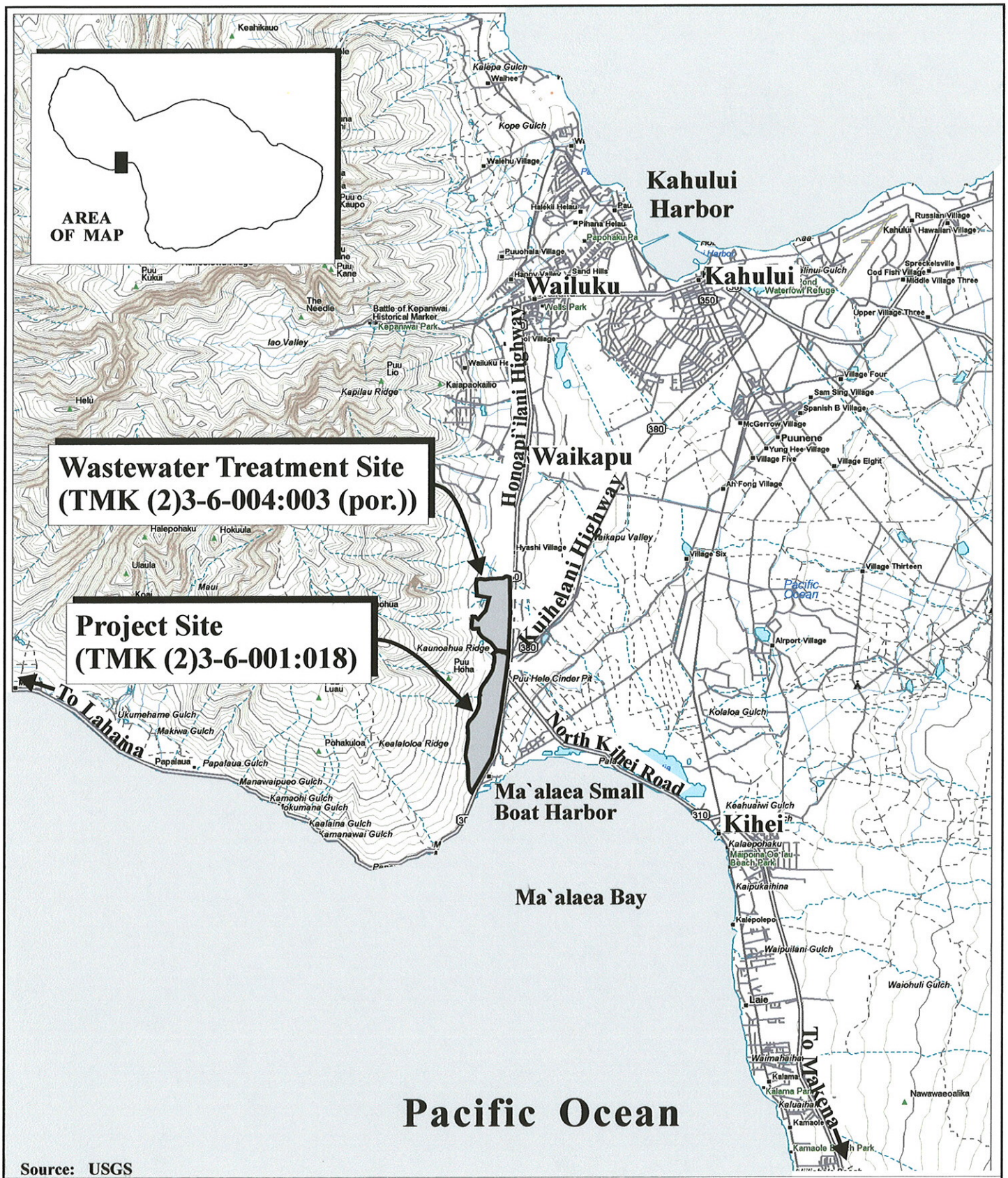


Figure 1

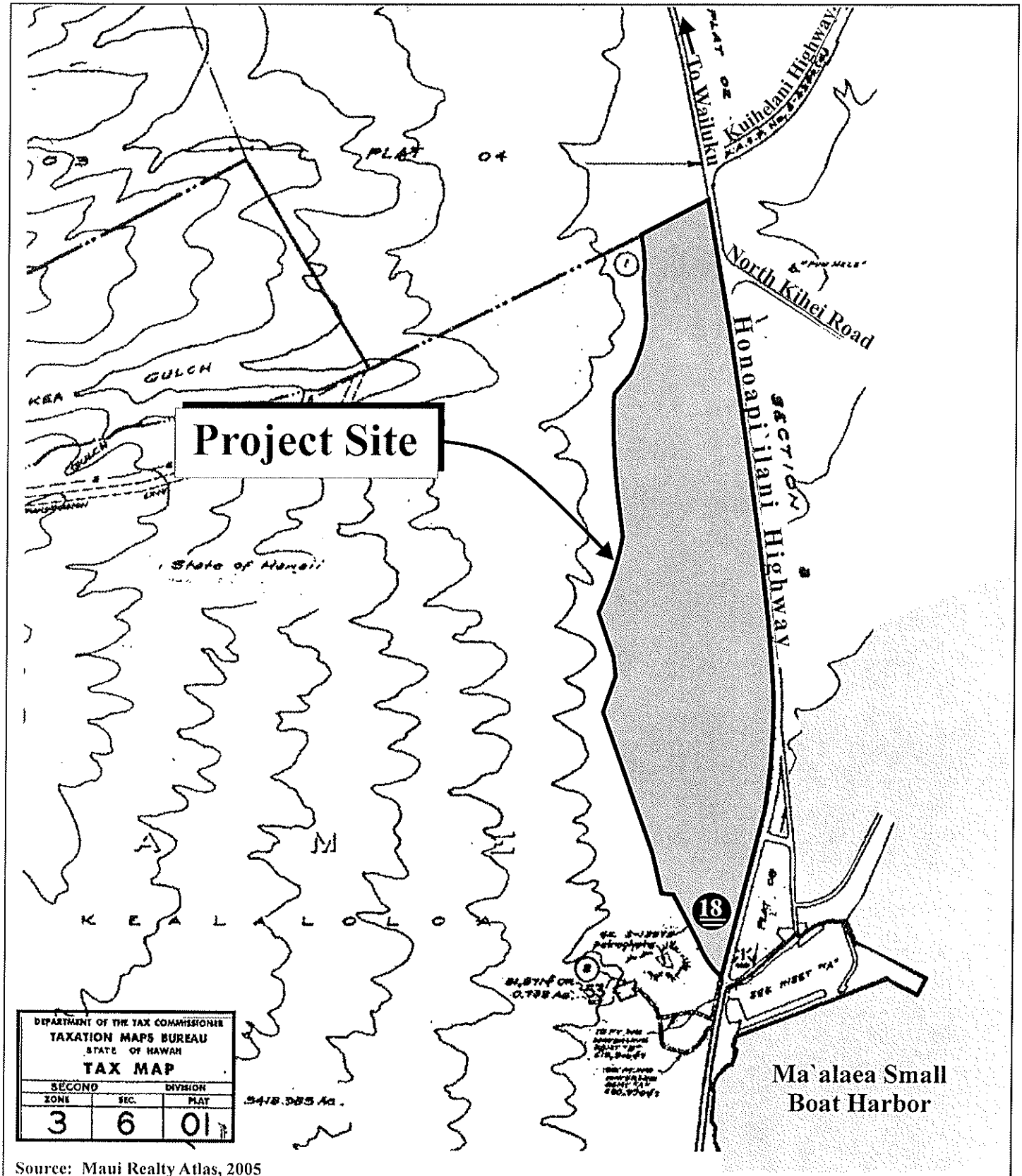
Proposed Ma`alaea Mauka Residential Subdivision and Related Improvements

Regional Location Map

NOT TO SCALE

Prepared for: Maalaea Properties, LLC

MUNEKIYO & HIRAGA, INC.



Source: Maui Realty Atlas, 2005

Figure 2

NOT TO SCALE

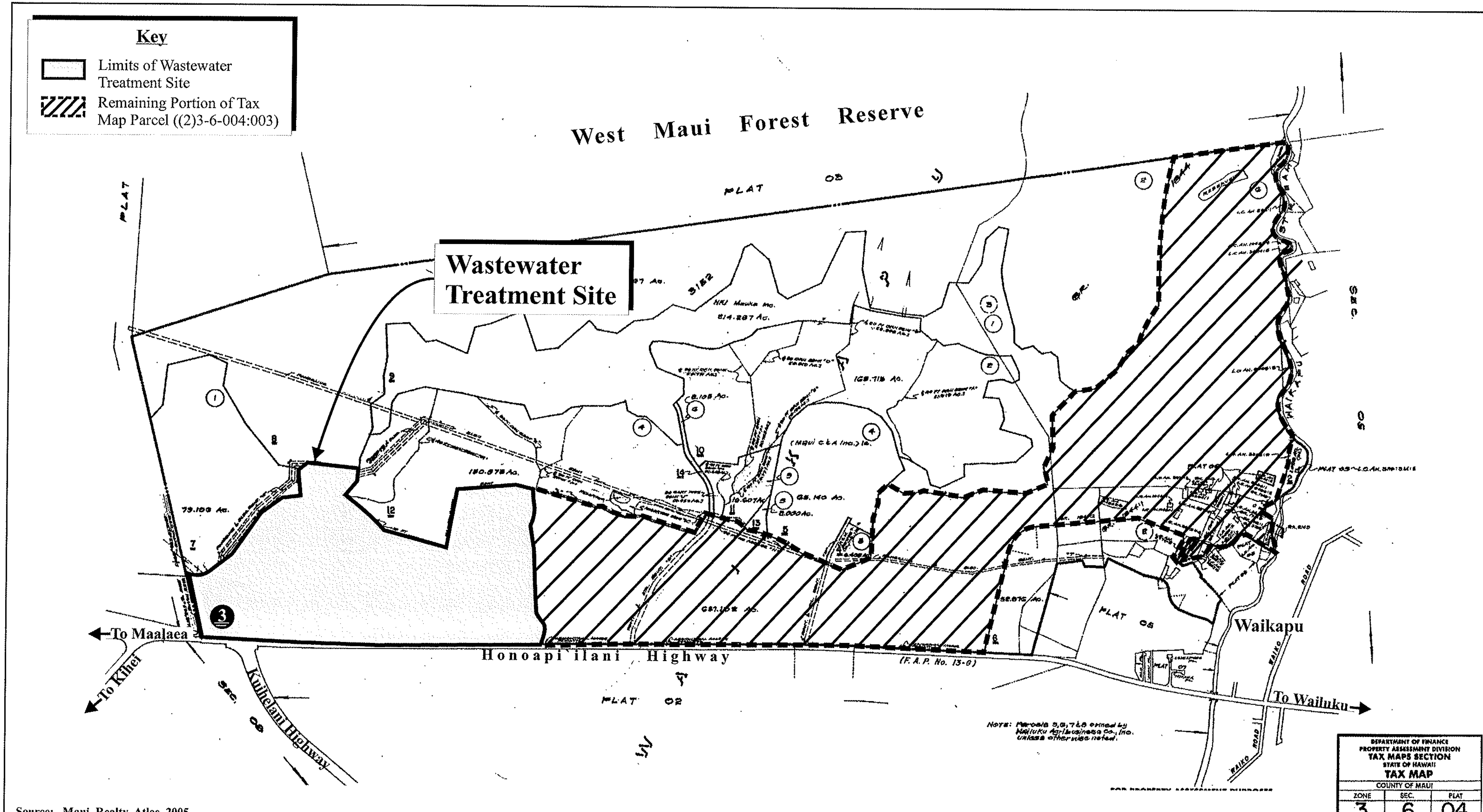
Proposed Ma`alaea Mauka Residential Subdivision and Related Improvements

Site Location Map (Project Site)

Prepared for: Maalaea Properties, LLC

MUNEKIYO & HIRAGA, INC.

Maalprop/maukapd/drafteis/projectsite



Key
Limits of Wastewater Treatment Site
Remaining Portion of Tax Map Parcel ((2)3-6-004:003)
West Maui Forest Reserve
Wastewater Treatment Site
To Maalaea
To Kihei
Kuihelani Highway
Honoapi`ilani Highway
To Wailuku
Waikapu
PLAT 03
PLAT 02
DEPARTMENT OF FINANCE
PROPERTY ASSESSMENT DIVISION
TAX MAPS SECTION
STATE OF HAWAII
TAX MAP
COUNTY OF MAUI
ZONE 3
SEC. 6
PLAT 04

Source: Maui Realty Atlas 2005

Figure 3 Proposed Ma`alaea Mauka Residential Subdivision and Related Improvements

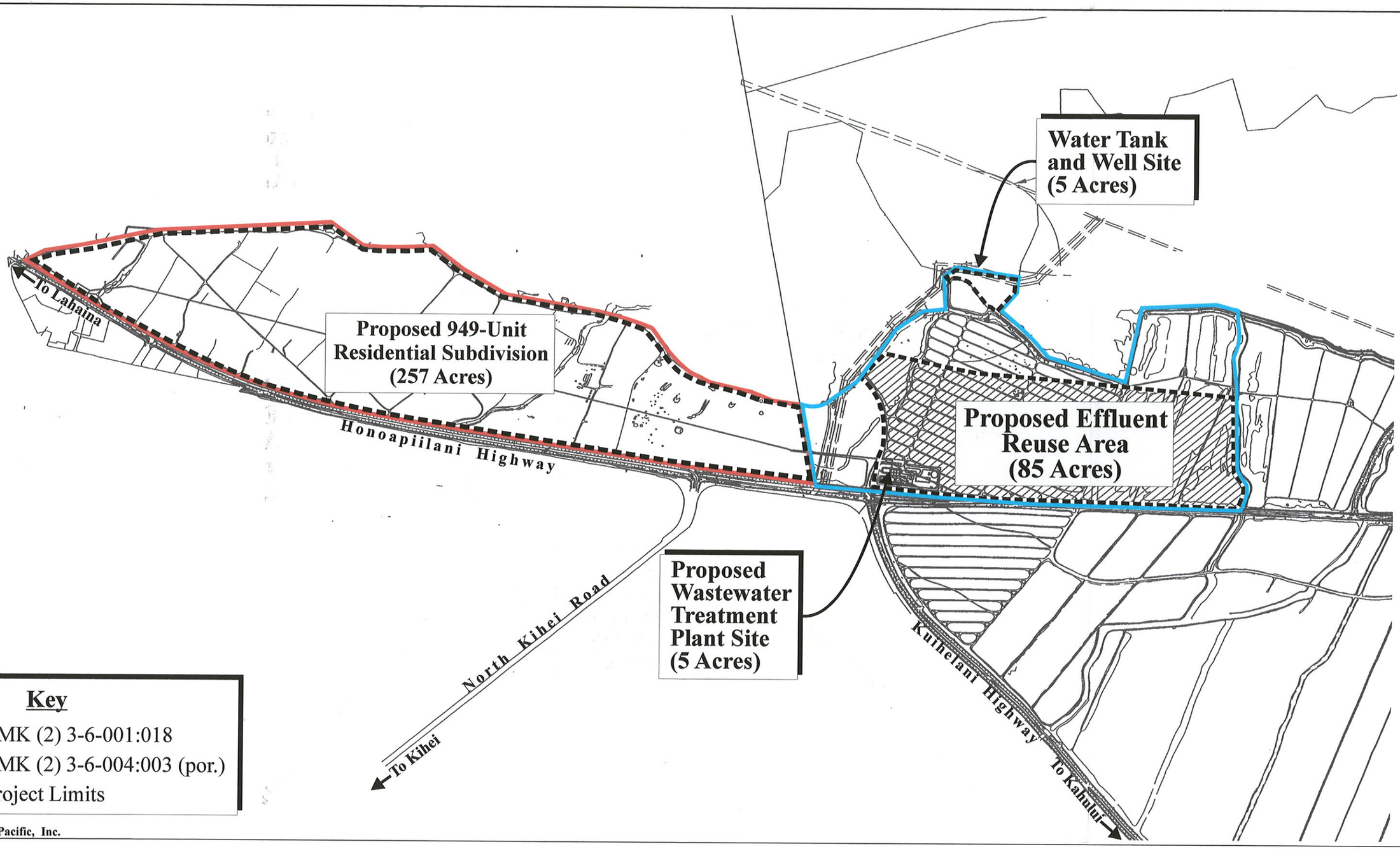
Site Location Map (Wastewater Treatment Facility)

NOT TO SCALE

Prepared for: Maalaea Properties, LLC

MUNEKIYO & HIRAGA, INC.

Maalprop/maukapd/drafteis/sitelocation



Source: M&E Pacific, Inc.

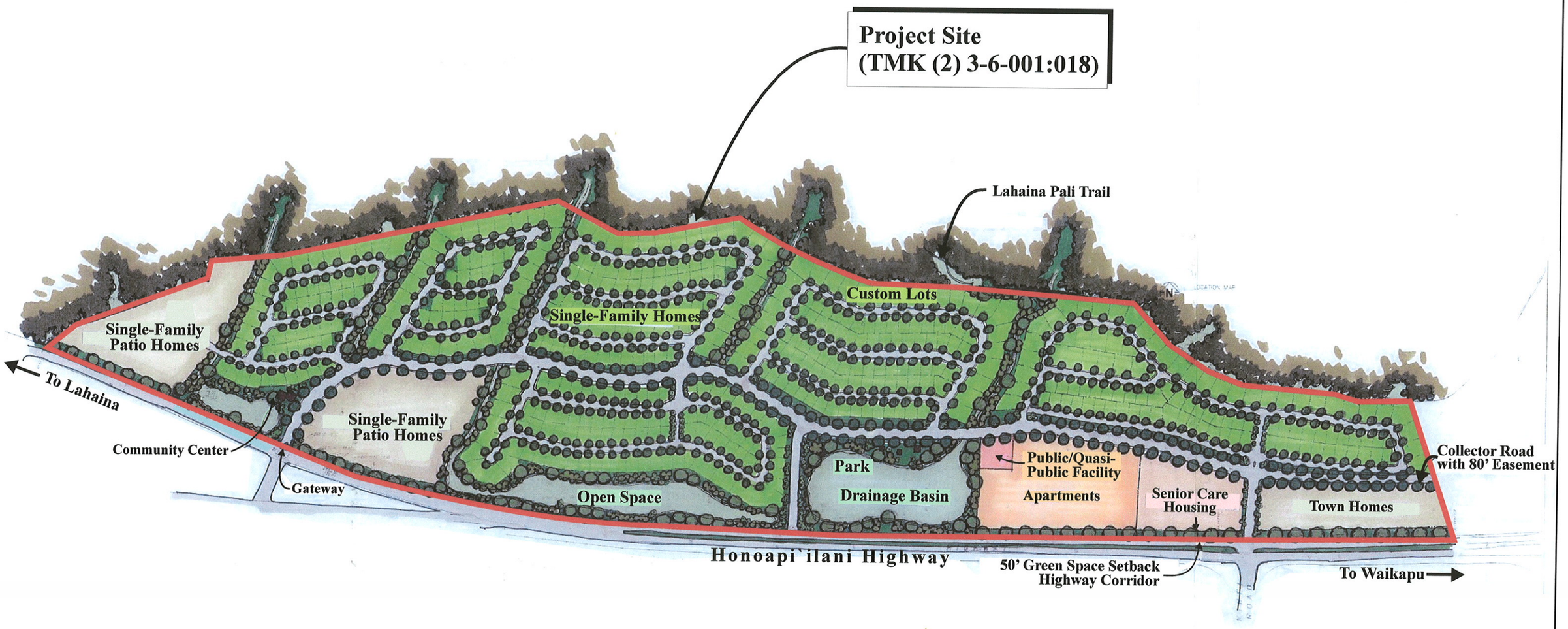
Figure 4 Proposed Ma`alaea Mauka Residential Subdivision and Related Improvements
Project Area Components

NOT TO SCALE

Prepared for: Maalaea Properties, LLC

MUNEKIYO & HIRAGA, INC.

Maalprop/maukapd/DraftEIS/prelsiteplan



Source: Maalaea Properties, LLC

Figure 5

Proposed Ma`alaea Mauka Residential Subdivision and Related Improvements

Conceptual Subdivision Plan and Related Improvements

NOT TO SCALE

Prepared for: Maalaea Properties, LLC

MUNEKIYO & HIRAGA, INC.

MaalProp\MaukaPD\DraftEIS\Prelim Subd Plan

Table 1. Project Site Land Allocation

Land Use	Acreage Allotment	Approximate Unit Density per Acre	Number of Units
Custom Lots (single-family homes)	38.0	3.0	144
Single-Family Homes	80.0	4.4	355
Patio Homes (multi-family)	23.5	7.0	164
One- and two-story Town Homes (multi-family)	7.0	14.0	100
Senior Care Housing	6.0	10.0	60
Apartments	11.5	11.0	126
SUB-TOTAL OF RESIDENTIAL USES	**166.0**	**3.69**	**949**
Roads (including ROW)	36.0	N/A	N/A
Open Space and Community Center	37.0	N/A	N/A
Park	15.0	N/A	N/A
Public/Quasi-Public Facility	3.0	N/A	N/A
SUB-TOTAL OF NON-RESIDENTIAL USES	**91.0**	**N/A**	**N/A**
TOTAL	**257.0 Acres**	**3.69 units/acre**	**949 Units**

Additionally, the applicant proposes to develop a wastewater treatment plant to service the proposed community on a portion of TMK (2) 3-6-004:003 (hereafter referred to as the "wastewater treatment site"). The wastewater treatment site encompasses approximately ninety-five (95) acres to be used for the treatment facility, an effluent reuse and disposal area, and a water storage tank. The remaining portion of the 710-acre (TMK (2) 3-6-004:003) parcel will not be affected by the proposed action. Refer to **Figure 3** and **Figure 4**.

C. PROJECT NEED

The proposed action would increase the supply of available housing, including the supply of affordable housing units, at a time when housing is expensive and in short supply on Maui. With the median sales price of a single-family house and lot on Maui over $600,000, many residents are unable to purchase their own homes. Further, the median sales price of condominiums has increased to over $300,000.00 in Maui County and there is currently a shortfall of residential housing units. See **Appendix "A"**. Moreover, according to the Hawai`i Housing Policy Study Update 2003, there will be a 4,183-unit deficit in the supply of housing units on Maui by the Year 2010, based on current production and population

forecasts (SMS, 2003).

In light of current and projected housing market conditions and prices, the proposed Ma`alaea Mauka subdivision project is considered to provide a significant community benefit by offering residents new opportunities to secure affordable and market-priced housing products.

D. ENTITLEMENTS REQUIRED

The proposed project will require a number of land use entitlement approvals to proceed. The current State Land Use designation for the project site and the wastewater treatment site is "Agricultural". Both sites are zoned by the County of Maui as "Agricultural".

In regards to community plan designation, the project site is designated "Project District 12" by the Kihei-Makena Community Plan. The wastewater treatment site falls within both the Kihei-Makena and Wailuku-Kahului Community Plans and is designated "Agricultural". A summary of entitlements being sought for the project, is provided below:

1. State Land Use District Boundary Amendment (DBA)

The applicant filed a petition with the State Land Use Commission (SLUC) on June 16, 2006 for a DBA to re-designate the project site from the "Agricultural" to the "Urban" District.

The proposed action will involve the construction of driveway improvements on State lands along Honoapi`ilani Highway to facilitate vehicle and pedestrian ingress/egress from the subdivision. The use of State lands and the construction of wastewater treatment facilities are triggers for the preparation of an Environmental Assessment (EA) pursuant to Chapter 343, Hawai`i Revised Statutes (HRS). Due to the scope of the project, the State Land Use Commission has determined that an Environmental Impact Statement (EIS) be prepared to fully document and evaluate the technical characteristics, environmental impacts and alternatives associated with the project. The EIS, prepared in accordance with Chapter 200 of Title 11, Department of Health Administrative Rules, Environmental Impact Statement Rules, advances findings and conclusions relative to the significance of the proposed action. The EIS will act as the primary technical supporting document for the DBA application. The Accepting Authority for the EIS was confirmed as the SLUC at a meeting held on June 22, 2006.

2. County Change in Zoning (CIZ) and Project District (PD) Approvals

The applicant will also need to file an application with the County of Maui for a CIZ to rezone the project site from "Agricultural" to "Project District" in order to bring the zoning into conformance with the Community Plan designation. The application will be limited to the 257-acre project site and will not include a rezoning request for the wastewater treatment site.

Additionally, applications for PD approvals pursuant to Chapter 19.45 of the Maui County Code will be required. The Project District Phase I approval will set forth standard of development for the project, while the Project District Phase II approval will set forth more detailed site plan parameters for the master-planned community.

The applicant will coordinate with the County of Maui, Department of Planning, to establish the timing of the CIZ/PD applications in relation to the DBA process.

3. State Land Use Commission Special Use Permit (SUP)

The applicant will apply to the SLUC for a SUP for use of the wastewater treatment site for the proposed Wastewater Treatment Plant (WTP) and Effluent Reuse Area (ERA). The applicant will coordinate with the County of Maui, Department of Planning, to establish the timing of the SUP application in relation to the DBA process.

It is noted that the proposed water storage tank and wells located on a 5-acre portion of TMK (2) 3-6-004:003 (mauka of the WTP and the ERA) are permitted uses in the State Agricultural district.

4. County Conditional Permit (CP)

The applicant will also apply to the County of Maui for a County Conditional Permit (CP) for the wastewater treatment site. The applicant will coordinate with the County of Maui, Department of Planning, to establish the timing of the CP application in relation to the DBA process.

E. CHAPTER 343, HAWAI`I REVISED STATUTES REQUIREMENT

The proposed action involves the construction of a wastewater treatment facility and will anticipate improvements in the State right-of-way (Honoapi`ilani Highway). These actions are triggers for the environmental impact analysis pursuant to Chapter 343, Hawai`i Revised Statutes (HRS).

At its meeting of June 22, 2006, the State Land Use Commission reviewed the Environmental Impact Statement Preparation Notice (EISPN) for the subject action and determined that it would be the accepting authority for the Environmental Impact Statement (EIS). The EISPN was published in the July 23, 2006 edition of the Office of Environmental Quality Control's Environmental Notice. Comments received during the 30-day EISPN comment period are included in Section XI of this document.

F. ANTICIPATED DEVELOPMENT SCHEDULE

Construction of the project will commence upon receipt of all applicable regulatory permits and approvals.

The project will be developed over a multi-phase time horizon. It is anticipated that the first phase for construction of the project will commence within two (2) years from the date of the CP approval. Completion of the project is anticipated to occur within ten (10) years of CP approval.

The total estimated cost of the proposed project is approximately $400 million, which includes both site utility improvements and vertical construction costs.

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

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A. PHYSICAL ENVIRONMENT

1. Surrounding Land Uses

a. Existing Conditions

The project area is situated on the southwest coast of the island of Maui, about eight (8) miles from the commercial and business center of Kahului. It lies to the northwest of the Ma`alaea Small Boat Harbor, a harbor facility for commercial uses with a total berthing capacity of 96 vessels, as well as the commercial uses of Ma`alaea Triangle. The Ma`alaea residential community, encompassing several condominium complexes, is located along the shoreline to the east of the harbor. The harbor is accessed directly from Honoapi`ilani Highway (harbor access road) and by the Old Wailuku Lahaina Road which connects with Ma`alaea Road. The nearby Ma`alaea Triangle accommodates a variety of uses catering predominantly to tourism, including restaurants, an ocean center, a miniature golf course, souvenir shops and parking. The project site lies to the west of the Honoapi`ilani Highway, which is the principal access-way to areas on the west coast of the island, including Lahaina, Ka`anapali and Kapalua. The project site is approximately sixteen (16) miles southeast of Lahaina and nine (9) miles southwest of Maui's main airport in Kahului.

A large area of agricultural land, predominantly used for sugarcane cultivation, is located to the northeast of the project site. Other uses in the vicinity include the Pohakulepo quarry and concrete recycling site to the north, with the King Kamehameha Golf Courses beyond. The town of Waikapu is located approximately three (3) miles to the north, with the town of Wailuku, the County of Maui's governmental center, located a further one

(1) mile to the north of Waikapu.

The project site was formerly used for sugarcane cultivation and more recently for small scale agricultural pursuits, including the cultivation of truck crops. Portions of the project site are currently being used for cattle grazing under a lease that can be terminated upon 30 days' notice should development occur in the future.

b. Potential Impacts and Proposed Mitigation Measures

The project site is intended to be developed as a master-planned, residential community in the Kihei-Makena Community Plan region. As such, the proposed project is in keeping with the intended use of the property.

The proposed project will be complementary to the adjacent urban developments in Ma`alaea. The development will provide balance to an area currently dominated by commercial and condominium uses by providing single-family homes and other housing residential options. Additionally, the project's central location makes it accessible to the major residential and commercial centers in Central Maui, South Maui, and West Maui.

2. Climate, Topography and Soils

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 75 degrees Fahrenheit at all locations near sea level. The coolest months on Maui are December and January, with August and September representing the hottest months in the calendar year. A high proportion of the rainfall that Maui receives each year falls on the northeast facing shores leaving the south and southwest coastal areas relatively dry. Annual rainfall in the area averages 14 to 16 inches, with the bulk occurring between the months of November and April (Armstrong 1983). Ma`alaea is located within one of these drier areas of the southwest coast, one that is also often affected by strong winds and high waves. Trade winds originating from the northeast average from 10 to 20 miles per hour (mph) and are common

throughout the localized area.

Underlying the property are soils belonging to the Pulehu-Ewa-Jaucus association. See **Figure 6**. The Soil Survey of the islands of Kaua`i, O`ahu, Maui, Moloka`i, and Lana`i, State of Hawai`i characterizes the soils of this association as deep and well drained and located on alluvial fans and in basins.

The project site is characterized by the following soil types: Ewa Silty Clay (EsB), Ewa Cobbly Silty Clay (EtB), Pulehu Cobbly Clay Loam (PtB) and Stony Alluvial Land (rSM). The wastewater treatment site is characterized by EsB, PtB, rSM and Pulehu Cobbly Clay Loam (PtA). See **Figure 7**.

EsB occurs around alluvial fans and terraces and is generally characterized by a 3 to 7 percent slope, moderate permeability, a slight erosion capacity and slow run-off. This soil classification is predominantly used for sugarcane or pineapple crop cultivation in the Hawai`ian Islands.

EtB is similar to EsB, but cobblestones in the surface layer interfere with surface tillage. However, intertilled crops, including sugarcane, are a viable option for this soil type.

PtB is characterized by a 3 to 7 percent slope, slight erosion hazard and slow runoff. Similar to the aforementioned soil types, it is frequently used for sugarcane cultivation, although small acreages are also used as pasture.

rSM consists of stones, boulders and soil deposited by streams along the bottoms of gulches and on alluvial fans. This soil classification can be found at elevations ranging from sea level up to around 1,000 feet and is generally characterized by a 3 to 15 percent slope. Improvement of the land in such areas is difficult due to the presence of stones and boulders.

PtA is characterized by a 0 to 3 percent slope, no more than a slight erosion hazard and slow runoff. Similar to PtB, it is also suitable for agricultural and pasture activities.

Vegetation normally associated with these soil classifications includes kiawe,

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

Source: USDA Soil Conservation Service

Figure 6

NOT TO SCALE

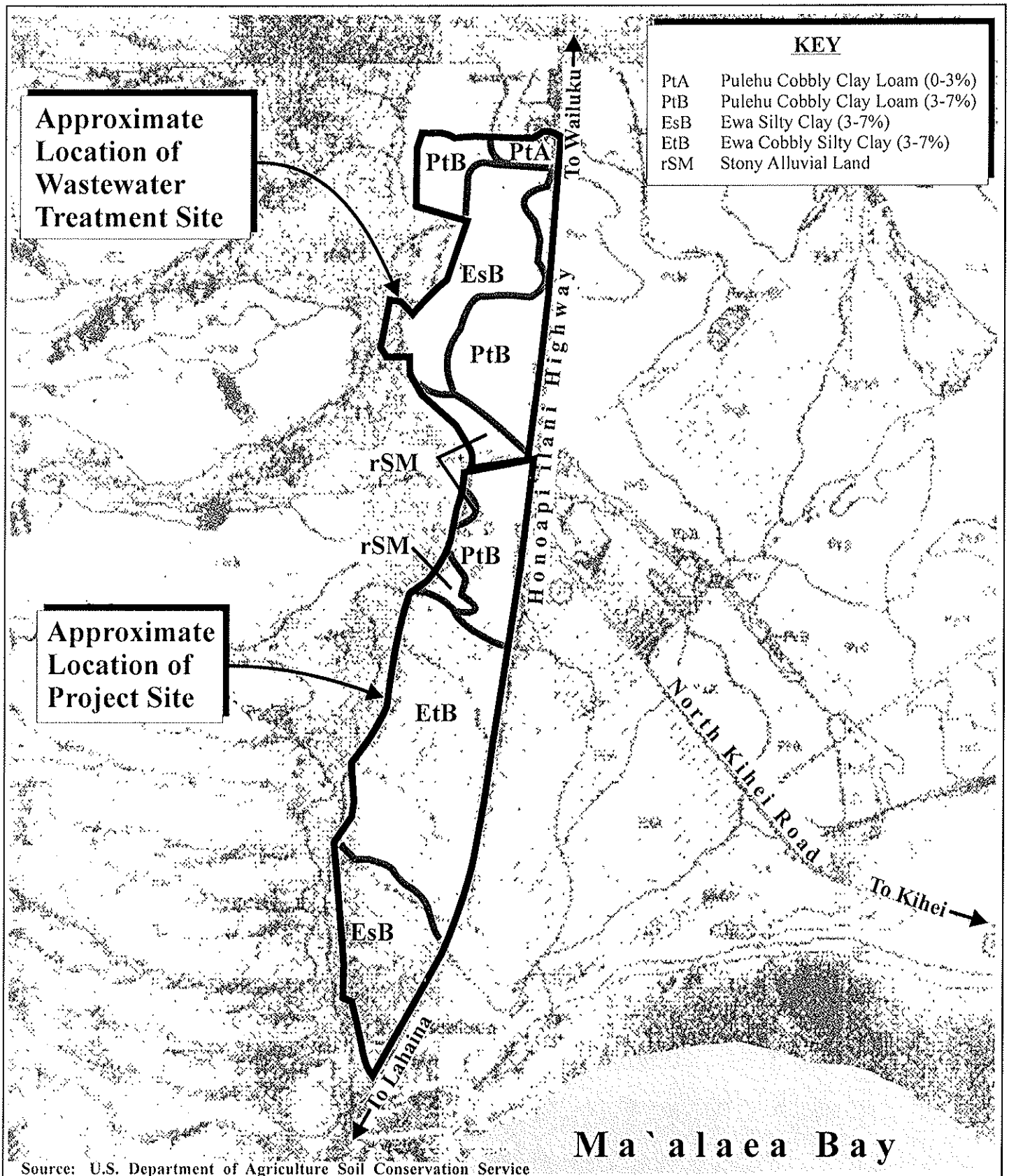
Proposed Ma`alaea Mauka Residential Subdivision and Related Improvements

Soil Association Map

Prepared for: Maalaea Properties, LLC

MUNEKIYO & HIRAGA, INC.

MaalProp\MaukaPD\Draft\EIS\SOILS



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

Figure 7

Proposed Ma`alaea Mauka Residential Subdivision and Related Improvements

Soil Classification Map

NOT TO SCALE

Prepared for: Maalaea Properties, LLC

MUNEKIYO & HIRAGA, INC.

Maalapropmaukand/drafigis/soilclass

ilima, guava, kukui, hilograss and christmas berry.

b. Potential Impacts and Proposed Mitigation Measures

As the project is located on a east to west incline, implementation of mass-grading activities will be necessary. A copy of the conceptual mass grading plan for the project is presented in **Appendix "B"**. The cut and fill contours are not deemed excessive since fill heights must be limited to ensure that house construction complies with building height requirements set forth in Title 19 of the Maui County Code.

3. Agriculture

a. Existing Conditions

The project area is designated for agricultural use by both the State Land Use Commission and County of Maui zoning.

The project area was formerly used to support the growing of sugarcane (late 1800s to 1988), pineapple (1992 to 1995) and other diversified crops (1988 to 2004).

Portions of the project site are currently utilized by Maui Cattle Co., under a lease agreement (subject to cancellation upon 30 days notice), to graze cattle. The wastewater treatment site is not being utilized for grazing or crop cultivation and currently lies vacant and underutilized.

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", 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"

agricultural lands include those that have not been rated as "Prime" or "Unique".

As reflected by the ALISH map for the project region, the majority of the project site and wastewater treatment site are comprised of lands that have been defined as "Prime" agricultural lands although small portions of the properties fall into the "Other" and "Unclassified" categories. See **Figure 8**.

The University of Hawai`i, Land Study Bureau (LSB) developed the Overall Productivity Rating, in association with the Detailed Land Classification for the island of Maui, which classifies 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.

The project site is located on lands designated as "B72i" by the LSB. See **Figure 9**. B72i designated lands are characterized as stony, well-drained lands moderately suited for machine tillability. They are most frequently used for sugarcane production and grazing.

The wastewater treatment site consists of both B72i and A7li designations. A7li designated lands are characterized as non-stony, well-drained lands that are well-suited for machine tillability. Similar to B72i, lands designated A7li are suitable for sugarcane production and grazing. (University of Hawai`i, 1967).

b. Potential Impacts and Proposed Mitigation Measures

The proposed project will involve the construction of a residential subdivision on the 257-acre project site. The project site represents approximately 0.1 percent of the roughly 246,000 acres of State Agricultural district lands on the island of Maui. The proposed project also involves the development of a Wastewater Treatment Plant (WTP) and a water storage tank on two (2) 5-acre portions of the wastewater treatment site. The effluent reuse area of the wastewater treatment area will remain available for agricultural uses under a post-development scenario.

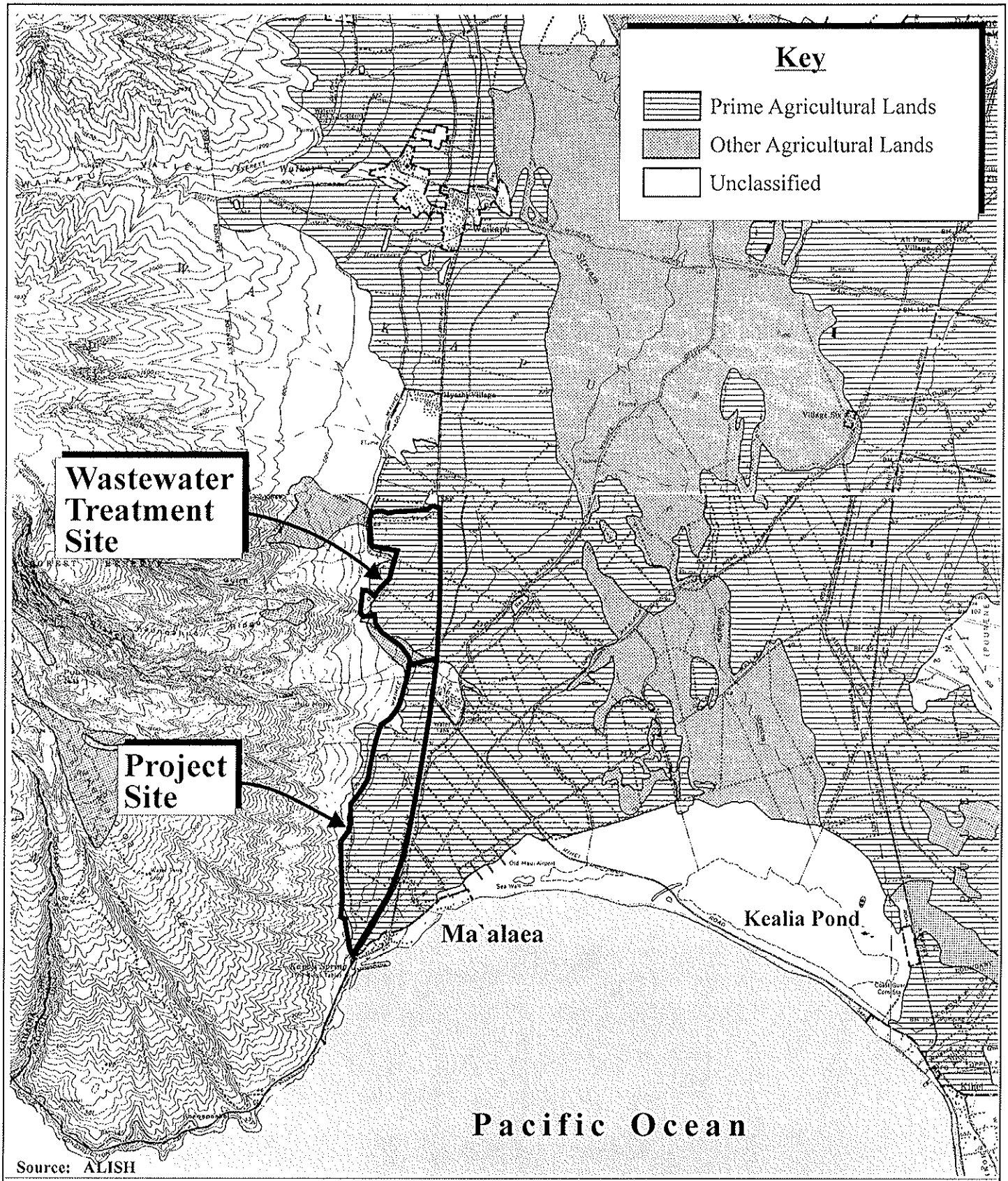


Figure 8

Proposed Ma`alaea Mauka Residential Subdivision and Related Improvements

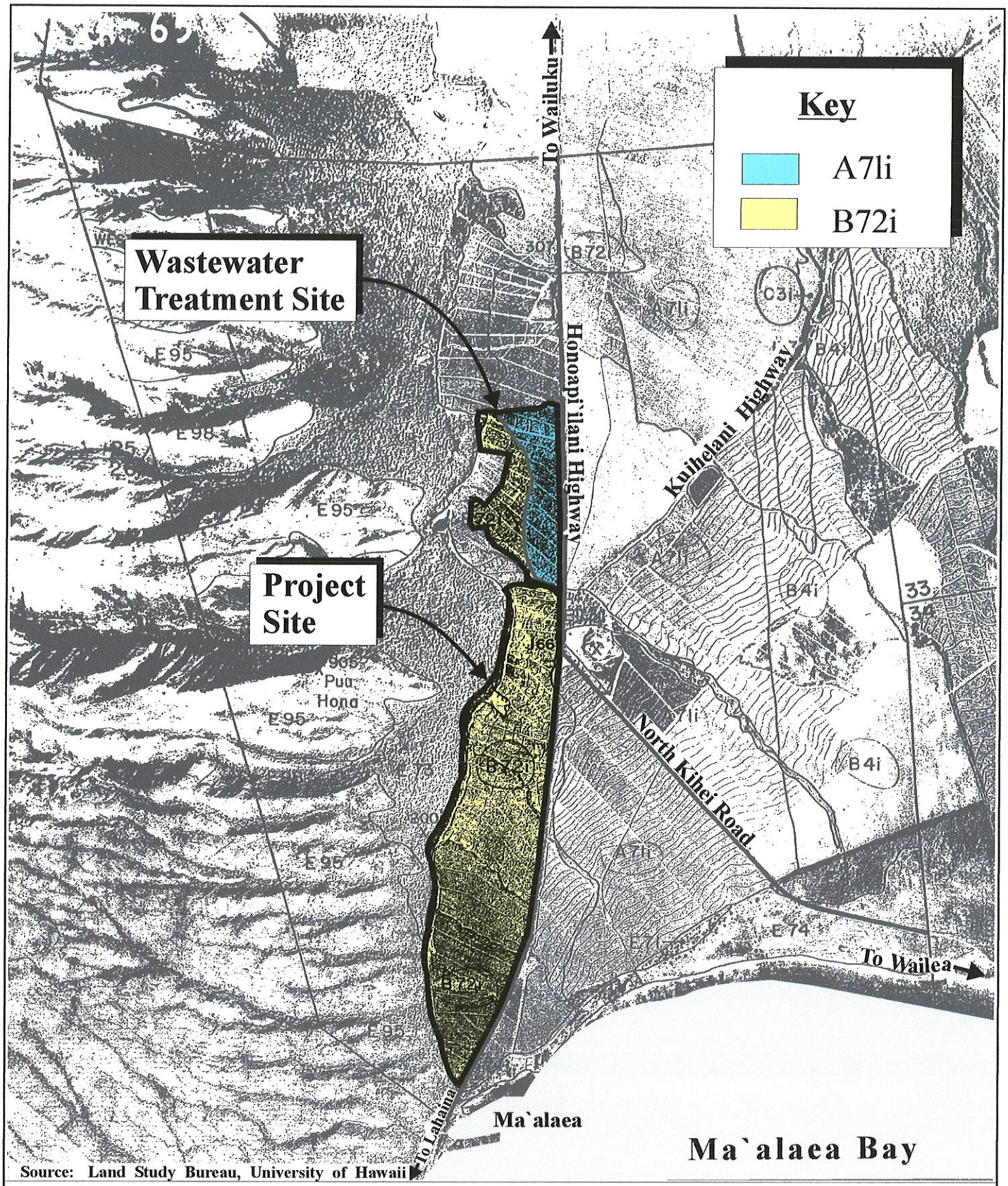
ALISH Classifications Map

NOT TO SCALE

Prepared for: Maalaea Properties, LLC

MUNEKIYO & HIRAGA, INC.

maalprop/maukapd/draftEIS/alish



Source: Land Study Bureau, University of Hawaii

Figure 9

Proposed Ma`alaea Mauka Residential Subdivision and Related Improvements

Detailed Land Classification Map

NOT TO SCALE

Prepared for: Maalaea Properties, LLC

MUNEKIYO & HIRAGA, INC.

A study was completed by Decision Analysts Hawai`i, Inc., in January 2007, to assess the impact of the proposed project on Maui's agricultural operations. See **Appendix "C"**. The agricultural impact assessment report concludes that there will be a minimal impact from the proposed project on the growth of diversified agriculture in Maui County. The proposed project is not anticipated to have a significant adverse effect on the inventory of lands available for agricultural cultivation, nor is it expected to affect the inventory of land for diversified agricultural use. Refer to **Appendix "C"**.

4. Flood and Tsunami Hazards

a. Existing Conditions

The flood insurance maps indicate that the majority of the project site falls within Zone C, an area of minimal flooding, although small portions of the site occupy Zone B, or areas between the 100-year and 500-year flood. See **Figure 10**. The entire wastewater treatment site falls within Flood Zone C, see **Figure 11**.

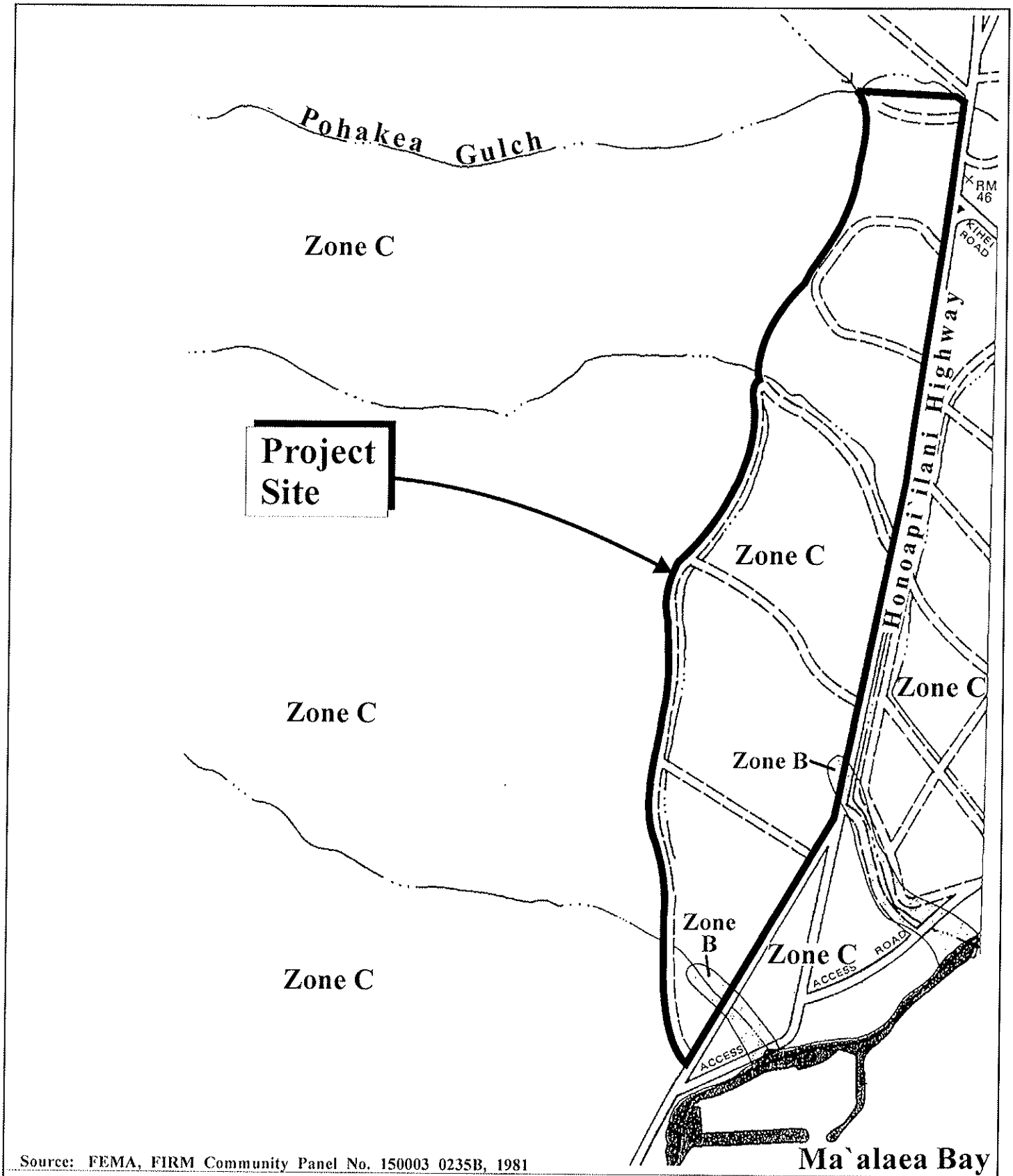
b. Potential Impacts and Proposed Mitigation Measures

Based on preliminary project plans, it is anticipated that the portions of the subject property located in Flood Zone B will not contain houses, but rather will be integrated into buffer zones and other landscaping features. As such, the proposed project is not expected to be impacted by flood and tsunami hazards. Special Flood Hazard Area Development (SFHAD) Permits will be obtained for the project, as applicable.

5. Pesticides and Fertilizer Use

a. Existing Conditions

Phase I Environmental Site Assessments (ESA) for the project site and the wastewater treatment site were completed by Element Environmental LLC in November 2006 and December 2006, respectively, to assess existing environmental conditions within the project area. Copies of the Phase I ESA reports are presented in **Appendix "D"**.



Source: FEMA, FIRM Community Panel No. 150003 0235B, 1981

Figure 10

Proposed Ma`alaea Mauka Residential Subdivision and Related Improvements

Flood Insurance Rate Map

NOT TO SCALE

Prepared for: Maalaea Properties, LLC

MUNEKIYO & HIRAGA, INC.

MaalProp\MaukaPD\Draft\EIS\FIRM

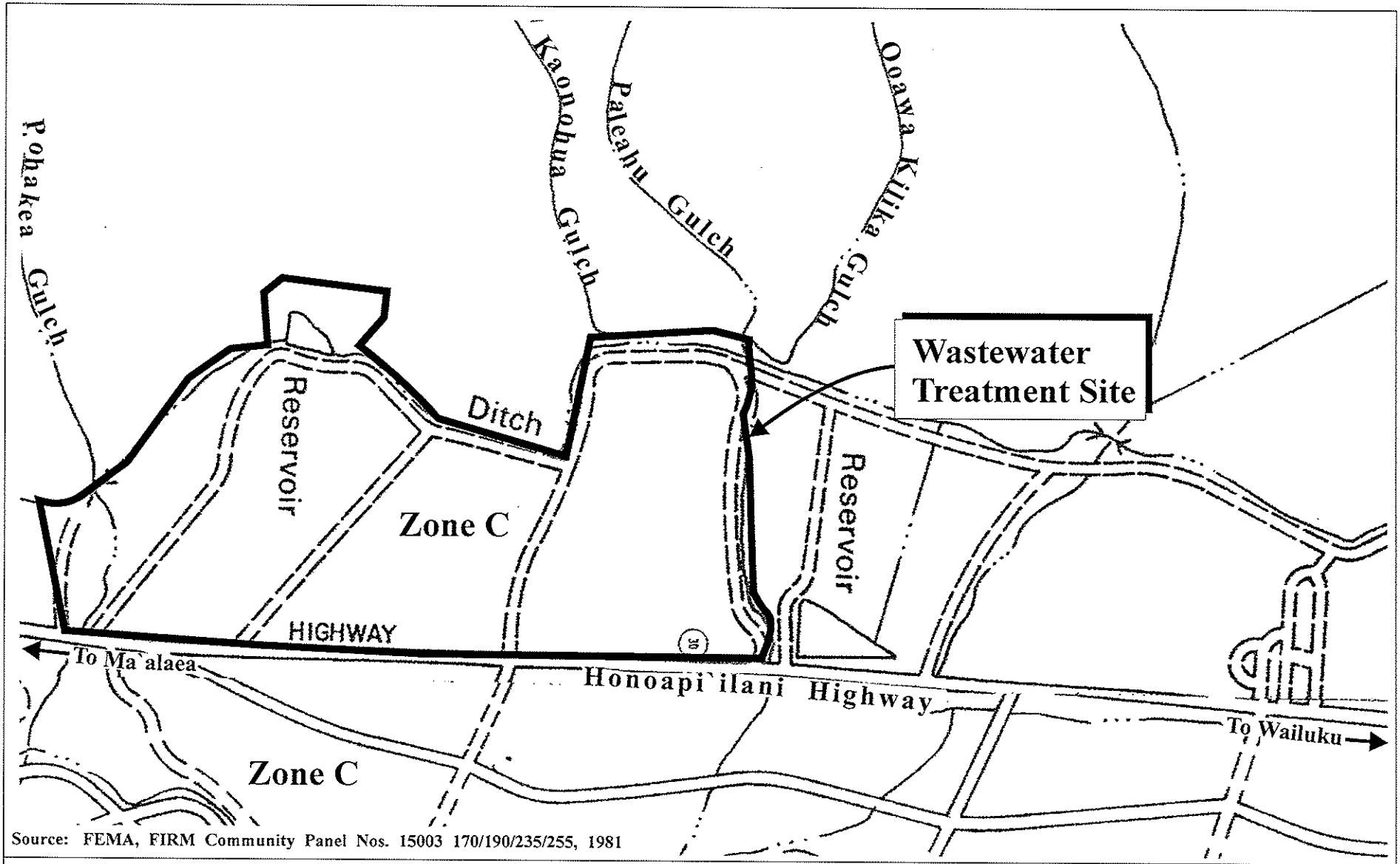


Figure 11

Proposed Ma`alaea Mauka Residential Subdivision and Related Improvements

Flood Hazard Map

NOT TO SCALE

Prepared for: Ma`alaea Properties LLC

MUNEKIYO & HIRAGA, INC.

MaalProp/MaukaPD/DraftEIS/floodhazard

(1) **Project Site**

The assessment of the project site revealed no significant evidence of recognized environmental conditions in connection with the property. Of note, however, was the identification of fourteen (14) unmarked 55-gallon high density polyethylene (HDPE) drums along the dirt road which borders the southwestern end of the property. The Phase I ESA for the project site recommended the following:

- The proper removal of these unidentified drums and the testing of the soil around the storage area for residual contamination.

- Completion of limited composite soil sampling to determine if residual levels of pesticides and herbicides are present in the soils. This recommendation is based on the former use of the project area for sugarcane and pineapple cultivation activities.

(2) **Wastewater Treatment Site**

The assessment of the wastewater treatment site revealed no significant evidence of recognized environmental conditions in connection with the property. Items noted by the Phase I ESA report, however, included the presence of chlorine and fertilizer storage and mixing tanks, pole-mounted transformers and illicit solid waste dumping areas consisting of abandoned vehicles, disposed tires, refrigerators and other appliances. Both the storage/mixing tanks and the illicit solid waste dumping areas were identified to be located within the central portion (outside of the 95-acre wastewater treatment site) of the approximately 710-acre parcel of land (TMK (2) 3-6-004:003). The pole-mounted transformers were, however, identified to fall within the wastewater treatment site for the proposed project.

The Phase I ESA recommended the following in regards to

the above-noted items:

- The disposal/recycling of chlorine and fertilizer storage and mixing tanks in accordance with all Federal, State and local regulations. In addition, the soil and vegetation beneath the tanks should be inspected for indications of a release. If a significant release is suspected, appropriate sampling and clean-up should be conducted.

- The testing of the pole-mounted transformers for potential presence of polychlorinated biphenyls (PCBs). If a significant release is suspected, appropriate sampling and clean-up should be conducted.

- The clearing and disposal of illicitly dumped solid waste should be cleared in accordance with all Federal, State and local regulations. In addition, the soil and vegetation beneath the solid waste should be inspected for indications of a release. If a significant release is suspected, appropriate sampling and clean-up should be conducted.

- Limited composite soil sampling to determine the presence of residual levels of pesticides and/or herbicide should be conducted for portions of the property where the intended land use is expected to change from agricultural to residential.

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

The applicant has undertaken the following actions to address the recommendations from the Phase I ESA reports:

(1) **<u>Project Site</u>**

The fourteen (14) drums noted above have since been removed from the property and disposed of in accordance with Federal, State and County regulations.

As the project site is intended to be utilized for residential use in the future, a Phase II ESA Report was also completed for

the project site by Element Environmental LLC in August, 2007. See **Appendix "D-1"**. The Phase II ESA involved limited composite soil sampling to evaluate the presence of residual levels of pesticides and fertilizers based on the former use of the area for sugarcane and pineapple commercial production activities. Based on the results of the soil testing, the Phase II ESA confirms that residual levels of pesticides and fertilizers are within safe levels. Refer to **Appendix "D-1"**. The use of the project site for a residential subdivision, therefore, is not anticipated to present any impacts to public health and safety.

(2) **Wastewater Treatment Site**

The pole-mounted transformers identified to fall within the wastewater treatment site for the proposed project are owned and maintained by Maui Electric Company, Inc. According to the Phase I ESA Report, these transformers are maintained by MECO and any associated PCB leaks are remediated in accordance with applicable Environmental Protection Agency (EPA) and State Department of Health (DOH) guidelines.

6. Flora and Fauna

a. Existing Conditions

A Biological Resources Survey of flora and fauna within the project site was conducted in January 2005. Similarly, a supplemental biological resources survey of the wastewater treatment site was completed in September 2006. See **Appendix "E"**.

(1) **Project Site**

The vegetation throughout the project site is open grassland consisting primarily of Guinea grass, buffelgrass and a variety of other grass and weed species.

A total of 95 species of flora were identified, of which six (6) were native species: wiliwili, nehe, a`ali`I, ilima, uhaloa, and

ilie`e. The domination of the area by non-native species of plant life can be attributed to the fact that the properties were under agricultural cultivation for over a century. No officially listed threatened or endangered plants are located on the project site, nor do any plants proposed as candidates for such status exist within the property. Further, no wetland areas were identified within the project site.

No species of fauna were directly observed, although tracks of feral cats were seen, and other common species such as mongoose, rats, and mice would be expected given the dense vegetation. Moderate levels of avifauna diversity were identified within the project site. Of note, was the identification of three (3) endangered Nene geese observed to be feeding within the project site. A further Nene was observed flying over the project site during an evening visit, most likely in transit between the attractive vegetation of the neighboring golf course and the West Maui mountains. Refer to **Appendix "E"**.

(2) **Wastewater Treatment Site**

The vegetation throughout the wastewater treatment project area is dominated by a mixture of both agricultural and non-native field weeds. Prior to being utilized for agricultural cultivation, the wastewater treatment site would have been characterized by dry native scrubland with scattered trees, such as wiliwili and ohe. Intensive sugarcane and pineapple cultivation activities over the last century or so, have eliminated all signs of native vegetation. Species of weeds identified to be present within the wastewater treatment site today include bitter melon, little bell and swollen fingergrass. Species of kiawe, koa haole and bufflegrass were also identified to exist within the 5-acre area of the wastewater treatment site, which is the proposed location for the water tank for the project. No officially listed threatened or endangered plant species were found on the property, nor were any plants proposed for such status found. Further, no

wetland areas were identified within the wastewater treatment site.

In regards to fauna species, only one (1) mammal species, a feral cat, was observed during visits to the property conducted both during the day and night. Other common species, such as mongoose, rats and mice would, however, be expected given the dense vegetation within the property.

Moderate levels of avifauna diversity were observed within the wastewater treatment site. In total, eleven (11) species of birds were identified; nine (9) non-native species, one (1) indigenous waterbird and (1) endemic goose. While the lands within the property were identified to be unsuitable for the endemic Nene, a flock of this endangered species of birds was observed in transit between the attractive vegetation of the neighboring golf course and the higher elevations of the West Maui Mountain range. No other threatened or endangered fauna species were observed either within or in the immediate vicinity of the wastewater treatment site. Refer to **Appendix "E"**.

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

Given the fact that flora and fauna is generally limited to non-native abundant species, the proposed project is not anticipated to have a significant negative impact on biological resources in the area. Although one (1) endangered species, the Nene goose, was noted within the project area, its activities were limited to incidental feeding rather than nesting, and the site was noted to be no different than thousands of acres of fields in the surrounding region in its ability to serve as a feeding ground. Moreover, irrigated parks and other open spaces associated with the proposed development would continue to provide a suitable area for the incidental feeding activities of Nene geese. Recommendations resulting from the biological surveys include the following:

- That a small stand of wiliwili trees growing in one of the gullies

within the project site be preserved, due to its strong association with Hawai`ian dryland forests.

- That all significant outdoor lighting in the proposed project be shielded and directed downward to minimize impacts of lights in local populations of seabirds in the area.

These two (2) above-noted recommendations will be integrated during the design phase of the proposed project to ensure potential impacts on flora and fauna within the project area are minimized.

7. Streams and Wetlands

a. Existing Conditions

Ephemeral or intermittent streams are located within the project area, which can be identified by gullies or gulches during dry conditions. Two (2) unnamed gulches run through the project site. Refer to **Figure 10**. A total of four (4) named gulches (Pohakea, Kaonohua, Paleahu and Ooawa Kilika Gulch), however, transect the wastewater treatment site. Refer to **Figure 11**. The streams likely flow only during periods of heavy rainfall, when they drain upland slopes. As outlined previously, no special aquatic sites (anchialine, ponds, wetlands, etc.) are located within the project area. The nearest wetland area is the Kealia Pond National Wildlife Refuge, which is located more than 600 yards away from the subject property at its closest point.

b. Potential Impacts and Proposed Mitigation Measures

The proposed project is not anticipated to impact the existing hydrological features present within the project area. No impact on wetland areas is anticipated given the absence of wetlands in the vicinity of the project site.

8. Nearshore Marine Environment

a. Existing Conditions

Ma`alaea Bay is home to a variety of marine biota, including rice and lace coral, opihi, a`awa (thin-shelled rock crab), and butterfly fish. The Bay was once an area of special interest for nature study, research and photography due to its high diversity of sponges, mollusks, and other marine life, but much of the shell life in the outer bay sand bottom has declined in recent decades.

It is further noted that Ma`alaea Bay is part of the Hawai`ian Islands Humpback Whale National Marine Sanctuary, which was established in 1992 to protect endangered humpback whales and their habitat.

A water quality and marine biology survey was completed by AECOS, Inc. in September 2006 to assess baseline conditions in the nearshore and offshore waters in the vicinity of the project area. See **Exhibit "F"**. The report found that near shore waters were generally murky with re-suspended sediment. These waters, containing high levels of nutrients, were found to be supporting almost no live coral with most hard surfaces being covered in seaweed. Offshore waters (greater than 6 feet in depth), however, were found to be generally clear with lower levels of nutrients. Seaweed cover in these areas was found to be less with live coral coverage ranging from 5 percent to over 50 percent of available hard bottom.

Water quality of northwest Ma`alaea Bay was found to be degraded and samples taken did not meet the Water Quality standards as established by the State of Hawai`i, Department of Health for most nutrients, chlorophyll and turbidity. Chlorophyll is an indicator of phytoplankton growth, whereas turbidity is generally taken as an indicator of suspended sediment. Groundwater inputs (rather than surface water inputs) were identified to be the main source affecting the quality of these waters. It is noted, however, that during infrequent storm events, surface water run-off becomes more of a significant factor and is the primary contributor of particulates to nearshore waters.

Nearshore marine communities within the northwest section of Ma`alaea Bay

were noted to be quite variable, ranging from sand and mud bottom within Ma`alaea Small Boat Harbor to reefs supporting in excess of 50 percent coral cover. Species within the nearshore marine communities were noted for their ability to adapt to elevated levels of silt and sediment which are experienced during times of high rainfall.

b. Potential Impacts and Proposed Mitigation Measures

Appropriate Best Management Practices (BMPs) will be implemented during the construction of each phase of the proposed residential subdivision. Detention basins will be installed in the early stages of each construction phase to further minimize the potential for construction-related drainage impacts. With the inclusion of the above-noted mitigation techniques, the proposed project is anticipated to have minimal long-term adverse effects on nearby marine resources. Refer to **Exhibit "F"**.

9. Archaeological, Historical, and Cultural Resources

a. Existing Conditions

(1) Archaeological Resources

An archeological inventory survey was completed for the project site in April 2005 by Scientific Consulting Services (SCS), Inc. Similarly, a supplemental archaeological inventory survey was also completed for the wastewater treatment site in March 2007. See **Appendix "G"**.

- **Project Site**

  The 2005 archeological inventory survey for the 257-acre subdivision area used a 100 percent pedestrian survey as well as backhoe trenching at twenty (20) separate locations within the project site. For the pedestrian survey, researchers divided the site into hundreds of transects and systematically combed each for surface and exposed subsurface features. The survey was conducted in consultation with State Historic Preservation Division Archaeologist, Dr. Melissa Kirkendall.

No historic or prehistoric cultural material was identified during the subsurface testing component of the survey. During surface inspections, however, three (3) historic sites related to the former use of the property for sugarcane cultivation were identified. It is noted that no burial features or human remains were identified during subsurface testing or pedestrian surveys at either site.

As previously mentioned, three (3) historically significant sites, all related to former sugarcane operations, were identified within the project site. The first (State Site No. 50-50-09-5657) consists of 13 clearing mounds spread out within the northern 20 percent of the site. Although the exterior of the mounds was likely deposited via modern machinery, the interior is likely more historic, dating back to initial clearing of the land for sugarcane cultivation. The second site (State Site No. 50-50-09-5658) comprises dozens of irrigation modifications to two (2) drainage gulches that run through the project site. These modifications are also associated with the beginning of sugarcane cultivation on the subject property in the early 20th century. The third and final site (State Site No. 50-50-09-5659) consists of a dirt road, approximately 4.0 meters wide, that follows the mauka perimeter of the subject property. The road is probably an original route that allowed cane hauling and cultivation activities within the internal portions of the subject property.

- **Wastewater Treatment Site**

Similar to the initial 2005 survey, the 2007 supplemental archaeological inventory survey for the wastewater treatment site utilized historic background research and settlement pattern analysis, a systematic pedestrian survey, mapping and recording of identified features and subsurface testing through the mechanical excavation of 26 stratigraphic trenches.

No historic or prehistoric cultural material was identified during the subsurface component of the survey. Site

inspections, however, identified a total of seven (7) sites related to the property's former use to support commercial agriculture. It is noted that no burial features or human remains were identified during subsurface testing or pedestrian surveys at the wastewater treatment site.

The seven (7) sites identified during pedestrian surveys consisted of three (3) Historic Ditches (Sites 50-50-09-6251, 50-50-09-6254 and 50-50-09-6257), three (3) Clearing Mounds (Sites 50-50-09-6252, 50-50-09-6253, 50-50-09-6256) and one (1) Modified Stream Drainage (Site 50-50-09-6255). Refer to **Appendix "G"**.

(2) Cultural and Historical Resources

Ma`alaea was once a traditional landing site for Hawai`ian outrigger canoes, and is a popular reference in the history books as providing a landing point for armies coming to fight Kahekili and their chiefs on their way to Wailuku. It became a commercial landing in the 19th and early 20th century and also holds a place in Hawai`ian history as representing the place where the first Westerner to Maui, sea captain George Vancouver (1757-98), landed his ship. A totem pole now stands across from the Maui Lu Hotel to commemorate this historic event. The middle of the 20th century witnessed the coastline along Ma`alaea being used for amphibious landing exercises during World War II. The modern small boat harbor, located south of the project site, however, was not constructed until 1952.

Although historically a landing place for Hawai`i's war fleets, the name Ma`alaea has more peaceful origins and seems to have originated from the fact that "alaea", commonly known as red dirt iron oxide, was found along the coast. There are two (2) different kinds of alaea: kane and wahine. The first of which, kane, is found in the ocean, while the second, wahine is found on land. Ma`alaea Bay is a source for both of these types of alaea.

Although once the site of an old Hawai`ian village, there is no visible surface presence of cultural resources in the vicinity of the project site

today apart from the "Piko" stone and the large sharpening stone known as the "King's Table" or "Adze" that sits in front of Buzz's Wharf restaurant. These monuments proudly commemorate the historic roots of Ma`alaea Small Boat Harbor.

Immediately adjacent to the aforementioned small boat harbor is a historic Japanese shrine. This shrine, called the Ma`alaea Ebisu Jinja, is believed to have been constructed in the early twentieth century.

b. Potential Impacts and Proposed Mitigation Measures

(1) Archaeological Impacts and Mitigation

- **Project Site**

As noted above, three (3) sites of historic significance to sugarcane activities were documented during the archeological inventory survey for the project site.

The following significance evaluations are broad criteria established for the State and National Register of Historic Places. These criteria are as follows:

Criterion A: Site is associated with events that have made a significant contribution to the broad patterns of our history.

Criterion B: Site is associated with the lives of persons significant to our past.

Criterion C: Site embodies the distinctive characteristics of a type, period, or method of construction; or represents the work of a master; or possesses high artistic value; or represents a significant and distinguishable entity whose components may lack individual construction.

Criterion D: Site has yielded or has potential to yield information important in prehistory or history.

***Criterion E*:** Site has an important traditional cultural value to the native Hawai`ian people or to another ethnic group of the state due to associations with traditional cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events, or oral accounts (State of Hawai`i criterion only).

All three (3) sites identified during the archaeological inventory survey are considered significant under Criterion D. It was determined from the findings of the significant assessment that only one (1) of the three (3) sites, the clearing mounds (State Site No. 50-50-09-5657), warrants implementation of archaeological mitigation measures. As recommended by the archaeological inventory survey, an archaeologist will be on site during leveling of a minimum of four (4) representative samples of the thirteen (13) clearing mounds that comprise State Site No. 50-50-09-5657, in order to assess whether or not historic and/or prehistoric features or artifacts are present within or under the mounds.

Should any significant resources be uncovered during this work, the SHPD will be contacted immediately and all applicable inadvertent discovery procedures will be followed.

- **Wastewater Treatment Site**

The seven (7) sites, identified during the pedestrian survey on the wastewater treatment site, were also deemed significant under Criterion D of the site significance criteria for the Hawai`i State Register of Historic Places due to the relationship with the area's former use for sugarcane cultivation.

As recommended by the 2007 supplemental archaeological inventory survey, a program of limited archaeological monitoring will be implemented as a precautionary measure during grading and grubbing activities for those areas of the

wastewater treatment site currently heavily vegetated.

Should any significant resources be identified during construction of the improvements proposed for the wastewater treatment site, work will cease within the immediate vicinity of the find and the SHPD will be contacted to establish the most appropriate level of mitigation. Refer to **Appendix "G"**.

(2) Cultural Impacts and Mitigation

Act 50 of the Hawai`i State Legislature (2000) requires that Environmental Assessment (EA) and Environmental Impact Statement (EIS) documents include an assessment of cultural practices, and further mandates that the planning process takes said practices into account. Consequently, a Cultural Impact Assessment report was also prepared by Scientific Consulting Services, Inc. for the project in June 2005. See **Appendix "H"**. The report was based on consultation sought from various agencies and civic groups such as the Maui and Honolulu Offices of Hawai`ian Affairs, the Maui Planning Department's Cultural Resource Planner, and the Central Maui Civic Club. Archival research was also conducted and historical source materials were consulted.

Based on these consultations and research, the report found no evidence that the project area had been used for traditional cultural practices in recent times, and concluded that Hawai`ian rights related to gathering, access and other customary activities would not be affected by the proposed project. However, it was noted that analyzing the visual impact of the project on traditional practices is difficult, given that some customs such as fishing that are located far off-site may utilize the project area as a visual landmark to locate culturally significant resources (a family fishing ko`a, for example). As appropriate, coordination with a cultural advisor will be undertaken during the plans preparation phase of work for the proposed project.

10. Air and Noise Quality

a. Existing Conditions

The Ma`alaea Bay area in general does not experience adverse air quality conditions. There is one notable point source of air contaminants in the local area, which is the power generation site owned and operated by Maui Electric Company. This industrial site is located more than 1,200 yards to the east of the project area. This source, however, is not considered a major source of pollution due to the regular occurrence of prevailing trade winds along the south coast. Other airborne pollutants that do exist can largely be attributed to ship exhaust from harbor traffic, vehicle exhaust from Honoapi`ilani Highway, quarrying operations of the nearby Pohakulepo quarry site and the occasional burning of sugarcane by Hawai`i Commercial & Sugar Company. All of the above sources are relatively intermittent, however, and the prevailing tradewinds generally disperse suspended particulates to maintain a relatively high level of air quality in and around the project area.

Existing background noise in the project area is principally attributed to vehicle traffic on the surrounding roadways. The noise from inter-island flight paths of arriving and departing aircraft at Kahului Airport, located approximately seven (7) miles to the northeast of the project area, represents another occasional source of noise to the surrounding area. It should also be noted that intermittent noise from wind adds to the overall ambient noise level from all of the aforementioned human sources.

b. Potential Impacts and Proposed Mitigation Measures

Air quality impacts attributable to the proposed project will include dust generated by short-term construction-related activities. Site work such as clearing, grubbing and grading, and roadwork and construction will generate airborne particulates. Dust control measures, such as regular watering and sprinkling, will be implemented as part of overall Best Management Practices (BMPs) to minimize potential for wind-blown particulates. All bare earth areas, including diversion surfaces, will be vegetated to mitigate dust-generated impacts. In the long term, the proposed project is not expected to adversely impact local and regional ambient air quality.

Ambient noise conditions will be temporarily impacted by construction activities. Heavy construction equipment, such as bulldozers, front-end loaders, and material-transport vehicles, will likely be the dominant source of noise during the construction period. Potential for short-term noise impacts from construction activities will be minimized through the use of sound attenuating devices and equipment mufflers. The long-term impact of the proposed project on ambient noise levels is not anticipated to be significant given the predominantly residential character of the master-planned community.

11. Scenic and Open Space Resources

a. Existing Conditions

The project area is located along the slopes of the southwest coastline of Maui, an area, like many other areas on the island, that offers beautiful scenic views. Scenic resources in the vicinity of the property include the Pacific Ocean, the West Maui Mountains to the west and Haleakala to the east. Open space resources around the property are characterized by the vast expanse of agricultural land in the Central Valley that lies to the north of Ma`alaea and Kihei.

b. Potential Impacts and Proposed Mitigation Measures

The elevations of the project site extend from approximately 80 feet above median sea level (amsl) on the southern extent to approximately 200 feet amsl on the northern, mauka boundary of the property. The project site will be developed within the context of a comprehensive master plan. Mass grading of the site will be undertaken in accordance with applicable legislation. Design standards will establish landscaping details within open space, roadways, public and quasi-public facilities, and buffer zones. No significant view corridors will be impacted by the proposed Ma`alaea Mauka project.

B. SOCIO-ECONOMIC ENVIRONMENT

1. Regional Setting

a. Existing Conditions

Existing and proposed land uses surrounding the Ma`alaea Mauka project site are indicative of growth trends anticipated for the Ma`alaea area. The Ma`alaea Triangle, a commercial center with shops, restaurants, an aquarium and commercial recreational uses, lies to the immediate east of the project area. Project District 11 proposed as a 650-acre master-planned residential community, lies to the northeast. Lands underlying the Project District 11 area are currently being utilized for sugarcane cultivation activities. There are a number of condominiums in Ma`alaea along the coastline further to the east of the project site, which are both owner occupied and transient vacation rentals. The land bordering the shoreline to the south of the subject property is currently designated and characterized by high-end single-family residences.

b. Potential Impacts and Proposed Mitigation Measures

The full-time residential nature of the proposed project is anticipated to balance surrounding land uses, as Ma`alaea, until recently, has been primarily associated with commercial and recreational activities surrounding the harbor as well as short-term and part-time residential use. In total, Ma`alaea currently possesses approximately 560 residential apartment/condominium units, the majority of which are rented on a short-term basis to visitors, while the number of existing single-family homes is significantly lower. The project site constitutes Project District 12 of the Kihei-Makena Community Plan, and as such is earmarked for development as a residential area.

The proposed project will add diversity to the local housing market and increase the percentage of single-family units and permanent residents in the Ma`alaea area. Additionally, the development will complement the existing commercial centers of Ma`alaea Triangle and Ma`alaea Small Boat Harbor located adjacent to the project site.

2. Population and Demography

a. Existing Conditions

The project site is located within the Kihei-Makena Community Plan region, an area that has experienced a significant population growth over the last three (3) decades. The wastewater treatment site falls within the Wailuku-Kahului community plan region. In the year 2000, the population of Maui was 117,644, with 22,870 people (19.4 percent) of the island's population residing in the Kihei-Makena Community Plan region (SMS, June 2002). The growth in the population of the Kihei-Makena Community Plan region since 1970 has been considerable, with population increasing from 1,636 in 1970, to approximately 7,263 in 1980, and to 15,365 in 1990. Over the past 30 years, the Kihei-Makena Community Plan region has experienced a fourteen-fold (14) increase in resident population, which is expected to rise further over the coming years. The resident population of Maui is projected to increase to 138,665 by the year 2010, with a projected 27,181 people (19.6 percent) residing in the Kihei-Makena area (SMS, June 2002).

b. Potential Impacts and Proposed Mitigation Measures

Given the currently low level of permanent residential occupancy in Ma`alaea, the project would be anticipated to shift population and the demographic characteristics of this subregion of Maui. According to the 2000 U.S. Census, there were a total of 599 housing units in Ma`alaea, thirteen (13) of which were single-family owner-occupied units. The majority of housing in Ma`alaea are multi-family units with 20 or more units per structure (U.S. Census Bureau, 2000). The proposed project would alter the housing mix of the subregion with the addition of 499 single-family units. The 949 total residential units, including apartments, town houses, and senior housing, will increase the percentage of permanent residents living in the Ma`alaea region.

3. Economy and Labor Force

a. Existing Conditions

The economy of Maui is heavily dependent upon the visitor industry, and the

Kihei-Makena area provides a fine illustration of this characteristic. The presence of a high number of vacation condominiums along South Kihei Road, including Kihei Akahi, Kihei Kai Nani, Maui Banyan and Maui Kama`ole to name but a few, reflects the fact that Maui's south coast has grown to be one of the most popular tourist destinations in the State. The Wailea Resort and Makena Resort, further reaffirm the island's economic dependence on tourism, with the presence of a number of major luxury hotels, such as the Fairmont Kea Lani, Grand Wailea, Maui Prince and Diamond Resort, all of which are located amongst internationally renowned golf courses.

The neighboring Ma`alaea Small Boat Harbor is an important source of Maui's economic sustenance as it represents one of the focal points for tourism on the island. Many of the commercial boat operators conduct Molokini snorkeling trips, whale-watching tours, deep sea fishing expeditions or sunset cruises on a regular basis. The popularity of the harbor as a tourist gateway can be attributed to its proximity to the airport in Kahului, the hotels in Kihei and Wailea, and Molokini crater, one of the top three (3) sightseeing destinations in Maui County.

As of July 2007, the seasonally unadjusted unemployment rate for Maui County was 3.5 percent. This compares with 2.6 percent, which is the seasonally adjusted unemployment rate for the entire State of Hawai`i (State of Hawai`i, Department of Labor and Industrial Relations, 2007).

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

A Fiscal and Economic Impact Report was completed for the proposed residential subdivision project in May 2007 by Decision Analysts Hawai`i, Inc. See **Appendix "I"**.

The report provides an assessment of the economic and fiscal benefits and impacts expected to be generated by the proposed residential subdivision project across both construction and operational time horizons.

Assessment of economic impacts takes into account various parameters, including sales revenues, expenditures, profits, employment and payroll. Assessment of fiscal impacts, on the other hand, addresses the impact of the

proposed project on County and State revenue and expenditure streams.

Below is a summary of the main economic and fiscal benefits and impacts associated with the proposed residential subdivision project:

- **Affordable Housing**

  The proposed project will comply with applicable requirements of the County of Maui's Residential Workforce Housing Policy, as specified in Chapter 2.96 of the County Code. Review of the Residential Workforce Housing Policy in May 2007, indicated that 40 percent of the total number of units will be required to be sold or rented on an affordable basis. Using this assumption, the proposed project would result in a contribution of 380 additional units to the affordable housing market supply in Maui County and 569 additional market rate units.

- **Employment**

  The project is anticipated to result in the generation of approximately 280 construction-related employment positions, which is the equivalent of 2,680 man-years over the construction period. The majority of construction positions related to the project are expected to be filled by the workforce currently residing in Maui County. Indirect employment generated by the proposed project is anticipated to average roughly 270 jobs on Maui and 160 on O`ahu. Total employment associated with the project will average about 710 jobs during the development phase.

- **County Revenue/Expenditure**

  (1) **Development Phase**

  County revenues during the project development phase will be derived from impact fees and fees that will offset County expenditures on infrastructure and facilities. The project will provide a number of facility improvements as part of project implementation, including interior roadways, water source

development, interior water distribution, drainage systems, sewer connections, collector sewers and trunks and a wastewater treatment plant. In regards to parks, the proposed project will comply with County requirements through the contribution of land, restrooms, a parking lot and water system.

(2) **Operational Phase**

At full development, the project will generate total revenues to the County of approximately $2.4 million per year, resulting from real property tax revenues and other taxes such as fuel taxes, motor vehicle weight tax, water fees, solid waste disposal fees, etc. On the other hand, County expenditures required to support the project in the operational phase are estimated at $2.8 million per year. Examples of such expenditures include general government, police, fire, road maintenance, solid waste disposal, etc.

Net expenditures by the County to support the project during the operational phase are, therefore, expected to average approximately $399,000.00 per year. This level of expenditure is considered normal for a typical residential community characterized by both a large component of affordable housing and a high owner-occupancy rate allowing qualification for the County's homeowner exemption rate.

- **State Revenue/Expenditure**

(1) **Development Phase**

The proposed project is expected to generate about $39.1 million over the development phase. The majority of this revenue will be derived from a combination of revenue streams, such as school impact fees, conveyance taxes, excise taxes and corporate and personal income taxes. Conversely, State expenditures required to support the project have been estimated at about $23.3 million over the development phase.

Assessment of fiscal impacts associated with the development phase of the proposed project, therefore, suggests that the

State will receive net revenues of approximately $15.8 million from project development activities. This net revenue equates to an annual average of about $2.6 million over the development phase.

(2) **Operational Phase**

At full development, the project will generate revenues to the State of approximately $14 million per year. This will include excise taxes, corporate and personal income taxes and other revenue streams, such as fuel tax, other sales taxes, etc. On the other hand, State expenditures required to support the project in the operational phase have been estimated at $15.3 million per year. Examples of such expenditures include education, general government, health, highway maintenance, parks and recreation, etc.

Annual net expenditures by the State of Hawai`i to support the operation of the project are, therefore, expected to average about $1.3 million per year. Net expenditures in this range are considered normal for a typical residential community with an affordable housing component and a high proportion of children of school age. Expenditures by the State for this project are expected to be offset by tax revenues derived from property development, visitors, higher-income families and commercial activities.

4. Housing

a. Existing Conditions

A Market Study Report was prepared for the proposed project by ACM Consultants, Inc. in July 2006. Refer to **Exhibit "A"**. The project site is located in Ma`alaea, which occupies a relatively central position between Wailuku, Kahului, South Maui, and West Maui. A range of housing types and conditions exists within these areas, from owner-occupied homes to luxury condominiums for part-time residents. While owner-occupied housing constitutes approximately 57.6 percent of all occupied housing units on Maui, the percentage varies from region to region. As noted earlier, Ma`alaea itself lacks a significant stock of permanent housing units and is

characterized primarily by transitional rentals, which indicates a significantly lower rate of owner occupation than the County average.

As mentioned previously, Maui is presently experiencing an acute shortage of housing and record high prices, with the median sales price of a single-family home currently well over $600,000 and median prices in West Maui significantly higher. At the same time, interest rates nationwide have fallen to lows last seen 40 years ago, and a variety of new financing options (such as interest-only loans) is making it easier for more people previously unable to afford the cost of a down payment to enter the market as buyers. Low unemployment rates on Maui are also increasing prospects for residents of owning a home. Consequently, demand for home ownership is greatly exceeding supply in the Maui Housing market. Preliminary analysis suggests that this imbalance is causing real estate values to rise faster than wages, pricing many individuals at the lower end of the income spectrum out of the housing market.

According to the findings of the market study prepared for the proposed project, the current short-term supply in Maui is approximately 2,073 units. This limited supply of housing units is forecasted to last approximately 2.6 years when accounting for the anticipated increases projected for Maui over the next five (5) years. Refer to **Appendix "A"**.

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

The proposed project would add to the supply of housing on Maui a total of approximately 949 residential units. Affordable housing units would also be provided in line with applicable requirements stipulated in the County of Maui's Residential Workforce Housing Policy. The proposed project would, therefore, be expected to provide some relief to the current shortage of general and affordable housing. The product mix and pricing within the development will give market participants additional choices on single-family and condominium living. Moreover, the project site's central location relative to Maui's major residential and commercial centers suggests that its positive impact could be felt in several of Maui's localized housing markets. No significant negative impacts on housing conditions are anticipated with the implementation of the proposed action.

C. PUBLIC SERVICES

1. Police and Fire Protection

a. Existing Conditions

The project area is within the Maui Police Department's (MPD) service area, the headquarters for which are located in Wailuku. The MPD consists of several patrol, investigative and administrative divisions. The project area falls within the Kihei Patrol District IV, the MPD service that covers the Kihei-Makena Community Plan region. The Kihei substation is located at the Kihei Town Center near Star Market about five (5) miles from the harbor.

The Maui County Department of Fire and Public Safety provides fire prevention, suppression, protection and emergency services to the islands of Maui, Lana`i, and Moloka`i from 14 fire stations and a fire prevention office. The department's Kihei station, which services the Ma`alaea and Kihei areas, is situated on South Kihei Road in central Kihei. The Makena-Wailea area is covered by a separate Wailea Fire Station located on Kilohana Drive. Other Central Maui stations are located in Wailuku Town and in Kahului, on Dairy Road.

b. Potential Impacts and Proposed Mitigation Measures

The proposed project will create a need for additional services for fire and police protection. As previously noted, real property tax revenues generated from the project would be allocated for these public services in the form of additional personnel.

Separately, the applicant has initiated discussions with the County of Maui to explore the possibility of off-site land dedication for the construction of new fire and police facilities. The area being considered for such dedication lies in the Waikapu vicinity which is located approximately two (2) miles to the north of the project site.

2. Medical Facilities

a. Existing Conditions

The only major medical facility on the island is Maui Memorial Medical Center, which is located in Kahului about eight (8) miles in distance away from the project area. The 231-bed facility provides general, acute, and emergency care services.

Clinics and offices throughout both the Kihei/Wailea and Wailuku/Kahului areas, however, offer medical services on a lesser scale. Such clinics include Kihei Clinic and Wailea Medical Services, Kihei Pediatric Clinic, Kihei Physicians and the Kihei-Wailea Medical Center, Maui Medical Group and Kaiser Permanente.

b. Potential Impacts and Proposed Mitigation Measures

As previously noted, State revenues generated in the form of excise, income and related taxes, would be used to fund State government services, including health care provided by the Maui Memorial Medical Center. As private sector demand for services increases over time, it is anticipated that such demand will be met through private sector initiatives. An example of such an initiative includes Kaiser Permanente's recent completion of its Maui Lani Clinic.

3. Educational Facilities

a. Existing Conditions

The project site is located between the communities of Wailuku/Kahului and Kihei/Wailea. The State Department of Education (DOE) operates three (3) schools in the Kihei area. Kihei Elementary School and Kamalii Elementary School covers grades K to 5, each with enrollments of approximately 800 students. Lokelani Intermediate School includes grades 6 to 8, with similar approximate enrollment. The Kihei Charter High School is also located in the region with an approximate enrollment of 150 students (Department of Education). The majority of public school students in grades 9 through 12 attend Maui High School located in Kahului. The Wailuku-Kahului region

is served by the State Department of Education's public school system, as well as several privately operated schools accommodating elementary, intermediate and high school students. Department of Education facilities in the Kahului area include Lihikai and Kahului Schools (Grades K-5), Maui Waena Intermediate School (Grades 6-8) and Maui High School (Grades 9-12). Existing facilities in the Wailuku area include Wailuku Elementary School (Grades K-5), Iao Intermediate School (Grades 6-8) and Baldwin High School (Grades 9-12). Waihee School (Grades K-5) is located approximately 3.0 miles to the north of the project area. Maui Community College, a branch of the University of Hawai`i system, is the primary higher education institution serving the County.

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

The project involves the construction of 949 single-family and multi-family units in a residential subdivision. The proposed subdivision would be located within the Baldwin High complex area. The schools in the complex area most likely to serve the proposed project include Wailuku Elementary, Iao Intermediate and Baldwin High. **Table 1** below summarizes the actual enrollment, facility capacity and projected enrollment for school years between 2003 and 2012.

Table 1. Schools Serving Waikapu/Ma`alaea: actual enrollment, facility capacity and projected enrollment, school years '03 to '04 to '11 to '12

	Actual Enrollment			Capacity	Projected Enrollment		
	'03 to '04	'04-'05	'05-'06		'06-'07	'08-'09	'11-'12
Wailuku Elementary K-5	937	937	953	1,110	967	1,143	1,324
Iao Intermediate 6-8	830	831	830	883	854	962	1,053
Baldwin High 9-12	1,651	1,680	1,574	1,542	1,513	1,614	1,776

In the 2005/2006 school year, enrollment at Wailuku Elementary and Iao Intermediate was under capacity. Enrollment, however, for Baldwin High exceeded capacity during the same school year.

Early consultation with State Department of Education (DOE) has indicated that the proposed project will be subject to fair share contribution requirements. Coordination with DOE is currently being undertaken to satisfy fair share contributions for the project. An alternative contribution solution may include the provision (on a fair share basis) of an offsite location for a new intermediate school.

4. Recreational Facilities

a. Existing Conditions

Diverse recreational opportunities are available in both the Kihei-Makena and Wailuku-Kahului Community Plan regions. Shoreline activities, such as fishing, surfing, jogging, camping, picnicking, snorkeling, swimming, and windsurfing, are by far the predominant form of recreation in the area. In addition, residents and visitors are drawn to Ma`alaea by the small boat harbor, which provides diverse ocean-related recreational opportunities. The County's Haycraft Park is located to the south of the project area at the terminus of Hauoli Street, and provides access to a sandy beach with paved parking and portable restrooms and shower facilities. Other public park facilities within a relatively short driving distance of the project site include Kalama and Kama`ole I/II/III Beach Parks, located to the southeast about seven (7) miles away along the Kihei coastline. Additionally, recreational resources available in Kihei and Wailea, include the Kihei Community Center as well as resort-affiliated, world-class golf courses and tennis centers.

The Lahaina Pali Trail provides land-based recreational activities mauka of the proposed project site. The trail offers hikers scenic views of the island of Kahoolawe and Lana`i.

b. Potential Impacts and Proposed Mitigation Measures

According to the Kihei-Makena Community Plan, Project District 12 should include approximately 5 acres for a community center and 27 acres for parks, open space, and buffer zones. These guidelines were taken into consideration as the preliminary layout for the project site was prepared.

The proposed project will include a 5-acre community center, 15 acres of

park, and 32 acres of open space. Additionally, three (3) common pool and spa areas and recreational buildings will be located in the town home section and each of the two (2) single-family patio home sections of the residential subdivision. The recreational facilities proposed within Ma`alaea Mauka will complement the existing public recreational opportunities within the Kihei-Makena region.

Public access to the Lahaina Pali Trail will be maintained through the proposed subdivision. Public parking will also be available to hikers near the access point to the Lahaina Pali Trail.

The applicant will coordinate with the County Department of Parks and Recreation (DPR) to ensure satisfactory compliance with parks and playgrounds assessment requirements.

5. Solid Waste Disposal

a. Existing Conditions

Single-family residential solid waste collection service is provided by the County of Maui on a once-a-week basis. Residential solid waste collected by County crews is disposed of at the County's Central Maui Landfill facility, located 4.0 miles southeast of the Kahului Airport. In addition to County-collected refuse, the Central Maui Landfill also accepts commercial waste from private collection companies. A new expansion to the Central Maui solid-waste landfill facility was recently opened. Privately owned facilities, such as the Maui Demolition and Construction Landfill and the Pohakulepo Concrete Recycling Facility, accept solid waste and concrete from demolition and construction activities. These facilities are located at Ma`alaea, near Honoapi`ilani Highway's junctions with North Kihei Road and the Ku`ihelani Highway. A privately operated green waste recycling facility is located at the Central Maui Landfill.

b. Potential Impacts and Proposed Mitigation Measures

The residential units located in the proposed subdivision will be served by the County of Maui's solid waste disposal facilities. Further coordination will be carried out with the County's Department of Environmental Management

(DEM) during the plans preparation phase of work to identify appropriate locations for solid waste facilities within the subdivision.

D. INFRASTRUCTURE

1. Roadways

a. Existing Conditions

The project site is served by the adjacent Honoapi`ilani Highway, the single route of access for vehicles traveling between West Maui and Central Maui. Honoapi`ilani Highway is a two-lane highway for the majority of its length; however, it widens into a four-lane highway in the immediate vicinity of the project site. The highway also widens from two (2) to four (4) lanes north of Ku`ihelani Highway.

There are two (2) intersections located to the east of the project site, which lead onto Ku`ihelani Highway and North Kihei Road. The Ku`ihelani Highway provides a direct route to Kahului, including the Kahului Airport. North Kihei Road transitions into South Kihei Road and Pi`ilani Highway which provides access to the residential, commercial and resort areas located further along the south coast of Maui, such as Kihei, Wailea and Makena. Other local roads in the vicinity of the project area include Ma`alaea Road and Kapoli Street.

Honoapi`ilani Highway, Ku`ihelani Highway, and North Kihei Road are all under the jurisdiction of the State of Hawai`i, Department of Transportation. Honoapi`ilani Highway is designated as Route 30 and has a posted speed limit of 45 miles per hour (mph) in the vicinity of the project site.

Kapoli Street provides access to the Ma`alaea Triangle. The four-lane roadway approaches Honoapi`ilani Highway at a signalized intersection.

Ma`alaea Road is a two-lane County-owned roadway that serves the Ma`alaea Small Boat Harbor, Ma`alaea Triangle and adjoining land uses. Ma`alaea Road meets Honoapi`ilani Highway at two (2) points, north and south of the Ma`alaea Triangle, both unsignalized intersections.

b. Potential Impacts and Proposed Mitigation Measures

An internal road network will serve the proposed development while three (3) access roads will connect onto Honoapi`ilani Highway. Two (2) access roads will connect with Honoapi`ilani Highway at the existing signalized intersections of North Kihei Road and Kapoli Street. A third right-turn on right-turn access road would be built to the highway midway between the above two (2) access roads. See **Figure 12.**

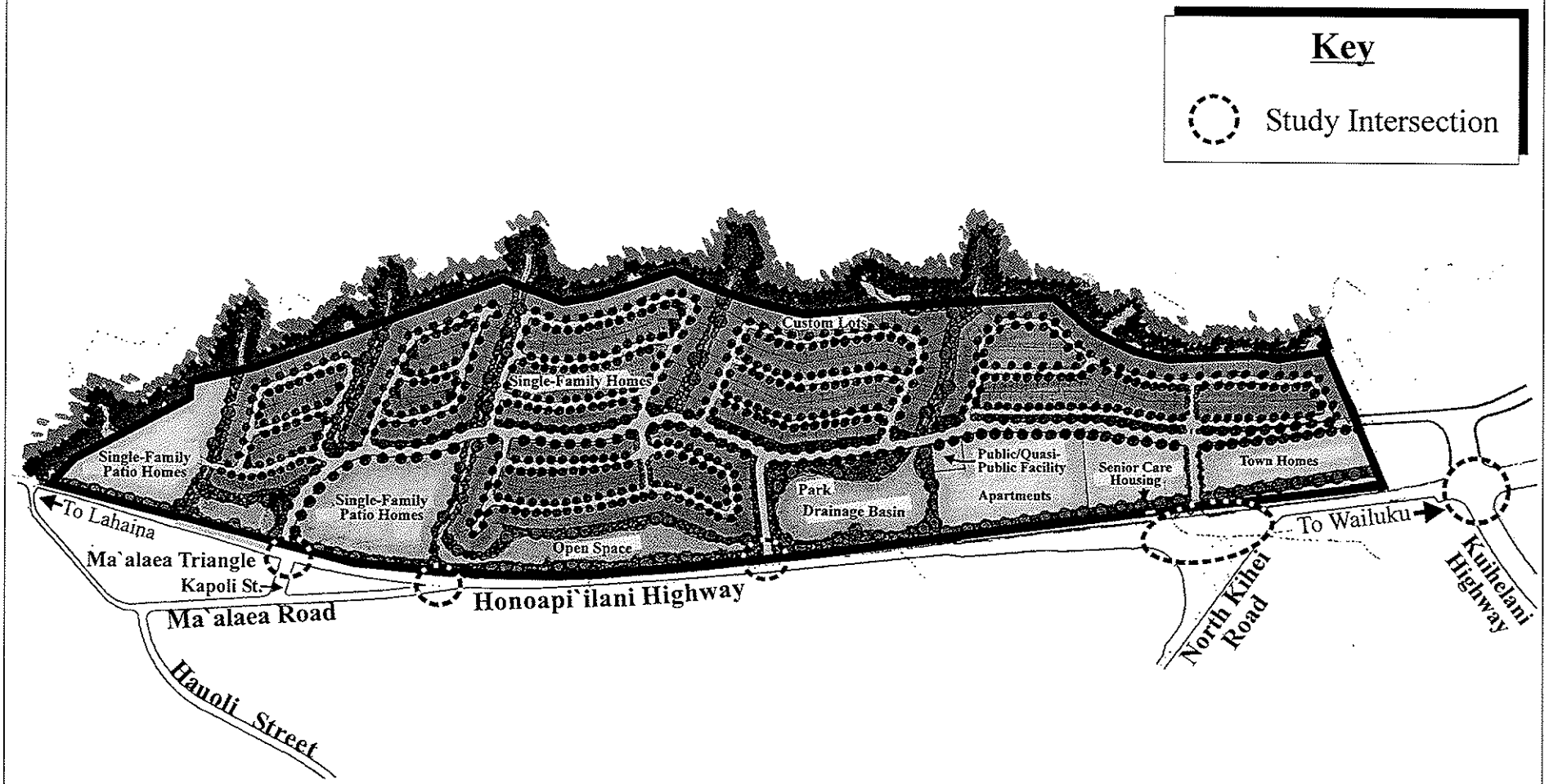
A Traffic Impact Analysis Report (TIAR) was prepared for the purposes of assessing traffic impacts attributed to the proposed project and to identify appropriate measures to mitigate these impacts. See **Appendix "J"**. The study examined existing and future traffic conditions with and without the project utilizing accepted methodological protocols for trip generation, traffic assignment and level of service (LOS) analysis. (LOS is a qualitative measure used to describe the conditions of traffic flow, with values ranging from free flow conditions at LOS A to congested conditions at LOS F).

In the period before the expected opening of a project, ambient traffic on area roadways is expected to increase due to regional growth and new projects in the area. In preparing estimates of future traffic volume conditions, ambient traffic increases are added to the anticipated project generated traffic.

The proposed project is not anticipated to have adverse traffic impacts on Honoapi`ilani Highway in the vicinity of the project site when adequate mitigation measures are implemented. Predicted increases in ambient traffic combined with the additional traffic that would be generated by the proposed project could be accommodated by the following roadway and intersection improvements:

1. A second left-turn lane on the southbound approach of Honoapi`ilani Highway at the North Kihei Road intersection to mitigate current traffic problems.

2. A second southbound through lane on Honoapi`ilani Highway at the Kapoli Street intersection to mitigate projected increases in ambient and with-project traffic growth.



Source: M&E Pacific, Inc.

Figure 12

Proposed Ma`alaea Mauka Residential Subdivision and Related Improvements

Traffic Intersection/Access Plan

NOT TO SCALE

Prepared for: Ma`alaea Properties, LLC

MUNEKIYO & HIRAGA, INC.

MaalProp/MaukaPD/trafficintersplan

3. Signalization of the Ma`alaea Road (north) intersection or prohibition of left-turns from Honoapi`ilani Highway on Ma`alaea Road to eliminate traffic safety problems associated with projected ambient traffic conditions.

In addition, the applicant will need to comply with applicable requirements for the County's traffic impact fees to address regional roadway improvements.

2. Water System

a. Existing Conditions

A Preliminary Engineering Report (PER) for the proposed residential subdivision was completed by M&E Pacific, Inc. in November 2006. See **Exhibit "K"**. The County of Maui, Department of Water Supply serves five (5) main regions within the County: Central Maui, Upcountry Maui, West Maui, East Maui, and Moloka`i. No water system infrastructure currently exists on the proposed project site. A nearby County system feeds a storage tank servicing the existing Ma`alaea community through an 8-inch line from Central Maui. Capacity in the nearby system is not adequate to support the proposed Ma`alaea Mauka project. As such, new infrastructure, to be developed at the expense of Ma`alaea Properties, LLC, will be required to service the proposed project.

The project area is located above the Waikapu Aquifer system, which is estimated to have a sustainable yield of 2 million gallons per day (MGD).

A nearby existing well, identified as Pohakea #1 (State ID 4930-01), was recently completed by the applicant on an adjacent parcel (TMK (2) 3-6-04:03). This well is capable of producing 432,000 gpd. Two (2) wells are currently being installed in the project area and are estimated to be capable of producing 300,000 gpd each. No storage tank currently exists in the vicinity of the project site.

b. Potential Impacts and Proposed Mitigation Measures

A PER was also prepared for the proposed project's water system. See **Appendix "L"**. According to the report, the average daily demand for the

949 single- and multi-family units, community center, wastewater facility, and parks is 619,000 gpd. The demand will require an infrastructure system consisting of wells and pumping facilities, storage capacity, and a distribution system.

Maui County requires at least one (1) well to act as a standby or backup to production wells. To meet the demands of the proposed residential subdivision project, a total of three (3) wells will be required—two (2) production wells and one (1) backup well. As a result, two (2) new wells, in addition to the existing Pohakea #1 well will be developed. These two (2) additional wells are in the process of being completed by the applicant. Water quality testing for the Pohakea #1 well has been completed in accordance with HRS Chapter 11-20. Results of the water quality testing confirm that Pohakea #1 well is capable of producing potable water that meets all applicable EPA and DOH requirements. Water quality testing will also be conducted for the additional two (2) wells that are currently being developed, the results of which will be discussed in the Final EIS for the project.

An upslope 1,000,000 gallon storage tank will also be developed at the existing Pohakea #1 well (located at the mauka extent of the wastewater treatment site) to provide gravity flow to the proposed project. Finally, a water distribution system capable of handling 2,640 gpm of flow will be constructed. The distribution system will be designed to meet peak hourly demand, as well as maximum daily demand (including fire flow requirements).

3. Wastewater System

a. Existing Conditions

There is currently no sewage collection infrastructure serving the Ma`alaea community. The existing Ma`alaea community includes condominiums, apartments, single-family residences and an industrial site. These existing uses utilize on-site wastewater treatment facilities such as cesspools, septic tanks or more advanced individual treatment systems. The project site for the proposed residential subdivision does not have any existing sewer collection infrastructure or a wastewater treatment facility. As such, new sewer

infrastructure will be required to service the proposed project.

b. Potential Impacts and Proposed Mitigation Measures

The proposed development will be serviced by a new Wastewater Treatment Plant (WTP) that will be developed in conjunction with the project. See **Figure 13**. The proposed WTP will be located to the north of the 257-acre project site on a 5-acre portion of the wastewater treatment site. Refer to **Figure 3**.

The WTP will provide service to the proposed subdivision. The PER prepared for the Ma`alaea Mauka Subdivision Wastewater System is presented in **Appendix "M"**.

A combination of a gravity collection system and wastewater pump stations will be used to collect and transport wastewater from the project site to the WTP.

The WTP is designed for a 600,000 gpd Average Dry Weather Flow (ADWF). Upon completion, the projected wastewater flow for the project will be approximately 329,000 gpd ADWF. It is noted that the WTP will be designed to allow future expansion capacity. The ultimate design flow capacity of the WTP will be 1.2 mgd. Wastewater will be treated at the WTP to produce R-1 recycled water. R-1 is the highest form of treated effluent, which is characterized by a significant reduction in viral and bacterial pathogens.

Effluent reuse will be the primary means of disposing of the generated flows from the proposed subdivision. R-1 recycled water from the WTP will be recycled within an 85-acre Effluent Reuse Area (ERA) located within the wastewater treatment site. Refer to **Figure 4**. It is noted that the ERA will remain available for specific agricultural uses following completion of the proposed project. Other County-owned facilities on Maui designed to utilize effluent reuse/recycle techniques include the Kihei Wastewater Reclamation Facility (WRF) and the Kahului WRF. The effluent for Kihei WRF is currently recycled for agricultural, commercial, and park irrigation purposes. There is one commercial facility that recycles the effluent for toilet flush water. The effluent from Kahului WRF is only recycled for in-plant reuse.

Chainlink Fence Gate

Proposed Effluent Reuse Area

LANDSCAPING – BOUGAINVILLEA

Force Main

Landscaping - Bougainvillea

Water Feature/ Garden

Equalization Basin & Headworks

Sludge Dewatering Building

R-1 Distribution Pump Station

Recycle Water Distribution System

R-1 Pump Station

UV Channels

Sludge Tanks

Sludge Tanks

Retention Pond

Control, Laboratory, Office and Maitenance Building

Membrane Reactors

Standby/Backup Injection Wells

Rock Wall

Chainlink Fence

Landscaping - Bougainvillea

To Waikapu

To Maalaea

Honoapiilani Highway

Source: M&E Pacific, Inc.

Figure 13

Proposed Ma`alaea Mauka Residential Subdivision and Related Improvements

Wastewater Treatment Plant Site Plan

0 12.5 25 50 Feet

Prepared for: Ma`alaea Properties LLC

MUNEKIYO & HIRAGA, INC.

MaalPron/MaukaPD/DraftEIS/wastewaterplant

Both facilities are advanced activated sludge plants with effluent sand filters that are designed to satisfy the DOH effluent recycle standards. These facilities are also designed to biologically remove nitrogen and phosphorus through the same activated sludge process. The proposed WTP will be designed similarly.

The proposed WTP site is above the Underground Injection Control (UIC) line and, therefore, injection wells are generally not permitted. However, the applicant is seeking State Department of Health (DOH) approval to install and operate standby injection wells for use during wet conditions when effluent irrigation cannot be used. The proposed wastewater treatment system calls for injecting a wet weather peak flow of 2.5 million gpd, or a flow of 1,750 gallons per minute (gpm). The estimated injection usage is at least once a month during the wet season months of November through April and once every three months for the dry season months of May through October. The injection period could range from only a few hours to more than a day, with an average injection rate of 800,000 gpd.

The injection wells will be designed so that injected R-1 effluent will not affect groundwater sources within the Waikapu Aquifer and will dissipate far enough offshore as to have little or no impact to near shore waters. A report entitled "Impact of Proposed Injection Wells on Water Resources in the Waikapu Aquifer" was prepared to analyze the impacts of the proposed standby injection wells. A copy of this report is included in the Wastewater System PER. Refer to **Appendix "M"**. According to the report, the injection wells will not affect the Pohakea well field located 2,500 feet up gradient from the site for the proposed injection wells. The effluent plume could have a minimal effect on the non-potable Ma`alaea Triangle Park Well (4830-01) located down gradient from the injection wells. However, this well is very shallow compared to the depth of injection and as such, only upward seepage could cause nutrients to increase in the well overtime.

Noise and odor controls will be incorporated into the design of the proposed WTP to comply with DOH standards. Loud equipment such as blowers, pumps, fans and emergency diesel engine generators will be housed in a concrete or CMU building, or in a sound attenuated equipment enclosure to minimize ambient noise levels generated from the plant. An odor control

system (OCS), including odor control scrubbers, OCS fans with noise attenuated enclosures, and fiberglass ductwork will be incorporated to comply with DOH property line standards for odor control. A landscaped buffer (Bougainvillea or similar) will be installed to shield the WTP from Honoapi`ilani Highway. Refer to **Figure 12**.

4. Drainage

a. Existing Conditions

Preliminary Drainage Reports (PDR) were prepared for both the project site and the wastewater treatment site have been prepared by M&E Pacific, Inc. See **Appendix "N"** and **Appendix "O"**. Maui receives varying levels of rainfall in a given year depending on location. The average annual rainfall (1996-2002) for the Kihei area, which is also part of the drier southern coast of Maui, was 10.95 inches (Maui County Data Book, 2004). Annual rainfall in the vicinity of the Ma`alaea Small Boat Harbor is relatively low. Drainage within the project area is currently handled by agricultural ditches and roadside swales. The runoff from the project area enters existing headwalls and drain inlets at set intervals along the west side of Honoapi`ilani Highway. There is a box drain within Ma`alaea Road which carries flows from the roadway and up stream sources to the harbor. Existing culverts along Honoapi`ilani Highway are hydraulically undersized to convey the drainage flows from a 100-year storm. Stormwater runoff from the upland drainage area also sheetflows in a southerly direction and is collected in three (3) ditches which drain into the ocean. During times of unusually high rainfall, the sediment load entering the near shore waters of Ma`alaea Bay increases substantially as a result of drainage from erosion prone upland areas. Although the harbor acts as a sediment trap, the daily vessel activity causes the finer particles to be resuspended and flushed out into the ocean in the surface water flow.

It is noted that under existing conditions, runoff from a portion of the project area is conveyed through the Ma`alaea Waterfront Plaza, which has experienced flooding during high rainfall events in the past.

b. Potential Impacts and Proposed Mitigation Measures

(1) Project Site

The proposed project will increase hardscape (i.e. road pavements, sidewalks, housing) and reduce rainfall infiltration into the ground. The proposed drainage improvements are designed to reduce the post development peak runoff through the installation of a onsite detention basin and five (5) subsurface detention basins located in a buffer area between Honoapi`ilani Highway and the proposed Ma`alaea Mauka residential development. An underground pipe storage system for disposal of storm runoff is another possibility which will be considered during the design phase of the development.

The proposed estimated peak storm runoff into the existing drainage system along Honoapi`ilani Highway will be reduced to less than existing hydrological conditions to mitigate flood impacts presently being experienced within the existing Ma`alaea Triangle commercial district under a 50-year, 1-hour storm conditions. The proposed drainage system for the project will decrease storm runoff conveyed through the highway from the existing 2,726 cubic feet per second (cfs) to 2,060 cfs, a net reduction in drainage flows of 666 cfs (approximately 24 percent). Opportunities to further reduce post development flows below existing drainage conditions will be evaluated during the design phase for the proposed development. Strategies to be evaluated in this context include:

- Use of perforated subdrains and underground french drains or dry wells to drain roof and parking areas.

- Installation and infiltration of a trench along the 50' green space setback highway corridor.

(2) Wastewater Treatment Site

The improvements proposed for the wastewater treatment site

will affect storm runoff generation rates from this area. The drainage improvements for the site have been designed to redirect offsite stormwater from flowing over the WTP and effluent reuse area (ERA) by diverting the runoff through a proposed concrete diversion channel along the mauka property line toward two (2) proposed detention basins to retard the concentrated flow, remove some suspended sediments and distribute and dissipate the discharge at a rate that will not erode the ground. See **Figure 14**. The diversion channel (20' wide by 10' high) will be designed to convey an estimated peak flow of 2,200 cubic feet per second (cfs).

The proposed Pond A (1,280' long by 320' wide by 10' deep) will be sized to distribute and dissipate the flow of the north section of the diversion channel. Pond B (960' long by 320' wide by 15' deep) on the otherhand, will distribute and dissipate the flows being received from the south section of the diversion channel. Together, Pond A and Pond B will significantly attenuate the peak flow discharge from the diversion channel.

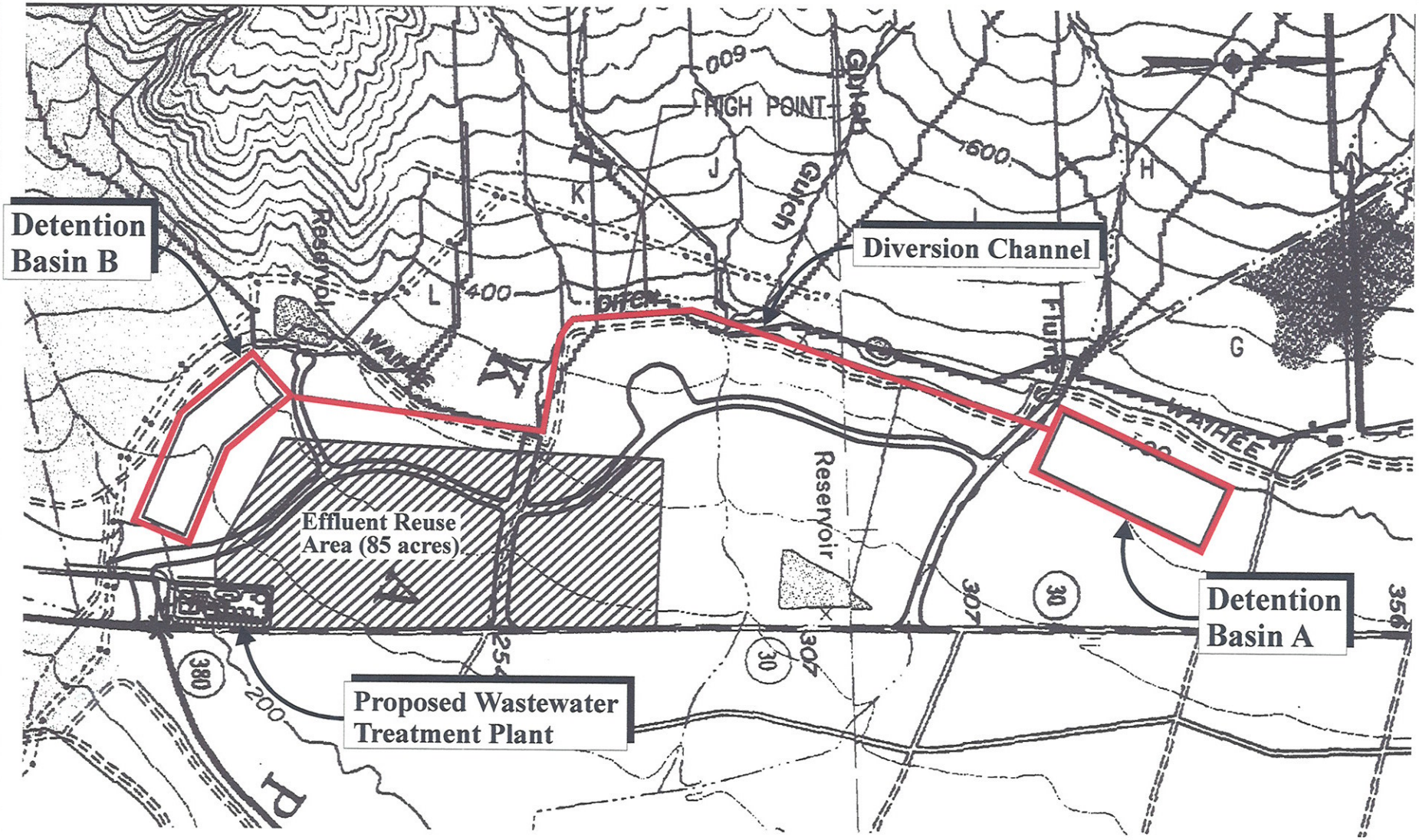
5. Electrical, Telephone, and Cable Television Services

a. Existing Conditions

Electrical power, telephone, and CATV services to the area are provided by Maui Electric Company, Hawaiian Telcom, and Oceanic Time Warner Cable of Hawai`i, respectively. Existing overhead power, telephone and CATV transmission lines are located across the Honoapi`ilani Highway from the project area.

b. Potential Impacts and Proposed Mitigation Measures

It is anticipated that electrical, telephone, and CATV service capacity will be available for the proposed development and will not have an adverse impact on service providers. The applicant will continue to coordinate with the respective service providers to address any system upgrade requirements associated with the proposed project.



Source: M&E Pacific, Inc.

Figure 14 Proposed Ma`alaea Mauka Residential Subdivision and Related Improvements

Drainage Improvement Plan (Wastewater Treatment Site)

0 500 Feet
250 1000

Prepared for: Ma`alaea Properties LLC

MUNEKIYO & HIRAGA, INC.

MaalProp/MaukaPD/DraftEIS/drainimproveplan

E. CUMULATIVE AND SECONDARY IMPACTS

Cumulative impacts are defined as the impact on the environment which results from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions.

The proposed project is not part of a larger action, nor would it occur within the context of such actions. There are no direct community growth impacts resulting from or occurring with the project. There are no other public works projects anticipated within the project context.

The project site, which is classified as Project District 12 in the Kihei-Makena Community Plan, is adjacent to Project District 11. The development of the subject property will proceed on an independent timeframe from that of Project District 11. There currently is no development timeframe for Project District 11. In this regard, it is noted that the context for considering cumulative impacts is established by the Kihei-Makena Community Plan and the Wailuku-Kahlului Community Plan. Project District 11 is the only major land use development element reflected in either of the community plans.

Additionally, the County of Maui is currently undertaking its General Plan Update. A specific component of the General Plan Update is the preparation of a Maui Island Plan. The plan is required as part of a Managed and Directed Growth Plan. As provided by Chapter 2.80B of the Maui County Code:

> *The managed and directed growth plan shall describe existing and future land use patterns and planned growth for the twenty-year planning period and include a discussion on how these patterns are consistent with and support the vision, principles, goals, and policies of the County and the island of Maui. The managed and directed growth plan shall include a map that delineates urban and rural growth areas, consistent with, and illustrative of, the Maui island plan's vision, principles, goals, and policies.*

The Maui Island Plan is designed to be comprehensive in nature, considering existing community plan-designated land uses, as well as proposals for future uses to the planning horizon year of 2030. Thus, the Maui Island Plan establishes a context for structured land use planning to ensure that long range planning and development are properly sequenced. Towards this end, additional components of the Maui Island Plan include the following:

- **Water Element**. The water element shall assess and discuss water supply, demand, and quality.

- **Nearshore Ecosystem Element**. The nearshore ecosystem element shall assess the ecosystem in the nearshore waters of the County, and will discuss preservation and restoration of these waters.

- **Implementation Program**. The implementation program shall include a capital improvement element, a financial element, and an implementation schedule.

    - **Capital Improvement Element**. The capital improvement element shall describe regional infrastructure systems and regional public facilities and services that will be needed over the twenty-year planning period.

    - **Financial Element**. The financial element shall describe a fiscally sound financial program for identified actions and capital improvements. Preparation of the County's annual operating budget and capital program, respectively developed pursuant to Sections 3.04.030 and 3.04.040 of this code, shall implement the general plan to the extent practicable.

    - **Implementation Schedule**. The implementation schedule shall identify and numerically prioritize specific actions, the implementation actions' commencement and completion dates, the lead implementation agency or person, the estimated implementation cost, and the anticipated funding source or sources.

The Maui Island Plan is currently being worked on by the General Plan Advisory Committee (GPAC). A presentation on the proposed Ma`alaea Mauka residential subdivision project was delivered to the GPAC on September 20, 2007. Following the GPAC's consideration of the plan, the Maui Planning Commission and Maui County Council will review the plan. Adoption of the plan will be via ordinance by the County Council.

Secondary impacts are those which have the potential to occur later in time or farther in distance, but are still reasonably foreseeable. They can be viewed as actions of others that are taken because of the presence of the project. Secondary impacts from highway projects, for example, can occur because they can induce development by removing transportation access-related impediments to growth. Secondary consequences associated with the

proposed action relate to the additional water source which may be available to the Department of Water Supply with the development of the new wells by the project applicant.

No other secondary consequences have been identified at this point in time.

III. RELATIONSHIP TO LAND USE PLANS, POLICIES, AND CONTROLS

III. RELATIONSHIP TO LAND USE PLANS, POLICIES, AND CONTROLS

A. STATE LAND USE DISTRICT

Chapter 205, Hawai`i Revised Statutes, relating to the Land Use Commission, establishes four (4) major land use districts in which all lands in the state are placed. These districts are designated as "Urban", "Rural", "Agricultural", and "Conservation". Both the project site and wastewater treatment site are located within the "Agricultural" district. See **Figure 15**.

A State Land Use District Boundary Amendment (DBA) for the 257-acre project site for reclassification from "Agricultural" district to the "Urban" district is currently being requested as part of entitlement applications to enable implementation of the Ma`alaea Mauka residential subdivision project. The applicant filed the DBA petition with the Land Use Commission on June 16, 2006. Criteria considered in the reclassification of lands are set forth in the State Land Use Commission Rules (Chapter 15-15-18, Hawai`i Administrative Rules).

The proposed reclassification of the approximately 257 acres within the project site from Agricultural to Urban has been analyzed with respect to the criteria, as discussed below.

It shall include lands characterized by "city-like" concentrations of people, structures, streets, urban level of services and other related land uses.

Comment:

The area proposed for reclassification is adjacent to the existing development of Ma`alaea Triangle and the Ma`alaea Small Boat Harbor, which are located on lands classified as "Urban." Infrastructure systems implemented in conjunction with the Ma`alaea Mauka project will serve all areas within the limits of the project site. The proposed development will include city-like concentrations of people in a community which will include single-family homes, custom lots, apartments, town homes, and senior care housing. An internal road network, community center, park, and public/quasi-public facility will serve the needs of the community.

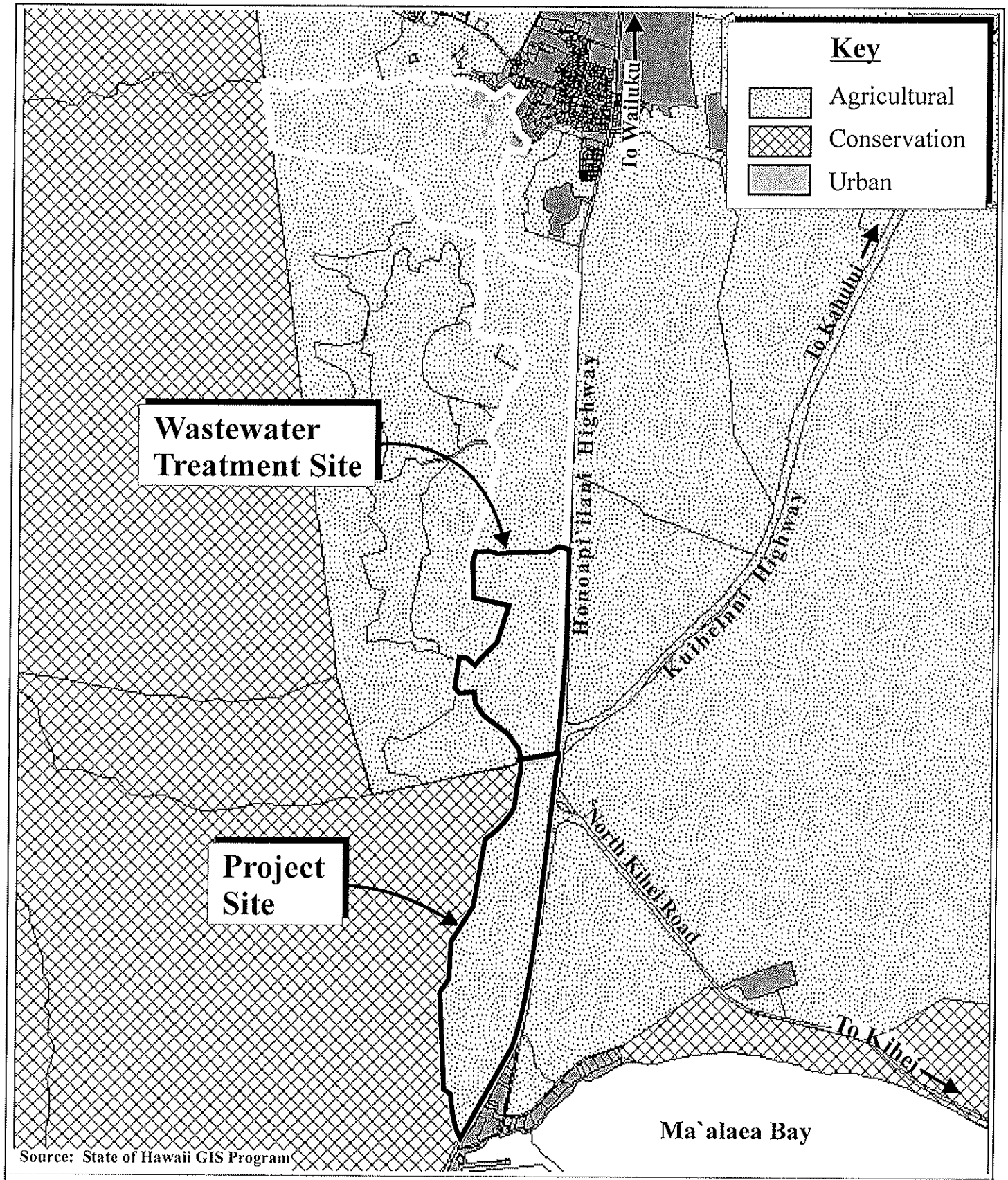


Figure 15

Proposed Ma`alaea Mauka Residential Subdivision and Related Improvements

State Land Use Classifications

NOT TO SCALE

Prepared for: Maalaea Properties, LLC

MUNEKIYO & HIRAGA, INC.

maalprop/maukapd/draftels/slud

It shall take into consideration the following specific factors:

1. **Proximity to centers of trading and employment except where the development would generate new centers of trading and employment.**

Comment:

The area proposed for reclassification is located adjacent to the Ma`alaea Triangle and Ma`alaea Small Boat Harbor. In addition to the employment opportunities presented in these commercial areas, the proposed Ma`alaea Mauka project is located approximately 6 miles from the commercial/employment centers of Kihei and Wailea and 6 and 8 miles from the commercial/employment centers of Wailuku and Kahului, respectively. Numerous employment opportunities exist in the retail, resort, and service industries in the Kihei/Wailea area while Wailuku and Kahului serve as the central business districts of the island. Additionally, Federal, State, and County government offices and courts are located in Wailuku.

2. **Availability of basic services such as schools, parks, wastewater systems, solid waste disposal, drainage, water, transportation systems, public utilities, and police and fire protection.**

Comment:

The area proposed for reclassification will be serviced by a new Wastewater Treatment Plant (WTP) which will be developed in conjunction with the project. The proposed treatment facility will be located to the north of the project area. Additionally, domestic water supply will be provided by privately developed wells near the project area and will not rely on County sources. The area is located in close proximity to major roadways such as, Honoapi`ilani Highway and North Kihei Road. Three (3) State Department of Education (DOE) schools are located in the Kihei area in addition to a charter high school. Health care facilities as well, as police and fire protection services are available in Wailuku and Kahului, as well as in Kihei.

3. **Sufficient reserve areas for foreseeable urban growth.**

Comment:

The proposed project involves the development of a master-planned community involving a range of different housing types, including both single-family and multi-family product

varieties. The project will be constructed in phases over a period of approximately ten (10) years. Completion of the project is expected to partially address the shortage of housing currently being experienced in Maui County. In addition, Project District 11, located across Honoapi`ilani Highway from the project site, currently remains undeveloped and would be available to accommodate demands for urban growth beyond completion of Ma`alaea Mauka.

It shall include lands with satisfactory topography, drainage, and reasonably free from the danger of any flood, tsunami, unstable soil conditions, and other adverse environmental effects.

Comment:

The majority of land proposed for reclassification is located within Flood Zone C, area of minimal flooding, on the Federal Emergency Management Agency (FEMA), flood insurance rate maps. This land is not subject to tsunami inundation or unstable soil conditions. A portion of the land to be reclassified is located in Flood Zone B, or areas between the 100-year and 500-year flood. Based on preliminary project plans, it is anticipated that structures will not be developed on the portions of the subject property located in Flood Zone B. Rather, these areas will be integrated into buffer zones and other landscaping features, thus mitigating potential flood hazards.

Phase I Environmental Site Assessment (ESA) reports have been completed for both the project site and the wastewater treatment site. See **Appendix "D"**. A Phase II ESA was completed to address a recommendation in the Phase I ESA report that soils within the project site be tested. Refer to **Appendix "D-1"**. Based on the results of the soil testing, the Phase II ESA confirms that residual levels of pesticides and fertilizers are within safe levels. All issues identified in the ESA reports have since been addressed by the applicant such that no outstanding environmental conditions are present in the proposed Ma`alaea Mauka project area. The use of the project site for a residential subdivision, therefore, is not anticipated to present any impacts to public health and safety.

Land contiguous with existing urban areas shall be given more consideration than non-contiguous land, and particularly when indicated for future urban use on state or county general plans.

Comment:

A portion of the area proposed for reclassification is contiguous with existing State Land Use designated Urban lands to the southeast which include the Ma`alaea Commercial Triangle and

the Ma`alaea Small Boat Harbor. Additionally, as designated in the Kihei-Makena Community Plan, Business/Commercial lands and Project District 11 are adjacent to the project site. Commercial uses including the Ma`alaea Triangle occupy the Business designated lands while residential development is planned for Project District 11. See **Figure 16.**

It shall include lands in appropriate locations for new urban concentrations and shall give consideration to areas of urban growth as shown on the State and County plans.

Comment:

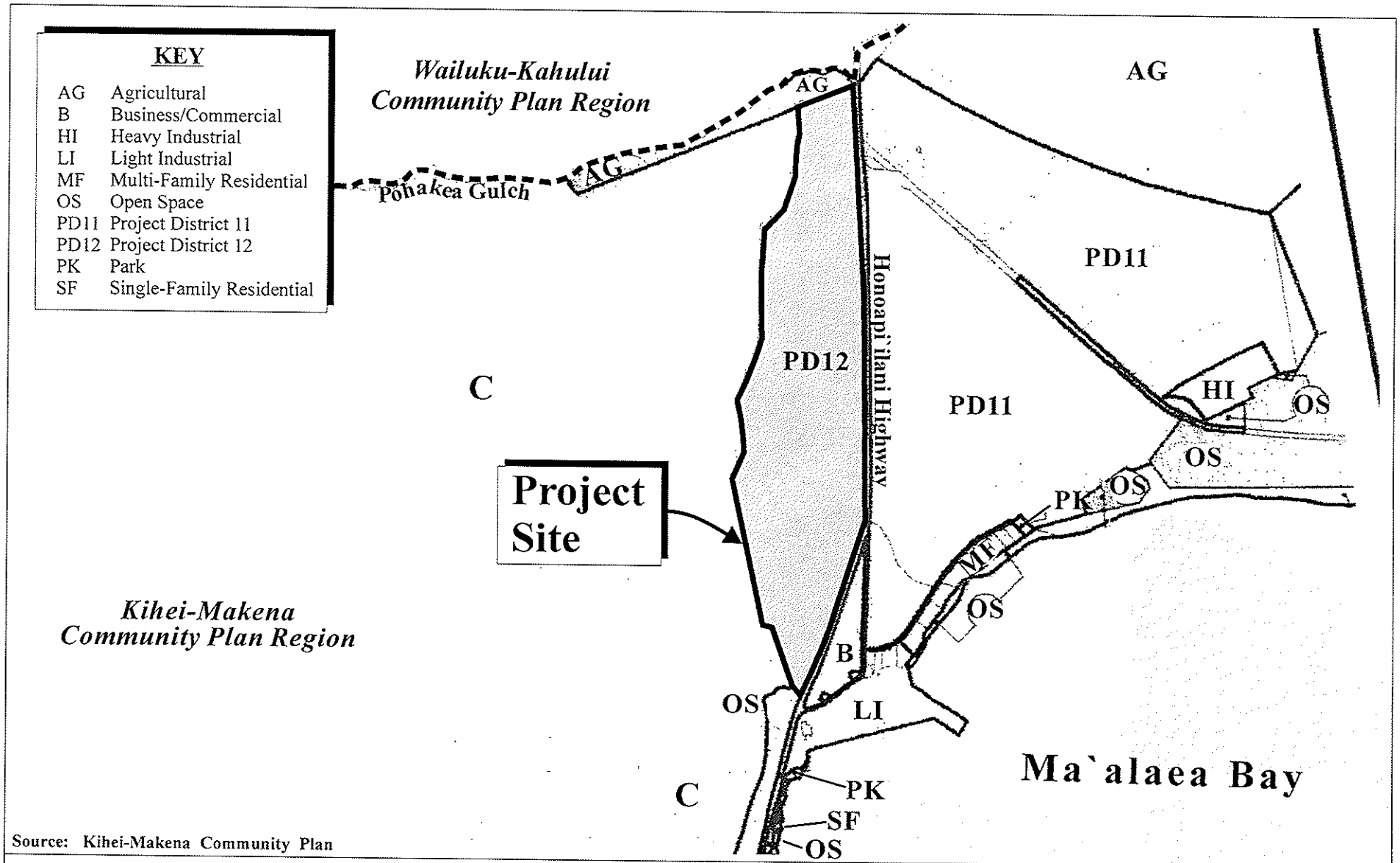
The project site is designated Project District 12 by the Kihei-Makena Community Plan. The project area is in the vicinity of the commercial land uses of Ma`alaea Boat Harbor and Ma`alaea Triangle. Kihei-Makena Community Plan also designates lands adjacent to the project site for business and commercial uses and for future residential development within Project District 11. The lands proposed for reclassification are, therefore, located within an area suitable for new urban growth as evidenced by the existing urban uses and land reserved for future residential development in the vicinity of the project area.

It may include lands which do not conform to paragraphs (1) to (5):

When surrounded by or adjacent to existing urban development; and only when those lands represent a minor portion of this district.

It shall not include lands, the urbanization of which will contribute toward scattered spot urban development, necessitating unreasonable investment in public infrastructure or support services.

It may include lands with a general slope of twenty percent (20%) or more if the commission finds that those lands are desirable and suitable for urban purposes and that the design and construction controls, as adopted by any Federal, State, or County agency, are adequate to protect the public health, welfare and safety, and the public's interest in the aesthetic quality of the landscape.



Source: Kihei-Makena Community Plan

Figure 16 Proposed Ma`alaea Mauka Residential Subdivision and Related Improvements

Kihei-Makena Community Plan Land Use Designations

NOT TO SCALE

Prepared for: Maalaea Properties, LLC

MUNEKIYO & HIRAGA, INC.

MaalProp\MaukaPD\DraftEIS\CPLUD

Comment:

As mentioned previously, the project site is located adjacent to areas of existing urban development. Existing State Land Use designated urban lands lie to the southeast, which include the Ma`alaea Commercial Triangle, the Ma`alaea Small Boat Harbor, and various condominiums and single-family residences along the Ma`alaea Bay coastline. The development of Ma`alaea Mauka will not necessitate unreasonable investment in public infrastructure or support systems. All engineering infrastructure systems for Ma`alaea Mauka will be provided and installed by the applicant. The project area contains slopes ranging between 4 to 6 percent. County grading regulations will be followed to ensure the protection of public health, safety, and welfare. Refer to **Appendix "B"**.

In regards to the wastewater treatment site, a State Special Use Permit (SUP) will be required prior to implementation of the proposed wastewater system improvements.

Pursuant to Section 15-15-95, Hawai`i Land Use Commission Rules, certain "unusual and reasonable" uses may be permitted within the Agricultural District. The proposed wastewater treatment system improvements are consistent with the guidelines for determining an "unusual and reasonable" use as follows:

Guideline: The use shall not be contrary to the objective sought to be accomplished by Chapters 205 and 205A, HRS and the rules of the Commission.

Response: The proposed use is not contrary to the objective of the State Land Use Law which is 'to preserve, protect, and encourage the development of land in the State for those uses to which they are best suited in the interest of the public health and welfare of the State of Hawai`i. The proposed Ma`alaea Mauka residential subdivision project on the neighboring project site is being proposed in an effort to promote public health and welfare in Maui County through the provision of much needed residential units. The wastewater system improvements are being proposed specifically to address the sewer infrastructure requirements generated by the proposed 949 units. As a fundamental operational element of the Ma`alaea Mauka Project, the proposed wastewater system for the Ma`alaea Mauka residential subdivision is, therefore, not contrary to the objective sought to be accomplished by Chapters 205 and 205A, Hawai`i Revised Statutes, and the rules of the commission.

Guideline: The desired use would not adversely affect surrounding property

Response: Best Management Practices will be implemented both prior to and during the

construction of the proposed wastewater system improvements. The facility has been designed as an enclosed facility to ensure that noise and odor-related nuisances are minimized as much as is reasonably practicable. R-1 treated effluent produced as a result of the treatment process will be reused within the applicant's land to the south of the Wastewater Treatment Plant (WTP) site. With implementation of the foregoing mitigation techniques, adverse impacts to surrounding properties are not anticipated as a result of the proposed wastewater system improvements.

Guideline: The use would not unreasonably burden public agencies to provide roads and streets, sewers, water, drainage and school improvements, and police and fire protection.

Response: The proposed wastewater system improvements will be implemented to support the sewer requirements of the proposed Ma`alaea Mauka residential subdivision. As such, adverse impacts the above-mentioned public services are not anticipated to result from the proposed improvements.

Guideline: Unusual conditions, trends, and needs have arisen since the district boundaries and rules were established

Response: The current version of the Kihei-Makena Community Plan was adopted by ordinance in 1998, subsequent to the establishment of the district boundaries and rules. The Kihei-Makena Community Plan sets forth planning goals, objectives, policies and implementing actions to guide decision making in the region. The need to provide new housing inventory in the context of the Community Plan's land use designation for the project area provides supporting circumstances for the granting of special permit for the wastewater treatment facility. The wastewater treatment facility is an integral component of the proposed Ma`alaea Mauka project.

Guideline: The land upon which the proposed use is sought is unsuited for the uses permitted within the district

Response: The lands proposed for the WTP are fallow, with the balance of the effluent reuse area (approximately 85 acres) to be used for continued agricultural purposes.

In the context of the land use designations set forth by the Kihei-Makena Community Plan, the proposed wastewater treatment facility location provides a buffer to minimize the impacts

of agricultural activities immediately adjacent to and upwind of the proposed residential areas. From a water use standpoint, the proposed WTP will provide R-1 water for continued use of the approximately 85 acres for agricultural purposes. The removal of five (5) acres from the Agricultural district is considered a minimal removal of lands for infrastructure use to support new housing opportunities in the Central Maui region.

B. HAWAI`I STATE PLAN

Chapter 226, HRS, also known as the Hawai`i State Plan, is a long-range comprehensive plan which serves as a guide for the future long-term development of the State by identifying goals, objectives, policies, and priorities, as well as implementation mechanisms. Examples of State objectives and policies relevant to the proposed project are as follows:

1. **Section 226-05, Objectives and policies for population. To achieve this objective, it shall be the State policy to:**

    a. Promote increased opportunities for Hawai`i's people to pursue their socio-economic aspirations throughout the islands.

    b. Plan the development and availability of land and water resources in a coordinated manner so as to provide for the desired levels of growth in each geographic area.

2. **Section 226-13, Objectives and policies for physical environment-land, air, and water quality. To achieve this objective, it shall be the State policy to:**

    a. Promote effective measures to achieve desired quality in Hawai`i's surface, ground, and coastal waters.

    b. Reduce the threat to life and property from erosion, flooding, tsunamis, hurricanes, earthquakes, volcanic eruptions, and other natural or man-induced hazards and disasters.

    c. Encourage design and construction practices that enhance the physical qualities of Hawai`i's communities.

    d. Encourage urban developments in close proximity to existing service and facilities.

3. **Section 226-14, Objectives and policies for facility systems-in general. To achieve the general facility systems objective, it shall be the policy of the State to:**

   a. Accommodate the needs of Hawai`i's people through coordination of facility systems and capital improvements in consonance with State and County plans.

   b. Encourage flexibility in the design and development of facility systems to promote prudent use of resources and accommodate changing public demands and priorities.

   c. Ensure that required facility systems can be supported within resource capacities and at reasonable cost to the user.

4. **Section 226-15, Objectives and policies for facility systems-solid and liquid wastes. To achieve the solid and liquid waste objectives, it shall be the policy of the State to:**

   a. Encourage the adequate development of sewage facilities that complement planned growth.

   b. Promote re-use and recycling to reduce solid and liquid wastes and employ a conservation ethic.

5. **Section 226-16, Objectives and policies for facility systems-water. To achieve the facilities systems water objectives, it shall be the policy of the State to:**

   a. Coordinate development of land use activities with existing and potential water supply.

   b. Support research and development alternative methods to meet future water requirements well in advance of anticipated needs.

   c. Reclaim and encourage the productive use of runoff water and wastewater discharges.

   d. Assist in improving the quality, efficiency, service, and storage capabilities of water systems for domestic and agricultural use.

   e. Promote water conservation programs and practices in government, private industry, and the general public to help ensure adequate water to meet long-term needs.

6. **Section 226-17, Objectives and policies for facility systems-transportation. To achieve the facilities systems transportation objective, it shall be the policy of the State to:**

   a. Encourage a reasonable distribution of financial responsibilities for transportation among participating government and private parties.

   b. Encourage transportation systems that serve to accommodate present and future development needs of communities.

7. **Section 226-19, Objectives and policies for socio-cultural advancement – housing. To achieve the housing objectives, it shall be the policy of the State to:**

   a. Effectively accommodate the housing needs of Hawai`i's people.

   b. Stimulate and promote feasible approaches that increase housing choices for low-income, moderate-income, and gap-group households.

   c. Increase homeownership and rental opportunities and choices in terms of quality, location, cost, densities, style, and size of housing.

The proposed project is in conformance with the above-noted objectives and policies of the Hawai`i State Plan.

The State Functional Plans define actions for implementation of the Hawai`i State Plan through the identification of needs, problems and issues, and recommendations on policies and priority actions which address the identified areas of concern. The proposed reclassification request is consistent with the following State Functional Plans:

1. **State Agricultural Functional Plan**

   The proposed project will reclassify approximately 257 acres of land from the State Agricultural district to the State Urban district. While the project site for the proposed subdivision was formerly used for sugarcane cultivation, it is now fallow, utilized to support short-term cattle operations. The proximity of the project site to existing and planned urban land uses provides a reasonable nexus and an appropriate foundation for the proposed reclassification request, particularly in the context of meeting affordable housing needs of the community.

2. State Housing Functional Plan

Recent policy discussions and the growing public demand for affordable housing indicate a current shortage of single-family and multi-family housing in the Central Maui area. The proposed 949 residential units within the proposed subdivision will help address a critical community need.

3. State Recreational Functional Plan

Outdoor recreation is recognized by the Hawai`i State Plan as an important part of life for Hawaii's residents. As the population rises and residential land uses increase, creating areas dedicated to outdoor recreation becomes increasingly vital. The State Functional Plan for Recreation urges the improvement and expansion of recreational facilities in urban areas and local communities. The proposed subdivision, designed to provide approximately 15 acres of park land seeks to address this need.

4. State Transportation Functional Plan

The Hawai`i State Plan addresses the vital role of transportation, particularly in light of population increases and community growth. The State Functional Plan for transportation calls for a Statewide transportation system consistent with planned growth objectives throughout the State. The proposed subdivision within Project District 12 is, therefore, consistent with meeting the States objectives of the State Transportation Functional Plan. Internal subdivision roads will be constructed to County of Maui design standards.

5. State Historic Preservation Functional Plan

The State Historic Preservation Functional Plan deals with the preservation of historic properties, the collection and preservation of historic records, artifacts and oral histories, and the provision of public information and education on the ethnic and cultural heritages and history of Hawai`i. Archaeological inventory surveys have been completed for the Ma`alaea Mauka project area by Scientific Consulting Services, Inc. in compliance with applicable historic preservation requirements. Refer to **Appendix "G"**. The AIS reports are currently under review by the State Historic Preservation Division (SHPD). The proposed project is consistent with the objectives outlined under the State Historic Preservation Functional Plan.

C. MAUI COUNTY GENERAL PLAN

The Maui County General Plan (1990 Update) sets forth broad objectives and policies to help guide the long-range development of the County. As stated in the Maui County Charter, the General Plan shall:

> *"...indicate desired population and physical development patterns for each island and region within the County; shall address the unique problems and needs of each island and region; shall explain the opportunities and the social, economic, and environmental consequences related to potential developments; and shall set forth the desired sequence, patterns, and characteristics of future developments. The General Plan shall identify objectives to be achieved, and priorities, policies, and implementing actions to be pursued with respect to population density, land use maps, land use regulations, transportation systems, public and community facility locations, water and sewage systems, visitor destinations, urban design, and other matters related to development."*

The proposed action is in keeping with the following General Plan objectives and policies:

POPULATION

Objective:

To plan the growth of resident and visitor population through a directed and managed growth plan so as to avoid social, economic and environmental disruptions.

Policy:

Balance population growth by achieving concurrency between the resident employee work force, the job inventory created by new industries, affordable resident/employee housing, constraints on the environment and its natural resources, public and private infrastructure, and essential social services such as schools, hospitals, etc.

LAND USE

Objectives:

1. To preserve for present and future generations existing geographic, cultural and traditional community lifestyles by limiting and managing growth through environmentally sensitive and effective use of land in accordance with the individual character of the various communities and regions of the County.

2. To use the land within the County for the social and economic benefit of all the County's residents.

Policies:

1. Provide and maintain a range of land use districts sufficient to meet the social, physical, environmental and economic needs of the community.

2. Encourage land use methods that will provide a continuous balanced inventory of housing types in all price ranges.

3. Encourage programs to stabilize affordable land and housing prices.

HOUSING

Objective:

To provide a choice of attractive, sanitary and affordable homes for all our residents.

Policies:

1. Encourage the construction of housing in a variety of price ranges and geographic locations.

2. Ensure that each community plan region contains its fair share of affordable housing.

URBAN DESIGN

Objective:

To encourage developments which reflect the character and the culture of Maui County's people.

Policy:

Encourage community design which establishes a cohesive identity.

RECREATION AND OPEN SPACE

Objective:

To provide high-quality recreational facilities to meet the present and future needs of our residents of all ages and physical ability.

Policy:

Develop facilities that will meet the different recreational needs of the various communities.

D. COUNTY OF MAUI COMMUNITY PLANS

Within Maui County, there are nine (9) community plan regions. From a General Plan implementation standpoint, each region is governed by a community plan which sets forth desired land use patterns, as well as goals, objectives, policies, and implementing actions for a number of functional areas including infrastructure-related parameters.

- **Kihei-Makena Community Plan**

The proposed Ma`alaea Mauka subdivision is located within the Kihei-Makena Community Plan region. The existing land use designations for the project area under the Community Plan are set forth in the Kihei-Makena Community Plan Land Use Map. Refer to **Figure 16**. The lands underlying the subject property are designated as Project District 12 by the Kihei-Makena Community Plan.

As described in the Kihei-Makena Community Plan, project districts provide a "flexible and creative planning approach rather than specific land use designations", establishing "continuity in land uses and designs while providing for orderly growth of the community as well as comprehensive and concurrent provision of infrastructural facilities and systems". According to the "recommended spatial allocations" for Project District 12, 218 acres should be allocated for residential use, 5 acres for a community center, 27 acres for park, open space, and buffer zones, and 10 acres for collector roadways. The Community Plan guidelines also suggest a total of 1,150 residential units be developed in Project District 12.

The proposed Ma`alaea Mauka residential subdivision would involve the development of a total of 949 residential units and is in compliance with the Project District-specific goals and objectives of the Kihei-Makena Community Plan. The proposed project is also in conformance with the following, more general, goals, objectives, and policies of the Kihei-Makena Community Plan:

LAND USE

Goal:

A well-planned community with land use and development patterns designed to achieve the efficient and timely provision of infrastructural and community needs while preserving and enhancing the unique character of Ma`alaea, Kihei, Wailea and Makena as well as the region's natural environment, marine resources and traditional shoreline uses.

Objectives and Policies:

1. Identify priority growth areas to focus public and private efforts on the provision of infrastructure and amenities to serve existing residents and to accommodate new growth.

2. Provide for limited residential expansion in Ma`alaea which complements the existing natural and built environment.

HOUSING AND URBAN DESIGN

Goal:

A variety of attractive, sanitary, safe and affordable homes for Kihei's residents, especially for families earning less than the median income for families within the County. Also, a built environment which provides complementary and aesthetically pleasing physical and visual linkages with the natural environment.

Objectives and Policies:

1. Provide an adequate variety of housing choices and range of prices for the needs of Kihei's residents, especially for families earning less than the median income for families within the County, through the project district approach and other related programs. Choices can be increased through public/private sector cooperation and coordinated development of necessary support facilities and services.

2. Require a mix of affordable and market-priced housing in all major residential projects, unless the project is to be developed exclusively as an affordable housing project.

PHYSICAL AND SOCIAL INFRASTRUCTURE

Goal:

Provision of facility systems, public services and capital improvement projects in an efficient, reliable, cost effective, and environmentally sensitive manner which accommodates the needs of the Kihei-Makena community, and fully support present and planned land uses, especially in the case of project district implementation. Allow no development for which infrastructure may not be available concurrent with the development's impacts.

Objective and Policy (Recreation):

1. Provide for a range of park sizes and types at neighborhood, community and regional scales. New residential developments shall provide recreational facilities on-site to meet the immediate needs of project residents.

- **Wailuku-Kahului Community Plan**

The proposed wastewater treatment site is located within the Wailuku-Kahului Community Plan region. The land use map for the Wailuku-Kahului Community Plan region designates the wastewater treatment site as "Agricultural". Improvements to occur within this area include a five (5) acre wastewater treatment plant, a 85-acre effluent reuse area, a 1.0 million gallon water tank and related drainage improvements pursuant to State Department of Health and County of Maui requirements. Refer to **Figure 4**.

The above-noted improvements are in conformance with the following goals, objectives, and policies of the Wailuku-Kahului Community Plan:

ECONOMIC ACTIVITY

Goal:

A stable and viable economy that provides opportunities for growth and diversification to meet long-term community and regional needs and in a manner that promotes agricultural activity and preserves agricultural lands and open space resources.

Objectives and Policies:

1. Support agricultural production so agriculture can continue to provide employment and contribute to the region's economic well-being.

ENVIRONMENT

Goal:

A clean and attractive physical and natural environment in which man-made developments or alterations to the natural environment relate to sound environmental and ecological practices, and important scenic and open space resources are maintained for public use and enjoyment.

Objectives and Policies:

1. Preserve agricultural lands as a major element of the open space setting that which borders the various communities within the planning region. The close relationship between open space and developed areas is an important characteristic of community form.

2. Protect nearshore waters by ensuring that discharges from waste disposal meet water quality standards. Continuous monitoring of existing and future waste disposal systems is necessary to ensure their efficient operation.

3. Encourage the use of siltation basins and other erosion control features in the design of drainage systems.

4. Minimize noise, water and air pollution from industrial uses, electric power generating facilities and wastewater treatment plants.

5. Promote the planting and maintenance of trees and other landscape planting to enhance the streetscapes and the built-environment.

HOUSING

Goal:

A sufficient supply and choice of attractive, sanitary and affordable housing accommodations for the broad cross section of residents, including the elderly.

Objectives and Policies

1. Coordinate the planning, design and construction of public infrastructure improvements with major residential projects that have an affordable housing component.

2. Plan, design and construct off-site public infrastructure improvements (i.e. water, roads, sewer, drainage, police and fire protection, and solid waste) in anticipation of residential, commercial and industrial developments defined in the Community Plan.

LAND USE

Goal:

An attractive, well-planned community with a mixture of compatible land uses in appropriate areas to accommodate the future needs of residents and visitors in a manner that provides for the social and economic well-being of residents and the preservation and enhancement of the region's environmental resources and traditional towns and villages.

Objectives and Policies:

1. Ensure that adequate lands are available to support the region's present and future agricultural activities.

INFRASTRUCTURE

Goal:

Timely and environmentally sound planning, development and maintenance

of infrastructure systems which serve to protect and preserve the safety and health of the region's residents, commuters and visitors through the provision of clean water, effective waste disposal and drainage systems, and efficient transportation systems which meet the needs of the community.

WATER AND UTILITIES

Objectives and Policies:

1. Coordinate expansion of and improvements to the water system to coincide with the development of residential expansion areas.

Implementing Actions:

1. Plan and construct water system improvements, including additional source, transmission, and storage capabilities.

LIQUID AND SOLID WASTE

Objectives and Policies:

1. Coordinate sewer system improvement plans with future growth requirements, as defined in the Community Plan.

2. Reuse the treated effluent from the County's waste water treatment system for irrigation and other suitable purposes in a manner that is environmentally sound.

Implementing Actions

1. Explore feasibility of extending sewer service to unserviced areas as part of comprehensive sewer system planning.

DRAINAGE

Objectives and Policies

1. Ensure that storm water run-off and siltation from proposed development will not adversely affect the marine environment and nearshore and offshore water quality. Minimize the increase in

discharge of storm water runoff to coastal waters by preserving flood storage capacity in low-lying areas, and encouraging infiltration of runoff.

E. COUNTY ZONING

1. Project Site

The project site is currently zoned "Agricultural" by the County of Maui. As with the State Land Use designation, a change in zoning to establish the Project District zoning designation will be required for the project site to enable implementation of the Ma`alaea Mauka residential subdivision.

In regards to the proposed CIZ request, an assessment of Section 19.30A.20 of the Maui County Code has been completed as part of this document. Section 19.30A.20 states that County agricultural lands that meet at least two (2) of the following criteria should be given the highest priority for retention in the agricultural district:

a. Agricultural Lands of Importance to the State of Hawai'i (ALISH)

RESPONSE: The majority of the approximately 257-acre project site which will be the subject of the CIZ request is classified by the ALISH map as "Prime" agricultural lands. The project site, however, has remained out of use for commercial sugarcane production for over ten (10) years now. Agricultural uses on the project site are presently limited to portions of the site being utilized for small-scale cattle-grazing activities.

b. Lands not classified by the ALISH system whose agricultural land suitability, based on soil, topographic, and climatic conditions, supports the production of agricultural commodities, including but not limited to coffee, taro, watercress, ginger, orchard and flower crops and non-irrigated pineapple. In addition, these lands shall include lands used for intensive animal husbandry, and lands in agricultural cultivation in five of the ten years immediately preceding the date of approval of this chapter; and

RESPONSE: As noted above, the project site for the proposed residential subdivision is classified by the ALISH system as "Prime" agricultural lands. The project, therefore, does not meet this second criterion. Refer to **Figure 8.**

c. **Lands which have seventy-five percent or more of their boundaries contiguous to lands within the agricultural district.**

RESPONSE: The project site for the proposed residential subdivision is located in an area of the Ma`alaea community which is characterized by a mixture of residential, commercial, agricultural and conservation uses. Ma`alaea Small Boat Harbor and Ma`alaea Commercial Triangle are situated along the south eastern boundary of the project site. The Honoapi`ilani Highway runs along the entire eastern perimeter of the project site separating lands currently utilized by HC&S for the commercial cultivation of sugarcane. Lands falling within the State conservation district lie directly to the southwest of the project site. The parcel of land (also owned by the applicant) which lies between the project site's western boundary and the aforementioned State conservation land is currently zoned by the County of Maui for agricultural use. Based on the preceding description of surrounding land uses in the Ma`alaea area, less than 75 percent of the boundaries of the project site are contiguous to lands within the County of Maui's agricultural district. The project site, therefore, does not meet this third criterion.

The foregoing assessment indicates that the project site for proposed residential subdivision meets only one (1) out of the three (3) criteria of MCC Section 19.30A.20. As such, the project site should not merit being given the highest priority for retention in the agricultural district during the CIZ application process.

2. **Wastewater Treatment Site**

The proposed wastewater treatment improvements are not an outright permitted use in the County Agricultural District. As such, a Conditional Permit (CP) will be required for these wastewater treatment improvements. In the context of the Community Plan designation for the neighboring Project District 12, a CP allowing the construction of a wastewater treatment facility and related improvements is considered reasonable. The proposed use will not impact the condition of the surrounding area, and will not be detrimental to public interest, convenience and welfare. The description of the technical parameters of the wastewater treatment facility is provided in **Appendix "M"** and **Appendix "O"**. As described in these reports and in Chapter II of this EIS document, mitigation measures associated with the facility's development and operation have been identified and will be implemented as part of the proposed project.

Coordination with the County of Maui, Department of Planning will be undertaken regarding the preparation and submission of the CIZ and CP applications for the proposed project.

F. PROJECT DISTRICT PROCESSING REGULATIONS

Separate from the Change in Zoning process, Project District Phase I and Phase II approvals will also be required. The Phase I application will address permitted land uses, accessory uses, densities, heights, setbacks and lot dimensions. Preliminary performance standards for Phase I consideration will be developed and submitted concurrent with the filing of the CIZ application for the project.

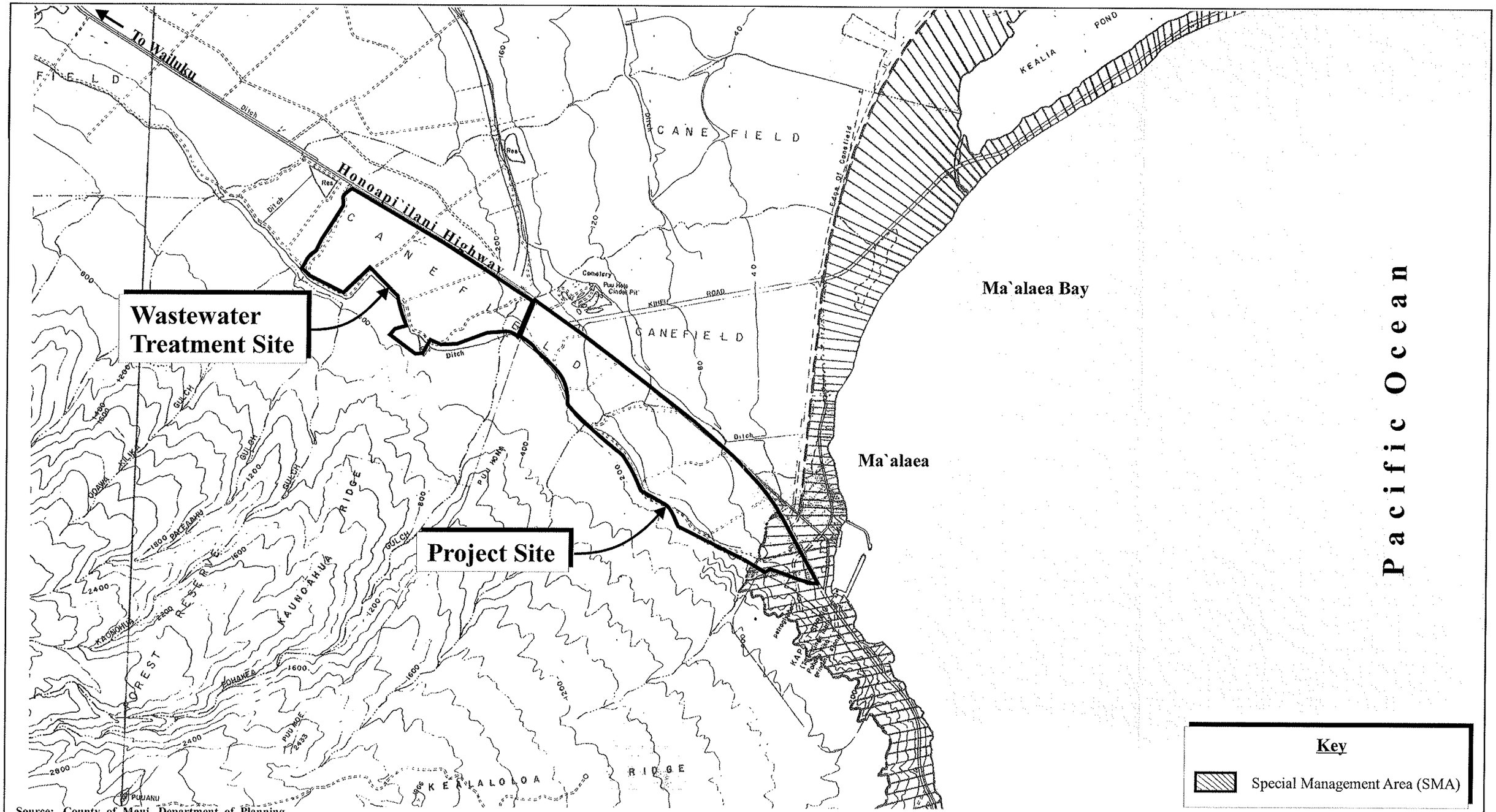
Phase II approval involves more specific site plan review, including but not limited to, architectural and landscape architectural design concepts, street layout, drainage proposals, densities and open space ratios. The PD Phase II application will also be filed together with the CIZ application.

It is noted that PD Phase III applications will be separately filed with the Planning Department at the time of construction plans review.

G. COASTAL ZONE MANAGEMENT/SPECIAL MANAGEMENT AREA

A portion of land on the southern tip of the project site is located within the County of Maui's Special Management Area (SMA). See **Figure 17**. Review of the preliminary development plans for the project indicates that the southernmost component of single-family patio homes are located within the SMA zone. As such, the applicant will request the necessary SMA approvals for this component of work following receipt of all required land use entitlement changes. The Hawai`i Coastal Zone Management Program (HCZMP), as formalized in Chapter 205A, HRS, establishes objectives and policies for the preservation, protection, and restoration of natural resources of Hawai`i's coastal zone.

As set forth in Chapter 205A, HRS, this section addresses the project's relationship to applicable coastal zone management considerations.



Source: County of Maui, Department of Planning

Figure 17 Proposed Ma`alaea Mauka Residential Subdivision and Related Improvements

Special Management Area (SMA) Boundary Map

NOT TO SCALE

MUNEKIYO & HIRAGA, INC.

Prepared for: Maalaea Properties, LLC & Lodi Development, Inc.

Maalprop/maukaspd/DraftEIS/smaboundary

1. Recreational Resources

Objective: Provide coastal recreational opportunities accessible to the public.

Policies:

a. Improve coordination and funding of coastal recreational planning and management; and

b. Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:

i. Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;

ii. Requiring replacement of coastal resources having significant recreational value including, but not limited to, surfing sites, fishponds, and sand beaches, when such resources will be unavoidably damaged by development; or requiring reasonable monetary compensation to the State for recreation when replacement is not feasible or desirable;

iii. Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;

iv. Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;

v. Ensuring public recreational uses of county, state, and federally owned or controlled shoreline lands and waters having recreational value consistent with public safety standards and conservation of natural resources;

vi. Adopting water quality standards and regulating point and nonpoint sources of pollution to protect, and where feasible, restore the recreational value of coastal waters;

vii. Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches, and artificial reefs for surfing and fishing; and

viii. Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the

land use commission, board of land and natural resources, and county authorities; and crediting such dedication against the requirements of section 46-6.

Response: Recreational area needs of the proposed project are anticipated to be addressed through the allocation of 15 acres for a park, 32 acres of open space and a 5 acres for a community center designated within the master-planned area. Additionally, the master-planned community will maintain public access opportunities to mauka trails above the project site.

2. **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 Hawai`ian and American history and culture.

Policies:

a. Identify and analyze significant archaeological resources;

b. Maximize information retention through preservation of remains and artifacts or salvage operations; and

c. Support state goals for protection, restoration, interpretation, and display of historic resources.

Response: As stated previously, archeological inventory surveys and a cultural assessment report were completed for the proposed project to identify and issue recommendations regarding historic, cultural and archeological resources. Refer to **Appendix "G"** and **Appendix "H"**. No significant impacts to cultural or historic resources are anticipated from the proposed project. An archaeological monitoring plan will be submitted to the State Historic Preservation Division (SHPD) for review and approval prior to initiation of any ground altering activities for the project. Should human remains be inadvertently discovered during land-based, ground-altering activities, work will promptly cease in the immediate area of the find, and the find will be further protected from damage. The SHPD and the Maui/Lana`i Islands Burial Council will be notified immediately and procedures for the treatment of inadvertently discovered human remains will be followed pursuant to Chapter 6E, HRS.

3. Scenic and Open Space Resources

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

Policies:

a. Identify valued scenic resources in the coastal zone management area;

b. Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views to and along the shoreline;

c. Preserve, maintain, and, where desirable, improve and restore shoreline open space and scenic resources; and

d. Encourage those developments that are not coastal dependent to locate in inland areas.

Response: The project site for the proposed residential subdivision is located along the lower slopes of the West Maui Mountains above Honoapi`ilani Highway and Ma`alaea on elevations ranging from 80 feet above mean sea level (amsl) at the south portion of the property to approximately 200 feet (amsl) at the north end of the property. The urban forms established by the proposed project plan will conform to height restrictions under Title 19 of the Maui County Code and will be buffered with landscaping and open space areas to mitigate the impact on visual resources. View corridors will not be adversely affected by the proposed subdivision project.

4. Coastal Ecosystems

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

Policies:

a. Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;

b. Improve the technical basis for natural resource management;

c. Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance;

d. Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs; and

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

Response: A Water Quality and Marine Biology Survey was completed in September 2006 for the proposed project. Refer to **Appendix "F"**. The survey concluded that, with implementation of Best Management Practices (BMPs), the proposed project should have minimal long-term adverse effects on the nearby coastal ecosystems. Appropriate BMPs and erosion-control measures will be implemented to ensure that coastal ecosystems are not adversely impacted by construction activities.

5. Economic Uses

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

Policies:

a. Concentrate coastal dependent development in appropriate areas;

b. Ensure that coastal dependent development such as harbors and ports, and coastal related development such as visitor industry facilities and energy generating facilities, are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area; and

c. Direct the location and expansion of coastal dependent developments to areas presently designated and used for such developments and permit reasonable long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when:

   i. Use of presently designated locations is not feasible;

   ii. Adverse environmental effects are minimized; and

   iii. The development is important to the State's economy.

Response: A Fiscal and Economic Impact Assessment Report has been completed

Response: A Fiscal and Economic Impact Assessment Report has been completed for the proposed project by Decisions Analysts Hawai`i, Inc. (May 2007). The proposed residential subdivision, involving the construction of 949 single-family and residential units, will provide a number of economic benefits through the provision of 380 affordable housing units, approximately 710 direct and indirect construction-related employment positions, State/County tax revenues, a regional wastewater treatment facility and privately-developed water supply system, water/sewage collection systems, interior roadways, a community center and parks. The respective annual net revenue/expenditures for the State of Hawai`i and the County of Maui to support the project are $2.6 million (revenue) and $160,000.00 (expenditure) in the development phase and $1.3 million (expenditure) and $399,000.00 (expenditure) in the operational phase. In considering the need for new housing supply, and that appropriate measures for mitigating adverse environmental effects can be implemented, the proposed action, while not coastal dependent, will positively contribute to the County's economic and social welfare.

6. **Coastal Hazards**

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

Policies:

a. Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and nonpoint source pollution hazards;

b. Control development in areas subject to storm wave, tsunami, flood, erosion, hurricane, wind, subsidence, and point and nonpoint source pollution hazards;

c. Ensure that developments comply with requirements of the Federal Flood Insurance Program; and

d. Prevent coastal flooding from inland projects.

Response: The majority of the project falls within Flood Zone C, with small portions located within Flood Zone B. Flood Zone B designates an area between the 100-year and 500-year flood, or an area that experiences less than 12 inches of flooding. Based on preliminary project plans, it is anticipated that the portions of the subject property located in Flood Zone B will not contain structures, but rather will

be integrated into buffer zones and other landscaping features, thus mitigating potential flood hazards. Special Flood Hazard Area Development (SFHAD) Permits will be obtained for the project, as applicable. The entire area of the wastewater site is located in Food Zone C. The proposed project will be designed in accordance with the Drainage Standards of the County of Maui, as applicable, to ensure that the project will not adversely affect downstream and adjoining properties.

7. Managing Development

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

Policies:

a. Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development;

b. Facilitate timely processing of applications for development permits and resolve overlapping or conflicting permit requirements; and

c. Communicate the potential short and long-term impacts of proposed significant coastal developments early in their life cycle and in terms understandable to the public to facilitate public participation in the planning and review process.

Response: Public input will be solicited in coordination with the processing of the Draft EIS, pursuant to the Chapter 343, HRS environmental assessment review process. All aspects of development will be conducted in accordance with applicable Federal, State, and County standards. Opportunities for review of the proposed action are offered through the regulatory review process for construction and development permits, as well as the State Land Use Commission District Boundary Amendment (DBA) and County Change in Zoning (CIZ) processes.

8. Public Participation

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

Policies:

a. Promote public involvement in coastal zone management processes;

b. Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal issues, developments, and government activities; and

c. Organize workshops, policy dialogues, and site-specific mediations to respond to coastal issues and conflicts.

Response: The EIS document will be processed in accordance with Chapter 343, HRS, and opportunity for comment by agencies and the public will be provided. As previously mentioned, public input opportunities will also be provided through the Land Use Commission DBA and County CIZ processes. It is noted that a series of design workshops were conducted with the Ma`alaea Community Association on October 15, 29 and November 12, 2005. These workshops, and the public input which occurred as a result of them, were integral components in developing the Master Plan presented in this document. Additionally, project development parameters were presented to and discussed with the Wailuku Main Street Association on March 20, 2007 and September 25, 2007.

9. **Beach Protection**

Objective: Protect beaches for public use and recreation.

Policies:

a. Locate new structures inland from the shoreline setback to conserve open space, minimize interference with natural shoreline processes, and minimize loss of improvements due to erosion;

b. Prohibit construction of private erosion-protection structures seaward of the shoreline, except when they result in improved aesthetic and engineering solutions to erosion at the sites and do not interfere with existing recreational and waterline activities; and

c. Minimize the construction of public erosion-protection structures seaward of the shoreline.

Response: Appropriate Best Management Practices (BMPs) will be implemented to manage drainage during construction phases for the projects. In the long term, the proposed project has been designed to ensure that downstream and adjoining properties will not be adversely affected. Implementation of the project will result

in an estimated 24 percent net reduction in the peak storm water flows entering the Ma`alaea drainage system.

10. Marine Resources

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

Policies:

a. Ensure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;

b. Coordinate the management of marine and coastal resources and activities to improve effectiveness and efficiency;

c. Assert and articulate the interests of the State as a partner with federal agencies in the sound management of ocean resources within the United States exclusive economic zone;

d. Promote research, study, and understanding of ocean processes, marine life, and other ocean resources in order to acquire and inventory information necessary to understand how ocean development activities relate to and impact upon ocean and coastal resources; and

e. Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.

Response: To evaluate potential impacts on coastal resources, a water quality and marine biology survey was completed for the project on September 2006. Refer to **Appendix "F"**. Appropriate BMPs and erosion control measures will be implemented to ensure that coastal ecosystems are not adversely impacted by construction activities.

In addition to the foregoing objectives and policies, SMA permit review criteria pursuant to Act 224 (2005) provides that:

> No special management area use permit or special management area minor permit shall be granted for structures that allow artificial light from floodlights, uplights, or spotlights used for decorative or aesthetic purposes when the light:

(1) Directly illuminates the shoreline and ocean waters; or

(2) Is directed to travel across property boundaries toward the shoreline and ocean waters.

Response: The proposed subdivision is not located on or near the shoreline. The preliminary lighting plan for the project will be designed to ensure that no lighting is directed across property boundaries towards the shoreline.

H. OTHER REGULATORY APPROVALS

Coordination with the Department of Army, State Department of Health and State Office of Planning will be conducted to determine applicable Federal permit requirements, the applicability of Section 401 Water Quality Certification and Coastal Zone Management Consistency approval requirements, respectively in relation to the proposed residential subdivision and related improvements. In particular, utility crossings at Pohakea Gulch for both water and sewerlines will be reviewed with the Department of the Army once system designs are developed.

IV. ALTERNATIVES TO THE PROPOSED ACTION

IV. ALTERNATIVES TO THE PROPOSED ACTION

The applicant hosted an intensive three (3) day planning design workshop for the proposed project on October 15, 29 and November 12, 2005. The participants in the workshop included the property owners and the Board of Directors for the Ma`alaea Community Association which represents the residential property owners in Ma`alaea. Participants evaluated several alternative land use layouts and were given the opportunity to have input into the planning of the residential community.

A. PREFERRED ALTERNATIVE

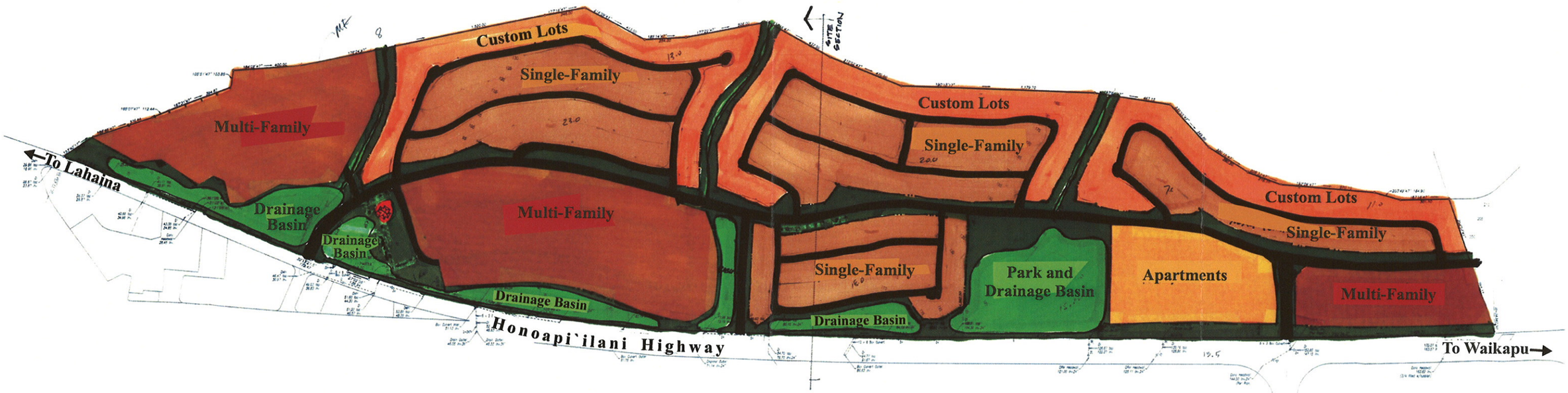
The proposed development plan represents the preferred alternative. This alternative, covering 257 acres, integrates various types of affordable and market-rate housing within a master-planned residential community. Nine hundred forty-nine (949) housing units will be developed through a combination of single-family homes, single-family custom lots, single-family patio homes, apartments, town homes, and senior care housing. Those units not required to be provided as affordable under the County of Maui's Residential Workforce Housing Policy will be sold at market rates. Landscaping and open space will be used to provide a common unity to the project and interconnectivity to each housing type, community center, and park. Refer to **Figure 5**.

B. CONCEPTUAL PLAN A

During the design workshop phase of the project, several land use plans were considered. Conceptual Plan A was developed based on the principle of establishing a transition of density and housing types from higher density adjacent to open space and along the highway to lower density, single-family dwellings higher on the project site to maximize views and distance from the highway. Plan A would have incorporated a total of 936 units (383 single-family units, 408 multi-family units, and 145 apartment units) over approximately 170 acres. Additional land would be devoted to a community center, park, open space, and roadways. See **Figure 18**.

KEY

- Custom Lots
- Single-Family Production
- Community Center
- Apartments
- Parks and Open Space
- Drainage Basins
- Multi-Family Patio Homes



Source: Maalaea Properties LLC

Figure 18

Proposed Ma`alaea Mauka Residential Subdivision and Related Improvements

Conceptual Plan A

NOT TO SCALE

Prepared for: Maalaea Properties LLC

MUNEKIYO & HIRAGA, INC.

MaalProp/MaukaPD/ConceptPlanA

C. CONCEPTUAL PLAN B

Conceptual Plan B was developed based on the principle of integrating all housing types and densities throughout the project site to create a more diverse community. The plan would have developed 903 units (518 single-family units, 240 multi-family units, and 145 apartment units) on 184 acres of land. The Preferred Alternative is a modified version of Conceptual Plan B, which was the preferred choice in the design workshop with the Board of Directors of the Ma`alaea Community Association. Conceptual Plan B was expanded to include senior housing, town homes, and single-family patio homes which resulted in the formulation of the final site plan (preferred alternative). See **Figure 19**.

D. MAXIMUM DENSITY ALTERNATIVE

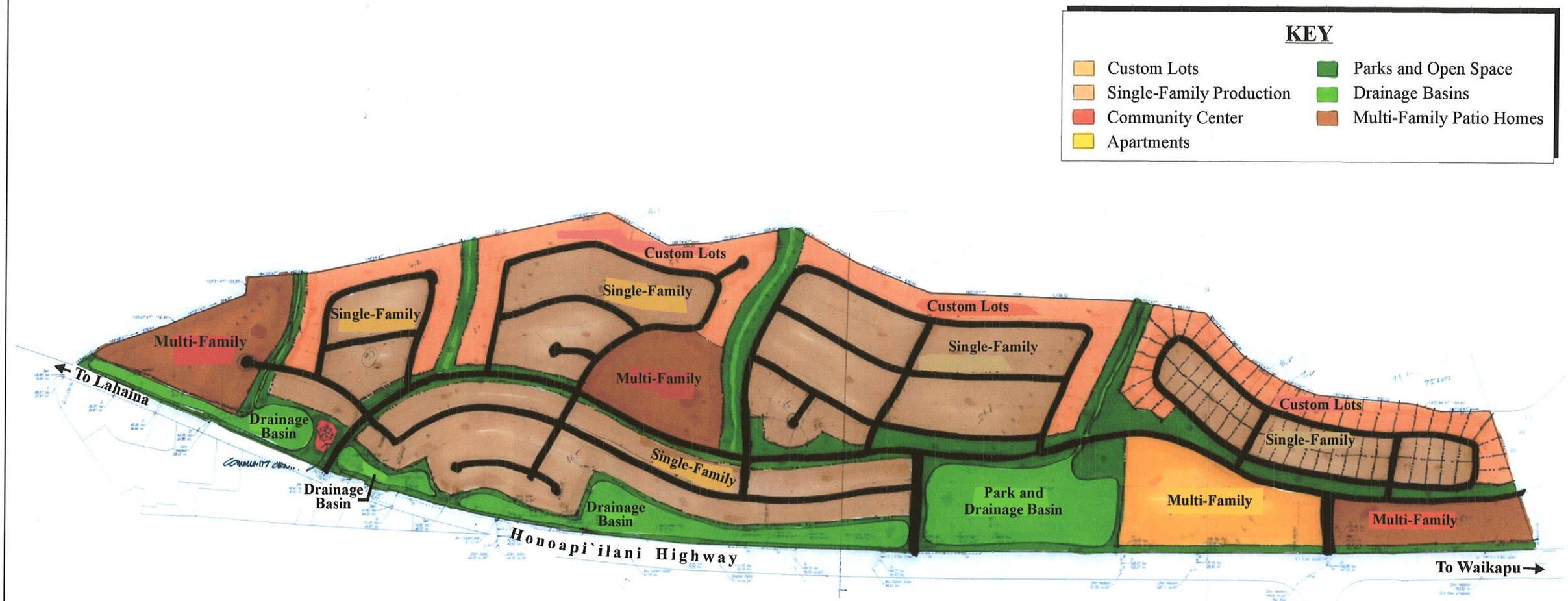
The Kihei-Makena Community Plan suggests a total of 1,150 residential units be developed in Project District 12. However, developing at the maximum density would create additional impacts to infrastructure systems, such as roadways and wastewater service. As such, the applicant prefers to develop the project site at a lower density of 949 units.

E. NO-ACTION ALTERNATIVE

The no-action alternative would involve the continued underutilization of the 257-acre project site. The no action alternative is not deemed appropriate given both the community plan designation of the property as Project District 12 and the increasing demand for affordable and market rate housing on the island. The proposed planned development responds appropriately to current market conditions and needs.

F. CONSIDERATION OF INFRASTRUCTURE DEVELOPMENT ALTERNATIVES

Water and wastewater infrastructure limitations were carefully considered during the planning of the proposed project. Due to the location of the property and water source limitations facing the County of Maui, the applicant has determined that the private development of new source and related water delivery infrastructure would be an appropriate solution to this infrastructural component. Similarly, as there is no County wastewater collection and transmission system in the vicinity of the project, the proposed construction of a wastewater treatment facility on TMK 3-6-004:003 (por.) offers a viable alternative for the treatment and disposal of project generated wastewater.



Source: Maalaea Properties LLC

Figure 19

Proposed Ma`alaea Mauka Residential Subdivision and Related Improvements

Conceptual Plan B

NOT TO SCALE

Prepared for: Maalaea Properties LLC

MUNEKIYO & HIRAGA, INC.

MaalProp/MaukaPD/ConceptPlanB

Coordination will be undertaken with applicable governmental agencies during the engineering design phase of work to identify and incorporate, where necessary, any operational requirements into the water system and wastewater treatment facility plans.

V. SUMMARY OF UNAVOIDABLE IMPACTS AND COMMITMENTS OF RESOURCES

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A. UNAVOIDABLE IMPACTS

The proposed development of the Ma`alaea Mauka residential subdivision will result in certain unavoidable construction-related environmental impacts as outlined in Chapter II.

In the short-term, construction associated with the proposed development will generate noise impacts. These impacts will be limited to the immediate vicinity of the project construction areas. Sound attenuating construction equipment will be used, where practicable, to mitigate noise impacts caused by construction.

Unavoidable air quality impacts will also arise as a result of construction activities, such as the generation of dust and other airborne pollutants. Appropriate BMPs will be incorporated to mitigate adverse impacts such as frequent watering of exposed surfaces and regular maintenance of construction equipment to minimize construction-related impacts.

B. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The project will commit approximately 257 acres of agricultural land formerly used for sugar cane cultivation to an urban use. The production of sugar cane ceased several years ago and the parcel is now being utilized for cattle grazing under a lease that can be terminated upon 30 days' notice. The loss of cattle grazing land is not anticipated to significantly impact cattle raising on Maui due to the fact that the subject parcel represents only a small fraction of available grazing lands on the island.

The visual landscape of the project site will be changed from an agricultural landscape to one which reflects a master planned residential community. Design standards will establish landscaping details with open space, roadways, public and quasi-public facilities and buffer zones to create a smooth transition to surrounding lands.

Additional traffic congestion is anticipated with the completion of this development due to project generated traffic flows and increased ambient traffic associated with regional population growth. Implementation of the traffic improvements outlined in the recommendations section of the TIAR (Refer to **Appendix "J"**) is anticipated to mitigate the anticipated traffic problems.

VI. RELATIONSHIP BETWEEN THE SHORT-TERM USES OF THE ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

VI. RELATIONSHIP BETWEEN THE SHORT-TERM USES OF THE ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

Though utilized to support commercial sugarcane production in the past, the project site has remained out of use for crop cultivation for over ten (10) years now. In light of the housing shortage that currently exists on Maui, coupled with the scarcity of entitled, undeveloped residential lands in the Central Maui region, the conversion of the project's agricultural lands for use as housing presents a beneficial opportunity. In the overall perspective, the project's 257 acres of land represents approximately 0.1 percent of the roughly 246,000 acres of State Agricultural lands on the island of Maui.

The project's anticipated short- and long-term housing and economic benefits are expected to outweigh that from the current short-term uses at the site. The total construction cost of the project is estimated at approximately $400 million dollars, which includes both site utility improvements and vertical construction costs. As a result, the development of the project is anticipated to result in a considerable injection of funds into the local economy. More specifically, the Fiscal and Economic Impact Assessment Report (May 2007), prepared by Decision Analysts Hawai`i, Inc., concludes that the project will result in economic benefits including, but not limited to, the provision of 380 affordable housing units, the generation of approximately 710 direct and indirect construction-related employment positions, and payment of State/County tax revenues, as well as development of a regional wastewater treatment facility, a privately developed water supply system, water/sewage collection systems, interior roadways, a community center and neighborhood parks. The respective annual net revenue/expenditures for the State of Hawai`i and the County of Maui to support the project are $2.6 million (revenue) and $160,000.00 (expenditure) in the development phase and $1.3 million (expenditure) and $399,000.00 (expenditure) in the operational phase.

Conversion of the project's underutilized agricultural lands to provide much needed affordable and market housing for Maui's residents will, therefore, result in greater long-term productivity gains for the region than could be derived through alternative short-term uses of the property.

VII. UNRESOLVED ISSUES

VII. UNRESOLVED ISSUES

As noted in Section II(D)(2) of this document, the applicant is currently in the process of completing water quality testing for two (2) out of the three (3) total number of wells that are required in order to meet potable and non-potable water needs of the proposed project. Initial testing results completed for Pohakea Well #1 indicate that the water source from this first well meets both State Department of Health (DOH) and Environmental Protection Agency (EPA) water quality standards. The results of water quality testing for the additional two (2) wells will be discussed in the Final EIS document for the project.

At this point in time, there are no other unresolved issues associated with the proposed Ma`alaea Mauka Residential subdivision project.

VIII. FINDINGS AND CONCLUSIONS

VIII. FINDINGS AND CONCLUSIONS

The proposed project (involving the 257-acre master planned community and wastewater treatment plant), its expected primary and secondary consequences, as well as the short- and long-term effects of the action, have been evaluated in accordance with the Significance Criteria of Section 11-200-12 of the Hawai`i Administrative Rules (HAR). Considerations for significance criteria assessment are presented below.

1. **Involves an irrevocable commitment to loss or destruction of any natural or cultural resource.**

   As mentioned in Chapter II of this document, a cultural impact assessment of the project area concluded that no significant impacts to cultural practices were anticipated, while an archeological inventory surveys recommended archaeological monitoring as the appropriate form of mitigation. Refer to **Appendix "G"** and **Appendix "H"**. An archaeological monitoring plan will be submitted to the State Historic Preservation Division (SHPD) for review and approval prior to initiation of ground-altering activities for the proposed project.

   Biological inventory surveys of the project area similarly found that the proposed development will not have an impact on any rare or endangered species of flora or fauna. Refer to **Appendix "E"**. Furthermore, drainage improvements at the project site have been designed to reduce post development peak runoff by an estimated 24 percent. This net reduction in drainage flow is expected to mitigate potential impacts of existing flow on coastal and marine resources in the Ma`alaea area.

2. **Curtails the range of beneficial uses of the environment.**

   The proposed project will not curtail the range of beneficial uses of the environment. Development of specific site plans will allow for the identification of applicable Best Management Practices (BMPs) to minimize any construction-related impacts

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 proposed project does not conflict with the State's Environmental Policy and Guidelines as set forth in Chapter 344, Hawai`i Revised Statutes (HRS).

4. **Substantially affects the economic welfare, social welfare, and cultural practices of the community or State.**

As noted previously, a Fiscal and Economic Impact Assessment Report was prepared for the proposed project by Decisions Analysts Hawai`i, Inc. in May 2007. The report concluded that the proposed residential subdivision, involving the construction of 949 single-family and residential units, will provide a number of economic benefits through the provision of 380 affordable housing units, approximately 710 direct and indirect construction-related employment positions, State/County tax revenues, a regional wastewater treatment facility and privately-developed water supply system, water/sewage collection systems, interior roadways, a community center and parks. The respective annual net revenue/expenditures for the State of Hawai`i and the County of Maui to support the project are $2.6 million (revenue) and $160,000.00 (expenditure) in the development phase and $1.3 million (expenditure) and $399,000.00 (expenditure) in the operational phase. The provision of additional housing inventory will help to meet an important social need for island residents.

5. **Substantially affects public health.**

The proposed project will not affect public health. The wastewater treatment plant will be designed and operated in accordance with applicable Federal, State and County requirements.

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

The proposed project will be a new center of population for the Kihei-Makena Community Plan region and for Ma`alaea in particular. In this regard, the proposed project will impact public services in the region such as schools, police, and fire protection. The applicant is in the process of coordinating with State and County agencies to ensure that all services and facilities requirements for the Ma`alaea Mauka subdivision are addressed.

7. **Involves a substantial degradation of environmental quality.**

As previously mentioned, drainage improvements for the proposed project have been designed to reduce post-development peak flows in the Ma`alaea area by an estimated 24 percent. Refer to **Appendix "N"**. This peak flow reduction is expected to result in an improvement in coastal water quality during storm conditions.

8. **Is individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions.**

The proposed project does not involve a commitment to larger actions. Accordingly, the impacts assessed in this document is based on the entire action.

9. **Substantially affects a rare, threatened, or endangered species, or its habitat.**

As reported in the biological inventory surveys, the project areas may be used by Nene geese for incidental feeding activity. The proposed action would not curtail transitory feeding opportunities on the site or in the surrounding area. Refer to **Appendix "E"**. No other rare, threatened, or endangered species were observed during the surveys.

10. **Detrimentally affects air or water quality or ambient noise levels.**

Construction activities will result in short-term air quality and noise impacts. Dust control measures, such as regular watering and sprinkling, and installation of dust screens will be implemented to minimize wind-blown emissions. Noise impacts will occur primarily from construction equipment. Equipment mufflers or other noise attenuating equipment, as well as proper equipment and vehicle maintenance, will be used during construction activities. Construction noise impacts will be mitigated through compliance with the provisions of the State of Hawai`i, Department of Health Administrative Rules Title 11, Chapter 46, "Community Noise Control". These rules require a noise permit if the noise levels from construction activities are expected to exceed the allowable levels set forth in the Chapter 46 rules.

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 area is not located within any environmentally sensitive areas. The majority of the subject area is located within Flood Zone C, areas of minimal flooding. The portions of

the project site located in Flood Zone B, areas between the 100-year and 500-year flood, will not be developed for residential purposes. Rather, these areas will be integrated into buffer zones and other landscaping features. The entire wastewater site is located in Flood Zone C.

Drainage improvements for the proposed project have been designed to reduce post-development peak flows in the Ma`alaea area and thereby minimize impacts on nearby coastal waters.

12. Substantially affects scenic vistas and viewplanes identified in county or state plans or studies.

The proposed project will not affect any previously identified scenic vistas or viewplanes. The proposed project will be separated from the Honoapi`ilani Highway through the use of landscaping and buffer zones around developed areas.

13. Requires substantial energy consumption.

The proposed project will involve the commitment of fuel for construction equipment, vehicles, and machinery during construction and maintenance activities.

Coordination with Maui Electric Company (MECO) will be undertaken during the electrical plans preparation phase of work to ensure all operational parameters are addressed for the proposed project.

Given the project scope and the need to carefully evaluate infrastructure requirements, an EIS is being prepared for the proposed Ma`alaea Mauka Residential Subdivision Project.

IX. COMMUNITY MEETINGS

IX. COMMUNITY MEETINGS

A series of design workshops for the project Master Plan were held on October 15, 29, and November 12, 2005. Invitations were distributed prior to the meetings to the Ma`alaea Community Association Board, County Councilmembers and Administration officials. Over the course of these three (3) meetings, the shape and details of the Master Plan concept were discussed and finalized.

X. LIST OF PERMITS AND APPROVALS

X. LIST OF PERMITS AND APPROVALS

The following list of permits and approvals are anticipated to be needed for project implementation.

1. **State of Hawai`i**

   A. District Boundary Amendment.

   B. Land Use Commission Special Use Permit (Wastewater Treatment Site only).

   C. NPDES Permits, as applicable.

   D. State Department of Health Underground Injection Control approval, as applicable (Wastewater Treatment Site only).

2. **County of Maui**

   A. Change in Zoning.

   B. Conditional Permit (Wastewater Treatment Site only).

   C. Project District Phase I, Phase II and Phase III approvals.

   D. Subdivision approval.

   E. Special Management Area (SMA) Permits, as applicable.

   F. Construction Permits.

   G. Special Flood Hazard Area Development (SFHAD) Permits, as applicable.

XI. PARTIES CONSULTED DURING THE PREPARATION OF DRAFT ENVIRONMENTAL IMPACT STATEMENT; LETTERS RECEIVED AND RESPONSES TO SUBSTANTIVE COMMENTS

XI. PARTIES CONSULTED DURING THE PREPARATION OF DRAFT ENVIRONMENTAL IMPACT STATEMENT; LETTERS RECEIVED AND RESPONSES TO SUBSTANTIVE COMMENTS

The following agencies and organizations were consulted during the preparation of this Draft EIS:

1. Ranae Ganske-Cerizo,
Soil Conservationist
Natural Resources Conservation Service
U.S. Department of Agriculture
210 Imi Kala Street, Suite 209
Wailuku, Hawai`i 96793-2100

2. George Young, Chief, Regulatory Branch
U.S. Department of the Army
U.S. Army Engineer District, Honolulu
Regulatory Branch
Building 230
Fort Shafter, Hawai`i 96858-5440

3. Robert P. Smith, Field Supervisor
U. S. Fish and Wildlife Service
300 Ala Moana Blvd., Rm. 3-122,
Box 50088
Honolulu, Hawai`i 96813

4. Ted Liu, Director
State of Hawai`i
Department of Business, Economic Development & Tourism
P.O. Box 2359
Honolulu, Hawai`i 96804

5. Laura Thielen, Director
State of Hawai`i
Office of Planning
P.O. Box 2359
Honolulu, Hawai`i 96804

6. Patricia Hamamoto, Superintendent
State of Hawai`i
Department of Education
P.O. Box 2360
Honolulu, Hawai`i 96804

7. Ken Nomura
Complex Area Superintendent
(Central/Upcountry Maui)
Department of Education
54 High Street, 4th Floor
Wailuku, Hawai`i 96793

8. Chiyome Fukino, M.D., Director
State of Hawai`i
Department of Health
919 Ala Moana Blvd., Room 300
Honolulu, Hawai`i 96814

9. Denis Lau, Chief
Clean Water Branch
State of Hawai`i
Department of Health
919 Ala Moana Blvd., Room 300
Honolulu, Hawai`i 96814

10. Herbert Matsubayashi,
District Environmental Health
Program Chief
State of Hawai`i
Department of Health
54 High Street
Wailuku, Hawai`i 96793

11. Peter Young, Chairperson
State of Hawai`i
Department of Land and Natural Resources
P. O. Box 621
Honolulu, Hawai`i 96809

12. Melanie Chinen, Administrator
State of Hawai`i
Department of Land and Natural Resources
State Historic Preservation Division
601 Kamokila Blvd., Room 555
Kapolei, Hawai`i 96707

13. Rodney Haraga, Director
State of Hawai`i
Department of Transportation
869 Punchbowl Street
Honolulu, Hawai`i 96813
cc: Fred Cajigal

14. Clyde Namu`o, Administrator
Office of Hawai`ian Affairs
711 Kapiolani Boulevard, Suite 500
Honolulu, Hawai`i 96813

15. Carl Kaupololo, Chief
County of Maui
Department of Fire and Public Safety
200 Dairy Road
Kahului, Hawai`i 96732

16. Vanessa A. Medeiros, Director
County of Maui
Department of Housing and Human Concerns
200 S. High Street
Wailuku, Hawai`i 96793

17. Jeffrey S. Hunt, Director
County of Maui
Department of Planning
250 South High Street
Wailuku, Hawai`i 96793

18. Tamara Horcajo, Director
County of Maui
Department of Parks and Recreation
700 Halia Nakoa Street, Unit 2
Wailuku, Hawai`i 96793

19. Thomas Phillips, Chief
County of Maui
Police Department
55 Mahalani Street
Wailuku, Hawai`i 96793

20. Milton Arakawa, Director
County of Maui
Department of Public Works and Environmental Management
200 South High Street
Wailuku, Hawai`i 96793

21. Don Medeiros, Director
County of Maui
Department of Transportation
200 South High Street
Wailuku, Hawai`i 96793

22. Jeffrey Eng, Director
County of Maui
Department of Water Supply
200 South High Street
Wailuku, Hawai`i 96793

23. Neal Shinyama, Manager-Engineering
Maui Electric Company, Ltd.
P.O. Box 398
Kahului, Hawai`i 96733

24. Thomas Hutchinson, Network Engineering and Planning
Hawaiian Telcom
60 South Church Street
Wailuku, Hawai`i 96793

25. **Oceanic Time Warner Cable of Hawai`i**
350 Hoohana Street
Kahului, Hawai`i 96732

26. **Ma`alaea Community Association**
50 Hau`oli Street
Ma`alaea, Hawai`i 96793

27. Jocelyn Perreira, Executive Director
Wailuku Main Street Association
2035 West main Street, Suite 1
Wailuku, Hawai`i 96793

28. **Maui Memorial Medical Center**
221 Mahalani Street
Wailuku, Hawai`i 96793

United States Department of Agriculture

NRCS

Natural Resources Conservation Service
210 Imi Kala St. Ste 209
Wailuku, HI 96793
808-244-3100

July 28, 2006

Mr. Anthony Ching, Executive Officer
Munekiyo & Hiraga, Inc.
305 High Street Suite 104
Wailuku, Hawaii 96793

Dear Mr. Ching,

SUBJECT: Proposed Maalaea Mauka Residential Subdivision at
TMK (2) 3-6-01: 018, Kula, Maui, Hawaii

We highly recommend this project be constructed in Phases to reduce the impact of erosion and drainage concerns. As soon as the area grading and construction in each single Phase(s) is complete, the area should be stabilized and vegetated. Locate potential non point pollutant sources away from the ocean and critical areas. Material stock piles, access roads and other land-disturbing activities should be located away from critical areas that drain directly into sensitive water bodies. Design parking lot/driveways which will direct and capture run off to landscape areas.

We highly recommend a construction entrance such as a pad of gravel over filter cloth located where traffic leaves a construction site. As vehicles drive over the gravel the moist sand and sediment will be collected from the vehicles wheels which will reduce offsite transport of sediment into the ocean.

Thank you for the opportunity to comment.

Sincerely,

Ranae F. Ganske-Cerizo
District Conservationist

MUNEKIYO & HIRAGA, INC.

MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSURU "MICH" HIRANO

KARLYNN KAWAHARA

October 27, 2006

Ranae Ganske-Cerizo, District Conservationist
U.S. Department of Agriculture
Natural Resources Conservation Service
210 Imi Kala Street, Suite 209
Wailuku, Hawai`i 96793

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN) for Proposed Ma`alaea Mauka Residential Subdivision and Related Improvements, Land Use Commission Petition (A06-765)

Dear Ms. Ganske-Cerizo:

Thank you for your letter dated July 28, 2006, providing comments on the EISPN for the subject project. The applicant intents to construct the proposed project in phases. Best Management Practices (BMPs) will be implemented during construction to reduce the impact of erosion and drainage concerns. The Draft Environmental Impact Statement (EIS) will incorporate preliminary engineering studies to address concerns regarding drainage, storm water retention and traffic congestion. The preliminary drainage report in particular, will examine storm drainage systems, including the storm water retention component.

We appreciate the input from your office. A copy of the Draft Environmental Impact Statement will be provided to you for review and comment.

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,

Mark Alexander Roy, Planner

MAR:tn
cc: Steve Kikuchi, Ma`alaea Properties LLC
Lloyd Lee, M&E Pacific Inc.
Jim Geiger, Mancini Welch and Geiger LLC
Bert Saruwatari, DBEDT, Land Use Commission
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AUG 2 8 2006

DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, HONOLULU
FT. SHAFTER, HAWAII 96858-5440

REPLY TO
ATTENTION OF

August 25, 2006

Regulatory Branch

File Number POH-2006-339

Mr. Mark Alexander Roy
Planner
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, HI 96793

Dear Mr. Roy:

This responds to your request for written comments for the draft Environmental Impact Statement Preparation Notice (dEISPN) which addressess activities and impacts of the proposed Maalaea Mauka Residential Subdivision, at Maalaea, Maui Island (existing 260 acres at TMK (2) 3-6-01: 18).

Our records indicate that waters of the United States, as represented by ephemeral or intermittent streams, are present in the project area. As noted in the dEISPN, additional geotechnical information regarding 4 gulches will be examined and presented in the dEIS. The Corps will reserve comments regarding the applicability of Section 404 of the Clean Water Act and any requirement for a Department of Army (DA) permit application until we have the opportunity to evaluate that information in the forthcoming dEIS. It is acknowledged that navigable waters and other special aquatic sites such as anchialine ponds, springs, and wetlands are known to be absent in the proposed project area. The dEIS should address in appropriate sections how the potential for waters of the U.S. to be impacted by construction of project structures and associated ground disturbing activities within the proposed residential development will be avoided or minimized to the maximum extent practicable.

Thank you for your consideration of potential impacts to the aquatic environment in the Maalaea watershed. Please contact Mr. Farley Watanabe of my staff at 438-7701, or facsimile 438-4060, if you have any questions or need additional information.

Sincerely,

George P. Young, P.E.
Chief, Regulatory Branch

Copy furnished:
Anthony Ching, Land Use Commission, State of Hawaii, P.O. Box 2359, Honolulu, HI 96804

3

MUNEKIYO & HIRAGA, INC.

MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSURU "MICH" HIRANO

KARLYNN KAWAHARA

December 5, 2006

Mr. George P. Young, P.E.
Chief, Regulatory Branch
Attention: Farley Watanabe
Department of the Army
U. S. Army Engineer District, Honolulu
Fort Shafter, Hawaii 96858-5440

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN) for Proposed Maalaea Mauka Residential Subdivision and Related Improvements, Land Use Commission Petition (A06-765)
(File Number POH-2006-339)

Dear Mr. Young:

Thank you for your letter dated August 25, 2006, providing comments on the EISPN for the subject project.

On behalf of the applicant, Ma`alaea Properties LLC, we would like to offer the following responses to your comments:

1. We note the determination from your office that ephemeral or intermittent streams are present within the property. The confirmation that there are no navigable waters or other special aquatic sites (anchialine, ponds, wetlands etc.) within the property is also acknowledged. An assessment of existing topographical conditions including gulches within the project site will be included in the Draft Environmental Impact Statement (EIS).

2. The applicant is in the process of completing preliminary drainage reports and water quality studies for the subject project. A discussion of potential impacts from the project on water resources in the Maalaea area will be included within the Draft EIS. Opportunities for mitigation will also be identified to ensure minimization of any identified impacts to the maximum extent practicable.

3. We look forward to receiving the department's comments on both the applicability of the Clean Water Act (Section 404) and the Department of Army (DA) Permit requirements following review of the Draft EIS for the project.

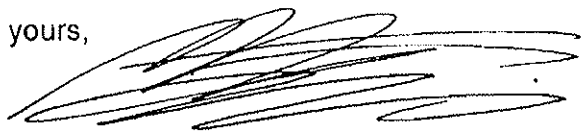
environment
planning
government

305 High Street, Suite 104 · Wailuku, Hawaii 96793 · ph: (808)244-2015 · fax: (808)244-8729 · planning@mhinconline.com

We appreciate the input from your office. A copy of the Draft EIS will be provided for your review and comment.

Should you have any questions, please do not hesitate to contact me at (808)244-2015.

Very truly yours,



Mark Alexander Roy, Planner

MAR:yp
cc: Steve Kikuchi, Maalaea Properties LLC
Lloyd Lee, M&E Pacific, Inc.
Jim Geiger, Mancini, Welch and Geiger LLC
Bert Saruwatari, DBEDT, Land Use Commission
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AUG 2 5 2006

LINDA LINGLE
GOVERNOR
THEODORE E. LIU
DIRECTOR
MARK K. ANDERSON
DEPUTY DIRECTOR
LAURA H. THIELEN
DIRECTOR
OFFICE OF PLANNING

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

OFFICE OF PLANNING
235 South Beretania Street, 6th Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

Telephone: (808) 587-2846
Fax: (808) 587-2824

Ref. No. P-11475

August 24, 2006

Mr. Mark Alexander Roy
Planner
Munekiyo, Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Maui, Hawaii 96793

Subject: Proposed Maalaea Mauka Residential Subdivision
Environmental Impact Statement Preparation Notice (EISPN)
TMK: (2)3-6-01: 018
Maalaea, Maui, Hawaii
Land Use Commission Docket No. A06-765

Dear Mr. Roy:

Thank you for sending the Office of Planning the EISPN for the above referenced proposal to reclassify 260 acres of land from the State Agricultural District to the State Urban District to develop 949 single-family and multi-family residential units.

The Office of Planning will be coordinating the State's position on areas of crosscutting State concern. I am writing to request that the Draft Environmental Impact Statement (DEIS) consider the impacts of the proposed project on the following issues:

1. **Ocean Resources** – Maalaea Bay is part of the Hawaiian Islands Humpback Whale National Marine Sanctuary to protect endangered Humpback Whales. The EISPN states that the Bay was once an area of special interest for nature study, research and photography due to its high diversity of marine life. Maalaea Small Boat Harbor is an important part of Maui's tourism industry by promoting such activities such as snorkeling, whale watching, deep sea fishing, and sunset cruises.

   The EISPN states that the subject property is located on an incline and it is likely that some degree of mass grading will be necessary. State Department of Health guidelines and required permits should be thoroughly discussed in the DEIS. Best

Management Practices (BMPs) should also be discussed as phases of the development are completed and occupied.

It should be noted that Maalaea Harbor sustained substantial polluted runoff and siltation during construction activities at the Maalaea Triangle Project which included the Maui Ocean Center in the late 1990's.

2. **Agricultural Lands** – Preservation of important agricultural lands is a priority for the State and Counties. The EISPN states that the subject project is classified as Prime Agricultural lands according to the Agricultural Lands of Importance to the State of Hawaii (ALISH) classification system. Please discuss how the loss of these lands can be justified or how other lands of equal importance can be protected.

3. **Affordable Housing** – Increasing the supply of affordable housing is a critical State and County issue. Please discuss specifically how the Petitioner plans to meet the County affordable housing requirements.

4. **Water Supply** – Water resource protection is a critical State issue. If the proposed project is within a designated Water Management Area, please include information on the drinking water and non-potable water sources that will be available for the project.

5. **Public Health** – If the project will have the potential to generate hazardous materials or result in the possible contamination of the air, soil or water, please discuss how public health and safety will be protected.

6. **Cultural/Historic Resources** – Please include an inventory survey of cultural and historic sites, with monitoring and preservation plans approved by the State Historic Preservation Division. Please discuss how access for Native Hawaiians for traditional and customary practices will be preserved to include visual landmarks if applicable.

7. **Environmental, Recreational and Scenic Resources** – Please include an inventory of flora and fauna on the project site and any required protections. Please include a description of recreational uses on or near the project site. A description of scenic resources should also be included.

8. **Coastal Zone Management** – The State oversees protection of natural and cultural resources within the coastal zone. Please discuss how the proposed project will balance the competing values of economic development and preservation of coastal resources, including protection from hurricane storm surge, flood hazard and soil erosion.

The Office of Planning looks forward to receiving the DEIS with the potential impacts and mitigation measures for the above issues addressed. If you have any questions, please call the Land Use Division at 587-2842.

Sincerely,

Laura H. Thielen
Director

c: Anthony Ching, LUC

MUNEKIYO & HIRAGA, INC.

MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSURU "MICH" HIRANO

KARLYNN KAWAHARA

November 14, 2006

Laura Thielen, Director
Office of Planning
Department of Business, Economic
Development and Tourism
235 South Beretania Street, 6th Floor
Honolulu, Hawaii 96813

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN) for Proposed Ma`alaea Mauka Residential Subdivision and Related Improvements, Land Use Commission Petition (A06-765)
(Ref No. P-11475)

Dear Ms. Thielen:

Thank you for your letter dated August 24, 2006 providing comments on the EISPN for the subject project. The applicant, Ma`alaea Properties LLC, acknowledges that your office will be coordinating the State's position on areas of concern. On behalf of the applicant, we would like to provide the following information to help address your comments:

1. The applicant recognizes the importance of the ocean resources in the vicinity of the subject project, particularly the Hawaiian Islands Humpback Whale National Marine Sanctuary. National Pollutant Discharge System (NPDES) and/or other permits will be obtained, as applicable, during the building permit and subdivision review processes. More detailed discussion regarding Best Management Practices (BMPs) to be utilized, to mitigate potential drainage and runoff impacts to downstream properties and coastal ecosystems will be discussed in the Draft Environmental Impact Statement (EIS).

2. The applicant has contracted with Decision Analysts Hawaii for preparation of an Agricultural Impact Study which will address issues relating to the loss of agricultural lands. The Draft EIS will include the findings of the report and a copy of the study will be attached as an appendix.

3. The proposed development will provide affordable housing, as required by applicable County of Maui affordable housing policies. The applicant has been coordinating with the County Department of Housing and Human Concerns to

305 High Street, Suite 104 · Wailuku, Hawaii 96793 · ph: (808)244-2015 · fax: (808)244-8729 · planning@mhinconline.com

ensure fulfillment of affordable housing requirements. The Draft EIS will include discussion on how the proposed subdivision will satisfy the requirements.

4. Potable and non-potable water supply for the subject project will be provided from the Waikapu aquifer via installation of a number of privately funded water wells. The applicant intends to dedicate the water supply system to the County of Maui Department of Water Supply upon completion of the improvements. The Draft EIS will address issues relating to water provision, including source, storage and transmission. The applicant would like to note that they plan to undertake water conservation measures, where appropriate.

5. The applicant would like to note that environmental site reviews will be undertaken for the lands affected by the subject project to identify any potential hazardous materials. Pertinent findings of the studies and recommended mitigation will be included in the Draft EIS. As applicable, appropriate mitigation measures will be implemented and BMPs will be utilized where possible, to minimize infiltration and runoff from construction activities.

6. As stated in the EISPN, an Archaeological Inventory Survey has been completed for the subject project. The report will be submitted to the State Historic Preservation Division for review and determination as to whether any archaeological mitigation is necessary. The findings and report will be included in the Draft EIS. A Cultural Impact Assessment report has also been prepared and will be included in the Draft EIS.

7. A Biological Resources Survey of the lands affected by the subject project has been prepared and will be included in the Draft EIS. The Draft EIS will also include discussion on recreational uses on or near the project site. A description of scenic resources will also be included in the Draft EIS.

8. A discussion of any potential impact to coastal and/or marine resources, economic development, preservation of coastal resources, including protection from flood hazard and soil erosion, associated with the proposed development will be addressed in the Draft EIS.

We appreciate the input provided by your office. A copy of the Draft EIS will be provided for your review and comment.

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,

Mark Alexander Roy, Planner

MAR:tn
cc: Steve Kikuchi, Ma`alaea Properties LLC
Lloyd Lee, M&E Pacific, Inc.
Jim Geiger, Mancini Welch and Geiger LLC
Bert Saruwatari, DBEDT, Land Use Commission
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LINDA LINGLE
GOVERNOR

PATRICIA HAMAMOTO
SUPERINTENDENT

STATE OF HAWAI'I
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAI'I 96804

OFFICE OF THE SUPERINTENDENT

August 14, 2006

Mr. Mark Alexander Roy, Planner
Munekiyo & Haraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Roy:

Subject: Environmental Impact Statement Preparation Notice for Ma`alaea Mauka, Ma`alaea, Maui, TMK: 3-6-01: 018

The Department of Education (DOE) has reviewed Environmental Impact Statement Preparation Notice (EISPN) for Ma`alaea Mauka in Ma`alaea, Maui.

In the Draft Environmental Impact Statement (DEIS), the DOE would like to know if accessory residential units will be permitted within the project and the size of the lots. We would also like to get an estimate of the actual cost of the lots and whether there will be a minimum required price for homes built in the project. The costs of the homes and property have a bearing on the number of public school students we estimate will eventually reside in the project.

Page 38 of the EISPN describes three schools in the Kihei area; however, the proposed project is currently located in the Baldwin High complex area. The DOE would like to provide the following information on Baldwin complex schools for inclusion into the DEIS. The data illustrates recent enrollment growth in the schools most likely to serve Ma`alaea Mauka and projected growth which includes estimated enrollment generated by Ma`alaea Mauka.

Schools serving Waikapu/Ma`alaea: actual enrollment, facility capacity and projected enrollment, school years '03-'04 to '11-'12

	Actual enrollment			Capacity	Projected enrollment		
	'03-'04	'04-'05	05-'06		'06-'07	'08-'09	'11-'12
Wailuku Elementary K-5	937	937	953	1110	967	1143	1324
Iao Intermediate 6-8	830	831	830	883	854	962	1053
Baldwin High 9-12	1651	1680	1574	1542	1513	1614	1776

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The enrollment data are compared to the 2005-2006 facility capacity number which is calculated by the DOE to determine the amount of classroom space available for students. In the 2005-2006 school year, there was some excess capacity at Wailuku Elementary and Iao Intermediate but enrollment exceeded capacity at Baldwin High. By the 2008-2009 school year, the student enrollment at all three schools will exceed their facility capacity.

The DOE expects that this project will have an enrollment impact on the public schools serving central Maui and will request the State Land Use Commission's imposition of a school fair-share contribution condition.

Once we have a better idea of the total number of residential units that can be built and the number of units expected to be occupied full time, we will be able to make a more specific estimate of the number of students that will be generated by the project.

We look forward to reviewing the DEIS and providing more detailed comments at that time.

Thank you for an opportunity to comment on your plans. If you have any questions, please call Heidi Meeker of the Facilities Development Branch at 808-733-4862.

Very truly yours,

Patricia Hamamoto
Superintendent

PH:jmb

cc: Randolph Moore, Acting Assistant Superintendent, OBS
Duane Kashiwai, Public Works Manager, FDB
Ken Nomura, CAS, Baldwin/King Kekaulike/Maui Complex Areas
Laura Thielen, Office of Planning, DBEDT

MUNEKIYO & HIRAGA, INC.

MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSURU "MICH" HIRANO

KARLYNN KAWAHARA

November 14, 2006

Patricia Hamamoto, Superintendent
Attention: Heidi Meeker
Facilities Development Branch
State of Hawai`i
Department of Education
P.O. Box 2360
Honolulu, Hawai`i 96804

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN) for Proposed Ma`alaea Mauka Residential Subdivision and Related Improvements, Land Use Commission Petition (A06-765)

Dear Ms. Hamamoto:

Thank you for your letter dated August 14, 2006 providing comments on the EISPN for the subject project.

On behalf of the applicant, Ma`alaea Properties, LLC, we would like to offer the following responses to your comments:

1. Accessory residential ('ohana') units will not be permitted within the proposed residential subdivision. The proposed residential subdivision will contain a total of 949 residential units consisting of both single-family (custom and production) and multi-family (patio homes, town homes, apartments and senior housing) product varieties.

2. Anticipated sales prices for the subject project will vary according to both the above-noted product types and compliance with the County of Maui's affordable housing requirements. The developer is currently in the process of assessing market conditions on Maui in an effort to establish a range of anticipated sales prices for the various housing products. This information will be provided to the Department as it becomes available.

3. The developer recognizes the need for additional enrollment capacity within the Baldwin High complex area and, as such, is looking forward to working with the Department in formulating an appropriate fair share agreement for the subject project.

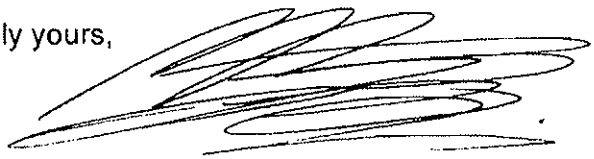
environment
planning
government

305 High Street, Suite 104 · Wailuku, Hawaii 96793 · ph: (808)244-2015 · fax: (808)244-8729 · planning@mhinconline.com

We appreciate the input provided by your office. A copy of the Draft EIS will be provided for your review and comment.

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,



Mark Alexander Roy, Planner

MAR:tn
cc: Steve Kikuchi, Ma`alaea Properties LLC
Lloyd Lee, M&E Pacific, Inc.
Jim Geiger, Mancini Welch and Geiger LLC
Bert Saruwatari, DBEDT, Land Use Commission
F:\DATA\MaalProp\MaukaPD\DOEEISPN.res.wpd

AUG 2 8 2006

LINDA LINGLE
GOVERNOR OF HAWAII

CHIYOME L. FUKINO, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. Box 3378
HONOLULU, HAWAII 96801-3378

In reply, please refer to:

EPO-06-127

August 22, 2006

Mr. Mark Alexander Roy
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Roy:

SUBJECT: Environmental Impact Statement Preparation Notice for the Proposed Maalaea Mauka Residential Subdivision at Maalaea, Maui, Hawaii
TMK: (2) 3-6-01: 018; 260 acres

Thank you for allowing us to review and comment on the subject document. The document was routed to the various branches of the Environmental Health Administration. We have the following Wastewater Branch comments.

Wastewater Branch

We have reviewed the subject preparation notice which proposes a residential development on approximately 260 acres of land. The subdivision would contain approximately 949 dwellings with both single- and multi-family types, including affordable units. On-site infrastructure improvements include water, drainage, and wastewater systems, including a new wastewater treatment facility need to be adequately addressed in the environmental impact statement.

Use of onsite individual wastewater systems for over 900 dwelling units is not an acceptable means of wastewater treatment and disposal. Chapter II, D.3 of the notice suggests that a new wastewater treatment facility is being considered. We do not have any objections to this means of wastewater treatment and disposal for the development and we encourage the developer to work with the County and utilize recycled water for irrigation and other non-potable water purposes.

Please be informed that HRS 343 was recently amended to include language which triggers need for an environmental assessment. Section 343-5a reads in part:

> "(a) Except as otherwise provided, an environmental assessment shall be required for actions that: ...
>
> ... (9) Propose any:
>
> A) Wastewater treatment unit, except an individual wastewater treatment system or a wastewater treatment unit serving fewer than fifty single-family dwellings or the equivalent;"

Therefore, we recommend that the environmental impact statement for the project include the sufficient information on the wastewater treatment and disposal system to comply with these provisions.

All wastewater plans must conform to applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems." We do reserve the right to review the detailed wastewater plans for conformance to applicable rules. Should you have any questions, please contact the Planning & Design Section of the Wastewater Branch at 586-4294.

We strongly recommend that you review all of the Standard Comments on our website: www.state.hi.us/health/environmental/env-planning/landuse/landuse.html. Any comments specifically applicable to this project should be adhered to.

If there are any questions about these comments please contact Jiacai Liu with the Environmental Planning Office at 586-4346.

Sincerely,

KELVIN H. SUNADA, MANAGER
Environmental Planning Office

C: EPO
WWB
EH-Maui
Mr. Anthony Ching, State of Hawaii Land Use Commission

MUNEKIYO & HIRAGA, INC.

MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSURU "MICH" HIRANO
KAREN KAWAHARA

MARK ALEXANDER ROY

June 28, 2007

Mr. Kelvin H. Sunada, Manager
Environmental Planning Office
State of Hawai`i
Department of Health
P.O. Box 3378
Honolulu, Hawai`i 96801-3378

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN) for Proposed Ma`alaea Mauka Residential Subdivision and Related Improvements, Land Use Commission Petition (A06-765)

Dear Mr. Sunada:

Thank you for your letter dated August 22, 2006, providing comments from the Wastewater Branch on the Environmental Impact Statement Preparation Notice (EISPN) for the subject project.

On behalf of the applicant, Ma'alaea Properties LLC, we would like to offer the following responses to the comments noted:

Individual wastewater treatment systems will not be utilized for the subject project. A regional wastewater treatment facility has been incorporated within the plans, which the developer intends to dedicate to the county upon completion of the project. The proposed facility will provide a high level of treatment which will produce R-1 quality effluent. R-1 effluent is classified as suitable for irrigation purposes. The applicant intends to reuse/recycle the R-1 effluent to facilitate irrigation activities on agricultural lands located to the north of the proposed subdivision. In accordance with State Department of Health regulations, reuse of R-1 effluent will occur during dry conditions. Under rainfall conditions, however, R-1 effluent will be redirected to onsite injection wells for disposal in accordance with applicable federal, state and county regulations.

We acknowledge the confirmation from your office that the proposed wastewater treatment facility represents a trigger with respect to the Chapter 343, Hawai`i Revised Statutes (HRS) Environmental Assessment preparation process. Preliminary plans, engineering reports and drainage reports for the proposed wastewater treatment facility as well as a discussion of potential impacts and proposed mitigation measures, as applicable, will be included in the Draft EIS for the project.

The proposed project will comply with applicable provisions contained within Chapter 11-62, "Wastewater Systems" of the department's Administrative Rules. In addition, the project will comply with any other applicable regulatory requirements as listed on the department's website.

We appreciate the input provided by your office. A copy of the Draft EIS will be provided for your review and comment.

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,

Mark Alexander Roy
Project Manager

MAR:lh
cc: Steve Kikuchi, Maalaea Properties LLC
Lloyd Lee, M&E Pacific, Inc.
Jim Geiger, Mancini, Welch and Geiger LLC
Bert Saruwatari, DBEDT, Land Use Commission
F:\DATA\MaulProp\MaukaPD\DOHelspnrea.ltr.wpd

JUL 27 2006

LINDA LINGLE
GOVERNOR OF HAWAII

CHIYOME L. FUKINO, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3378
HONOLULU, HAWAII 96801-3378

In reply, please refer to:
EMD / CWB

07087PKP.06

July 25, 2006

Mr. Mark Alexander Roy
Plannner
Munekiyo & Hiraga, Inc.
305 South High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Roy:

Subject: Environmental Impact Statement Preparation Notice
Maalaea Mauka Residential Subdivision
Maalaea, Maui, Hawaii

The Department of Health (DOH), Clean Water Branch (CWB), acknowledges receipt of your submittal, dated July 20, 2006, and associated documents. The CWB has reviewed the limited information contained in the subject document and offers the following comments:

1. The Army Corps of Engineers should be contacted at (808) 438-9258 for this project. Pursuant to Federal Water Pollution Control Act (commonly known as the "Clean Water Act" (CWA) Paragraph 401(a)(1), a Section 401 Water Quality Certification (WQC) is required for "[a]ny applicant for Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may **result** in any discharge into the navigable waters..." (emphasis added). The term "discharge" is defined in CWA, Subsections 502(16), 502(12), and 502(6); Title 40, Code of Federal Regulations (CFR), Section 122.2; and Hawaii Administrative Rules (HAR), Chapter 11-54.

2. In accordance with HAR, Sections 11-55-04 and 11-55-34.05, the Director of Health may require the submittal of an individual permit application or a Notice of Intent (NOI) for general permit coverage authorized under the National Pollutant Discharge Elimination System (NPDES).

   a. An application for an NPDES individual permit is to be submitted at least 180 days before the commencement of the respective activities. The NPDES application forms may also be picked up at our office or downloaded from our website at http://www.hawaii.gov/health/environmental/water/cleanwater/forms/indiv-index.html.

b. An NOI to be covered by an NPDES general permit is to be submitted at least 30 days before the commencement of the respective activity. A separate NOI is needed for coverage under each NPDES general permit listed below. The NOI forms may be picked up at our office or downloaded from our website at: http://www.hawaii.gov/health/environmental/water/cleanwater/forms/genl-index.html.

   i. Storm water associated with industrial activities, as defined in Title 40, CFR, Sections 122.26(b)(14)(i) through 122.26(b)(14)(ix) and 122.26(b)(14)(xi). [HAR, Chapter 11-55, Appendix B]

   ii. Construction activities, including clearing, grading, and excavation, that result in the disturbance of equal to or greater than one (1) acre of total land area. The total land area includes a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under a larger common plan of development or sale. **An NPDES permit is required before the commencement of the construction activities.** [HAR, Chapter 11-55, Appendix C]

   iii. Discharges of treated effluent from leaking underground storage tank remedial activities. [HAR, Chapter 11-55, Appendix D]

   iv. Discharges of once through cooling water less than one (1) million gallons per day. [HAR, Chapter 11-55, Appendix E]

   v. Discharges of hydrotesting water. [HAR, Chapter 11-55, Appendix F]

   vi. Discharges of construction dewatering effluent. [HAR, Chapter 11-55, Appendix G]

   vii. Discharges of treated effluent from petroleum bulk stations and terminals. [HAR, Chapter 11-55, Appendix H]

   viii. Discharges of treated effluent from well drilling activities. [HAR, Chapter 11-55, Appendix I]

   ix. Discharges of treated effluent from recycled water distribution systems. [HAR, Chapter 11-55, Appendix J]

   x. Discharges of storm water from a small municipal separate storm sewer system. [HAR, Chapter 11-55, Appendix K]

   xi. Discharges of circulation water from decorative ponds or tanks. [HAR, Chapter 11-55, Appendix L]

3. In accordance with HAR, Section 11-55-38, the applicant for an NPDES permit is required to either submit a copy of the new NOI or NPDES permit application to the State Department of Land and Natural Resources, State Historic Preservation Division (SHPD), or demonstrate to the satisfaction of the DOH that the project, activity, or site covered by the NOI or application has been or is being reviewed by SHPD. If applicable, please submit a copy of the request for review by SHPD or SHPD's determination letter for the project.

4. Any discharges related to project construction or operation activities, with or without a Section 401 WQC or NPDES permit coverage, shall comply with the applicable State Water Quality Standards as specified in HAR, Chapter 11-54.

The Hawaii Revised Statutes, Subsection 342D-50(a), requires that "[n]o person, including any public body, shall discharge any water pollutants into state waters, or cause or allow any water pollutant to enter state waters except in compliance with this chapter, rules adopted pursuant to this Chapter, or a permit or variance issued by the director."

If you have any questions, please contact Mr. Alec Wong, Supervisor of the Engineering Section, CWB, at (808) 586-4309.

Sincerely,

DENIS R. LAU, P.E., CHIEF
Clean Water Branch

KP:np

MUNEKIYO & HIRAGA, INC.

MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSURU "MICH" HIRANO

KARLYNN KAWAHARA

January 5, 2007

Dennis R. Lau, Chief
State of Hawai`i
Department of Health
Clean Water Branch
P.O. Box 3378
Honolulu, Hawai`i 96801-3378

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN) for Proposed Ma`alaea Mauka Residential Subdivision and Related Improvements, Land Use Commission Petition (A06-765) (07087PKP.06)

Dear Mr. Lau:

Thank you for your letter of July 25, 2006, providing comments on the EISPN for the subject project. On behalf of the applicant, Ma`alaea Properties, LLC, we offer the following responses to the comments noted:

1. A copy of the EISPN for the subject project was transmitted to the Department of Army on July 20, 2006, for review and comment. All applicable permits will be obtained from the Department of Army prior to the initiation of the proposed project.

2. As applicable, an individual permit or a Notice of Intent (NOI) for general permit coverage under the National Pollutant Discharge Elimination System (NPDES) will be obtained in connection with construction activities for the subject project.

3. The project will comply with applicable requirements of Section 11-55-38, Hawai`i Administrative Rules (HAR).

4. The project will comply with applicable State Water Quality Standards as specified in Chapter 11-54, HAR.

305 High Street, Suite 104 · Wailuku, Hawaii 96793 · ph: (808)244-2015 · fax: (808)244-8729 · planning@mhinconline.com

We appreciate the input from your office. A copy of the Draft Environmental Assessment will be provided to you for review and comment.

Should you have any questions or require additional information, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,

Mark Alexander Roy, Planner

MAR:tn
cc: Steve Kikuchi, Ma`alaea Properties LLC
Lloyd Lee, M&E Pacific, Inc.
Jim Geiger, Mancini Welch and Geiger LLC
Bert Saruwatari, DBEDT, Land Use Commission
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AUG 23 2006

LINDA LINGLE
GOVERNOR OF HAWAII

CHIYOME L. FUKINO, M. D.
DIRECTOR OF HEALTH

LORRIN W. PANG, M. D., M. P. H.
DISTRICT HEALTH OFFICER

STATE OF HAWAII
DEPARTMENT OF HEALTH
MAUI DISTRICT HEALTH OFFICE
54 HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2102

August 22, 2006

Mr. Mark A. Roy
Planner
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawai`i 96793

Dear Mr. Roy:

Subject: **Proposed Maalaea Mauka Residential Subdivision**
TMK: (2) 3-6-01: 018

Thank you for the opportunity to comment on the proposed Maalaea Mauka Residential Subdivision. The following comments are offered:

1. The noise created during the construction phase of the project may exceed the maximum allowable levels as set forth in Hawaii Administrative Rules (HAR), Chapter 11-46, "Community Noise Control". A noise permit may be required and should be obtained before the commencement of work.

2. HAR, Chapter 11-46 sets maximum allowable sound levels from stationary equipment such as compressors and HVAC equipment. The attenuation of noise from these sources may depend on the location and placement of these types of equipment. This should be taken into consideration during the planning, design, and construction of the building and installation of these types of equipment.

3. National Pollutant Discharge Elimination System (NPDES) permit coverage is required for this project. The Clean Water Branch should be contacted at 808 586-4309.

4. All lands formerly in the production of sugarcane should be characterized for arsenic contamination. If arsenic is detected above the US EPA Region preliminary remediation goal (PRG) for non-cancer effects, then a removal and/or remedial plan must be submitted to the Hazard Evaluation and Emergency Response (HEER) Office of the State Department of Health for approval. The plan must comply with Chapter 128D, Environmental Response Law, Hawaii Revised Statutes, and Title 11, Chapter 451, HAR, State Contingency Plan.

5. It is strongly recommended that the Standard Comments found at the Department's website: www.state.hi.us/health/environmental/env-planning/landuse/landuse.html be reviewed, and any comments specifically applicable to this project should be adhered to.

Should you have any questions, please call me at 808 984-8230.

Sincerely,

Herbert S. Matsubayashi
District Environmental Health Program Chief

c: Anthony Ching

MUNEKIYO & HIRAGA, INC.

MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSURU "MICH" HIRANO

KARLYNN KAWAHARA

December 5, 2006

Herbert S. Matsubayashi, Chief
District Environmental Health Program
State of Hawaii
Department of Health
54 High Street
Wailuku, Hawaii 96793

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN) for Proposed Ma`alaea Mauka Residential Subdivision and Related Improvements, Land Use Commission Petition (A06-765)

Dear Mr. Matsubayashi:

Thank you for your letter dated August 22, 2006, providing comments on the EISPN for the subject project. On behalf of the applicant Ma`alaea Properties, LLC, we would like to offer the following responses to your comments:

1. Pursuant to Hawai`i Administrative Rules (HAR), Chapter 11-46, *"Community Noise Control"*, a noise permit will be secured prior to commencement of construction, as applicable.

2. The planning, design and construction of the project will be undertaken in accordance with the maximum allowable sound levels as set forth by HAR, Chapter 11-46.

3. The applicant's civil engineer will contact the Clean Water Branch to address applicable National Pollutant Discharge Elimination System (NPDES) permit requirements for the project.

4. The applicant acknowledges the agency's comments with regard to the prior agricultural use of the subject property. A Phase I Environmental Site Assessment is being prepared for the properties. Pertinent findings and recommendations from the assessments will be included in the Draft Environmental Impact Statement (EIS).

5. As applicable, other regulatory requirements on the Department of Health website, will be addressed as project plans are more refined.

305 High Street, Suite 104 · Wailuku, Hawaii 96793 · ph: (808)244-2015 · fax: (808)244-8729 · planning@mhinconline.com

We appreciate the input from your office. A copy of the Draft EIS will be provided for your review and comment.

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,

Mark Alexander Roy, Planner

MAR:yp
cc: Steve Kikuchi, Ma`alaea Properties LLC
Lloyd Lee, M&E Pacific, Inc.
Jim Geiger, Mancini, Welch and Geiger LLC
Bert Saruwatari, DBEDT, Land Use Commission
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LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
DEPUTY DIRECTOR - LAND

DEAN NAKANO
ACTING DEPUTY DIRECTOR - WATER

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

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

November 8, 2006

Mr. Mark Alexander Roy
Planner
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawai'i 96793

LOG NO: 2006.3579
DOC NO: 0610JP53
Archaeology

Dear Mr. Roy:

SUBJECT: Chapter 6E-42 Historic Preservation Review –
Environmental Impact Statement Preparation Notice for the
Proposed Ma'alaea Mauka Residential Subdivision
Ukumehame/Waikapu Ahupua'a, Wailuku District, Island of Maui
TMK (2) 3-6-001:018

Thank you for the opportunity to review and comment on the Environmental Impact Statement preparation notice for the proposed Ma'alaea Mauka residential subdivision, which was received by our staff on July 20, 2006. Our review is based on reports, maps, and aerial photographs maintained at the State Historic Preservation Division (SHPD).

Based on the submitted plans, we understand the proposed undertaking will involve the master-planned development of single- and multi- family residential units, community sports facilities (i.e. parks and open space), and supporting infrastructure. According to the submitted preliminary plans, approximately 949 residential units will be developed on approximately 165 of the 260 total acres in the subject property, while the remainder of the parcel will be used for a community center, parks, open space, buffer zones, and collector roadways.

We have previously provided comments regarding the proposed undertaking and recommended archaeological mitigation. Subsequently, an archaeological inventory survey report was prepared by Scientific Consultant Services, Inc. (SCS) and accepted by our office (LOG NO: 2005.1191/ DOC NO: 0506MK18). Three agriculturally related historic properties were documented as 13 clearing mounds (SIHP 50-50-09-5657), field irrigation modifications (SIHP 50-50-095658), and a roadway (SIHP 50-50-09-5659). Further archaeological mitigation was warranted in the form of additional sampling and archaeological monitoring.

Archaeological monitoring has been recommended for the proposed undertaking therefore we recommend the following condition be attached to the subject permit, should it be approved:

1) A qualified archaeological monitor (or monitors) shall be present during all dry-land ground-altering activities conducted in the project area in order to document any historic properties which may be encountered during the proposed undertaking and to provide mitigation measures as necessary. An archaeological monitoring plan will need to be submitted to the SHPD for review and acceptance, prior to the commencement of any ground-altering activities. An archaeological monitoring plan must contain the following nine specifications: (1) The kinds of remains that are anticipated and where in the construction area the remains are likely to be found; (2) How the remains and deposits will be documented; (3) How the expected types of remains will be treated; (4) The archaeologist(s) conducting the monitoring has (have) the authority to halt the construction in the immediate area of the find in order to carry out the plan; (5) A coordination meeting between the archaeologist and construction crew is scheduled, so that the construction team is aware of the plan; (6) What laboratory work will be done on remains that are collected; (7) A schedule of report preparation; (8) Details concerning the archiving of any collections that are made; and (9) An acceptable report documenting the findings of the monitoring activities shall be submitted to the SHPD for review upon 180 days following the completion of the proposed undertaking.

2) Please notify SHPD Maui and O'ahu offices, via facsimile, at onset and completion of the project and monitoring program.

We look forward to receiving the archaeological sampling and monitoring plan. Following review and acceptance by our office, we will revise our comments. Please direct any questions or concerns to the Maui office of the SHPD at (808) 243-5169 or (808) 243-4641.

Aloha,

Melanie Chinen, Administrator
State Historic Preservation Division

JP:mk:kf

c: Maui Cultural Resources Commission, Dept. of Planning, 250 S. High Street, Wailuku HI 96793
Dr. Michael Dega, SCS Archaeology, FAX (808) 597-1193

MUNEKIYO & HIRAGA, INC.

MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSURU "MICH" HIRANO

KARLYNN KAWAHARA

March 14, 2007

Melanie Chinen, Administrator
State of Hawai`i
Department of Land and Natural
Resources
State Historic Preservation Division
601 Kamokila Boulevard, Room 555
Kapolei, Hawai`i 96707

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN) for Proposed Ma`alaea Mauka Residential Subdivision and Related Improvements, Land Use Commission Petition (A06-765)
(Log No.: 2006.3579, Doc No.: 0610JP53)

Dear Ms. Chinen:

Thank you for your letter dated November 8, 2006 providing comments on the Environmental Impact Statement (EIS) Preparation Notice for the subject project.

We acknowledge the determination that an archaeological inventory survey for TMK (2) 3-6-001:018 has previously been accepted by your office, subject to the recommendation that archaeological sampling and monitoring take place during all ground-altering activities for the project. As such, an archaeological monitoring plan will be prepared and submitted to your office for review and approval prior to the initiation of construction for the project.

We would like to also note that a supplemental archaeological inventory survey is currently in the process of being prepared for the portion of TMK (2)3-6-004:003, the property for the proposed wastewater treatment plant, the effluent reuse area and the water storage tank. Upon completion of this additional work, the supplemental report will be submitted to SHPD for review and comment. Copies of both the original archaeological inventory report and the supplemental archaeological survey report will be included in the Draft EIS.

A copy of the Draft EIS will be provided to your office for your review and comment. Should you have any questions or require additional information in the meantime, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,

Mark Alexander Roy, Planner

MAR:tn
cc: Steve Kikuchi, Ma`alaea Properties LLC
Lloyd Lee, M&E Pacific, Inc.
Jim Geiger, Mancini Welch and Geiger LLC
Bert Saruwatari, Land Use Commission
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AUG 24 2006

LINDA LINGLE
GOVERNOR

RODNEY K. HARAGA
DIRECTOR

Deputy Directors
FRANCIS PAUL KEENO
BARRY FUKUNAGA
BRENNON T. MORIOKA
BRIAN H. SEKIGUCHI

IN REPLY REFER TO:

STP 8.2250

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

August 22, 2006

Ms. Genevieve Salmonson
Director
Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Dear Ms. Salmonson:

Subject: Proposed Malaea Mauka Residential Subdivision
Environmental Impact Statement Preparation Notice (EISPN)
TMK: (2) 3-6-01: 018

Thank you for your notification of the proposed project.

The subject project will have a significant impact on our State transportation facilities.

According to the EISPN, a traffic impact analysis report (TIAR) will be prepared and included in the forthcoming Draft EIS. The full occupancy of and build out for the project should be reflected in the project's description and also in the evaluation and analysis work done in the TIAR, along with the project's contribution to the cumulative impacts from the other developments in the area.

As an interested party, we look forward to receiving at least five (5) copies of the Draft EIS for review and further comments by our departmental and divisional staff.

We appreciate the opportunity to provide our comments.

Very truly yours,

Rodney Haraga

RODNEY K. HARAGA
Director of Transportation

c: Munekiyo & Hiraga, Inc.
Anthony Ching, Land Use Commission

33

MUNEKIYO & HIRAGA, INC.

MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSURU "MICH" HIRANO

KARLYNN KAWAHARA

November 14, 2006

Rodney K. Haraga, Director
Department of Transportation
869 Punchbowl Street
Honolulu, Hawai`i 96813-5097

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN) for Proposed Ma`alaea Mauka Residential Subdivision and Related Improvements, Land Use Commission Petition (A06-765) (STP 8.2250)

Dear Mr. Haraga:

Thank you for your letter dated August 22, 2006 providing comments on the EISPN for the subject project.

A Traffic Impact Analysis Report (TIAR) will be prepared and will be included in the Draft EIS for the subject project. Construction phasing and occupancy will be discussed in the project description section of the TIAR. The TIAR will evaluate both the project-related contribution, as well as the cumulative traffic impact when considering other proposed developments in the Ma`alaea area.

We appreciate the input provided by your office. Five (5) copies of the Draft EIS will be provided for your review and comment.

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,

Mark Alexander Roy, Planner

MAR:tn
cc: Steve Kikuchi, Ma`alaea Properties LLC
Lloyd Lee, M&E Pacific, Inc.
Jim Geiger, Mancini Welch and Geiger LLC
Bert Saruwatari, DBEDT, Land Use Commission
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AUG 2 4 2006

ALAN M. ARAKAWA
MAYOR

CARL M. KAUPALOLO
CHIEF

NEAL A. BAL
DEPUTY CHIEF

COUNTY OF MAUI
DEPARTMENT OF FIRE AND PUBLIC SAFETY

200 DAIRY ROAD
KAHULUI, MAUI, HAWAII 96732
(808) 270-7561
FAX (808) 270-7919

August 22, 2006

Mr. Mark Alexander Roy
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Subject: Proposed Maalaea Residential Subdivision, TMK (2)3-6-001:018

Dear Mr. Roy:

I have had an opportunity to review the proposed project EIS draft. A large number of residential structures are proposed in the area and the inclusion of a fire station site is commendable and necessary. However, the designated site in the draft would not be ideal as the proximity to the residences are a concern.

Additional fire protection in the area is needed with the inclusion of this project. Please feel free to contact my office to discuss this matter further.

Sincerely,

Carl M. Kaupalolo

CARL M. KAUPALOLO
Fire Chief

CC: Mr. Anthony Ching, Executive Officer,
State of Hawaii Land Use Commission

MUNEKIYO & HIRAGA, INC.

MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSURU "MICH" HIRANO

KARLYNN KAWAHARA

January 5, 2007

Fire Chief Carl M. Kaupalolo
Fire Prevention Bureau
Department of Fire and Public Safety
200 Dairy Road
Kahului, Hawai`i 96732

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN) for Proposed Ma`alaea Mauka Residential Subdivision and Related Improvements, Land Use Commission Petition (A06-765)

Dear Chief Kaupalolo:

Thank you for your letter dated August 22, 2006, providing comments on the EISPN for the subject project.

We note your concern regarding proximity of fire services to residential structures and look forward to continuing to work with the department to identify and address the future fire protection needs of the subject project.

We appreciate the input from your office. A copy of the Draft EIS will be provided for review and comment.

Should you have any questions or require additional information, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,

Mark Alexander Roy, Planner

MAR:tn
cc: Steve Kikuchi, Ma`alaea Properties LLC
Lloyd Lee, M&E Pacific, Inc.
Jim Geiger, Mancini Welch and Geiger LLC
Bert Saruwatari, DBEDT, Land Use Commission
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DEPARTMENT OF
HOUSING AND HUMAN CONCERNS
COUNTY OF MAUI

ALAN M. ARAKAWA
Mayor

ALICE L. LEE
Director

HERMAN T. ANDAYA
Deputy Director

200 SOUTH HIGH STREET • WAILUKU, HAWAII 96793 • PHONE (808) 270-7805 • FAX (808) 270-7165

JUL 31 2006

July 25, 2006

Mr. Mark Alexander Roy, Planner
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Roy:

SUBJECT: MAALAEA MAUKA RESIDENTIAL SUBDIVISION
TMK (2)3-6-01:018
MAALAEA, MAUI, HAWAII

We have reviewed the Environmental Impact Statement Preparation Notice for the subject project, and wish to inform you that we will be recommending that the proposed project be required to comply with the provisions of the draft bill for an ordinance entitled "A Bill For An Ordinance Establishing A Residential Workforce Housing Policy" or the provisions contained in the adopted ordinance.

We look forward to working with the applicant in developing an appropriate affordable housing program for the project.

Thank you for the opportunity to comment.

Very truly yours,

ALICE L. LEE
Director

ETO:hs

c: Housing Administrator

MUNEKIYO HIRAGA, INC.

MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSURU "MICH" HIRANO

KARLYNN KAWAHARA

December 5, 2006

Alice L. Lee, Director
County of Maui
Department of Housing
and Human Concerns
200 South High Street
Wailuku, Hawaii 96793

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN) for Proposed Maalaea Mauka Residential Subdivision and Related Improvements, Land Use Commission Petition (A06-765)

Dear Ms. Lee:

Thank you for your letter dated July 25, 2006 providing comments on the EISPN for the subject project.

On behalf of the applicant, Ma`alaea Properties LLC, we would like to note that the project will comply with all applicable County of Maui affordable housing policies.

We appreciate the input from your office. A copy of the Draft Environmental Impact Statement (EIS) will be provided for your review and comment.

Should you have any questions, please do not hesitate to contact me at (808)244-2015.

Very truly yours,

Mark Alexander Roy, Planner

MAR:yp
cc: Steve Kikuchi, Maalaea Properties LLC
Lloyd Lee, M&E Pacific, Inc.
Jim Geiger, Mancini, Welch and Geiger LLC
Bert Saruwatari, DBEDT, Land Use Commission
F:\DATA\MaalProp\MaukaPD\dhhc.eispnres.wpd

305 High Street, Suite 104 · Wailuku, Hawaii 96793 · ph: (808)244-2015 · fax: (808)244-8729 · planning@mhinconline.com

environment planning government

ALAN M. ARAKAWA
Mayor

MICHAEL W. FOLEY
Director

DON COUCH
Deputy Director

AUG 14 2006

COUNTY OF MAUI
DEPARTMENT OF PLANNING

August 14, 2006

Mr. Mike Munekiyo
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Munekiyo;

RE: Land Use Commission Petition for a District Boundary Amendment and Environmental Impact Statement Preparation Notice (EISPN) for the Proposed Maalaea Mauka Residential Subdivision Located at TMK: 3-6-001:018, Maalaea, Wailuku, Island of Maui, Hawaii (EAC 2006/0021) (LUC Docket #A06 -765)

The Maui Planning Department (Department) received a copy of the Environmental Impact Statement Notice on July 21, 2006. Please refer to the Department's comments dated May 22, 2006, and June 21, 2006 (see attached).

Should you require further clarification, please contact Ms. Kivette Caigoy, Environmental Planner, by email at kivette.caigoy@co.maui.hi.us, or Ms. Colleen Suyama, Staff Planner, by email at colleen.suyama@co.maui.hi.us, or by phone at 270-7735.

Sincerely,

MICHAEL W. FOLEY
Planning Director

MWF:KAC:smb
Enclosure
c: Don Couch, Deputy Planning Director
Colleen Suyama, Staff Planner
Jeff Hunt, Staff Planner
Jane Lovell, Corp. Counsel (w/enclosure)
State Land Use Commission (w/enclosure)
OEQC (w/enclosure)
EAC Project File
General File
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ALAN M. ARAKAWA
Mayor

MICHAEL W. FOLEY
Director

DON COUCH
Deputy Director

COUNTY OF MAUI
DEPARTMENT OF PLANNING

June 21, 2006

Mr. Mike Munekiyo
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Munekiyo;

RE: Land Use Commission Petition for a District Boundary Amendment and Environmental Impact Statement Preparation Notice (EISPN) for the Proposed Maalaea Mauka Residential Subdivision located at TMK: 3-6-001: 018, Maalaea, Wailuku, Island of Maui, Hawaii (EAC 2006/0021) (LUC Docket #A06-765)

The Maui Planning Department (Department) has reviewed the above-referenced document for the proposed action, which involves:

- Development of a residential master planned subdivision on approximately 260 acres, which includes 949 dwelling units (single-family, multi-family, and affordable units), park lands, community center, and a new fire station; and

- On-site infrastructure improvements including water, drainage, and a wastewater treatment facility.

Based on the foregoing, the Department provides the following comments:

1. The Executive Summary indicates the trigger for compliance with Chapter 343, HRS, is the "use of state lands." However, the project overview indicates the lands are privately owned. The proposed action includes a "new wastewater facility," which may also be considered a trigger of Chapter 343, HRS. Please clarify.

   Further, page 2 of the Petition states the EISPN was filed to

"determine whether an Environmental Impact Statement shall be required". Given the anticipated impacts from such a large project, the Planning Department believes an EIS is warranted.

2. The Petition states the property is in close proximity to residential communities in the State Land Use Urban District. The EISPN and Draft EIS should address the fact that only a small portion of the project's boundary is contiguous with existing Urban designated lands and how this conforms with State criteria.

3. The Draft EIS should indicate that a portion of the project is located within the Special Management Area (SMA), and an SMA Use Permit is required.

4. Identify significant mauka trails located within the vicinity of the proposed project on a site plan. Discuss how access will be maintained for the public should the project be constructed. Discuss the feasability of providing public parking for trail access.

5. As stated, the property is located on an incline and mass-grading will be necessary. Provide a detailed grading plan. Discuss potential impacts relative to scenic view resources from Honoapiilani Highway towards the West Maui Mountains. To the greatest extent possible, preserving the views of the West Maui Mountains should be considered in the design of the project.

6. The Agricultural Impact Study and discussion of Cumulative Impacts should consider the loss of all agricultural lands on the Island of Maui from projects proposed or approved to date. A list of projects and regional project maps may be obtained from the Department's Long Range Division.

7. Provide a breakdown of affordable units per the land use categories described in Table 1, Land Allocation. Discuss the anticipated range of affordability as defined by HUD.

8. Regarding Housing Projected Need (Page 6 of the EISPN), the text states that "preliminary analysis indicates that as of 2005, a shortfall of 4,170 residential housing units exists". The basis for this statement should be referenced in the Draft EIS.

9. Clarify whether ohana units will be allowed in the proposed project. If ohana units are permitted, the analysis in the Draft EIS should reflect the increase.

10. The Executive Summary indicates a new fire station will be provided. However, this discussion was not addressed in the document.

11. Regarding Recreational Resources, the Draft EIS should include a reference to park assessment fees.

12. The Department recommends consulting with the County of Maui, Department of Public Works and Environmental Management (DPWEM), Solid Waste Division regarding the feasability of designating an area for a recycling center.

13. The Department concludes that a new elementary school would be needed. The EISPN and Draft EIS should discuss which Intermediate and high schools have capacity for students from 949 units.

14. The EISPN indicates additional information will be provided in the Draft EIS regarding source development for potable drinking water. Given the current and historical use of the area for agricultural purposes, the analysis should include a discussion of water quality in relation to historical and current pesticide usage.

15. The drainage studies should provide a regional analysis and include a discussion of an alternative of designing a system to manage more than the net increase in stormwater runoff.

16. Regarding roadways, the TIAR should address existing access points onto the State highway, options for new access points onto the State highway, and options to minimize proposed access points.

17. The proposed action includes the construction of a wastewater treatment facility.

    a. Identify the proposed location.

    b. Discuss potential odor impacts to residents of the project, harbor users, vehicular traffic along Honoapiilani Highway, and existing residential communities of Maalaea and Waikapu.

c. Discuss designing the system to recycle reclaimed water for irrigation purposes of the development in its entirety.

d. Identify the end discharge point for reclaimed wastewater.

e. If using groundwater injection, discuss the influence to the basal layer and/or salt water intrusion.

18. Alternatives Discussion

a. Include a discussion of the current Maui County General Plan Update with particular emphasis on the Island of Maui. The Department strongly encourages proceeding with the proposed action's land use entitlements following the County's General Plan update.

Further, The Draft EIS should address the Department's comments to Mr. James Geiger dated May 22, 2006 (see attached).

b. Discuss different densities considered in project development.

19. The Department concurs with your list (Chapter IX) of County agencies to be consulted in preparation of the EISPN. The Department recommends these agencies also be consulted for comments on the Draft EIS. Please be advised that to simulate a timely review, the agencies may require additional copies.

Further the Department recommends that the Applicant consult with the Maui Planning Commission upon publication of the Draft EIS.

20. Please provide four (4) copies of the Draft EIS to the Department.

Should you require further clarification, please contact Ms. Kivette Caigoy, Environmental Planner, by email at kivette.caigoy@co.maui.hi.us, or Ms. Colleen Suyama, Staff Planner, by email at colleen.suyama@co.maui.hi.us, or by phone at 270-7735.

Sincerely,

MICHAEL W. FOLEY
Planning Director

MWF:KAC:atw
Enclosure
c: Don Couch, Deputy Planning Director
Colleen Suyama, Staff Planner
Jeff Hunt, Staff Planner
DPWEM, Solid Waste Division
DHHL
Parks Department
State Land Use Commission
DOE
State DOT
OEQC
EAC Project File
General File K:\WP_DOCS\PLANNING\EAC\2006\0021_MaalaeaMaukaSubd\EISPNcomments.wpd

ALAN M. ARAKAWA
Mayor

MICHAEL W. FOLEY
Director

WAYNE A. BOTEILHO
Deputy Director

22

COUNTY OF MAUI
DEPARTMENT OF PLANNING

May 22, 2006

Mr. James Geiger
Mancini Welch and Geiger
33 Lono Avenue, Suite 470
Kahului, Hawaii 96732

Dear Mr. Geiger:

SUBJECT: **MAALAEA MAUKA BOUNDARY AMENDMENT**

This letter is in response to our receipt on May 19, 2006, of your Petition for a Land Use District Boundary Amendment for 260 acres in Maalaea .

This Department is strongly opposed to a State reclassification from Agriculture to Urban at this time. If an application for a Change in Zoning (CIZ) is submitted, this Department will recommend denial to the Maui Planning Commission and the County Council. Maui County is currently updating its General Plan. As part of that process, we will be reconsidering the two Project Districts at Maalaea. In addition to the timing being a serious problem, we are also concerned about the proposed project's 949-unit impact on sewage disposal, schools and other infrastructure.

Our opposition should come as no surprise since Mayor Alan Arakawa and I have expressed our opposition to this proposal at several meetings with Mr. Steve Kikuchi.

Please feel free to contact me should you have questions or need further clarification.

Sincerely,

MICHAEL W. FOLEY
Planning Director

250 SOUTH HIGH STREET, WAILUKU, MAUI, HAWAII 96793
PLANNING DIVISION (808) 270-7735; ZONING DIVISION (808) 270-7253; FACSIMILE (808) 270-7634

45

MUNEKIYO & HIRAGA, INC.

MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSURU "MICH" HIRANO
KARLYN KAWAHARA

MARK ALEXANDER ROY

'07 MAY 30 P3:04

May 30, 2007

DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

Jeffrey S. Hunt, Director
County of Maui
Department of Planning
250 South High Street
Wailuku, Hawai`i 96793

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN) for Proposed Ma`alaea Mauka Residential Subdivision and Related Improvements, Land Use Commission Petition (A06-765)

Dear Mr. Hunt:

Thank you for your letter dated August 14, 2006, providing the department's June 21, 2006 and May 22, 2006 comments on the Environmental Impact Statement (EIS) Preparation Notice for the subject project. We would like to offer the following responses to your comments, which are outlined in the same order as they appear in your letter:

1. There are two (2) triggers associated with the subject project requiring the preparation of an EIS; (1) use of state lands for construction of project driveways and (2) development of a wastewater treatment facility serving greater than fifty (50) single-family dwellings.

   In reference to your comment regarding the need for an EIS, the Land Use Commission ("Accepting Authority") at a meeting on June 22, 2006, determined that preparation of an EIS for the project is warranted.

2. A discussion of surrounding land uses and State designations for such lands will be included in the Draft EIS document.

3. A map showing the portion of the project site falling within the County of Maui's Special Management Area (SMA) will be presented in the Draft EIS document. As applicable, the applicant will address SMA requirements for any improvements proposed to be located within the SMA-designated portion of the project site.

4. A site plan for the proposed subdivision showing the location of the Pali Mauka Trailhead will be included within the Draft EIS document. Access to the mauka trail

will be maintained under a post-development scenario. Public parking will also be provided in close proximity to the trailhead.

5. A Conceptual Mass Grading Plan will be included in the draft EIS document. A discussion relative to potential impacts on scenic view resources will be included in the Draft EIS.

6. The Agricultural Impact Assessment Report and a discussion of its findings and recommendations will be included in the Draft EIS. The assessment, completed by Decision Analysts Hawai'i, Inc., will incorporate an evaluation as to the potential loss of agricultural lands on the island of Maui from projects proposed or approved.

7. The Draft EIS will include a breakdown of affordable units according to the current requirements of the County of Maui's Residential Workforce Housing Policy. Anticipated ranges for the affordable units based on HUD guidelines will also be presented.

8. A Market Study has been completed for the subject project to assess the projected need for housing in Maui County. The findings of this report, along with any other referenced data sources, will be presented in the Draft EIS.

9. Ohana units will not be permitted within the subject project.

10. The applicant is currently in coordination with the Department of Fire and Public Safety to address the fire service requirements for the subject project.

11. The Draft EIS will include a reference to parks and playground assessment fees.

12. The applicant will consult with the Department of Public Works and Environmental Management (DPWEM) during the design/planning phase to assess the feasibility of providing a recycling center within the subject project.

13. We acknowledge the department's comments regarding the need for an elementary school. Enrollment and capacity data for schools anticipated to serve the proposed subdivision will be included in the Draft EIS. The applicant is currently in coordination with the Department of Education to address fair share requirements for the project.

14. The applicant plans to develop a private water supply system which would serve the peak potable and non-potable water service demands of the subject project. Preliminarily, the system will consist of a total of three (3) wells (two (2) production

wells and one (1) backup well), a 1 million gallon water storage tank and associated distribution infrastructure. Well water quality testing will be conducted in line with State of Hawai`i Department of Health requirements.

15. The drainage system for the proposed project has been designed to reduce existing run-off through the Ma`alaea area by approximately 666 cubic feet per second (cfs), a 26 percent reduction. Implementation of the project would be expected to improve the present drainage characteristics of the area.

16. A Traffic Impact Analysis Report (TIAR) has been completed for the subject project. Direct access to the Honoapi`ilani Highway will be provided by three (3) access points (two (2) ingress/egress and one (1) egress right turn out). Indirect access will also be provided to the highway via proposed improvements to the quarry road which runs along the northern boundary of the project site.

17. The proposed wastewater treatment plant will be discussed in the Draft EIS. The discussion will include mitigation of potential for odor-related impacts, recycling of reclaimed water for irrigation purposes and use of back-up injection wells during wet conditions.

18.

a. The project site for the proposed subdivision is designated by the Kihei-Makena Community Plan as Project District 12. A discussion of the project in the context of the current General Plan Update process will be included in the Draft EIS.

   In response to the department's letter dated May 22, 2006 and as noted previously, the applicant is currently proceeding with the preparation of a Draft EIS for the subject project pursuant to Chapter 11-200 of Hawai`i Administrative Rules (HAR). The EIS process will allow for a comprehensive evaluation of the technical characteristics and potential impacts/mitigation measures for the subject project. The EIS process, anticipated to take between 12 and 18 months, will need to be completed before action can be taken on the District Boundary Amendment (DBA) petition for the project. We acknowledge the ongoing General Plan Update process and believe that the information and analysis developed through the EIS process will provide useful input to the General Plan Advisory Committee (GPAC). In this regard, we look forward to meeting with the GPAC to discuss the project's goal of increasing housing inventory, including workforce housing units.

b. A discussion of the different densities considered in the project's development process will be presented in the alternatives section of the Draft EIS.

19. We acknowledge that the department concurs with the list used for the distribution of the EISPN for agency review and comment. The same list of agencies will be utilized for the Draft EIS review process.

20. Four (4) copies of the Draft EIS will be provided to the department for review and comment.

Should you have any questions or require additional information in the meantime, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,

for Mark Alexander Roy, Planner

MAR:tn
cc: Steve Kikuchi, Ma`alaea Properties LLC
Lloyd Lee, M&E Pacific, Inc.
Jim Geiger, Mancini, Welch & Geiger LLC
Bert Saruwatari, Land Use Commission
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AUG 2 9 2006

ALAN M. ARAKAWA
Mayor

MILTON M. ARAKAWA, A.I.C.P.
Director

MICHAEL M. MIYAMOTO
Deputy Director

Telephone: (808) 270-7845
Fax: (808) 270-7955

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS
AND ENVIRONMENTAL MANAGEMENT
200 SOUTH HIGH STREET, ROOM 322
WAILUKU, MAUI, HAWAII 96793

RALPH NAGAMINE, L.S., P.E.
Development Services Administration

DAVID TAYLOR, P.E.
Wastewater Reclamation Division

CARY YAMASHITA, P.E.
Engineering Division

BRIAN HASHIRO, P.E.
Highways Division

TRACY TAKAMINE, P.E.
Solid Waste Division

August 24, 2006

Mr. Michael Munekiyo, A.I.C.P.
MUNEKIYO & HIRAGA, INC.
305 High Street, Suite 104
Wailuku, Maui, Hawaii 96793

Dear Mr. Munekiyo:

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE - MAALAEA MAUKA RESIDENTIAL SUBDIVISION
TMK: (2) 3-6-001:018

We reviewed the subject application and have the following comments:

1. The architect and owner are advised that the project is subject to possible flood inundation. As such, said project must conform to Ordinance No. 1145, pertaining to flood hazard districts.

2. A 30 foot radius shall be provided at the intersection of the proposed subdivision road the adjoining subdivision roads and State roads.

3. A verification shall be provided by a Registered Civil Engineer that the grading and runoff water generated by the project will not have an adverse effect on the adjacent and downstream properties.

4. A detailed and final drainage report and a Best Management Practices (BMP) Plan shall be submitted with the grading plans for review and approval prior to issuance of grading permits. The drainage report shall include hydrologic and hydraulic calculations

and the schemes for disposal of runoff waters. It must comply with the provisions of the "Rules and Design of Storm Drainage Facilities in the County of Maui" and must provide verification that the grading and runoff water generated by the project will not have an adverse effect on adjacent and downstream properties. The BMP plan shall show the location and details of structural and non-structural measures to control erosion and sedimentation to the maximum extent practicable.

5. All existing features such as structures, driveways, drainage ways, edge of the pavement, etc. shall be shown on the project plat plan.

6. A site plan and a sight distance report to determine required sight distance and available sight distance at existing and proposed street intersections shall be provided for our review and approval.

7. The applicant shall obtain street name approvals from the Commission on Naming Streets, Parks and Facilities and show street names on the map.

8. The 100-year flood inundation limits shall be shown on the project site plans. Lot geometrics cannot be approved until such data is submitted and reviewed.

9. A detailed final Traffic Impact Assessment Report for the entire subdivision shall be submitted for our review and approval. The report shall also address regional traffic impacts and include assessments from the local community police officer.

10. For all infrastructure that may be dedicated to the County, preliminary construction plan submittal shall include a completed technical assistance review performed by the Disability and Communication Access Board (DCAB) for compliance with the Americans with Disabilities Act Accessibility Guidelines (ADAAG) for all facilities. All technical and structural infeasible assessments shall be the responsibility of the developer and an agreement waiving the County of Maui of any future liability, including redesign and reconstruction for said facility, shall be recorded with the State Bureau of Conveyances.

11. All roads proposed to be dedicated to the County of Maui shall be constructed to County standards.

12. All drainage systems external to any roads dedicated to the County of Maui shall remain under private ownership and maintenance. This includes the proposed drainage basin.

13. Traffic signs shall be of high intensity sheeting and not "painted on".

14. Traffic markings shall be of thermoplastic (alkyd) extrusion material.

Please call Michael Miyamoto at 270-7845 if you have any questions regarding this letter.

Sincerely,

MILTON M. ARAKAWA, A.I.C.P.
Director

MMA:MMM:da
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MUNEKIYO & HIRAGA, INC.

MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSURU "MICH" HIRANO

KARLYNN KAWAHARA

November 14, 2006

Milton M. Arakawa, AICP, Director
County of Maui
Department of Public Works and
Environmental Management
200 South High Street
Wailuku, Hawai`i 96793

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN) for Proposed Ma`alaea Mauka Residential Subdivision and Related Improvements, Land Use Commission Petition (A06-765)

Dear Mr. Arakawa:

Thank you for your letter of August 24, 2006, providing comments on the EISPN for the subject project.

On behalf of the applicant, Ma`alaea Properties, LLC, we offer the following responses to your comments, which are arranged below in the same order as they appear in your letter:

1. The applicant will evaluate flood inundation parameters as part of its preliminary drainage analysis. The project will comply with all applicable flood hazard area requirements as set forth by Section 19.62 of the Maui County Code.

2. A 30 foot radius will be provided at the intersections of the proposed subdivision roadway network with Honoapi`ilani Highway.

3. The Preliminary Drainage Report (PDR), prepared by M&E Pacific, Inc., verifies that the grading and runoff water generated from the proposed project will not have an adverse impact on adjacent or downstream properties.

4. Grading plans will be submitted along with a Final Drainage Report (FDR) and a Best Management Practices (BMP) Plan for review and approval prior to the issuance of grading permits. All necessary hydrologic and hydraulic calculations, as well as schemes for the disposal of run-off waters will be included within the FDR, which will comply with the provisions of the "Rules and Design of Storm Drainage Facilities in the County of Maui". As with the PDR, the FDR will also provide verification that grading and run-off water generated by the project will not have an adverse effect on adjacent

and downstream properties. The BMP plan will show the location and details of structural measures to control erosion and sedimentation to the maximum extent practicable.

5. All existing features will be shown on the project plat plan.

6. A site plan and a sight distance report to determine required and available sight distances at the proposed intersections of the subject project will be provided to the Department during the construction plans review process.

7. Street name approvals will be obtained, as applicable, from the Commission on Naming Streets, Parks and Facilities. The names of streets will be identified on the plans during the construction plans preparation phase of work.

8. All applicable flood hazard information will be identified during the construction plans preparation phase of work.

9. A Traffic Impact Assessment Report (TIAR) has been prepared for the subject project. A copy of the TIAR will be included within the Draft EIS for your review.

10. The plans to be submitted during the construction permitting process will address compliance issues with the Americans with Disabilities Act (ADA) for infrastructure to be dedicated to the County. Applicable agreements required by the County will be coordinated with your department.

11. All roads to be dedicated to the County of Maui will be constructed to meet applicable County design standards.

12. Drainage systems (external to any roads dedicated to the County) within the subject project will be owned and maintained by the master association for the proposed subdivision.

13. Traffic signs to be installed within the subject project will be composed of high intensity sheeting.

14. Traffic markings within the subject project will be composed of thermoplastic (alkyd) extrusion material.

We appreciate the input provided by your office. A copy of the Draft EIS will be provided for your review and comment.

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Sincerely,

Mark Alexander Roy.

MAR:tn
cc: Steve Kikuchi, Ma`alaea Properties LLC
Lloyd Lee, M&E Pacific, Inc.
Jim Geiger, Mancini Welch and Geiger LLC
Bert Saruwatari, DBEDT, Land Use Commission
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AUG 17 2006

ALAN M. ARAKAWA
MAYOR

KYLE K. GINOZA
Director
DON A. MEDEIROS
Deputy Director
Telephone (808) 270-7511
Facsimile (808) 270-7505

DEPARTMENT OF TRANSPORTATION

COUNTY OF MAUI
200 South High Street
Wailuku, Hawaii, USA 96793-2155

August 14, 2006

Mr. Mark Alexander Roy
Planner
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, HI 96793

SUBJECT: Proposed Maalaea Mauka Residential Subdivision at
TMK (2) 3-6-01:018, Maalaea, Maui, Hawaii

Dear Mr. Roy:

We have reviewed the Environmental Impact Statement (EIS) Preparation Notice for the above subject and found that you have not included an accessible bus shelter within your project. We strongly suggest that you construct one to serve the senior citizen residents of the project. Senior citizens are one of the larger users of public transportation, for which substantial funding is provided by the County of Maui.

Including an accessible bus shelter as part of the project will not pose a significant cost in the larger scheme of construction costs. Constructing it later at the insistence of the residents may pose to be a significant inconvenience once the project is operational and will surely be more costly.

We are willing to meet with you to assist you with this worthwhile endeavor. Please feel free to contact me at 270-7511. Thank you for the opportunity to comment.

Sincerely,

Kyle K. Ginoza
Director

cc: Anthony Ching, Executive Officer, State of Hawaii Land Use Commission

MUNEKIYO HIRAGA, INC.

MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSURU "MICH" HIRANO

KARLYNN KAWAHARA

December 5, 2006

Kyle K. Ginoza, Director
County of Maui
Department of Transportation
200 South High Street
Wailuku, Hawaii 96793-2155

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN) for Proposed Maalaea Mauka Residential Subdivision and Related Improvements, Land Use Commission Petition (A06-765)

Dear Mr. Ginoza:

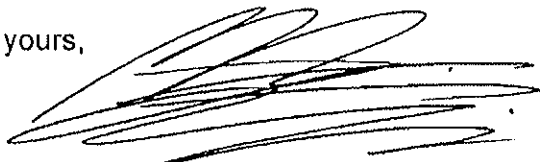
Thank you for your letter dated August 14, 2006 providing comments on the EISPN for the subject project.

On behalf of the applicant, Ma`alaea Properties LLC, we would like to acknowledge your comment regarding the need for an accessible bus shelter in the masterplan to serve residents of the proposed subdivision, especially elderly residents. Coordination with the department will be undertaken during the engineering design phase of work to determine whether provision of a shelter within the subject project would service both existing and projected bus service routes in the area.

We appreciate the input from your office. A copy of the Draft Environmental Impact Statement (EIS) will be will be provided for your review and comment.

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,



Mark Alexander Roy, Planner

MAR:yp
cc: Steve Kikuchi, Maalaea Properties LLC
Lloyd Lee, M&E Pacific, Inc.
Jim Geiger, Mancini, Welch and Geiger LLC
Bert Saruwatari, DBEDT, Land Use Commission
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AUG 10 2006

ALAN M. ARAKAWA
Mayor

GEORGE Y. TENGAN
Director

ERIC H. YAMASHIGE, P.E., L.S.
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

August 3, 2006

Mr. Mark Alexander Roy, Planner
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, HI 96793

SUBJECT: Proposed Maalaea Mauka Residential Subdivision
TMK - (2) 3-6-001:018

Dear Mr. Roy:

Thank you for the opportunity to provide comments on the EIS Preparation Notice for the above-stated project proposal.

Source Availability and Consumption
The project area is served by the Central Maui System, however, the applicant indicated that a new on-site water supply system will be utilized by the proposed development. The Department would be interested in the dedication of the proposed water system to the county.

The EIS should include source and estimated potable and non-potable water use. Based on system standards estimated daily demand for the entire project would be about 628,000 gallons.

System Infrastructure
There is a 12-inch waterline on the southernmost side of the parcel. The applicant will be required to meet DWS Rules and Regulations for Subdivision and provide domestic and irrigation services as well as fire protection in accordance with system standards.

Conservation
In order conserve water, we encourage the applicant to include the following water conservation measures in the project design and construction:

Use brackish and/or reclaimed water sources for all non-potable water uses, including irrigation and dust control during construction.

Eliminate Single-Pass Cooling: Single-pass, water-cooled systems should be eliminated per Maui County Code Subsection 14.21.20. Although prohibited by code, single-pass water cooling is still manufactured into some models of air conditioners, freezers, and commercial refrigerators.

Utilize Low-Flow Fixtures and Devices: Maui County Code Subsection 16.20A.680 requires the use of low-flow water fixtures and devices in faucets, showerheads, urinals, water closets, and hose bibs. Water conserving washing machines, ice-makers and other units are also available.

Use Climate-adapted Plants: The project is located in the "Maui County Planting Plan"- Plant Zones 4, & 5. We encourage the applicant to utilize appropriate native and non invasive species in landscaping. Native plants adapted to the area conserve water and protect the watershed from degradation due to invasive alien species. Please refer to the attached brochure: "Saving Water in the Yard- What and How to Plant in Your Area".

Maintain Fixtures to Prevent Leaks: A simple, regular program of repair and maintenance can prevent the loss of hundreds or even thousands of gallons a day. Refer to the attached handout, "The Costly Drip".

Limit Irrigated Turf: Limit irrigated turf to 25% or less of total landscaped area. Low-water use shrubs and ground covers can be equally attractive and require substantially less water that turf.

Look for Opportunities to Conserve Water: A few examples of these are as follows: When clearing driveways, etc. of debris, use a broom instead of a hose; check for leaks in faucets and toilet tanks.

We suggest that the developer provide enclosed water conservation brochure to future homeowners.

Pollution Prevention

The project overlies the Waikapu aquifer which has a sustainable yield of 2 MGD. DWS strives to protect the integrity of surface and groundwater resources by encouraging the applicant to utilize Best Management Practices (BMPs) relevant to potentially polluting activities. We have attached sample BMPs for construction and vehicle operations. Additional mitigation measures are enumerated below and should be implemented during construction:

1. Prevent cement products, oil, fuel and other toxic substances from falling or leaching into the water.
2. Properly and promptly dispose of all loosened and excavated soil and debris material from drainage structure work.
3. Retain ground cover until the last possible date.
4. Stabilize denuded areas by sodding or planting as soon as possible. Replanting should include soil amendments, fertilizers and temporary irrigation. Use high seeding rates to ensure rapid stand establishment.
5. Avoid fertilizers and biocides, or apply only during periods of low rainfall to minimize chemical run-off.
6. Keep run-off on site.

Should you have any questions, please contact our Water Resources and Planning Division at 244-8550.

Sincerely,

George Y. Tengan
Director

eam
c: DWS Engineering Division
Mr. Anthony Ching, Executive Officer, Land Use Commission
applicant, with attachments:
The Costly Drip
Selected BMP's from "Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters"-EPA
Maui County Planting Plan - Saving Water in the Yard - What and How to Plant in your Area
Ordinance No. 2108 - A Bill for an Ordinance Amending Chapter 16.20 of the Maui County Code, Pertaining to the Plumbing Code
A Checklist of Water Conservation Ideas for Home and Yard

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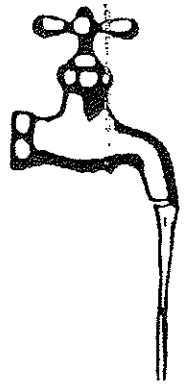
"THE COSTLY DRIP"

Slowly Dripping
Spigot Wastes
15 Gallons a day.

1/32" Leak Wastes
25 Gallons a day.

1/16" Stream Wastes
100 Gallons a Day.



1/8" Stream Wastes
400 Gallons a day.

United States
Environmental Protection
Agency

Office of Water
Washington, DC 20460

840-B-92-002
January 1993

EPA

Guidance Specifying Management Measures For Sources Of Nonpoint Pollution In Coastal Waters

Issued Under the Authority of
Section 6217(g) of the Coastal Zone Act
Reauthorization Amendments of 1990

III. CONSTRUCTION ACTIVITIES

A. Construction Site Erosion and Sediment Control Management Measure

(1) Reduce erosion and, to the extent practicable, retain sediment onsite during and after construction, and

(2) Prior to land disturbance, prepare and implement an approved erosion and sediment control plan or similar administrative document that contains erosion and sediment control provisions.

1. Applicability

This management measure is intended to be applied by States to all construction activities on sites less than 5 acres in areas that do not have an NPDES permit[3] in order to control erosion and sediment loss from those sites. This management measure does not apply to: (1) construction of a detached single family home on a site of 1/2 acre or more or (2) construction that does not disturb over 5,000 square feet of land on a site. (NOTE: All construction activities, including clearing, grading, and excavation, that result in the disturbance of areas greater than or equal to 5 acres or are a part of a larger development plan are covered by the NPDES regulations and are thus excluded from these requirements.) Under the Coastal Zone Act Reauthorization Amendments of 1990, States are subject to a number of requirements as they develop coastal NPS programs in conformity with this management measure and will have flexibility in doing so. The application of management measures by States is described more fully in *Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidance*, published jointly by the U.S. Environmental Protection Agency (EPA) and the National Oceanic and Atmospheric Administration (NOAA) of the U.S. Department of Commerce.

2. Description

The goal of this management measure is to reduce the sediment loadings from construction sites in coastal areas that enter surface waterbodies. This measure requires that coastal States establish new or enhance existing State erosion and sediment control (ESC) programs and/or require ESC programs at the local level. It is intended to be part of a comprehensive land use or watershed management program, as previously detailed in the Watershed and Site Development Management Measures. It is expected that State and local programs will establish criteria determined by local conditions (e.g., soil types, climate, meteorology) that reduce erosion and sediment transport from construction sites.

Runoff from construction sites is by far the largest source of sediment in urban areas under development (York County Soil and Water Conservation District, 1990). Soil erosion removes over 90 percent of sediment by tonnage in urbanizing areas where most construction activities occur (Canning, 1988). Table 4-14 illustrates some of the

[3] On May 27, 1992, the United States Court of Appeals for the Ninth Circuit invalidated EPA's exemption of construction sites smaller than 5 acres from the storm water permit program in *Natural Resources Defense Council* v. *EPA*, 965 F.2d 759 (9th Cir. 1992). EPA is conducting further rulemaking proceedings on this issue and will not require permit applications for construction activities under 5 acres until further rulemaking has been completed.

measured sediment loading rates associated with construction activities found across the United States. As seen in Table 4-14, erosion rates from natural areas such as undisturbed forested lands are typically less than one ton/acre/year, while erosion from construction sites ranges from 7.2 to over 1,000 tons/acre/year.

Table 4-14. Erosion and Sediment Problems Associated With Construction

Location	Problem	Reference
United States	Sediment loading rates vary from 36.5 to 1,000 ton/ac/yr. These are 5 to 500 times greater than those from undeveloped land. Approximately 600 million tons of soil erodes from developed sites each year. Construction site sediment in runoff can be 10 to 20 times greater than that from agricultural lands.	York County Soil and Water Conservation District, 1990
Franklin County, FL	Sediment yield (ton/ac/yr): forest < 0.5 rangeland < 0.5 tilled 1.4 construction site 30 established urban < 0.5	Franklin County, FL
Wisconsin	Erosion rates range from 30 to 200 ton/ac/yr (10 to 20 times those of cropland).	Wisconsin Legislative Council, 1991
Washington, DC	Erosion rates range from 35 to 45 ton/ac/yr (10 to 100 times greater than agriculture and stabilized urban land uses).	MWCOG, 1987
Anacostia River Basin, VA, MD, DC	Sediment yields from portions of the Anacostia Basin have been estimated at 75,000 to 132,000 ton/yr.	U.S. Army Corps of Engineers, 1990
Washington	Erosion rates range from 50 to 500 ton/ac/yr. Natural erosion rates from forests or well-sodded prairies are 0.01 to 1.0 ton/ac/yr.	Washington Department of Ecology, 1989
Anacostia River Basin, VA, MD, DC	Erosion rates range from 7.2 to 100.8 ton/ac/yr.	USGS, 1978
Alabama	1.4 million tons eroded per year.	Woodward-Clyde, 1991
North Carolina	6.7 million tons eroded per year.	
Louisiana	5.1 million tons eroded per year.	
Oklahoma	4.2 million tons eroded per year.	
Georgia	3.8 million tons eroded per year.	
Texas	3.5 million tons eroded per year.	
Tennessee	3.3 million tons eroded per year.	
Pennsylvania	3.1 million tons eroded per year.	
Ohio	3.0 million tons eroded per year.	
Kentucky	3.0 million tons eroded per year.	

Eroded sediment from construction sites creates many problems in coastal areas including adverse impacts on water quality, critical habitats, submerged aquatic vegetation (SAV) beds, recreational activities, and navigation (APWA, 1991). For example, the Miami River in Florida has been severely affected by pollution associated with upland erosion. This watershed has undergone extensive urbanization, which has included the construction of many commercial and residential buildings over the past 50 years. Sediment deposited in the Miami River channel contributes to the severe water quality and navigation problems of this once-thriving waterway, as well as Biscayne Bay (SFWMD, 1988).

ESC plans are important for controlling the adverse impacts of construction and land development and have been required by many State and local governments, as shown in Table 4-13 (in the Site Development section of this chapter). An ESC plan is a document that explains and illustrates the measures to be taken to control erosion and sediment problems on construction sites (Connecticut Council on Soil and Water Conservation, 1988). It is intended that existing State and local erosion and sediment control plans may be used to fulfill the requirements of this management measure. Where existing ESC plans do not meet the management measure criteria, inadequate plans may be enhanced to meet the management measure guidelines.

Typically, an ESC plan is part of a larger site plan and includes the following elements:

- Description of predominant soil types;
- Details of site grading including existing and proposed contours;
- Design details and locations for structural controls;
- Provisions to preserve topsoil and limit disturbance;
- Details of temporary and permanent stabilization measures; and
- Description of the sequence of construction.

ESC plans ensure that provisions for control measures are incorporated into the site planning stage of development and provide for the reduction of erosion and sediment problems and accountability if a problem occurs (York County Soil and Water Conservation District, 1990). An effective plan for urban runoff management on construction sites will control erosion, retain sediments on site, to the extent practicable, and reduce the adverse effects of runoff. Climate, topography, soils, drainage patterns, and vegetation will affect how erosion and sediment should be controlled on a site (Washington State Department of Ecology, 1989). An effective ESC plan includes both structural and nonstructural controls. Nonstructural controls address erosion control by decreasing erosion potential, whereas structural controls are both preventive and mitigative because they control both erosion and sediment movement.

Typical nonstructural erosion controls include (APWA, 1991; York County Soil and Water Conservation District, 1990):

- Planning and designing the development within the natural constraints of the site;
- Minimizing the area of bare soil exposed at one time (phased grading);
- Providing for stream crossing areas for natural and man-made areas; and
- Stabilizing cut-and-fill slopes caused by construction activities.

Structural controls include:

- Perimeter controls;
- Mulching and seeding exposed areas;
- Sediment basins and traps; and
- Filter fabric, or silt fences.

Some erosion and soil loss are unavoidable during land-disturbing activities. While proper siting and design will help prevent areas prone to erosion from being developed, construction activities will invariably produce conditions where erosion may occur. To reduce the adverse impacts associated with construction, the construction management measure suggests a system of nonstructural and structural erosion and sediment controls for incorporation into an

ESC plan. Erosion controls have distinct advantages over sediment controls. Erosion controls reduce the amount of sediment transported off-site, thereby reducing the need for sediment controls. When erosion controls are used in conjunction with sediment controls, the size of the sediment control structures and associated maintenance may be reduced, decreasing the overall treatment costs (SWRPC, 1991).

3. Management Measure Selection

This management measure was selected to minimize sediment being transported outside the perimeter of a construction site through two broad performance goals: (1) **reduce** erosion and (2) **retain** sediment onsite, to the extent practicable. These performance goals were chosen to allow States and local governments flexibility in specifying practices appropriate for local conditions.

While several commentors responding to the draft (May 1991) guidance expressed the need to define "more measurable, enforceable ways" to control sediment loadings, other commentors stressed the need to draft management measures that do not conflict with existing State programs and allow States and local governments to determine appropriate practices and design standards for their communities. These management measures were selected because virtually all coastal States control construction activities to prevent erosion and sediment loss.

The measures were specifically written for the following reasons:

(1) Predevelopment loadings may vary greatly, and some sediment loss is usually inevitable;

(2) Current practice is built on the use of systems of practices selected based on site-specific conditions; and

(3) The combined effectiveness of erosion and sediment controls in systems is not easily quantified.

4. Erosion Control Practices

As discussed more fully at the beginning of this chapter and in Chapter 1, the following practices are described for illustrative purposes only. State programs need not require implementation of these practices. However, as a practical matter, EPA anticipates that the management measure set forth above generally will be implemented by applying one or more management practices appropriate to the source, location, and climate. The practices set forth below have been found by EPA to be representative of the types of practices that can be applied successfully to achieve the management measure described above.

Erosion controls are used to reduce the amount of sediment that is detached during construction and to prevent sediment from entering runoff. Erosion control is based on two main concepts: (1) disturb the smallest area of land possible for the shortest period of time, and (2) stabilize disturbed soils to prevent erosion from occurring.

a. *Schedule projects so clearing and grading are done during the time of minimum erosion potential.*

Often a project can be scheduled during the time of year that the erosion potential of the site is relatively low. In many parts of the country, there is a certain period of the year when erosion potential is relatively low and construction scheduling could be very effective. For example, in the Pacific region if construction can be completed during the 6-month dry season (May 1 - October 31), temporary erosion and sediment controls may not be needed. In addition, in some parts of the country erosion potential is very high during certain parts of the year such as the spring thaw in northern areas. During this time of year, melting snowfall generates a constant runoff that can erode soil. In addition, construction vehicles can easily turn the soft, wet ground into mud, which is more easily washed offsite. Therefore, in the north, limitations should be placed on grading during the spring thaw (Goldman et al., 1986).

b. *Stage construction.*

Avoid areawide clearance of construction sites. Plan and stage land disturbance activities so that only the area currently under construction is exposed. As soon as the grading and construction in an area are complete, the area should be stabilized.

By clearing only those areas immediately essential for completing site construction, buffer zones are preserved and soil remains undisturbed until construction begins. Physical markers, such as tape, signs, or barriers, indicating the limits of land disturbance, can ensure that equipment operators know the proposed limits of clearing. The area of the watershed that is exposed to construction is important for determining the net amount of erosion. Reducing the extent of the disturbed area will ultimately reduce sediment loads to surface waters. Existing or newly planted vegetation that has been planted to stabilize disturbed areas should be protected by routing construction traffic around and protecting natural vegetation with fencing, tree armoring, retaining walls, or tree wells.

c. *Clear only areas essential for construction.*

Often areas of a construction site are unnecessarily cleared. Only those areas essential for completing construction activities should be cleared, and other areas should remain undisturbed. Additionally, the proposed limits of land disturbance should be physically marked off to ensure that only the required land area is cleared. Avoid disturbing vegetation on steep slopes or other critical areas.

d. *Locate potential nonpoint pollutant sources away from steep slopes, waterbodies, and critical areas.*

Material stockpiles, borrow areas, access roads, and other land-disturbing activities can often be located away from critical areas such as steep slopes, highly erodible soils, and areas that drain directly into sensitive waterbodies.

e. *Route construction traffic to avoid existing or newly planted vegetation.*

Where possible, construction traffic should travel over areas that must be disturbed for other construction activity. This practice will reduce the area that is cleared and susceptible to erosion.

f. *Protect natural vegetation with fencing, tree armoring, and retaining walls or tree wells.*

Tree armoring protects tree trunks from being damaged by construction equipment. Fencing can also protect tree trunks, but should be placed at the tree's drip line so that construction equipment is kept away from the tree. The tree drip line is the minimum area around a tree in which the tree's root system should not be disturbed by cut, fill, or soil compaction caused by heavy equipment. When cutting or filling must be done near a tree, a retaining wall or tree well should be used to minimize the cutting of the tree's roots or the quantity of fill placed over the tree's roots.

g. *Stockpile topsoil and reapply to revegetate site.*

Because of the high organic content of topsoil, it cannot be used as fill material or under pavement. After a site is cleared, the topsoil is typically removed. Since topsoil is essential to establish new vegetation, it should be stockpiled and then reapplied to the site for revegetation, if appropriate. Although topsoil salvaged from the existing site can often be used, it must meet certain standards and topsoil may need to be imported onto the site if the existing topsoil is not adequate for establishing new vegetation.

h. Cover or stabilize topsoil stockpiles.

Unprotected stockpiles are very prone to erosion and therefore stockpiles must be protected. Small stockpiles can be covered with a tarp to prevent erosion. Large stockpiles should be stabilized by erosion blankets, seeding, and/or mulching.

i. Use wind erosion controls.

Wind erosion controls limit the movement of dust from disturbed soil surfaces and include many different practices. Wind barriers block air currents and are effective in controlling soil blowing. Many different materials can be used as wind barriers, including solid board fence, snow fences, and bales of hay. Sprinkling moistens the soil surface with water and must be repeated as needed to be effective for preventing wind erosion (Delaware DNREC, 1989); however, applications must be monitored to prevent excessive runoff and erosion.

j. Intercept runoff above disturbed slopes and convey it to a permanent channel or storm drain.

Earth dikes, perimeter dikes or swales, or diversions can be used to intercept and convey runoff above disturbed areas. An earth dike is a temporary berm or ridge of compacted soil that channels water to a desired location. A perimeter dike/swale or diversion is a swale with a supporting ridge on the lower side that is constructed from the soil excavated from the adjoining swale (Delaware DNREC, 1989). These practices should be used to intercept flow from denuded areas or newly seeded areas to keep the disturbed areas from being eroded from the uphill runoff. The structures should be stabilized within 14 days of installation. A pipe slope drain, also known as a pipe drop structure, is a temporary pipe placed from the top of a slope to the bottom of the slope to convey concentrated runoff down the slope without causing erosion (Delaware DNREC, 1989).

k. On long or steep, disturbed, or man-made slopes, construct benches, terraces, or ditches at regular intervals to intercept runoff.

Benches, terraces, or ditches break up a slope by providing areas of low slope in the reverse direction. This keeps water from proceeding down the slope at increasing volume and velocity. Instead, the flow is directed to a suitable outlet, such as a sediment basin or trap. The frequency of benches, terraces, or ditches will depend on the erodibility of the soils, steepness and length of the slope, and rock outcrops. This practice should be used if there is a potential for erosion along the slope.

l. Use retaining walls.

Often retaining walls can be used to decrease the steepness of a slope. If the steepness of a slope is reduced, the runoff velocity is decreased and, therefore, the erosion potential is decreased.

m. Provide linings for urban runoff conveyance channels.

Often construction increases the velocity and volume of runoff, which causes erosion in newly constructed or existing urban runoff conveyance channels. If the runoff during or after construction will cause erosion in a channel, the channel should be lined or flow control BMPs installed. The first choice of lining should be grass or sod since this reduces runoff velocities and provides water quality benefits through filtration and infiltration. If the velocity in the channel would erode the grass or sod, then riprap, concrete, or gabions can be used.

n. Use check dams.

Check dams are small, temporary dams constructed across a swale or channel. They can be constructed using gravel or straw bales. They are used to reduce the velocity of concentrated flow and, therefore, to reduce the erosion in

a swale or channel. Check dams should be used when a swale or channel will be used for a short time and therefore it is not feasible or practical to line the channel or implement flow control BMPs (Delaware DNREC, 1989).

o. *Seed and fertilize.*

Seeding establishes a vegetative cover on disturbed areas. Seeding is very effective in controlling soil erosion once a dense vegetative cover has been established. However, often seeding and fertilizing do not produce as thick a vegetative cover as do seed and mulch or netting. Newly established vegetation does not have as extensive a root system as existing vegetation and therefore is more prone to erosion, especially on steep slopes. Care should be taken when fertilizing to avoid untimely or excessive application. Since the practice of seeding and fertilizing does not provide any protection during the time of vegetative establishment, it should be used only on favorable soils in very flat areas and not in sensitive areas.

p. *Use seeding and mulch/mats.*

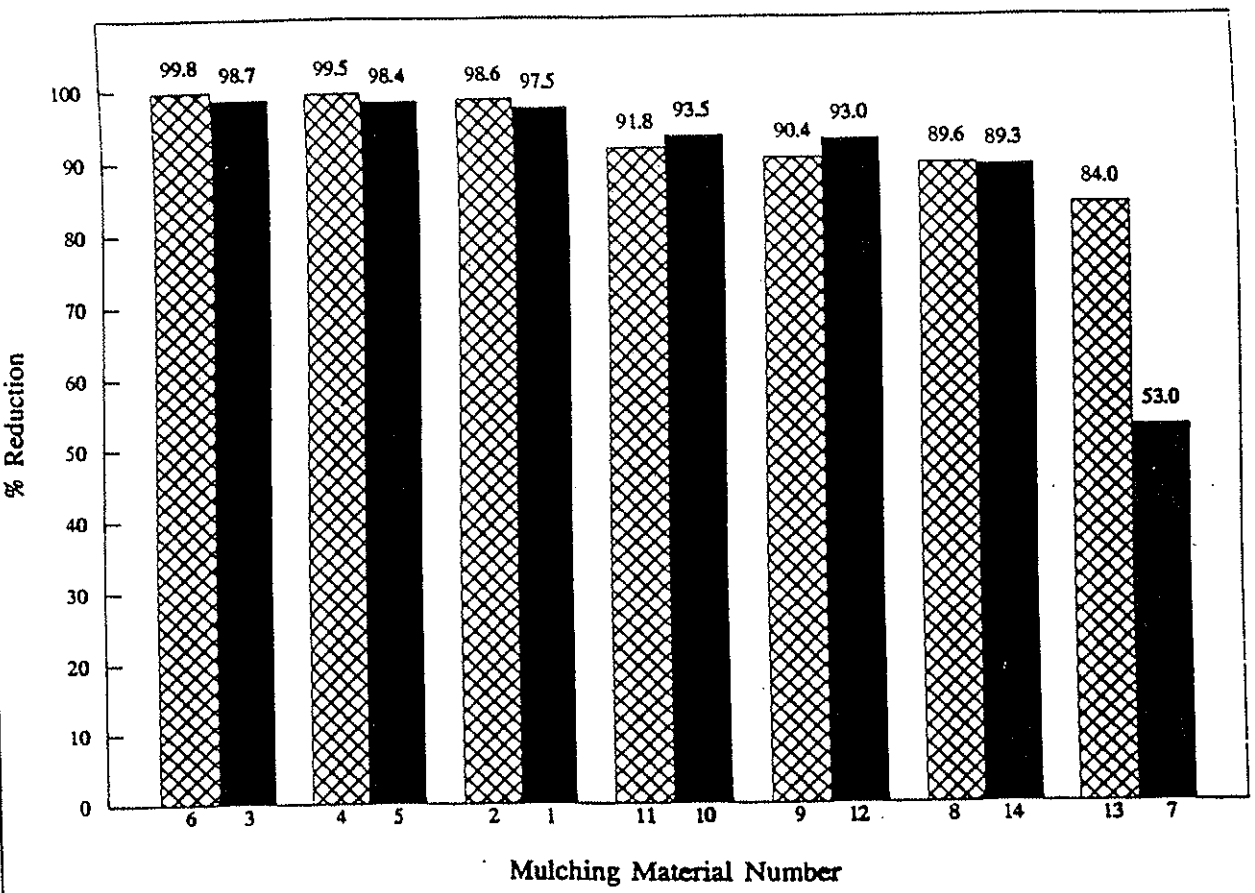
Seeding establishes a vegetative cover on disturbed areas. Seeding is very effective in controlling soil erosion once the vegetative cover has been established. The mulching/mats protect the disturbed area while the vegetation becomes established.

The management of land by using ground cover reduces erosion by reducing the flow rate of runoff and the raindrop impact. Bare soils should be seeded or otherwise stabilized within 15 calendar days after final grading. Denuded areas that are inactive and will be exposed to rain for 30 days or more should also be temporarily stabilized, usually by planting seeds and establishing vegetation during favorable seasons in areas where vegetation can be established. In very flat, non-sensitive areas with favorable soils, stabilization may involve simply seeding and fertilizing. Mulching and/or sodding may be necessary as slopes become moderate to steep, as soils become more erosive, and as areas become more sensitive.

q. *Use mulch/mats.*

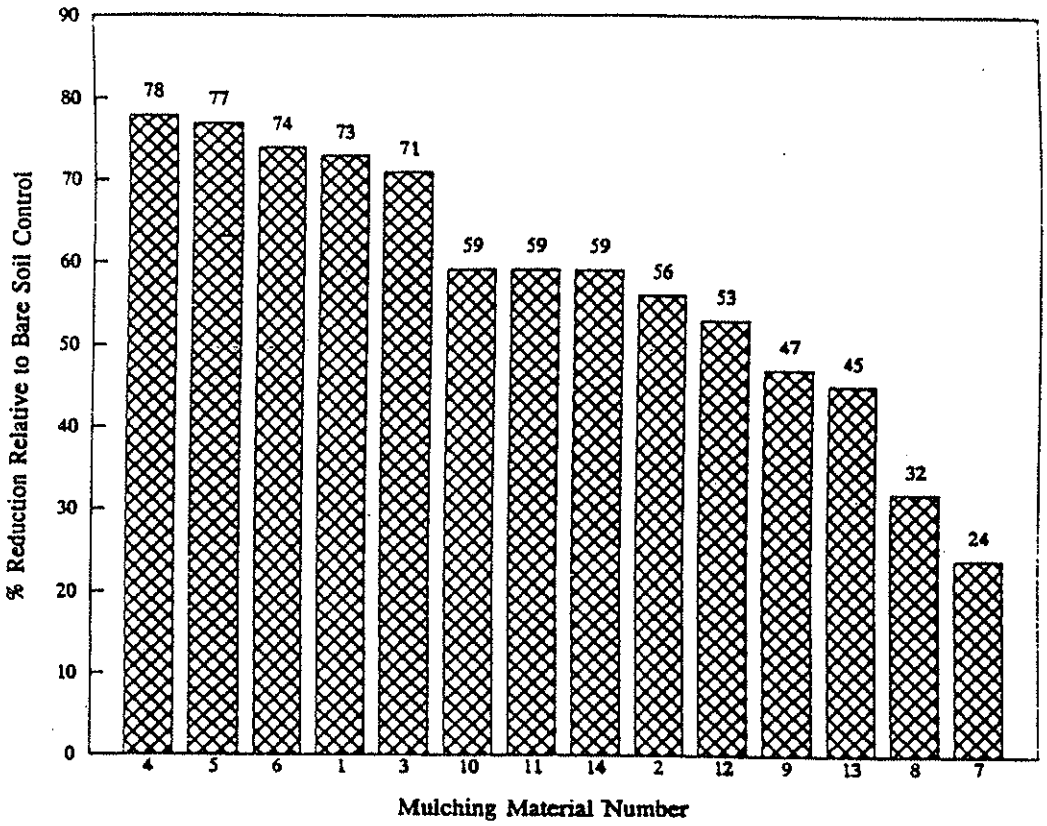
Mulching involves applying plant residues or other suitable materials on disturbed soil surfaces. Mulchs/mats used include tacked straw, wood chips, and jute netting and are often covered by blankets or netting. Mulching alone should be used only for temporary protection of the soil surface or when permanent seeding is not feasible. The useful life of mulch varies with the material used and the amount of precipitation, but is approximately 2 to 6 months. Figure 4-5 shows water velocity reductions that could be expected using various mulching techniques. Similarly, Figure 4-6 shows reductions in soil loss achievable using various mulching techniques. During times of year when vegetation cannot be established, soil mulching should be applied to moderate slopes and soils that are not highly erodible. On steep slopes or highly erodible soils, multiple mulching treatments should be used. On a high-elevation or desert site where grasses cannot survive the harsh environment, native shrubs may be planted. Interlocking ceramic materials, filter fabric, and netting are available for this purpose. Before stabilizing an area, it is important to have installed all sediment controls and diverted runoff away from the area to be planted. Runoff may be diverted away from denuded areas or newly planted areas using dikes, swales, or pipe slope drains to intercept runoff and convey it to a permanent channel or storm drain. Reserved topsoil may be used to revegetate a site if the stockpile has been covered and stabilized.

Consideration should be given to maintenance when designing mulching and matting schemes. Plastic nets are often used to cover the mulch or mats; however, they can foul lawn mower blades if the area requires mowing.



Mulch Material	Characteristics
1	100% wheat straw/top net
2	100% wheat straw/two nets
3	70% wheat straw/30% coconut fiber
4	70% wheat straw/30% coconut fiber
5	100% coconut fiber
6	Nylon monofilament/two nets
7	Nylon monofilament/rigid/bonded
8	Vinyl monofilament/flexible/bonded
9	Curled wood fibers/top net
10	Curled wood fibers/two nets
11	Antiwash netting (jute)
12	Interwoven paper and thread
13	Uncrimped wheat straw – 2,242 kg/ha
14	Uncrimped wheat straw – 4,484 kg/ha

Figure 4-6. Actual soil loss reductions for different mulch treatments (adapted from Harding, 1990).



Mulch Material	Characteristics
1	100% wheat straw/top net
2	100% wheat straw/two nets
3	70% wheat straw/30% coconut fiber
4	70% wheat straw/30% coconut fiber
5	100% coconut fiber
6	Nylon monofilament/two nets
7	Nylon monofilament/rigid/bonded
8	Vinyl monofilament/flexible/bonded
9	Curled wood fibers/top net
10	Curled wood fibers/two nets
11	Antiwash netting (jute)
12	Interwoven paper and thread
13	Uncrimped wheat straw – 2,242 kg/ha
14	Uncrimped wheat straw – 4,484 kg/ha

Figure 4-5. Water velocity reductions for different mulch treatments (adapted from Harding, 1990).

r. Use sodding.

Sodding permanently stabilizes an area. Sodding provides immediate stabilization of an area and should be used in critical areas or where establishment of permanent vegetation by seeding and mulching would be difficult. Sodding is also a preferred option when there is a high erosion potential during the period of vegetative establishment from seeding.

s. Use wildflower cover.

Because of the hardy drought-resistant nature of wildflowers, they may be more beneficial as an erosion control practice than turf grass. While not as dense as turfgrass, wildflower thatches and associated grasses are expected to be as effective in erosion control and contaminant absorption. Because thatches of wildflowers do not need fertilizers, pesticides, or herbicides, and watering is minimal, implementation of this practice may result in a cost savings (Brash et al., undated). In 1987, Howard County, Maryland, spent $690.00 per acre to maintain turfgrass areas, compared to only $31.00 per acre for wildflower meadows (Wilson, 1990).

A wildflower stand requires several years to become established; maintenance requirements are minimal once the area is established (Brash et al., undated).

5. Sediment Control Practices[4]

As discussed more fully at the beginning of this chapter and in Chapter 1, the following practices are described for illustrative purposes only. State programs need not require implementation of these practices. However, as a practical matter, EPA anticipates that the management measure set forth above generally will be implemented by applying one or more management practices appropriate to the source, location, and climate. The practices set forth below have been found by EPA to be representative of the types of practices that can be applied successfully to achieve the management measure described above.

Sediment controls capture sediment that is transported in runoff. Filtration and detention (gravitational settling) are the main processes used to remove sediment from urban runoff.

a. Sediment Basins

Sediment basins, also known as silt basins, are engineered impoundment structures that allow sediment to settle out of the urban runoff. They are installed prior to full-scale grading and remain in place until the disturbed portions of the drainage area are fully stabilized. They are generally located at the low point of sites, away from construction traffic, where they will be able to trap sediment-laden runoff.

Sediment basins are typically used for drainage areas between 5 and 100 acres. They can be classified as either temporary or permanent structures, depending on the length of service of the structure. If they are designed to function for less than 36 months, they are classified as "temporary"; otherwise, they are considered permanent structures. Temporary sediment basins can also be converted into permanent urban runoff management ponds. When sediment basins are designed as permanent structures, they must meet all standards for wet ponds.

b. Sediment Trap

Sediment traps are small impoundments that allow sediment to settle out of runoff water. Sediment traps are typically installed in a drainageway or other point of discharge from a disturbed area. Temporary diversions can be

[4]Adapted from Goldman (1986).

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used to direct runoff to the sediment trap. Sediment traps should not be used for drainage areas greater than 5 acres and typically have a useful life of approximately 18 to 24 months.

c. Filter Fabric Fence

Filter fabric fence is available from many manufacturers and in several mesh sizes. Sediment is filtered out as urban runoff flows through the fabric. Such fences should be used only where there is sheet flow (i.e., no concentrated flow), and the maximum drainage area to the fence should be 0.5 acre or less per 100 feet of fence. Filter fabric fences have a useful life of approximately 6 to 12 months.

d. Straw Bale Barrier

A straw bale barrier is a row of anchored straw bales that detain and filter urban runoff. Straw bales are less effective than filter fabric, which can usually be used in place of straw bales. However, straw bales have been effectively used as temporary check dams in channels. As with filter fabric fences, straw bale barriers should be used only where there is sheet flow. The maximum drainage area to the barrier should be 0.25 acre or less per 100 feet of barrier. The useful life of straw bales is approximately 3 months.

e. Inlet Protection

Inlet protection consists of a barrier placed around a storm drain drop inlet, which traps sediment before it enters the storm sewer system. Filter fabric, straw bales, gravel, or sand bags are often used for inlet protection.

f. Construction Entrance

A construction entrance is a pad of gravel over filter cloth located where traffic leaves a construction site. As vehicles drive over the gravel, mud, and sediment are collected from the vehicles' wheels and offsite transport of sediment is reduced.

g. Vegetated Filter Strips

Vegetated filter strips are low-gradient vegetated areas that filter overland sheet flow. Runoff must be evenly distributed across the filter strip. Channelized flows decrease the effectiveness of filter strips. Level spreading devices are often used to distribute the runoff evenly across the strip (Dillaha et al., 1989).

Vegetated filter strips should have relatively low slopes and adequate length and should be planted with erosion-resistant plant species. The main factors that influence the removal efficiency are the vegetation type, soil infiltration rate, and flow depth and travel time. These factors are dependent on the contributing drainage area, slope of strip, degree and type of vegetative cover, and strip length. Maintenance requirements for vegetated filter strips include sediment removal and inspections to ensure that dense, vigorous vegetation is established and concentrated flows do not occur. Maintenance of these structures is discussed in Section II.A of this chapter.

6. Effectiveness and Cost Information

a. Erosion Control Practices

The effectiveness of erosion control practices can vary based on land slope, the size of the disturbed area, rainfall frequency and intensity, wind conditions, soil type, use of heavy machinery, length of time soils are exposed and unprotected, and other factors. In general, a system of erosion and sediment control practices can more effectively reduce offsite sediment transport than can a single system. Numerous nonstructural measures such as protecting natural or newly planted vegetation, minimizing the disturbance of vegetation on steep slopes and other highly

erodible areas, maximizing the distance eroded material must travel before reaching the drainage system, and locating roads away from sensitive areas may be used to reduce erosion.

Table 4-15 contains the available cost and effectiveness data for some of the erosion controls listed above. Information on the effectiveness of individual nonstructural controls was not available. All reported effectiveness data assume that controls are properly designed, constructed, and maintained. Costs have been broken down into annual capital costs, annual maintenance costs, and total annual costs (including annualization of the capital costs).

b. Sediment Control Practices

Regular inspection and maintenance are needed for most erosion control practices to remain effective. The effectiveness of sediment controls will depend on the size of the construction site and the nature of the runoff flows. Sediment basins are most appropriate for drainage areas of 5 acres or greater. In smaller areas with concentrated flows, silt traps may suffice. Where concentrated flow leaves the site and the drainage area is less than 0.5 ac/100 ft of flow, filter fabric fences may be effective. In areas where sheet flow leaves the site and the drainage area is greater than 0.5 acre/100 ft of flow, perimeter dikes may be used to divert the flow to a sediment trap or sediment basin. Urban runoff inlets may be protected using straw bales or diversions to filter or route runoff away from the inlets.

Table 4-16 describes the general cost and effectiveness of some common sediment control practices.

c. Comparisons

Figure 4-7 illustrates the estimated TSS loading reductions from Maryland construction sites possible using a combination of erosion and sediment controls in contrast to using only sediment controls. Figure 4-8 shows a comparison of the cost and effectiveness of various erosion control practices. As can be seen in Figure 4-8, seeding or seeding and mulching provide the highest levels of control at the lowest cost.

Table 4-15. ESC Quantitative Effectiveness and Cost Summary

Practice	Design Constraints or Purpose	Percent Removal of TSS	Useful Life (years)[a]	Construction Cost	Annual Maintenance Cost (as % construction cost)	Total Annual Cost
Sod	Immediate erosion protection where there is high erosion potential during vegetative establishment.	Average: 99% Observed range: 98% - 99% References: Minnesota Pollution Control Agency, 1989; Pennsylvania, 1983 cited in USEPA, 1991	2	Average: $0.2 per ft^2 [$11,300 per acre] Range: $0.1 - $1.1 References: SWRPC, 1991; Schueler, 1987; Virginia, 1980	Average: 5% Range: 5% Reference: SWRPC, 1991	$0.20 per ft^2 $7,500 per acre
Seed	Establish vegetation on disturbed area.	After vegetation established- Average: 90% Observed range: 50% - 100% References: SCS, 1985 cited in EPA, 1991; Minnesota Pollution Control Agency, 1989; Oberts, 1984 cited in City of Austin, 1988; Delaware Department of Natural Resources, 1989	2	Average: $400 per acre Range: $200 - $1000 per acre References: Wisconsin DOT cited in SWRPC, 1991; SWRPC, 1991; Goldman, 1986; Virginia, 1980	Average: 20% Range: 15% - 25% References: Wisconsin DOT cited in SWRPC, 1991; SWRPC, 1991	$300 per acre
Seed and Mulch	Establish vegetation on disturbed area.	After vegetation established- Average: 90% Observed range: 50% - 100% References: SCS, 1985 cited in EPA, 1991; Minnesota Pollution Control Agency, 1989; Oberts, 1984 cited in City of Austin, 1988; Delaware Department of Natural Resources, 1989	2	Average: $1,500 per acre Range: $800 - $3,500 per acre References: Goldman, 1986; Washington DOT, 1990; NC State, 1990; Schueler, 1987; Virginia, 1980; SWRPC, 1991	Average: NA[b] Range: NA References: None	$1,100 per acre

Table 4-15. (Continued)

Practice	Design Constraints or Purpose	Percent Removal of TSS	Useful Life (years)[a]	Construction Cost	Annual Maintenance Cost (as % construction cost)	Total Annual Cost
Mulch	Temporary stabilization of disturbed area.	Observed range: sand: 20% slope / 50% slope wood fiber @ 1500 lb/ac 50-60% / 0-20% wood fiber @ 3000 lb/ac 50-85% / 50-70% straw @ 3000 lb/ac 90-100% / 95% Silt-loam: 20% slope / 50% slope wood fiber @ 1500 lb/ac 20-60% / 40-60% wood fiber @ 3000 lb/ac 60-90% / 60-70% straw @ 3000 lb/ac 80-95% / 70-90% Silt-clay-loam: 10-30% slope / 30-50% slope wood fiber @ 1500 lb/ac 5% / -- wood fiber @ 3000 lb/ac 40% / -- jute netting 30-60% / 30% straw @ 3000 lb/ac 40-70% / 20-40% wood chips @ 10,000 lb/ac 60-80% / 50-60% mulch blanket 60-80% / 50-60% excelsior blanket 60-80% / 50-60% multiple treatment (straw and jute) 90% / 90% References: Minnesota Pollution Control Agency, 1989; Kay, 1983 cited in Goldman, 1986	Straw mulch: 0.25 Wood fiber mulch: 0.33 Jute netting: 0.33 Straw and jute: 0.33	Straw mulch: Average: $1,700 per acre Range: $500 - $5,000 per acre References: Wisconsin DOT cited in SWRPC, 1991; Washington DOT, 1990; Virginia, 1980 Wood fiber mulch: Average: $1,000 per acre Range: $100 - $2,300 per acre References: Washington DOT, 1990; Virginia, 1980 Jute netting: Average: $3,700 per acre Range: $3,500-$4,100 per acre References: Washington DOT, 1990; Virginia, 1980 Straw and jute: Average: $5,400 per acre Range: $4,000-$9,100 per acre References: Washington DOT, 1990; Virginia, 1980	Average: NA[b] Range: NA References: None	Straw mulch: $7,500 per acre Wood fiber mulch: $3,500 per acre Jute netting: $12,500 per acre Straw and jute: $18,000 per acre

Table 4-15. (Continued)

Practice	Design Constraints or Purpose	Percent Removal of TSS	Useful Life (years)[a]	Construction Cost	Annual Maintenance Cost (as % construction cost)	Total Annual Cost
Terraces	Break up long or steep slopes.	Observed range: Land Slope / Reduction in Erosion 1-12% / 70% 12-18% / 60% 18-24% / 55% Additionally, if the slope steepness is halved, while other factors are held constant, the soil loss potential decreases 2-1/2 times. If both the slope and length are halved, the soil loss potential is decreased 4 times. References: Goldman, 1986; Beasley, 1972	2	Average: $5 per lin ft Range: $1 - $12 References: SWRPC, 1991; Goldman, 1986; Virginia, 1991	Average: 20% Range: 20% Reference: SWRPC, 1991	$4 per lin ft
All Erosion Controls	Reduce amount of sediment entering runoff.	Average: 85% Observed range: 85% Reference: Schueler, 1990	--	Varies but typically low	Varies but typically low	Varies but typically low

NA - Not available.
[a] Useful life estimated as length of construction project (assumed to be 2 years).
[b] For Total Annual Cost, assume Annual Maintenance Cost = 2% of construction cost.

Table 4-16. ESC Quantitative Effectiveness and Cost Summary for Sediment Control Practices

Practice	Design Constraints or Purpose	Percent Removal of TSS	Useful Life (years)[a]	Construction Cost	Annual Maintenance Cost (as % construction cost)	Total Annual Cost
Sediment basin	Minimum drainage area = 5 acres, maximum drainage area = 100 acres	Average: 70% Observed range: 55% - 100% References: Schueler, 1990; Engle, BW and Jarrett, AR, 1990; Baumann, 1990	2	Less than 50,000 ft^3 storage Average: \$0.60 per ft^3 storage (\$1,100 per drainage acre[c]) Range: \$0.20 - \$1.30 per ft^3	Average: 25% Range: 25% References: Denver COG cited in SWRPC, 1991; SWRPC, 1991	Less than 50,000 ft^3 storage \$0.40 per ft^3 storage \$700 per drainage acre[b]
				Greater than 50,000 ft^3 storage Average: \$0.3 per ft^3 storage (\$550 per drainage acre[c]) Range: \$0.10 - \$0.40 per ft^3 References: SWRPC, 1991		Greater than 50,000 ft^3 storage \$0.20 per ft^3 storage \$900 per drainage acre[c]
Sediment trap	Maximum drainage area = 5 acres	Average: 60% Observed range: (-7%) - 100% References: Schueler, et al., 1990; Tahoe Regional Planning Agency, 1989; Baumann, 1990	1.5	Average: \$0.60 per ft^3 storage (\$1,100 per drainage acre[c]) Range: \$0.20 - \$2.00 per ft^3 References: Denver COG cited in SWRPC, 1991; SWRPC, 1991; Goldman, 1986	Average: 20% Range: 20% References: Denver COG cited in SWRPC, 1991; SWRPC, 1991	\$0.70 per ft^3 storage \$1,300 per drainage acre[c]
Filter Fabric Fence	Maximum drainage area = 0.5 acre per 100 feet of fence. Not to be used in concentrated flow areas.	Average: 70% Observed range: 0% - 100% sand: 80% - 99% silt-loam: 50% - 80% silt-clay-loam: 0% - 20% References: Munson, 1991; Fisher et al., 1984; Minnesota Pollution Control Agency, 1989	0.5	Average: \$3 per lin ft (\$700 per drainage acre[c] Range: \$1 - \$8 per lin ft References: Wisconsin DOT cited in SWRPC, 1991; SWRPC, 1991; Goldman, 1986; Virginia, 1991; NC State, 1990	Average: 100% Range: 100% References: SWRPC, 1991	\$7 per lin ft \$850 per drainage acre[c]

Table 4-16. (Continued)

Practice	Design Constraints or Purpose	Percent Removal of TSS	Useful Life (years)[a]	Construction Cost	Annual Maintenance Cost (as % construction cost)	Total Annual Cost
Straw Bale Barrier	Maximum drainage area = 0.25 acre per 100 feet of barrier. Not to be used in concentrated flow areas.	Average: 70% Observed Range: 70% References: Virginia, 1980 cited in EPA, 1991	0.25	Average: $4 per lin ft ($1,600 per drainage acre[d] Range: $2 - $6 per lin ft References: Goldman, 1986; Virginia, 1991	Average: 100% Range: 100% References: SWRPC, 1991	$17 per lin ft $6,800 per drainage acre[d]
Inlet Protection	Protect storm drain inlet.	Average: NA Observed Range: NA References: None	1	Average: $100 per inlet Range: $50 - $150 References: SWRPC, 1991; Denver COG cited in SWRPC, 1991; Virginia, 1991; EPA cited in SWRPC, 1991	Average: 60% Range: 20% - 100% References: SWRPC, 1991; Denver COG cited in SWRPC, 1991	$150 per inlet
Construction Entrance	Removes sediment from vehicles wheels.	Average: NA Observed Range: NA References: None	2	Average: $2,000 each Range: $1,000 - $4,000 References: Goldman, 1986; NC State, 1990	Average: NA[e] Range: NA References: None	$1,500 each
				With washrack: Average: $3,000 each Range: $1,000 - $5,000 References: Virginia, 1991		$2,200 each

Table 4-16. (Continued)

Practice	Design Constraints or Purpose	Percent Removal of TSS	Useful Life (years)[a]	Construction Cost	Annual Maintenance Cost (as % construction cost)	Total Annual Cost
Vegetative Filter Strip	Must have sheet flow.	Average: 70% Observed Range: 20% - 80% References: Hayes and Hairston, 1983 cited in Casman, 1990; Dillaha et al., 1989, cited in Glick et al., 1991; Virginia Department of Conservation, 1987; Nonpoint Source Control Task Force, 1983 cited in Minnesota PCA, 1989; Schueler, 1987	2	Established from existing vegetation- Average: $0 Range: $0 References: Schueler, 1987 Established from sod- Average: $11,300 per acre Range: $4,500 - $48,000 per acre References: Schueler, 1987; SWRPC, 1991	Average: NA Range: NA References: None	NA

NA - Not available.

[a] Useful life estimated as length of construction project (assumed to be 2 years)

• For Total Annual Cost, assume Annual Maintenance Cost=20% of construction cost.

[b] Assumes trap volume = 1800 cf/ac (0.5 inches runoff per acre).

[c] Assumes drainage area of 0.5 acre per 100 feet of fence (maximum allowed).

[d] Assumes drainage area of 0.25 acre per 100 feet of barrier (maximum allowed).

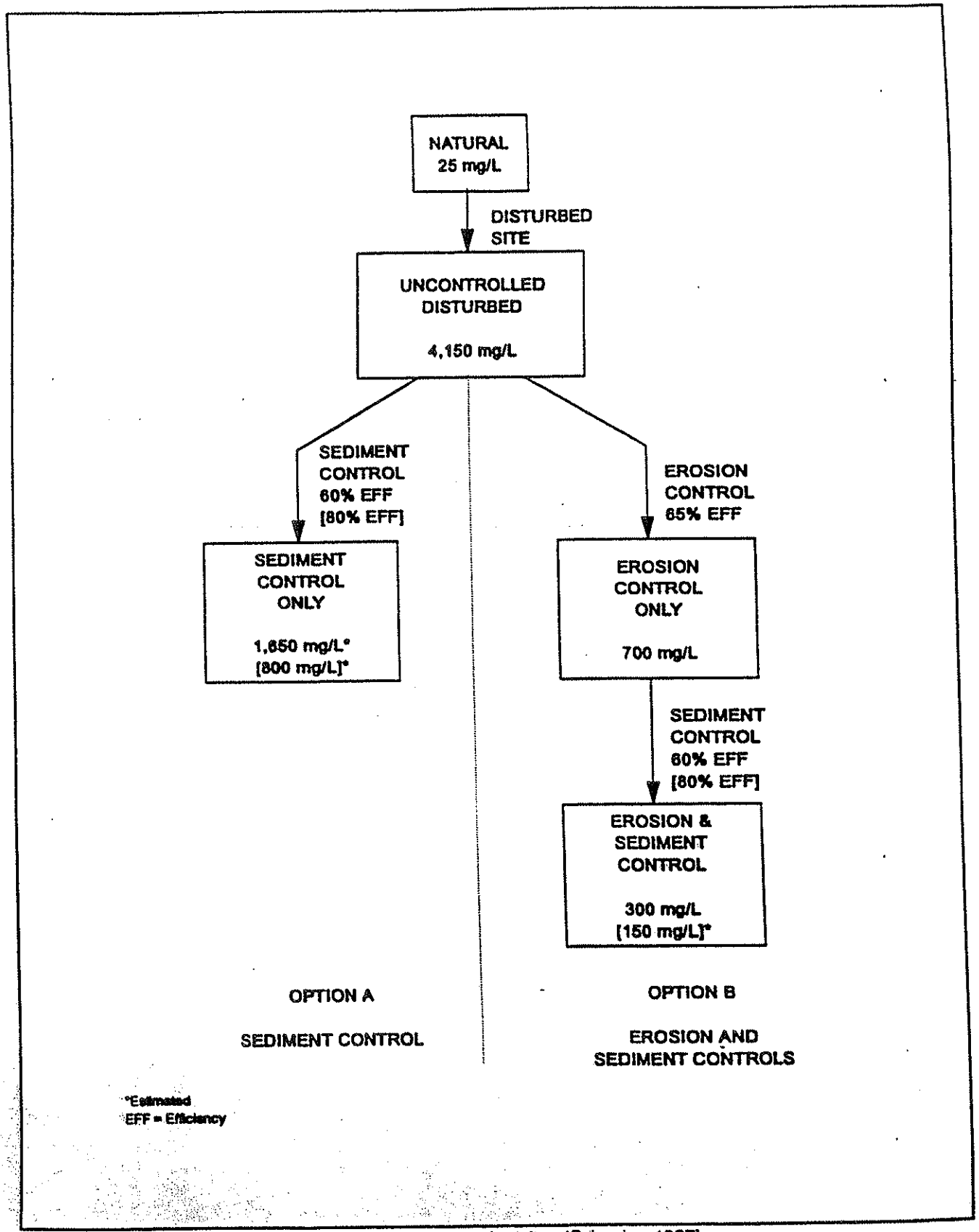


Figure 4-7. TSS concentrations from Maryland construction sites (Schueler, 1987).

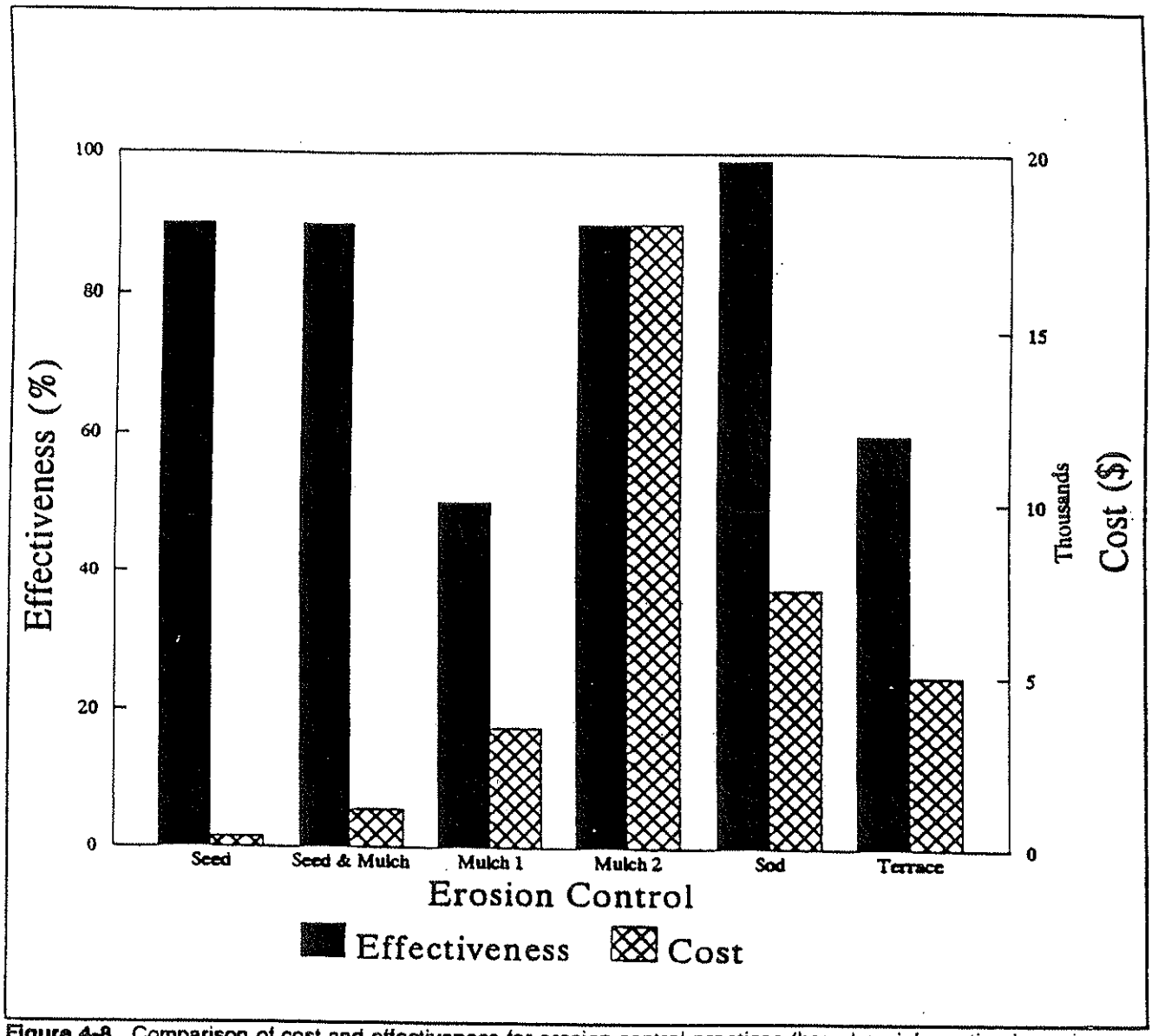


Figure 4-8. Comparison of cost and effectiveness for erosion control practices (based on information in Tables 4-15 and 4-16).

B. Construction Site Chemical Control Management Measure

(1) Limit application, generation, and migration of toxic substances;

(2) Ensure the proper storage and disposal of toxic materials; and

(3) Apply nutrients at rates necessary to establish and maintain vegetation without causing significant nutrient runoff to surface waters.

1. Applicability

This management measure is intended to be applied by States to all construction sites less than 5 acres in area and to new, resurfaced, restored, and reconstructed road, highway, and bridge construction projects. This management measure does not apply to: (1) construction of a detached single family home on a site of 1/2 acre or more or (2) construction that does not disturb over 5,000 square feet of land on a site. (NOTE: All construction activities, including clearing, grading, and excavation, that result in the disturbance of areas greater than or equal to 5 acres or are a part of a larger development plan are covered by the NPDES regulations and are thus excluded from these requirements.) Under the Coastal Zone Act Reauthorization Amendments of 1990, States are subject to a number of requirements as they develop coastal NPS programs in conformance with this management measure and will have flexibility in doing so. The application of management measures by States is described more fully in *Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidance*, published jointly by the U.S. Environmental Protection Agency (EPA) and the National Oceanic and Atmospheric Administration (NOAA) of the U.S. Department of Commerce.

2. Description

The purpose of this management measure is to prevent the generation of nonpoint source pollution from construction sites due to improper handling and usage of nutrients and toxic substances, and to prevent the movement of toxic substances from the construction site.

Many potential pollutants other than sediment are associated with construction activities. These pollutants include pesticides (insecticides, fungicides, herbicides, and rodenticides); fertilizers used for vegetative stabilization; petrochemicals (oils, gasoline, and asphalt degreasers); construction chemicals such as concrete products, sealers, and paints; wash water associated with these products; paper; wood; garbage; and sanitary wastes (Washington State Department of Ecology, 1991).

The variety of pollutants present and the severity of their effects are dependent on a number of factors:

(1) **The nature of the construction activity.** For example, potential pollution associated with fertilizer usage may be greater along a highway or at a housing development than it would be at a shopping center development because highways and housing developments usually have greater landscaping requirements.

(2) **The physical characteristics of the construction site.** The majority of all pollutants generated at construction sites are carried to surface waters via runoff. Therefore, the factors affecting runoff volume,

such as the amount, intensity, and frequency of rainfall; soil infiltration rates; surface roughness; slope length and steepness; and area denuded, all contribute to pollutant loadings.

(3) **The proximity of surface waters to the nonpoint pollutant source.** As the distance separating pollutant-generating activities from surface waters decreases, the likelihood of water quality impacts increases.

a. Pesticides

Insecticides, rodenticides, and herbicides are used on construction sites to provide safe and healthy conditions, reduce maintenance and fire hazards, and curb weeds and woody plants. Rodenticides are also used to control rodents attracted to construction sites. Common insecticides employed include synthetic, relatively water-insoluble chlorinated hydrocarbons, organophosphates, carbamates, and pyrethrins.

b. Petroleum Products

Petroleum products used during construction include fuels and lubricants for vehicles, for power tools, and for general equipment maintenance. Specific petroleum pollutants include gasoline, diesel oil, kerosene, lubricating oils, and grease. Asphalt paving also can be particularly harmful since it releases various oils for a considerable time period after application. Asphalt overloads might be dumped and covered without inspection. However, many of these pollutants adhere to soil particles and other surfaces and can therefore be more easily controlled.

c. Nutrients

Fertilizers are used on construction sites when revegetating graded or disturbed areas. Fertilizers contain nitrogen and phosphorus, which in large doses can adversely affect surface waters, causing eutrophication.

d. Solid Wastes

Solid wastes on construction sites are generated from trees and shrubs removed during land clearing and structure installation. Other wastes include wood and paper from packaging and building materials, scrap metals, sanitary wastes, rubber, plastic and glass, and masonry and asphalt products. Food containers, cigarette packages, leftover food, and aluminum foil also contribute solid wastes to the construction site.

e. Construction Chemicals

Chemical pollutants, such as paints, acids for cleaning masonry surfaces, cleaning solvents, asphalt products, soil additives used for stabilization, and concrete-curing compounds, may also be used on construction sites and carried in runoff.

f. Other Pollutants

Other pollutants, such as wash water from concrete mixers, acid and alkaline solutions from exposed soil or rock, and alkaline-forming natural elements, may also be present and contribute to nonpoint source pollution.

Revegetation of disturbed areas may require the use of fertilizers and pesticides, which, if not applied properly, may become nonpoint source pollutants. Many pesticides are restricted by Federal and/or State regulations.

Hydroseeding operations, in which seed, fertilizers, and lime are applied to the ground surface in a one-step operation, are more conducive to nutrient pollution than are the conventional seedbed-preparation operations, in which fertilizers and lime are tilled into the soil. Use of fertilizers containing little or no phosphorus may be required by

local authorities if the development is near sensitive waterbodies. The addition of lime can also affect the pH of sensitive waters, making them more alkaline.

Improper fueling and servicing of vehicles can lead to significant quantities of petroleum products being dumped onto the ground. These pollutants can then be washed off site in urban runoff, even when proper erosion and sediment controls are in place. Pollutants carried in solution in runoff water, or fixed with sediment crystalline structures, may not be adequately controlled by erosion and sediment control practices (Washington Department of Ecology, 1991). Oils, waxes, and water-insoluble pesticides can form surface films on water and solid particles. Oil films can also concentrate water-soluble insecticides. These pollutants can be nearly impossible to control once present in runoff other than by the use of very costly water-treatment facilities (Washington Department of Ecology, 1991).

After spill prevention, one of the best methods to control petroleum pollutants is to retain sediments containing oil on the construction site through use of erosion and sediment control practices. Improved maintenance and safe storage facilities will reduce the chance of contaminating a construction site. One of the greatest concerns related to use of petroleum products is the method for waste disposal. The dumping of petroleum product wastes into sewers and other drainage channels is illegal and could result in fines or job shutdown.

The primary control method for solid wastes is to provide adequate disposal facilities. Erosion and sediment control structures usually capture much of the solid waste from construction sites. Periodic removal of litter from these structures will reduce solid waste accumulations. Collected solid waste should be removed and disposed of at authorized disposal areas.

Improperly stored construction materials, such as pressure-treated lumber or solvents, may lead to leaching of toxics to surface water and ground water. Disposal of construction chemicals should follow all applicable State and local laws that may require disposal by a licensed waste management firm.

3. Management Measure Selection

This management measure was selected based on the potential for many construction activities to contribute to nutrient and toxic NPS pollution.

This management measure was selected because (1) construction activities have the potential to contribute to increased loadings of toxic substances and nutrients to waterbodies; (2) various States and local governments regulate the control of chemicals on construction sites through spill prevention plans, erosion and sediment control plans, or other administrative devices; (3) the practices described are commonly used and presented in a number of best management practice handbooks and guidance manuals for construction sites; and (4) the practices selected are the most economical and effective.

4. Practices

As discussed more fully at the beginning of this chapter and in Chapter 1, the following practices are described for illustrative purposes only. State programs need not require implementation of these practices. However, as a practical matter, EPA anticipates that the management measure set forth above generally will be implemented by applying one or more management practices appropriate to the source, location, and climate. The practices set forth below have been found by EPA to be representative of the types of practices that can be applied successfully to achieve the management measure described above.

a. *Properly store, handle, apply, and dispose of pesticides.*

Pesticide storage areas on construction sites should be protected from the elements. Warning signs should be placed in areas recently sprayed or treated. Persons mixing and applying these chemicals should wear suitable protective clothing, in accordance with the law.

Application rates should conform to registered label directions. Disposal of excess pesticides and pesticide-related wastes should conform to registered label directions for the disposal and storage of pesticides and pesticide containers set forth in applicable Federal, State, and local regulations that govern their usage, handling, storage, and disposal. Pesticides and herbicides should be used only in conjunction with Integrated Pest Management (IPM) (see Chapter 2). Pesticides should be the tool of last resort; methods that are the least disruptive to the environment and human health should be used first.

Pesticides should be disposed of through either a licensed waste management firm or a treatment, storage, and disposal (TSD) facility. Containers should be triple-rinsed before disposal, and rinse waters should be reused as product.

Other practices include setting aside a locked storage area, tightly closing lids, storing in a cool, dry place, checking containers periodically for leaks or deterioration, maintaining a list of products in storage, using plastic sheeting to line the storage area, and notifying neighboring property owners prior to spraying.

b. *Properly store, handle, use, and dispose of petroleum products.*

When storing petroleum products, follow these guidelines:

- Create a shelter around the area with cover and wind protection;
- Line the storage area with a double layer of plastic sheeting or similar material;
- Create an impervious berm around the perimeter with a capacity 110 percent greater than that of the largest container;
- Clearly label all products;
- Keep tanks off the ground; and
- Keep lids securely fastened.

Oil and oily wastes such as crankcase oil, cans, rags, and paper dropped into oils and lubricants should be disposed of in proper receptacles or recycled. Waste oil for recycling should not be mixed with degreasers, solvents, antifreeze, or brake fluid.

c. *Establish fuel and vehicle maintenance staging areas located away from all drainage courses, and design these areas to control runoff.*

Proper maintenance of equipment and installation of proper stream crossings will further reduce pollution of water by these sources. Stream crossings should be minimized through proper planning of access roads. Refer to Chapter 3 for additional information on stream crossings.

d. *Provide sanitary facilities for constructions workers.*

e. *Store, cover, and isolate construction materials, including topsoil and chemicals, to prevent runoff of pollutants and contamination of ground water.*

f. *Develop and implement a spill prevention and control plan. Agencies, contractors, and other commercial entities that store, handle, or transport fuel, oil, or hazardous materials should develop a spill response plan.*

Post spill procedure information and have persons trained in spill handling on site or on call at all times. Materials for cleaning up spills should be kept on site and easily available. Spills should be cleaned up immediately and the contaminated material properly disposed of. Spill control plan components should include:

- Stop the source of the spill.
- Contain any liquid.
- Cover the spill with absorbent material such as kitty litter or sawdust, but do not use straw. Dispose of the used absorbent properly.

g. Maintain and wash equipment and machinery in confined areas specifically designed to control runoff.

Thinners or solvents should not be discharged into sanitary or storm sewer systems when cleaning machinery. Use alternative methods for cleaning larger equipment parts, such as high-pressure, high-temperature water washes, or steam cleaning. Equipment-washing detergents can be used, and wash water may be discharged into sanitary sewers if solids are removed from the solution first. (This practice should be verified with the local sewer authority.) Small parts can be cleaned with degreasing solvents, which can then be reused or recycled. Do not discharge any solvents into sewers.

Washout from concrete trucks should be disposed of into:

- A designated area that will later be backfilled;
- An area where the concrete wash can harden, can be broken up, and then can be placed in a dumpster; or
- A location not subject to urban runoff and more than 50 feet away from a storm drain, open ditch, or surface water.

Never dump washout into a sanitary sewer or storm drain, or onto soil or pavement that carries urban runoff.

h. Develop and implement nutrient management plans.

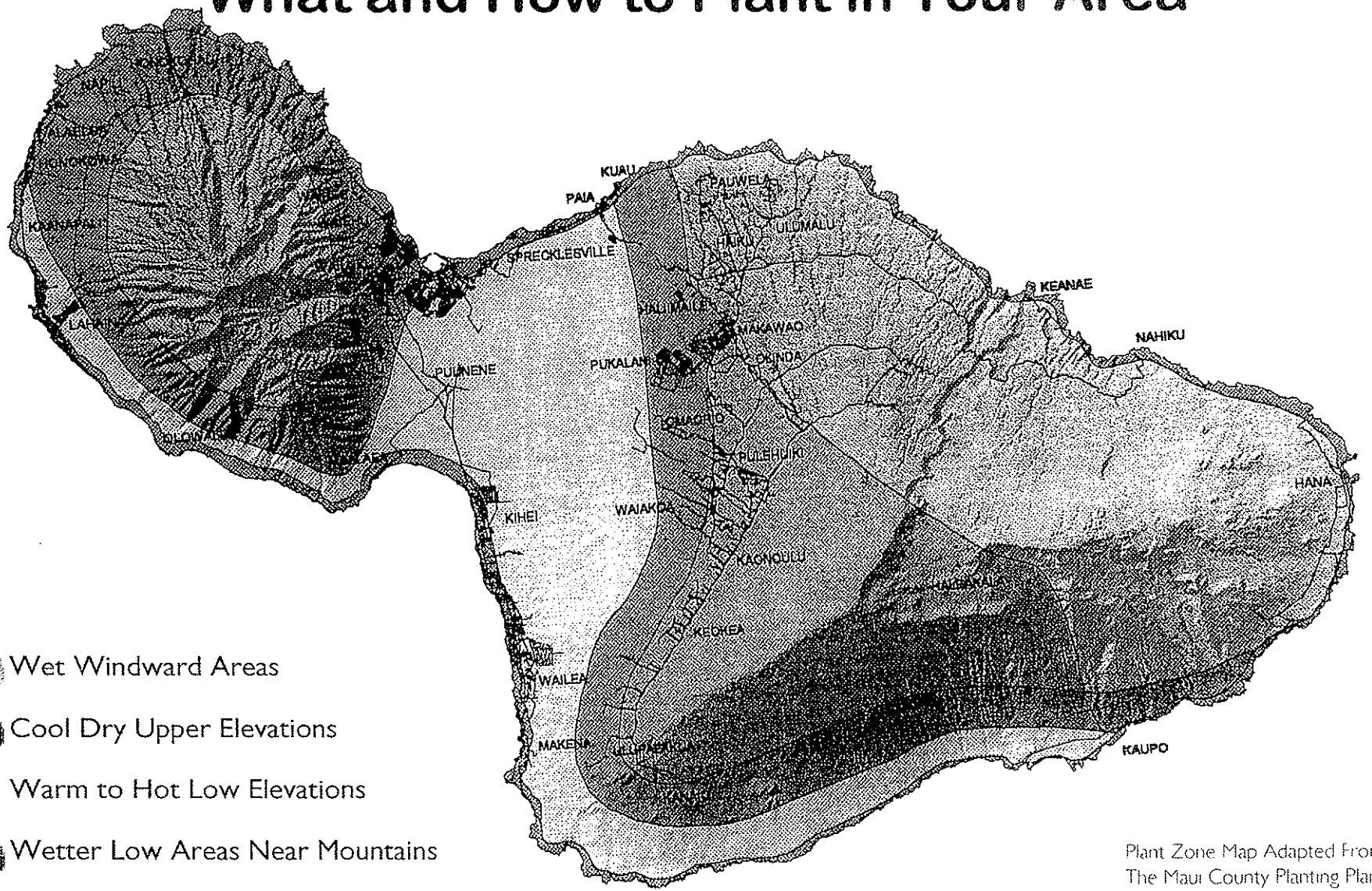
Properly time applications, and work fertilizers and liming materials into the soil to depths of 4 to 6 inches. Using soil tests to determine specific nutrient needs at the site can greatly decrease the amount of nutrients applied.

i. Provide adequate disposal facilities for solid waste, including excess asphalt, produced during construction.

j. Educate construction workers about proper materials handling and spill response procedures. Distribute or post informational material regarding chemical control.

Saving Water in The Yard

What and How to Plant in Your Area



1. Wet Windward Areas
2. Cool Dry Upper Elevations
3. Warm to Hot Low Elevations
4. Wetter Low Areas Near Mountains
5. Windward Coastal Salt Spray Zones

Plant Zone Map Adapted From
The Maui County Planting Plan

Tips From The Maui County Department of Water Supply

By Water All Things Find Life

Zone-specific Native and Polynesian plants for Maui County

Zone 1

TYPE: **F** Fern **G** Grass **Gr** Ground Cover **Sh** Shrub **P** Palm **S** Sedge **Tr** Tree **V** Vine

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
F	Psilotum nudum	moa, moa kula	1'	1'	sea to 3,000'	Dry to Wet
F	Sadleria cyatheoides	'ama'u, ama'uma'u				
Gr - Sh	Lipochaeta succulenta	nehe	2'	5'	sea to 1,000'	Dry to Wet
P	Cocos nucifera	coconut, niu	100'	30'	sea to 1,000'	Dry to Wet
P	Pritchardia arecina	lo'ulu, hawane	40'	10'	1,000' to 3,000'	Dry to Wet
P	Pritchardia forbesiana	lo'ulu	15'			
P	Pritchardia hillebrandii	lo'ulu, fan palm	25'	15'	sea to 1,000'	Dry to Wet
S	Mariscus javanicus	marsh cypress, 'ahu'awa	0.5'	0.5'	sea to 1,000'	Dry to Medium
Sh	Bidens hillebrandiana ssp. hillebrandiana	ko'oko'olau	1'	2'	sea to 1,000'	Dry to Wet
Sh	Cordyline fruticosa	ti, ki	6			
Sh	Hedyotis spp.	au, pilo	3'	2'	1,000' to 3,000'	Dry to Wet
Sh - Tr	Broussonetia papyrifera	wauke, paper mulberry	8'	6'	sea to 1,000'	Dry to Medium
Tr	Acacia koa	koa	50' - 100'	40' - 80'	1,500' to 4,000'	Dry to Medium
Tr	Aleurites moluccana	candlenut, kukui	50'	50'	sea to 3,000'	Medium to Wet
Tr	Calophyllum inophyllum	kamani, alexandrian laurel	60'	40'	sea to 3,000'	Medium to Wet
Tr	Charpentiera obovata		15'			
Tr	Cordia subcordata	kou	30'	25'	sea to 1,000'	Dry to Wet
Tr	Hibiscus furcellatus	'akiohala, hau-hele	8'			
Tr	Metrosideros polymorpha var. macrophylla	ohi'a lehua	25'	25'	sea to 1,000'	Dry to Wet
Tr	Morinda citrifolia	indian mulberry, noni	20'	15'	sea to 1,000'	Dry to Wet
Tr	Pandanus tectorius	hala, puhala (HALELIST)	35'	25'	sea to 1,000'	Dry to Wet
V	Alyxia oliviformis	maile	Vine		sea to 6,000'	Medium to Wet

Zone-specific Native and Polynesian plants for Maui County

Zone 2

TYPE: **F** Fern **G** Grass **Gr** Ground Cover **Sh** Shrub **P** Palm **S** Sedge **Tr** Tree **V** Vine

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
F	Psilotum nudum	moa, moa kula	1'	1'	sea to 3,000'	Dry to Wet
F	Sadleria cyatheoides	'ama'u, ama'uma'u				
G	Eragrostis monticola	kalamalo	1'	2'	sea to 3,000'	Dry to Medium
Gr	Ipomoea tuboides	Hawaiian moon flower, 'uala	1'	10'	sea to 3,000'	Dry to Medium
Gr	Peperomia leptostachya	'ala'ala-wai-nui	1'	1'	sea to 3,000'	Dry to Medium
Gr	Plumbago zeylanica	'ilie'e	1'			
Gr - Sh	Hibiscus calyphyllus	ma'o hau hele, Rock's hibiscus	3'	2'	sea to 3,000'	Dry to Medium
Gr - Sh	Lipochaeta rockii	nehe	2'	2'	sea to 3,000'	Dry to Medium
Sh	Argemone glauca var. decipiens	pua kala	3'	2'	sea to 3,000'	Dry to Medium
Sh	Artemisia mauiensis var. diffusa	Maui wormwood, 'ahinahina	2'	3'	1,000' to higher	Dry to Medium
Sh	Chenopodium oahuense	'aheahea, 'aweoweo	6'		sea to higher	Dry to Medium
Sh	Dianella sandwicensis	'uki	2'	2'	1,000' to higher	Dry to Medium
Sh	Lipochaeta lavarum	nehe	3'	3'	sea to 3,000'	Dry to Medium
Sh	Osteomeles anthyllidifolia	'ulei, eluehe	4'	6'	sea to 3,000'	Dry to Medium
Sh	Senna gaudichaudii	kolomana	5'	5'	sea to 3,000'	Dry to Medium
Sh	Styphelia tameiameiae	pukiawe	6'	6'	1,000' to higher	Dry to Medium
Sh	Vitex rotundifolia	pohinahina	3'	4'	sea to 1,000'	Dry to Medium
Sh - Tr	Myoporum sandwicense	naio, false sandalwood	10'	10'	sea to higher	Dry to Medium
Sh - Tr	Nototrichium sandwicense	kulu'i	8'	8'	sea to 3,000'	Dry to Medium
Sh-Tr	Dodonaea viscosa	'a'ali'i	6'	8'	sea to higher	Dry to Medium
Tr	Acacia koa	koa	50' - 100'	40' - 80'	1,500' to 4,000'	Dry to Medium
Tr	Charpentiera obovata		15'			
Tr	Erythrina sandwicensis	wiliwili	20'	20'	sea to 1,000'	Dry
Tr	Metrosideros polymorpha var. macrophylla	ohi'a lehua	25'	25'	sea to 1,000'	Dry to Wet

Zone-specific Native and Polynesian plants for Maui County

Zone 2

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
Tr	Nestegis sandwicensis	olopua	15'	15'	1,000' to 3,000'	Dry to Medium
Tr	Pleomele auwahiensis	halapepe	20'			
Tr	Rauvolfia sandwicensis	hao	20'	15'	sea to 3,000'	Dry to Medium
Tr	Santalum ellipticum	coastal sandalwood, 'ili-ahi	8'	8'	sea to 3,000'	Dry to Medium
Tr	Sophora chrysophylla	mamane	15'	15'	1,000' to 3,000'	Medium
V	Alyxia oliviformis	maile	Vine		sea to 6,000'	Medium to Wet

Zone-specific Native and Polynesian plants for Maui County

Zone 3

TYPE: **F** Fern **G** Grass **Gr** Ground Cover **Sh** Shrub **P** Palm **S** Sedge **Tr** Tree **V** Vine

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
F	Psilotum nudum	moa, moa kula	1'	1'	sea to 3,000'	Dry to Wet
G	Colubrina asiatica	'anapanapa	3'	10'	sea to 1,000'	Dry to Wet
G	Eragrostis monticola	kalamalo	1'	2'	sea to 3,000'	Dry to Medium
G	Eragrostis variabilis	'emo-loa	1'	2'	sea to 3,000'	Dry to Medium
G	Fimbristylis cymosa ssp. spathacea	mau'u'aki'aki fimbristylis	0.5'	1'	sea to 1,000'	Dry to Medium
Gr	Boerhavia repens	alena	0.5'	4'	sea to 1,000'	Dry to Medium
Gr	Chamaesyce celastroides var. laehiensis	'akoko	2'	3'	sea to 1,000'	Dry to Medium
Gr	Cressa truxillensis	cressa	0.5'	1'	sea to 1,000'	Dry to Medium
Gr	Heliotropium anomalum var. argenteum	hinahina ku kahakai	1'	2'	sea to 1,000'	Dry to Medium
Gr	Ipomoea tuboides	Hawaiian moon flower, 'uala	1'	10'	sea to 3,000'	Dry to Medium
Gr	Jacquemontia ovalifolia ssp. sandwicensis	pa'u o hi'iaka	0.5'	6'	sea to 1,000'	Dry to Medium
Gr	Lipochaeta integrifolia	nehe	1'	5'	sea to 1,00'	Dry to Medium
Gr	Peperomia leptostachya	'ala'ala-wai-nui	1'	1'	sea to 3,000'	Dry to Medium
Gr	Plumbago zeylanica	'ilie'e	1'			
Gr	Sesuvium portulacastrum	'akulikuli, sea-purslane	0.5'	2'	sea to 1,000'	Dry to Wet
Gr	Sida fallax	'ilima	0.5'	3'	sea to 1,000'	Dry to Medium
Gr	Tephrosia purpurea var. purpurea	'auhuhu	2'	2'	sea to 1,000'	Dry to Medium
Gr - Sh	Hibiscus calyphyllus	ma'o hau hele, Rock's hibiscus	3'	2'	sea to 3,000'	Dry to Medium
Gr - Sh	Lipochaeta rockii	nehe	2'	2'	sea to 3,000'	Dry to Medium
Gr - Sh	Lipochaeta succulenta	nehe	2'	5'	sea to 1,000'	Dry to Wet
Gr - Sh	Lycium sandwicense	'ohelo-kai, 'ae'ae	2'	2'	sea to 1,000'	Dry to Medium
P	Cocos nucifera	coconut, niu	100'	30'	sea to 1,000'	Dry to Wet
P	Pritchardia hillebrandii	lo'ulu, fan palm	25'	15'	sea to 1,000'	Dry to Wet
S	Mariscus javanicus	marsh cypress, 'ahu'awa	0.5'	0.5'	sea to 1,000'	Dry to Medium

Zone-specific Native and Polynesian plants for Maui County

Zone 3

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
Sh	Argemone glauca var. decipiens	pua kala	3'	2'	sea to 3,000'	Dry to Medium
Sh	Bidens mauiensis	ko'oko'olau	1'	3'	sea to 1,000'	Dry to Medium
Sh	Bidens menziesii ssp. menziesii	ko'oko'olau	1'	3'		
Sh	Bidens micrantha ssp. micrantha	ko'oko'olau	1'	3'		
Sh	Chenopodium oahuense	'aheahea, 'aweoweo	6'		sea to higher	Dry to Medium
Sh	Dianella sandwicensis	'uki	2'	2'	1,000' to higher	Dry to Medium
Sh	Gossypium tomentosum	mao, Hawaiian cotton	5'	8'	sea to 1,000'	Dry to Medium
Sh	Hedyotis spp.	au, pilo	3'	2'	1,000' to 3,000'	Dry to Wet
Sh	Lipochaeta lavarum	nehe	3'	3'	sea to 3,000'	Dry to Medium
Sh	Osteomeles anthyllidifolia	'ulei, eluehe	4'	6'	sea to 3,000'	Dry to Medium
Sh	Scaevola sericea	naupaka, naupaka-kahakai	6'	8'	sea to 1,000'	Dry to Medium
Sh	Senna gaudichaudii	kolomana	5'	5'	sea to 3,000'	Dry to Medium
Sh	Solanum nelsonii	'akia, beach solanum	3'	3'	sea to 1,00'	Dry to Medium
Sh	Styphelia tameiameiae	pukiawe	6'	6'	1,000' to higher	Dry to Medium
Sh	Vitex rotundifolia	pohinahina	3'	4'	sea to 1,000'	Dry to Medium
Sh	Wikstroemia uva-ursi kauaiensis kauaiensis	'akia, Molokai osmanthus				
Sh - Tr	Broussonetia papyrifera	wauke, paper mulberry	8'	6'	sea to 1,000'	Dry to Medium
Sh - Tr	Myoporum sandwicense	naio, false sandalwood	10'	10'	sea to higher	Dry to Medium
Sh - Tr	Nototrichium sandwicense	kulu'i	8'	8'	sea to 3,000'	Dry to Medium
Sh-Tr	Dodonaea viscosa	'a'ali'i	6'	8'	sea to higher	Dry to Medium
Tr	Aleurites moluccana	candlenut, kukui	50'	50'	sea to 3,000'	Medium to Wet
Tr	Calophyllum inophyllum	kamani, alexandrian laurel	60'	40'	sea to 3,000'	Medium to Wet
Tr	Canthium odoratum	Alahe'e, 'ohe'e, walahe'e	12'	8'	sea to 3,000'	Dry to Medium
Tr	Cordia subcordata	kou	30'	25'	sea to 1,000'	Dry to Wet
Tr	Diospyros sandwicensis	lama	12'	15'	sea to 3,000'	Dry to Medium
Tr	Erythrina sandwicensis	wiliwili	20'	20'	sea to 1,000'	Dry
Tr	Metrosideros polymorpha var. macrophylla	ohi'a lehua	25'	25'	sea to 1,000'	Dry to Wet

Zone-specific Native and Polynesian plants for Maui County

Zone 3

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
Tr	Morinda citrifolia	indian mulberry, noni	20'	15'	sea to 1,000'	Dry to Wet
Tr	Nesoluma polynesicum	keahi	15'	15'	sea to 3,00'	Dry
Tr	Nestegis sandwicensis	olopua	15'	15'	1,000' to 3,000'	Dry to Medium
Tr	Pandanus tectorius	hala, puhala (HALELIST)	35'	25'	sea to 1,000'	Dry to Wet
Tr	Pleomele auwahiensis	halapepe	20'			
Tr	Rauvolfia sandwicensis	hao	20'	15'	sea to 3,000'	Dry to Medium
Tr	Reynoldsia sandwicensis	'ohe makai	20'	20'	1,000' to 3,000'	Dry
Tr	Santalum ellipticum	coastal sandalwood, 'ili-ahi	8'	8'	sea to 3,000'	Dry to Medium
Tr	Thespesia populnea	milo	30'	30'	sea to 3,000'	Dry to Wet

Zone-specific Native and Polynesian plants for Maui County

Zone 4

TYPE: **F** Fern **G** Grass **Gr** Ground Cover **Sh** Shrub **P** Palm **S** Sedge **Tr** Tree **V** Vine

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
F	Psilotum nudum	moa, moa kula	1'	1'	sea to 3,000'	Dry to Wet
F	Sadleria cyatheoides	'ama'u, ama'uma'u				
G	Colubrina asiatica	'anapanapa	3'	10'	sea to 1,000'	Dry to Wet
G	Eragrostis monticola	kalamalo	1'	2'	sea to 3,000'	Dry to Medium
G	Eragrostis variabilis	'emo-loa	1'	2'	sea to 3,000'	Dry to Medium
G	Fimbristylis cymosa ssp. spathacea	mau'u'aki'aki fimbristylis	0.5'	1'	sea to 1,000'	Dry to Medium
Gr	Chamaesyce celastroides var. laehiensis	'akoko	2'	3'	sea to 1,000'	Dry to Medium
Gr	Ipomoea tuboides	Hawaiian moon flower, 'uala	1'	10'	sea to 3,000'	Dry to Medium
Gr	Jacquemontia ovalifolia ssp. sandwicensis	pa'u o hi'iaka	0.5'	6'	sea to 1,000'	Dry to Medium
Gr	Lipochaeta integrifolia	nehe	1'	5'	sea to 1,00'	Dry to Medium
Gr	Peperomia leptostachya	'ala'ala-wai-nui	1'	1'	sea to 3,000'	Dry to Medium
Gr	Plumbago zeylanica	'ilie'e	1'			
Gr	Sida fallax	'ilima	0.5'	3'	sea to 1,000'	Dry to Medium
Gr	Tephrosia purpurea var. purpurea	'auhuhu	2'	2'	sea to 1,000'	Dry to Medium
Gr - Sh	Hibiscus calyphyllus	ma'o hau hele, Rock's hibiscus	3'	2'	sea to 3,000'	Dry to Medium
Gr - Sh	Lipochaeta rockii	nehe	2'	2'	sea to 3,000'	Dry to Medium
Gr - Sh	Lipochaeta succulenta	nehe	2'	5'	sea to 1,000'	Dry to Wet
P	Cocos nucifera	coconut, niu	100'	30'	sea to 1,000'	Dry to Wet
P	Pritchardia arecina	lo'ulu, hawane	40'	10'	1,000' to 3,000'	Dry to Wet
P	Pritchardia forbesiana	lo'ulu	15'			
P	Pritchardia hillebrandii	lo'ulu, fan palm	25'	15'	sea to 1,000'	Dry to Wet
S	Mariscus javanicus	marsh cypress, 'ahu'awa	0.5'	0.5'	sea to 1,000'	Dry to Medium
Sh	Argemone glauca var. decipiens	pua kala	3'	2'	sea to 3,000'	Dry to Medium
Sh	Artemisia australis	'ahinahina	2'	3'	sea to 3,000'	Dry to Medium

Zone-specific Native and Polynesian plants for Maui County

Zone 4

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
Sh	Artemisia mauiensis var. diffusa	Maui wormwood, 'ahinahina	2'	3'	1,000' to higher	Dry to Medium
Sh	Bidens hillebrandiana ssp. hillebrandiana	ko'oko'olau	1'	2'	sea to 1,000'	Dry to Wet
Sh	Bidens menziesii ssp. menziesii	ko'oko'olau	1'	3'		
Sh	Bidens micrantha ssp. micrantha	ko'oko'olau	1'	3'		
Sh	Cordyline fruticosa	ti, ki	6			
Sh	Dianella sandwicensis	'uki	2'	2'	1,000' to higher	Dry to Medium
Sh	Lipochaeta lavarum	nehe	3'	3'	sea to 3,000'	Dry to Medium
Sh	Osteomeles anthyllidifolia	'ulei, eluehe	4'	6'	sea to 3,000'	Dry to Medium
Sh	Scaevola sericea	naupaka, naupaka-kahakai	6'	8'	sea to 1,000'	Dry to Medium
Sh	Solanum nelsonii	'akia, beach solanum	3'	3'	sea to 1,00'	Dry to Medium
Sh	Styphelia tameiameiae	pukiawe	6'	6'	1,000' to higher	Dry to Medium
Sh	Vitex rotundifolia	pohinahina	3'	4'	sea to 1,000'	Dry to Medium
Sh	Wikstroemia uva-ursi kauaiensis kauaiensis	'akia, Molokai osmanthus				
Sh - Tr	Broussonetia papyrifera	wauke, paper mulberry	8'	6'	sea to 1,000'	Dry to Medium
Sh - Tr	Myoporum sandwicense	naio, false sandalwood	10'	10'	sea to higher	Dry to Medium
Sh - Tr	Nototrichium sandwicense	kulu'i	8'	8'	sea to 3,000'	Dry to Medium
Sh-Tr	Dodonaea viscosa	'a'ali'i	6'	8'	sea to higher	Dry to Medium
Tr	Acacia koa	koa	50' - 100'	40' - 80'	1,500' to 4,000'	Dry to Medium
Tr	Aleurites moluccana	candlenut, kukui	50'	50'	sea to 3,000'	Medium to Wet
Tr	Calophyllum inophyllum	kamani, alexandrian laurel	60'	40'	sea to 3,000'	Medium to Wet
Tr	Canthium odoratum	Alahe'e, 'ohe'e, walahe'e	12'	8'	sea to 3,000'	Dry to Medium
Tr	Charpentiera obovata		15'			
Tr	Cordia subcordata	kou	30'	25'	sea to 1,000'	Dry to Wet
Tr	Diospyros sandwicensis	lama	12'	15'	sea to 3,000'	Dry to Medium
Tr	Hibiscus furcellatus	'akiohala, hau-hele	8'			
Tr	Metrosideros polymorpha var. macrophylla	ohi'a lehua	25'	25'	sea to 1,000'	Dry to Wet
Tr	Morinda citrifolia	indian mulberry, noni	20'	15'	sea to 1,000'	Dry to Wet

Zone-specific Native and Polynesian plants for Maui County

Zone 4

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
Tr	Nestegis sandwicensis	olopua	15'	15'	1,000' to 3,000'	Dry to Medium
Tr	Pandanus tectorius	hala, puhala (HALELIST)	35'	25'	sea to 1,000'	Dry to Wet
Tr	Pleomele auwahiensis	halapepe	20'			
Tr	Rauvolfia sandwicensis	hao	20'	15'	sea to 3,000'	Dry to Medium
Tr	Santalum ellipticum	coastal sandalwood, 'ili-ahi	8'	8'	sea to 3,000'	Dry to Medium
Tr	Sophora chrysophylla	mamane	15'	15'	1,000' to 3,000'	Medium
Tr	Thespesia populnea	milo	30'	30'	sea to 3,000'	Dry to Wet
V	Alyxia oliviformis	maile	Vine		sea to 6,000'	Medium to Wet

Zone-specific Native and Polynesian plants for Maui County

Zone 5

TYPE: **F** Fern **G** Grass **Gr** Ground Cover **Sh** Shrub **P** Palm **S** Sedge **Tr** Tree **V** Vine

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
G	Colubrina asiatica	'anapanapa	3'	10'	sea to 1,000'	Dry to Wet
G	Eragrostis variabilis	'emo-loa	1'	2'	sea to 3,000'	Dry to Medium
G	Fimbristylis cymosa ssp. spathacea	mau'u'aki'aki fimbristylis	0.5'	1'	sea to 1,000'	Dry to Medium
Gr	Boerhavia repens	alena	0.5'	4'	sea to 1,000'	Dry to Medium
Gr	Chamaesyce celastroides var. laehiensis	'akoko	2'	3'	sea to 1,000'	Dry to Medium
Gr	Cressa truxillensis	cressa	0.5'	1'	sea to 1,000'	Dry to Medium
Gr	Heliotropium anomalum var. argenteum	hinahina ku kahakai	1'	2'	sea to 1,000'	Dry to Medium
Gr	Jacquemontia ovalifolia ssp. sandwicensis	pa'u o hi'iaka	0.5'	6'	sea to 1,000'	Dry to Medium
Gr	Lipochaeta integrifolia	nehe	1'	5'	sea to 1,00'	Dry to Medium
Gr	Sesuvium portulacastrum	'akulikuli, sea-purslane	0.5'	2'	sea to 1,000'	Dry to Wet
Gr	Sida fallax	'ilima	0.5'	3'	sea to 1,000'	Dry to Medium
Gr	Tephrosia purpurea var. purpurea	'auhuhu	2'	2'	sea to 1,000'	Dry to Medium
Gr - Sh	Hibiscus calyphyllus	ma'o hau hele, Rock's hibiscus	3'	2'	sea to 3,000'	Dry to Medium
Gr - Sh	Lycium sandwicense	'ohelo-kai, 'ae'ae	2'	2'	sea to 1,000'	Dry to Medium
P	Cocos nucifera	coconut, niu	100'	30'	sea to 1,000'	Dry to Wet
P	Pritchardia hillebrandii	lo'ulu, fan palm	25'	15'	sea to 1,000'	Dry to Wet
S	Mariscus javanicus	marsh cypress, 'ahu'awa	0.5'	0.5'	sea to 1,000'	Dry to Medium
Sh	Argemone glauca var. decipiens	pua kala	3'	2'	sea to 3,000'	Dry to Medium
Sh	Artemisia australis	'ahinahina	2'	3'	sea to 3,000'	Dry to Medium
Sh	Bidens hillebrandiana ssp. hillebrandiana	ko'oko'olau	1'	2'	sea to 1,000'	Dry to Wet
Sh	Bidens mauiensis	ko'oko'olau	1'	3'	sea to 1,000'	Dry to Medium
Sh	Chenopodium oahuense	'aheahea, 'aweoweo	6'		sea to higher	Dry to Medium
Sh	Dianella sandwicensis	'uki	2'	2'	1,000' to higher	Dry to Medium
Sh	Gossypium tomentosum	mao, Hawaiian cotton	5'	8'	sea to 1,000'	Dry to Medium

Zone-specific Native and Polynesian plants for Maui County

Zone 5

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
Sh	Hedyotis spp.	au, pilo	3'	2'	1,000' to 3,000'	Dry to Wet
Sh	Lipochaeta lavarum	nehe	3'	3'	sea to 3,000'	Dry to Medium
Sh	Osteomeles anthyllidifolia	'ulei, eluehe	4'	6'	sea to 3,000'	Dry to Medium
Sh	Scaevola sericea	naupaka, naupaka-kahakai	6'	8'	sea to 1,000'	Dry to Medium
Sh	Senna gaudichaudii	kolomana	5'	5'	sea to 3,000'	Dry to Medium
Sh	Solanum nelsonii	'akia, beach solanum	3'	3'	sea to 1,00'	Dry to Medium
Sh	Vitex rotundifolia	pohinahina	3'	4'	sea to 1,000'	Dry to Medium
Sh	Wikstroemia uva-ursi kauaiensis kauaiensis	'akia, Molokai osmanthus				
Sh - Tr	Myoporum sandwicense	naio, false sandalwood	10'	10'	sea to higher	Dry to Medium
Sh-Tr	Dodonaea viscosa	'a'ali'i	6'	8'	sea to higher	Dry to Medium
Tr	Aleurites moluccana	candlenut, kukui	50'	50'	sea to 3,000'	Medium to Wet
Tr	Calophyllum inophyllum	kamani, alexandrian laurel	60'	40'	sea to 3,000'	Medium to Wet
Tr	Cordia subcordata	kou	30'	25'	sea to 1,000'	Dry to Wet
Tr	Hibiscus furcellatus	'akiohala, hau-hele	8'			
Tr	Morinda citrifolia	indian mulberry, noni	20'	15'	sea to 1,000'	Dry to Wet
Tr	Pandanus tectorius	hala, puhala (HALELIST)	35'	25'	sea to 1,000'	Dry to Wet
Tr	Thespesia populnea	milo	30'	30'	sea to 3,000'	Dry to Wet
V	Ipomoea pes-caprae	beach morning glory, pohuehue	1			

DO NOT PLANT THESE PLANTS !!!

Common name	Scientific name	Plant family
black wattle	Acacia mearnsii	Mimosaceae
blackberry	Rubus argutus	Rosaceae
blue gum	Eucalyptus globulus	Myrtaceae
bocconia	Bocconia frutescens	Papaveraceae
broad-leaved cordia	Cordia glabra	Boraginaceae
broomsedge, yellow bluestem	Andropogon virginicus	Poaceae
buffelgrass	Cenchrus ciliaris	Poaceae
butterfly bush, smoke bush	Buddleja madagascariensis	Buddlejaceae
cats claw, Mysore thorn, wait-a-bit	Caesalpinia decapetala	Caesalpiniaceae
common ironwood	Casuarina equisetifolia	Casuarinaceae
common velvet grass, Yorkshire fog	Holcus lanatus	Poaceae
fiddlewood	Citharexylum spinosum	Verbenaceae
fire tree, faya tree	Myrica faya	Myricaceae
glorybower	Clerodendrum laponicum	Verbenaceae
hairy cat's ear, gosmore	Hypochoeris radicata	Asteraceae
haole koa	Leucaena leucocephala	Fabaceae
ivy gourd, scarlet-fruited gourd	Coccinia grandis	Cucurbitaceae
juniper berry	Citharexylum caudatum	Verbenaceae
kahili flower	Grevillea banksii	Proteaceae
klu, popinac	Acacia farnesiana	Mimosaceae
logwood, bloodwood tree	Haematoxylon campechianum	Caesalpiniaceae
loquat	Eriobotrya japonica	Rosaceae
meadow ricegrass	Ehrharta stipoides	Poaceae
melaleuca	Melaleuca quinquenervia	Myrtaceae
miconia, velvet leaf	Miconia calvescens	Melastomataceae
narrow-leaved carpetgrass	Axonopus fissifolius	Poaceae
oleaster	Elaeagnus umbellata	Elaeagnaceae
oriental mangrove	Bruguiera gymnorrhiza	Rhizophoraceae
padang cassia	Cinnamomum burmanii	Lauraceae
palmgrass	Setaria palmifolia	Poaceae
pearl flower	Heterocentron subtriplinervium	Melastomataceae
quinine tree	Cinchona pubesens	Rubiaceae
satin leaf, caimitillo	Chrysophyllum oliviforme	Sapotaceae
silkwood, Queensland maple	Flindersia brayleyana	Rutaceae
silky oak, silver oak	Grevillea robusta	Proteaceae
strawberry guava	Psidium cattleianum	Myrtaceae
swamp oak, saltmarsh, longleaf ironwood	Casuarina glauca	Casuarinaceae
sweet vernalgrass	Anthoxanthum odoratum	Poaceae
tree of heaven	Ailanthus altissima	Simaroubaceae
trumpet tree, guarumo	Cecropia obtusifolia	Cecropiaceae
white ginger	Hedychium coronarium	Zingiberaceae
white moho	Heliocarpus popayanensis	Tiliaceae
yellow ginger	Hedychium flavescens	Zingiberaceae

DO NOT PLANT THESE PLANTS !!!

Common name	Scientific name	Plant family
	Jasminum fluminense	Oleaceae
	Arthrostema ciliatum	Melastomataceae
	Dissotis rotundifolia	Melastomataceae
	Erigeron karvinskianus	Asteraceae
	Eucalyptus robusta	Myrtaceae
	Hedychium gardnerianum	Zingiberaceae
	Juncus planifolius	Juncaceae
	Lophostemon confertus	Myrtaceae
	Medinilla cumingii	Melastomataceae
	Medinilla magnifica	Melastomataceae
	Medinilla venosa	Melastomataceae
	Melastoma candidum	Melastomataceae
	Melinis minutiflora	Poaceae
	Olea europaea	
	Oxyspora paniculata	Melastomataceae
	Panicum maximum	Poaceae
	Paspalum urvillei	Poaceae
	Passiflora edulis	Passifloraceae
	Phormium tenax	Agavaceae
	Pinus taeda	Pinaceae
	Prosopis pallida	Fabaceae
	Pterolepis glomerata	Melastomataceae
	Rhodomyrtus tomentosa	Myrtaceae
	Schefflera actinophylla	Araliaceae
	Syzygium jambos	Myrtaceae
Australian blackwood	Acacia melanoxylon	Mimosaceae
Australian tree fern	Cyathea cooperi	Cyatheaceae
Australian tree fern	Sphaeropteris cooperi	Cyatheaceae
Beggar's tick, Spanish needle	Bidens pilosa	Asteraceae
California grass	Brachiaria mutica	Poaceae
Chinese banyon, Maylayan banyon	Ficus mirocarpa	Moraceae
Chinese violet	Asystasia gangetica	Acanthaceae
Christmasberry, Brazilian pepper	Schinus terebinthifolius	Anacardiaceae
Formosan koa	Acacia confusa	Mimosaceae
German ivy	Senecio mikanioides	Asteraceae
Japanese honeysuckle	Lonicera japonica	Caprifoliaceae
Koster's curse	Clidemia hirta	Melastomataceae
Lantana	Lantana camara	Verbenaceae
Mauritius hemp	Furcraea foetida	Agavaceae
Mexican ash, tropical ash	Fraxinus uhdei	Oleaceae
Mexican tulip poppy	Hunnemannia fumariifolia	Papaveraceae
Mules foot, Madagascar tree fern	Angiopteris evecta	Marattiaceae
New Zealand laurel, karakaranut	Corynocarpus laevigatus	Corynocarpaceae
New Zealand tea	Leptospermum scoparium	Myrtaceae
Pampas grass	Cortaderia jubata	Poaceae
Panama rubber tree, Mexican rubber tree	Castilloa elastica	Moraceae
Shoebutton ardisia	Ardisia elliptica	Myrsinaceae
banana poka	Passiflora mollissima	Passifloraceae

Selection

As a general rule, it is best to select the largest and healthiest specimens. However, be sure to note that they are not pot-bound. Smaller, younger plants may result in a low rate of plant survival.[1] When selecting native species, consider the site they are to be planted in, and the space that you have to plant. For example: Mountain species such as koa and maile will not grow well in hot coastal areas exposed to strong ocean breezes. Lowland and coastal species such as wiliwili and Kou require abundant sunshine and porus soil. They will not grow well with frequent cloud cover, high rainfall and heavy soil.

Consider too, the size that the species will grow to be. It is not wise to plant trees that will grow too large.[2] Overplanting tends to be a big problem in the landscape due to the underestimation of a species' height, width or spread.

A large, dense canopied tree such as the kukui is a good shade tree for a lawn. However, it's canopy size and density of shade will limit what can be planted in the surrounding area. Shade cast by a koa and ohia lehua is relatively light and will not inhibit growth beneath it.

Keep seasons in mind when you are selecting your plants. Not all plants look good year round, some plants such as ilima will look scraggly after they have flowered and formed seeds. Avoid planting large areas with only one native plant. Mixing plants which naturally grow together will ensure the garden will look good all year round.[3] Looking at natural habitats helps to show how plants grow naturally in the landscape.

When planting an area with a mixed-ecosystem, keep in mind the size and ecological requirements of each plant. Start with the hardiest and most easily grown species, but allow space for fragile ones in subsequent plantings.

Acquiring natives

Plants in their wild habitat must be protected and maintained. It is best and easiest to get your plants from nurseries (see list), or friend's gardens. Obtain proper permits from landowners and make sure you follow a few common sense rules:

- collect sparingly from each plant or area.
- some plants are on the state or Federal Endangered Species list. Make sure you get permits (see app. A,B)

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[1] K. Nagata, P.6

[2] K. Nagata, P.9

[3] Nagata, P.9

Soil

Once you have selected your site and the plants you wish to establish there, you must look at the soil conditions on the site. Proper soil is necessary for the successful growth of most native plants, which preform poorly in hard pan, clay or adobe soils. If natives are to be planted in these types of soil, it would be wise to dig planting holes several times the size of the rootball and backfill with 50-75% compost.[4] A large planting hole ensures the development of a strong root system. The plant will have a headstart before the roots penetrate the surrounding poor soil.[5]

It is recommended that native plants not be planted in ground that is more dense than potting soil. If there is no alternative, dig a hole in a mound of soil mixed with volcanic cinder which encourages maximum root development. Fill the hole with water, if the water tends to puddle or drain too slowly, dig a deeper hole until the water does not puddle longer than 1 or 2 minutes.[6] Well-drained soil is one of the most important things when planting natives as you will see in the next section.

Irrigation

Most natives do very poorly in waterlogged conditions. Do not water if the soil is damp. Water when the soil is dry and the plants are wilting. Once established, a good soaking twice a week should suffice. Deep soaking encourages the development of stronger, and deeper root systems. This is better than frequent and shallow watering which encourage weaker, more shallow root systems.

The following is a watering schedule from Kenneth Nagata's Booklet, *How To Plant A Native Hawaiian Garden*:

WATER REQUIREMENT	WATERING FREQUENCY
Heavy	3x / week
Moderate	2x / week
Light	1x / week

Red clay soils hold more water for a longer period of time than sandy soils do. If your area is very sunny or near a beach, things will dry out faster. Even in the area of one garden, there are parts that will need more or less water. Soils can vary and amount of shade and wind differ. After plants are established (a month or two for most plants, up to a year for some trees), you can back off watering.

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[4] Nagata, p. 6.

[5] Nagata, p. 8

[6] Nagata, p. 8

Automatic sprinkler systems are expensive to install and must be checked and adjusted regularly. Above-ground systems allow you to monitor how much water is being put out, but you lose a lot due to malfunctioning of sprinkler heads and wind. The most efficient way to save water and make sure your plants get enough water, is to hand-water. This way you are getting our precious water to the right places in the right amounts.[7]

Fertilizer

An all-purpose fertilizer 10-10-10 is adequate for most species. They should be applied at planting time, 3 months later, and 6 months thereafter. Use half the dosage recommended for ornamentals and pay special attention to native ferns which are sensitive to strong fertilizers. Use of organic composts and aged animal manures is suggested instead of chemical fertilizers. In addition, use of cinders for providing trace minerals is strongly recommended.[8]

Natives are plants which were here hundreds of years before the polynesians inhabited the Hawaiian Islands. They were brought here by birds, or survived the harsh ocean conditions to float here. They are well-adapted to Hawaii's varying soil and environmental conditions. This is why they make prime specimens for a xeriscape garden. However, natives will not thrive on their own, especially under harsh conditions. On the other hand, like any other plant, if you over-water and over-fertilize them, they will die. Follow the instructions given to you by the nursery you buy the plant from, or from this booklet. Better yet, buy a book (suggested readings can be found in the bibliography in the back of this pamphlet), read it, and learn more about native plants. I guarantee that you will be pleased with the results.

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[7] Bornhorst, p. 19-20

[8] Nagata, p. 6

Propagation

There are many ways to propagate and plant-out native Hawaiian species. One of the most thourough and helpful book is Heidi Bornhorst's book, *Growing Native Hawaiian Plants.* The easiest, and best way to obtain natives for the novice gardener is to get them from a reputable nursery (see appendix c). That way all you will have to do is know how to transplant (if necessary) and plant-out when you are ready. These are the two methods I have listed here.

Transplanting

1. Use pots that are one size bigger than the potted plant is in
2. Get your potting medium ready

Good potting medium is a ½, ½ mixture of peat moss and perlite. If the plant is from a dry or coastal area, add chunks of cinder or extra perlite. If it is a wet forest species, add more peat moss or compost. Be aware that peat moss is very acidic and certain plants react severely to acidity.

If the plant is to eventually be planted into the ground, make a mix of equal parts peat moss, perlite, and soil from the area in which the plant is to be planted. Slow-release fertilizer can be mixed into the potting medium.

3. Once pots, potting medium, fertilizer and water are ready, you can begin re-potting. Keep the plant stem at the same depth it was in the original pot. Avoid putting the plant in too large a pot, as the plant may not be able to soak up all the water in the soil and the roots may drown and rot.

Mix potting medium and add slow-release fertilizer at this time. Pre-wet the medium to keep dust down and lessen shock to the plant. Put medium in bottom of pot. Measure for the correct depth in the new pot. Make sure there is from ½ to 2 inches from the top of the pot so the plant can get adequate water. Try to stand the plant upright and center the stem in the middle of the pot.

Water the plant thoroughly after transplanting. A vitamin B-1 transplanting solution can help to lessen the transplant shock. Keep the plant in the same type of environment as it was before, sun or shade. If roots were broken, trimm off some of the leaves to compensate for the loss.[9]

Planting out

1. Plant most native Hawaiian plants in a sunny location in soil that is well-drained.
2. Make the planting hole twice as wide as the root ball or present pot, and just as deep.

If the soil is clay-like, and drains slowly, mix in some coarse red or bland cinder, coarse perlite or

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[9] Bornhorst, p.20-21

coarse compost. Place some slow-release fertilizer at the bottom of the hole.

3. Carefully remove the plant from the container and place it in the hole.

The top of the soil should be at the same level as the top of the hole, if it is too high or too low, adjust the soil level so that the plant is at the right depth.

4. Water thoroughly after you transplant.

Mulch

Most natives cannot compete with weeds, and therefore must be weeded around constantly in order to thrive. Mulch is a practical alternative, which discourages and prevents weeds from growing.

Hawaii's hot, humid climate leads to the breaking down of organic mulches. Thick organic mulches such as wood chips and leaves, may also be hiding places for pests.

Stone mulches are attractive, permanent and can help to improve soil quality. Red or black cinder, blue rock chips, smooth river rocks and coral chips are some natural choices.[10] Macadamia nut hulls are also easy to find and can make a nice mulch.[11]

Never pile up mulch right next to the stem or trunk of a plant, keep it a few inches away.

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[10] Bornhorst, p. 24

[11] Nagata, p. 7

ZONES

The Maui County Planting Plan has compiled a system of 5 zones of plant growth for Maui County. The descriptions of zones and maps for these zones are as follows:

Zone 1:

Wet areas on the windward side of the island. More than 40 inches of rain per year. Higher than 3,000 feet.

Zone 2:

Cool, dry areas in higher elevations (above 1,000 feet). 20 to 40 inches of rain per year.

Zone 3:

Low, drier areas, warm to hot. Less than 20 inches of rain per year. Sea level to 1,000 feet.

Zone 4:

Lower elevations which are wetter due to proximity of mountains. 1,000 to 3,000 feet.

Zone 5:

Salt spray zones in coastal areas on the windward side.

These zones are to be used as a general guide to planting for Maui County. In addition to looking at the maps, read the descriptions of the zones and decide which zone best fits your area. Plants can be listed in more than one zone and can be planted in a variety of conditions. For best results, take notes on the rainfall, wind, sun and salt conditions of your site. Use the zones as a general guide for selection and read about the plants to decide which best fits your needs as far as care and or function.

PLACES TO SEE NATIVES ON MAUI:

The following places propagate native Hawaiian plants from seeds and/or cuttings. Their purpose is to protect and preserve these native plants. Please contact them before going to view the sites, they can provide valuable information and referral to other sources.

1.	Hoolawa Farms P O Box 731 Haiku HI 96708	575-5099
2.	The Hawaiian Collection 1127 Manu Street Kula HI 96790	878-1701
3.	Kula Botanical Gardens RR4, Box 228 Kula HI 96790	878-1715
4.	Maui Botanical Gardens Kanaloa Avenue, Kahului across from stadium	249-2798
5.	Kula Forest Reserve access road at the end of Waipoli Rd Call the Maui District Office	984-8100
6.	Wailea Point, Private Condominium residence 4000 Wailea Alanui, Kihei public access points at Four Seasons Resort or Polo Beach	875-9557
7.	Kahanu Gardens, National Tropical Botanical Garden Alau Place, Hana HI 96713	248-8912
8.	Kahului Library Courtyard 20 School Street Kahului HI 96732	873-3097

PLACES TO BUY NATIVE PLANTS ON MAUI

1. Ho'olawa Farms
   Anna Palomino
   P O Box 731
   Haiku HI 96708
   575-5099

   * The largest and best collection of natives in the state. They will deliver, but worth the drive to go and see! Will propagate upon request

2. Kahanu Gardens
   National Tropical Botanical Garden
   Alau Place, Hana
   248-8912

3. Kihana Nursery
   1708 South Kihei Road
   Kihei HI 96753
   879-1165

4. Kihei Garden and Landscape
   Waiko Road, Wailuku
   P O Box 1058
   Puunene HI 96784
   244-3804

5. Kula Ace Hardware and Nursery
   3600 Lower Kula Road
   Kula HI 96790
   876-0734
   * many natives in stock
   * get most of their plants from Ho'olawa Farms
   * they take special requests

6. Kulamanu Farms - Ann Carter
   Kula HI 96790
   878-1801

7. Maui Nui Botanical Gardens
   Kanaloa Avenue
   (Across from stadium)
   Kahului HI 96732
   249-2798

8. Native Gardenscapes
   Robin McMillan
   1330 Lower Kimo Drive
   Kula HI 96790
   870-1421

   * grows native plants and installs landscapes including irrigation.

9. Native Hawaiian Tree Source
   1630 Piiholo Road
   Makawao HI 96768
   572-6180

10. Native Nursery, LLC
    Jonathan Keyser
    250-3341

11. New Moon Enterprises - Pat Bily
    47 Kahoea Place
    Kula HI 96790
    878-2441

12. Waiakoa Tree Farm - Kua Rogoff
    Pukalani HI 96768
    Cell - 264-4166

ORDINANCE NO. 2108

BILL NO. 6 (1992)

Draft 1

A BILL FOR AN ORDINANCE AMENDING CHAPTER 16.20 OF THE MAUI COUNTY CODE, PERTAINING TO THE PLUMBING CODE

BE IT ORDAINED BY THE PEOPLE OF THE COUNTY OF MAUI:

SECTION 1. Title 16 of the Maui County Code is amended by adding a new section to Chapter 10 of the Uniform Plumbing Code to be designated and to read as follows:

"16.20.675 Section 1050 added. Chapter 10 of the Uniform Plumbing Code is amended by adding a new section, pertaining to low-flow water fixtures and devices, to be designated and to read as follows:

Sec. 1050 Low-flow water fixtures and devices. (a) This section establishes maximum rates of water flow or discharge for plumbing fixtures and devices in order to promote water conservation.

(b) For the plumbing fixtures and devices covered in this section, manufacturers or their local distributors shall provide proof of compliance with the performance requirements established by the American National Standards Institute (ANSI) and such other proof as may be required by the director of public works. There shall be no charge for this registration process.

(c) Effective December 31, 1992, only plumbing fixtures and devices specified in this section shall be offered for sale or installed in the County of Maui, unless otherwise indicated in this section. All plumbing fixtures and devices which were installed before December 31, 1992, shall be allowed to be used, repaired or replaced after December 31, 1992.

(1) Faucets (kitchen): All kitchen and bar sink faucets shall be designed, manufactured, installed or equipped with a flow control device or aerator which will prevent a water flow rate in excess of two and two-tenths gallons per minute at sixty pounds per square inch of water pressure.

(2) Faucets (lavatory): All lavatory faucets shall be designed, manufactured, installed or equipped with a flow control device or aerator which will prevent a water flow rate in excess of two and two tenths gallons per minute at sixty pounds per square inch of water

pressure.

(3) Faucets (public rest rooms): In addition to the lavatory requirements set forth in paragraph (2), lavatory faucets located in rest rooms intended for use by the general public shall be of the metering or self-closing types.

(4) Hose bibbs: Water supply faucets or valves shall be provided with approved flow control devices which limit flow to a maximum three gallons per minute.

EXCEPTIONS: (A) Hose bibbs or valves not used for fixtures or equipment designated by the director of public works.

(B) Hose bibbs, faucets, or valves serving fixed demand, timing, or water level control appliances, and equipment or holding structures such as water closets, pools, automatic washers, and other similar equipment.

(5) Showerheads: Showerheads, except where provided for safety or emergency reasons, shall be designed, manufactured, or installed with a flow limitation device which will prevent a water flow rate in excess of two and one-half gallons per minute at eighty pounds per square inch of water pressure. The flow limitation device must be a permanent and integral part of the showerhead and must not be removable to allow flow rates in excess of two and one-half gallons per minute or must be mechanically retained requiring force in excess of eight pounds to remove.

(6) Urinals: Urinals shall be designed, manufactured, or installed so that the maximum flush will not exceed one gallon of water. Adjustable type flushometer valves may be used provided they are adjusted so the maximum flush will not exceed one and six tenths gallons of water.

(7) Water closets (toilets): Water closets shall be designed, manufactured, or installed so that the maximum flush will not exceed one and six tenths gallons of water.

(d) Beginning December 31, 1992, it is unlawful to sell or install any plumbing fixtures or devices not specified in this section, except as permitted under this section.

(e) The director of public works may exempt the use of low-flow water fixtures and devices if there is a finding that the use of such fixtures and devices would not be consistent with accepted engineering practices and would be detrimental to the public health, safety and welfare.

WE HEREBY CERTIFY that the foregoing BILL NO. 6 (19 92), Draft 1

1. Passed FINAL READING at the meeting of the Council of the County of Maui, State of Hawaii, held on the 1st day of May , 1992 , by the following votes:

Howard S. KIHUNE Chair	Patrick S. KAWANO Vice-Chair	Vince G. BAGOYO, Jr.	Goro HOKAMA	Alice L. LEE	Ricardo MEDINA	Wayne K. NISHIKI	Joe S. TANAKA	Leinaala TERUYA DRUMMOND
Aye	Aye	Excused	Excused	Aye	Aye	Aye	Aye	Aye

2. Was transmitted to the Mayor of the County of Maui, State of Hawaii, on the 1st day of May , 1992 .

DATED AT WAILUKU, MAUI, HAWAII, this 1st day of May , 1992 .

HOWARD S. KIHUNE, CHAIR
Council of the County of Maui

DARYL T. YAMAMOTO, COUNTY CLERK
County of Maui

THE FOREGOING BILL IS HEREBY APPROVED THIS 5th DAY OF MAY , 1992 .

LINDA CROCKETT LINGLE, MAYOR
County of Maui

I HEREBY CERTIFY that upon approval of the foregoing BILL by the Mayor of the County of Maui, the said BILL was designated as ORDINANCE NO. 2108 of the County of Maui, State of Hawaii.

DARYL T. YAMAMOTO, COUNTY CLERK
County of Maui

Passed First Reading on January 17, 1992.
Effective date of Ordinance May 5, 1992.

I HEREBY CERTIFY that the foregoing is a true and correct copy of Ordinance No. 2108 , the original of which is on file in the Office of the County Clerk, County of Maui, State of Hawaii.

Dated at Wailuku, Hawaii, on

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County Clerk, County of Maui

(f) Any person violating this section shall be fined $250 for each violation and shall correct all instances of non-compliance for which a citation is issued. Violation of this section shall constitute a violation as defined in section 701-107 Hawaii Revised Statutes and shall be enforceable by employees of the department of public works. The foregoing fine may also be imposed in a civil, administrative proceeding pursuant to Rules and Regulations adopted by the department of public works in accordance with chapter 91 Hawaii Revised Statutes."

SECTION 2. New material is underscored. In printing this bill, the County Clerk need not include the underscoring.

SECTION 3. This ordinance shall take effect upon its approval.

APPROVED AS TO FORM
AND LEGALITY:

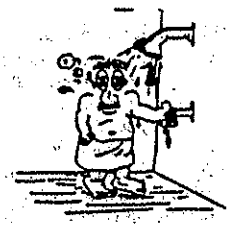
HOWARD M. FUKUSHIMA
Deputy Corporation Counsel
County of Maui
c:\wp51\ords\flows4\pk

A Checklist of Conservation Ideas for the Home

Wise Water Habits

Shaving & Brushing Teeth
If you leave the water running while you shave or brush your teeth, you are wasting a gallon a minute! Stopper the sink and fill the basin half way when you shave, and you use just ½ a gallon! Turn off the water while brushing your teeth!

Bathing & Showering
Which uses more water, a shower or a tub bath? That depends! A partially filled tub uses less water than a long shower, but a short shower with a low flow showerhead uses much less than a brimful tub! You can compare for yourself. Try plugging the tub while you shower and see how high the water gets. Make a habit of showering quickly or using a partially filled tub. Or try the "navy shower". Turn on the water to get wet, turn it off to soap up, and turn it back on to rinse off. It's a great conservation technique, especially in drought emergencies.

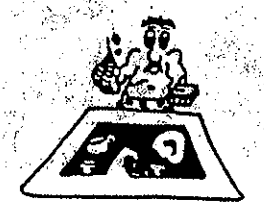


House plants & Fish Tanks
If you have a fish tank, you probably clean it regularly. Use the dirty water to water your House plants. It saves using the same water twice, and the plants love the water, which is rich in nitrogen and phosphorous!

Washing Smart
Some washing machines use 40 or more gallons whether you're washing a full load, or only a few pairs of socks. Use full washloads, especially for older machines. If your machine is adjustable, use the proper setting. You'll save electricity as well as water.

Food Prep
If you like to rinse off vegetables and fruits, stopper the sink instead of using running water. And when you're finished, turn on the garbage disposal as you pull the plug, rather than running water just for the disposal.

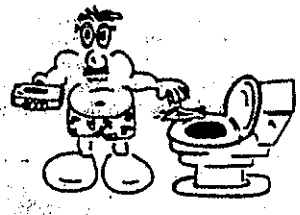
Doing Dishes
Which is more efficient, washing dishes in the sink or in a dishwasher? You can check by testing how much water your full sink basin holds compared with the 9.5 to 12 gallons dishwashers use during a regular cycle. Either way, it is more water efficient to wash full loads. If you do wash dishes by hand, stopper the sink and run the disposal as you pull the plug.



Washing the Car
Do you wash your car at home? Use a bucket, or a hose with a trigger nozzle to avoid wasting water. Wet the car thoroughly, and then turn off the hose while you wash the car! Swab the car with soapy water from a bucket. You can use the hose again for a final rinse. Better still, take your car to a car wash. Most of the car washes on Maui are fitted with recirculating water.

For a Cold Glass of Water
Keep a pitcher of cool water in the refrigerator. Running the water until it turns cool can waste a gallon for each glass. Letting the water sit in the fridge can also allow any chlorine to dissipate, and improve the taste.

Don't Use the Toilet for Trash!!
Some people toss and flush away tissues, cigarettes or bits of trash in the toilet. Use a wastebasket instead. If everyone in the U.S. flushed just once less per day, we could save a sea full of water a mile wide, a mile long and four feet deep, every day!



Water Saving Devices

Showerheads
Replacing your old showerhead with a low flow can save as much as 7.2 gallons per person per day. You can get showerheads and other low flow fixtures from the Maui County Board of Water Supply (270-7199), or the Public Works Department (270-7417).

Toilets
Installing A New Water Conserving Toilet can save as much as 17 gallons per person per day. Even a low cost installing a toilet flapper can save more than 5 gallons per person per day.

Faucets
Replacing your old faucets with more efficient models can save 4 gallons per person per day. Faucet aerators or spray taps can also help, by mixing air with water. This cuts the flow and reduces splashing, while leaving enough pressure to cut the soap and grease.

Washing Machines
A water-efficient washing machine can save up to 20 gallons per load. With the average household washing 6 loads per week, that's a lot of water! In fact, within 2 years, these can save as much water as the average person drinks in a lifetime! And that's not all. Statistics on energy savings potential indicate that highly efficient washing machines save from 35% to 65% on energy used for washing!

Maintenance

Check for Leaks!
Leaking faucets cost you money! Even a slow drip wastes 15 gallons per day. A $\frac{1}{8}$" stream can waste 400 gallons per day! Think about it. A single dripping faucet can waste more water in one day than a person needs for drinking for an entire week! Unfortunately, the average non-conserving home looses more than 10% of the water it pays for to leaks! Check for leaks regularly. Try putting 10 drops of food coloring in your toilet tank. Don't flush, just wait 15 minutes. If colored water shows up in the bowl, your tank is leaking. Check your water meter while no water is running in your house. If the meter is registering, you have a leak somewhere.

After toilets, most indoor leaks are caused by worn washers in faucets. Check your faucets twice a year. If any drip after you've turned them off firmly, turn off the supply line, take the faucet apart and replace the washer. And don't forget the faucets on the side of the house.

A Clean Sweep
Did you know that 5 minutes of unnecessary hosing will waste 25 gallons of water? Try sweeping sidewalks and driveways. This will get them clean without wasting water.

Pipes Break - Be Prepared
Do you know where your master shut-off valve is located? If a pipe breaks in your home, you could experience flooding and property damage as well as huge water waste unless you quickly shut your valve. Locate your valve and mark it for quick easy identification. Learn how to shut it properly, and teach your family to do so as well.

Cover Pools and Jacuzzis
They're fun, but they can waste a lot of water! An average sized pool loses about 1,000 gallons of water per month to evaporation. A pool cover can cut these losses by 90%!

A Checklist of Conservation Ideas for the Yard

Limit Lawn Size

Most turf grasses require 30% to 50% more water than shrubs and ground covers. Limit the use of grass and lawns to active picnicking and play areas. Shade in these areas will reduce moisture loss and make a cool area for children to play. If you do have a lawn, mow at least once per week, and try to cut no more than ⅓ of the grass blade, or ½ to ¾ of an inch at a time. Adjust your lawn mower to a higher setting. Taller blades of grass actually hold up better in the heat, because that little bit of extra shade helps to more moisture in the soil. If you mow the grass too short, root shock will cause your grass to turn yellow despite your watering!

Designing for Irrigation Zones

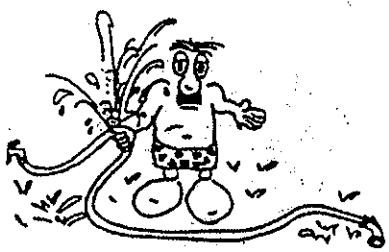
Avoid putting thirsty exotics with plants that do well in dry weather. Zone your plants so that each area has similar water needs. This will enable you to water more efficiently, and keep the plants healthier. Limit thirsty plants to small decorative borders around the house itself or in specific viewing areas or shady areas. While you're at it, call the Board of Water Supply at 270-7199 for more information.

Choosing Native Plants: A Hawaiian Sense of Place

An out-of-place, thirsty landscape can slurp up ¾ of your home's water use. Plant shrubs and trees that nature designed to look green and full here on Maui without a lot of water. Make sure they get regular watering in the first year or two, to help them establish good, deep roots. Then, once they are grown in, you can cut back or stop watering, depending upon your location. At worst, in our hot, low southern areas an occasional, slow, deep watering placed right at the roots should be enough to keep a climate adapted plant looking good even through the hot summer.

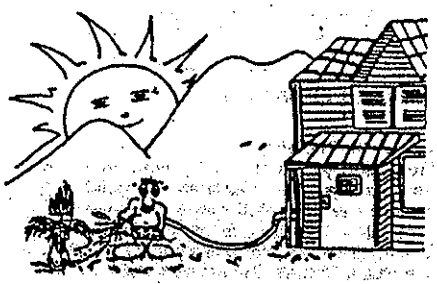
Find and Repair Leaks

Your garden hose and irrigation lines can carry thousands of gallons per day, so you can imagine a leak outdoors wastes a lot of water! Check and repair all of your outdoor fixtures regularly.



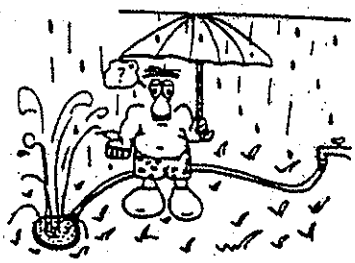
Irrigation Systems

Drip irrigation is designed to get water slowly and directly to the roots of plants. This not only saves water, but for some plants it helps to reduce the risk of diseases. Sprinklers with fine, high sprays lose a lot of water to evaporation. So, if you do use a sprinkler for certain plants, go for the sort with low, flat spay patterns and larger drops of water. Check timers on irrigation controllers and adjust them monthly to water appropriately for the season. For small grassy areas, watering by hand can actually reduce waste! But if you use a hose, set a kitchen timer or buy a timer attachment that hooks on between the faucet and hose. This will help remind you not to over-water one area. Use a soaker hose on slopes to reduce run-off.



Watering

If you do have a lawn, water only when it needs it. A good deep soaking is better than a light sprinkling. If you water too frequently or lightly, plants develop shallower roots and become less drought resistant! A good way to see if your lawn needs watering is to step on the grass. If it springs back up when you move, it doesn't need water. If it stays flat, it could use a bit. Avoid watering in the heat of the day. By 10 A.M., the sun is up and so is the heat. This will rob your lawn's moisture. In dry areas you can also choose evenings to water.



Watching the Weather...

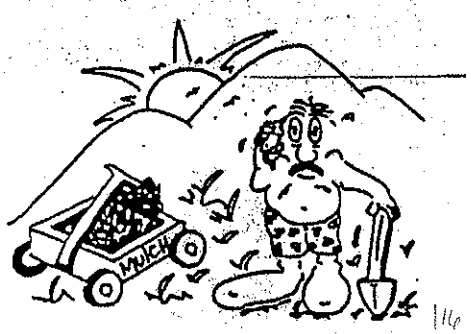
As simple-minded as it sounds ....neve water while it's raining! Many people forget to follow this simple rule. Instal rain-shutoffs or soil moisture sensors or automated systems. Teach your family to turn off your irrigation in the rain. You also create "weather conditions" by how and where you plant. Sunny exposed areas and slopes need to be watered more frequently than shady areas. Place your plants appropriately.

Getting to the Root

Root feeder or water aerator probes around trees and bushes will help direct water where it is needed. Even for the biggest trees, you don't need to go any deeper than 18 inches. 8 to 12 inches is big enough for small trees and shrubs. You can also build a watering basin in the soil around the base of your plants to help the water to soak in deeply. Drip systems are good for this too.

Soils & Mulch

Soils are not all alike. Clay soils can typically take from ¼ to ½" of water per hour before water starts running off and is wasted. Sandy soils require more frequent, shorter watering. You can have your soils tested. Call the Ag Extension Service at MCC for advice (244-3242). Compost or other organic material will also help soils hold moisture and support heartier, more drought-tolerant plants. Try leaves, grass clippings, manure, aged sawdust, wood chips, or humic acid. Mulching is an excellent way to hold moisture, keep the ground from overheating and discourage weeds. You should also loosen the soil by rototilling or spading while you add the organic matter. Looser soil can make a healthier lawn.



MUNEKIYO & HIRAGA, INC.

MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSURU "MICH" HIRANO

KARLYNN KAWAHARA

March 15, 2007

Jeffrey Eng, Director
County of Maui
Department of Water Supply
200 South High Street
Wailuku, Hawai'i 96793

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN) for Proposed Ma`alaea Mauka Residential Subdivision and Related Improvements, Land Use Commission Petition (A06-765)

Dear Mr. Eng:

Thank you for your letter dated August 3, 2006 providing comments on the Environmental Impact Statement (EIS) Preparation Notice for the subject project. We would like to offer the following responses to your comments, which are outlined in the same order as they appear in your letter:

Source Availability and Consumption

We confirm that the plans include the private development of a new water supply system to meet the peak water service requirements for the subject project. The system will consist of a minimum of three (3) wells, a 1.0 million gallon water storage tank and associated infrastructure. The applicant intends to dedicate this water supply system to the County upon project completion.

A Preliminary Engineering Report for the water system improvements has been completed for the subject project by M&E Pacific, Inc. As requested, estimations of potable and non-potable water use for the subject project will be included in the Draft EIS.

planning environment

305 High Street, Suite 104 · Wailuku, Hawaii 96793 · ph: (808)244-2015 · fax: (808)244-8729 · planning@mhinconline.com

System Infrastructure

We acknowledge the department's determination that there is a 12-inch waterline on the southernmost side of the project site. As noted above, the proposed project will involve the private development of a new water supply system. As such, the proposed project will not involve connection to the County's 12-inch waterline.

As applicable, the project will meet the department's Rules and Regulations for Subdivision. Domestic, irrigation and fire protection services will be provided in accordance with system standards.

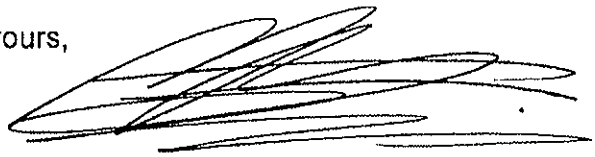
Conservation and Pollution Prevention

We acknowledge the department's comments regarding opportunities for water conservation. Opportunities for water conservation will be evaluated and integrated into project plans, where feasible, during both the planning/design and construction/engineering plans phases of work.

Appropriate Best Management Practices (BMPs) will be utilized prior to and during construction of each phase of the proposed project to prevent the potential for pollution.

A copy of the Draft EIS will be provided to your office for your review and comment. Should you have any questions or require additional information in the meantime, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,



Mark Alexander Roy, Planner

MAR:tn
cc: Steve Kikuchi, Ma`alaea Properties LLC
Lloyd Lee, M&E Pacific, Inc.
Jim Geiger, Mancini Welch and Geiger LLC
Bert Saruwatari, Land Use Commission
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Maui Electric Company, Ltd. • 210 West Kamehameha Avenue • PO Box 398 • Kahului, Maui, HI 96733-6898 • (808) 871-8461

July 27, 2006

Mr. Mark Alexander Roy, Planner
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Roy,

Subject: Proposed Maalaea Mauka Residential Subdivision
Maalaea, Maui, Hawaii
TMK: (2) 3-6-01:018

Thank you for allowing us to comment on the Environmental Impact Statement (EIS) Preparation Notice for the above subject project, which was received on July 21, 2006.

In reviewing our records and the information received, Maui Electric Company (MECO) has no objection to the project at this time. However, while reviewing the EIS Preparation Notice, in the Project Overview section, part A, we would like to comment that MECO has an Air Quality Monitoring Station and overhead pole line within the above subject's project site via an agreement with the landowners.

We will also be requiring access and electrical easements for our facilities to serve the subject project site and also highly encourage the developer's electrical consultant to submit the electrical demand requirements and project time schedule as soon as practical so that service can be provided on a timely basis.

This project's anticipated load demand will have a substantial impact to our system. Therefore, upgrades to our substations, and the addition of new transmission and/or distribution lines may be necessary to accommodate a project of this magnitude.

May we also suggest that the developer and/or their consultant make contact with Walter Enomoto of our Demand Side Management (DSM) group at 872-3283 to review potential energy conservation and efficiency opportunities for their project.

Should you have any other questions or concerns, please call Kimberly Kawahara at 871-2345.

Sincerely,

Neal Shinyama
Manager, Engineering

NS/kk:lh
cc: Walter Enomoto – MECO DSM
Anthony Ching, Land Use Commission

MUNEKIYO & HIRAGA, INC.

MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSURU "MICH" HIRANO

KARLYNN KAWAHARA

October 27, 2006

Neal Shinyama, Engineering Manager
Maui Electric Company, Ltd.
P. O. Box 398
Kahului, Hawai`i 96733

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN) for Proposed Ma`alaea Mauka Residential Subdivision and Related Improvements, Land Use Commission Petition (A06-766)

Dear Mr. Shinyama:

Thank you for your letter dated July 27, 2006, providing comments on the EISPN for the subject project. On behalf of the applicant, we would like to provide the following information to help address your comments:

1. We acknowledge that Maui Electric Company, Ltd. (MECO) has no objections to the proposed project at this time.

2. We acknowledge that MECO has an air quality monitoring station and overhead pole line within the property via an existing agreement with the landowners.

3. We acknowledge that MECO will require access and easements in order to provide service to the proposed project.

4. The project electrical consultant will submit electrical drawings and a project time schedule, as early as is practicable to facilitate the provision of service.

5. The applicant will coordinate with MECO to address the need for system upgrades which may be necessary to accommodate the anticipated load demand from the proposed project.

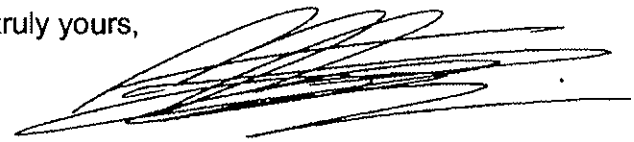
6. Energy conservation measures will be considered as part of the project design phase of development. Coordination with the Demand Side Management Group will be undertaken at that time.

305 High Street, Suite 104 Wailuku, Hawaii 96793 · ph: (808)244-2015 · fax: (808)244-8729 · planning@mhinconline.com

We appreciate the input provided by your office. A copy of the Draft EIS will be provided to you for review and comment.

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,



Mark Alexander Roy, Planner

MAR:tn
cc: Steve Kikuchi, Ma`alaea Properties LLC
Lloyd Lee, M&E Pacific Inc.
Jim Geiger, Mancini Welch and Geiger LLC
Bert Saruwatari, DBEDT, Land Use Commission
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AUG 0 4 2006

Hawaiian Telcom

August 1, 2006

Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

ATTN: Mr. Mark Alexander Roy

SUBJECT: Maalaea Mauka Residential Subdivision
ENVIRONMENTAL IMPACT STATEMENT
PREPARATION NOTICE

Dear Mr. Roy;

Thank you for providing Hawaiian Telcom Incorporated, the opportunity to comment on the Environmental Impact Statement Preparation Notice for the Maalaea Mauka Residential Subdivision.

Hawaiian Telcom's existing infrastructure providing telecommunication services to this area is nearly filled to capacity and unable to serve a project of this magnitude. In order to provide telecommunication services for this project, two easements of 30'X30' might be required for Hawaiian Telcom to install pair gains. Fiber cable and power lines will energize the pair gains to provide telecommunication services for this Maalaea Mauka Residential Subdivision.

If there are any questions, please call me at (808) 242-5107 or Jerry Imai at (808) 242-5110.

Sincerely,

Thomas Hutchison
Engineer –
Network Engineering & Planning

cc: Anthony Ching
File TPS#J-0607-078 (3080)

1177 Bishop Street • Honolulu • Hi 96813

MUNEKIYO & HIRAGA, INC.

MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSURU "MICH" HIRANO

KARLYNN KAWAHARA

January 18, 2007

Thomas Hutchinson, Engineer
Network Engineering & Planning
Hawaiian Telcom
60 South Church Street
Wailuku, Hawai'i 96793

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN) for Proposed Ma`alaea Mauka Residential Subdivision and Related Improvements, Land Use Commission Petition (A06-765)
File TPS# J-0607-078

Dear Mr. Hutchinson:

We are writing to you on behalf of the applicant, Ma`alaea Properties, LLC, to thank you for your letter dated August 1, 2006, providing comments on the EISPN for the subject project.

The applicant's design team will coordinate with Hawaiian Telcom during the engineering plans preparation phase of work to ensure that all telecommunication requirements for the project are addressed. The applicant acknowledges that the provision of easements to facilitate the installation of any additional required telecommunication service equipment may be necessary.

We appreciate the input from your office. A copy of the Draft EIS will be provided for your review and comment.

Should you have any questions, or require additional information, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,

Mark Alexander Roy, Planner

MAR:tn
cc: Steve Kikuchi, Ma`alaea Properties LLC
Lloyd Lee, M&E Pacific, Inc.
Jim Geiger, Mancini Welch and Geiger LLC
Bert Saruwatari, DBEDT, Land Use Commission
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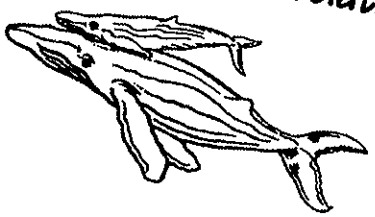
Ma'alaea Community Association



50 Hau'oli Street
Ma'alaea, Maui 96793

August 21, 2006

Mr. Mark Alexander Roy, Planner
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, HI 96793

SUBJECT: EIS Preparation Notice, Proposed Ma'alaea Mauka Residential Subdivision

Dear Mr. Roy:

Thank you for the opportunity to review the subject EIS Preparation Notice. The officers and directors of the Ma'alaea Community Association are pleased to submit the following comments.

1. Ma'alaea Today -- Ma'alaea as it exists today is a tranquil, fragile seaside community consisting of a few single family residences along Highway 30 and approximately 560 condominium units along Hau'oli Street, a half-mile-long, dead-end county road. Ma'alaea is a residential community with a total population estimated at less than 2000 during peak season, and is *not* a resort or a public recreation area. Small, primitive Haycraft county Park is situated at the end of the street and abuts a residential apartment building. This park has one portable toilet and a parking lot inadequate for current usage. It is already a notorious hotbed of the homeless, unpermitted camping, crime, noise, drug dealing and usage and numerous other public nuisances. The proximity of Ma'alaea to the so-called "Freight Train" surfing spot results in seasonal surfer takeover invasions with attendant trespassing on private property, including criminal activity, leash law violations, public drunkenness, urination and nudity, drug usage and the denial of peace and quiet, private parking and use of facilities to legitimate residents. There is only one public Shoreline Access Point, No. 124, serviced only by on-street parking on Hau'oli Street. *Ma'alaea is physically unable to handle huge influxes of people.* The surge of new inhabitants from Ma'alaea Mauka is likely to exacerbate these problems and must be addressed.

2. Police Protection Impacts -- Kihei Patrol District IV, within which the proposed project area as well as present-day Ma'alaea falls, has the resources to assign only *four*

12C

patrolmen to the entire Kihei-Makena Community Plan region. Recruitment *never* meets its goals. Police protection, which even now is less than adequate, will go subcritical when at least 3000 more people are added by Ma'alaea Mauka.

3. Recreational Facilities Impacts – Ma'alaea Mauka, with 960 units, could more than double the population of this small community. Many of Ma'alaea Mauka's residents will want to access the Ma'alaea shoreline and the sandy beach at Haycraft Park, and will only be able to do so by driving down Hau'oli Street to the park, attempting to squeeze through Shoreline Access Point No. 124 and/or infiltrating private condominium grounds. Haycraft Park must be improved to include expanded parking, restroom facilities and access via some route *other than or in addition to Hau'oli Street*, currently a substandard county road inadequate to handle the anticipated additional traffic flows and on-street parking. Additional public shoreline access points with adequate parking must be provided so that people from Ma'alaea Mauka are not funneled through condominium grounds. The natural corridor between 190 and 210 Hau'oli Street suggests itself. Hau'oli Street must be improved to a full-service county road to accommodate all the additional people from Ma'alaea Mauka.

4. Infrastructure Impacts (Roadways) – State Highway 30 southbound narrows from four lanes to two in the vicinity of the proposed development, forming a traffic choke point for Lahaina-bound vehicles about to ascend the pali. Highway 30 is already stressed nearly to the point of gridlock during peak traffic hours. The addition to the mix of an estimated 2400 vehicles from Ma'alaea Mauka could result in nearly-constant traffic jams, and *must* be considered in well-documented detail by independent, outside traffic consultants as a part of any EIS.

5. Wastewater Treatment Impacts -- The subject document is vague about wastewater treatment facilities, but it is our understanding that the treatment plant is actually to be located in Project District *11*, wedged between present-day Ma'alaea and the proposed Ma'alaea Mauka. If Project District 11 is not developed for years, where will the treatment plant be located? Wherever it may be, it will be necessary to connect all private residences and apartment buildings in present-day Ma'alaea to it.

6. Light Pollution Impacts – The subject document is silent on this subject. Absent appropriate abatement, residents of present-day Ma'alaea will experience blinding light pollution in their view plane nightly, in addition to existing unregulated light pollution from the Ma'alaea Triangle commercial area. The EIS must indicate stringent light pollution abatement methods.

7. Cumulative and Secondary Impacts -- The cumulative impacts of additional traffic from other, already-approved developments in Wailuku, Waikapu and on the west side of Maui must be taken into account in EIS studies of traffic and roadways for Ma'alaea Mauka. The subject report glosses over the eventual cumulative and secondary traffic

impacts of 650-acre Project District 11 which, when developed, will add several thousand more vehicles, further stressing Highway 30 and Hauoli Street. While planning a new fire station, Ma'alaea Mauka makes no provisions for parks, schools, churches, shopping centers and other community necessities, assuming that these will be part of Project District 11 someday. But unless and until Project District 11 is developed, they will simply not exist. The thousands of new residents will still have to drive to Lahaina, Wailuku, Kahului and Kihei for these necessities, further stressing Highway 30 and North Kihei Road.

8. Visitor Industry Impacts – The above impacts are predicated upon residential uses. The EIS does not consider whether any of the residential units in Ma'alaea Mauka will be placed into service as visitor accommodations. This issue and the concomitant transient population impacts should be addressed. Since short-term (less than six months) vacation rentals have been unlawful in Maui County since April 20, 1989 (County Ordinance 1797, Sect. 7; Chapter 19.12, Maui County Code), the CC&Rs of any Ma'alaea Mauka Homeowners' Association must prohibit *all* short-term vacation rentals.

9. Community Meetings -- It is correct, as stated on p. 73 of the subject document, that some officers and directors of the Ma'alaea Community Association attended and participated in a series of interactive workshops which helped to select a "most-favored" design concept (see Fig. 3). It should be noted for the record, however, that as of this writing the Board of Directors of the Ma'alaea Community Association has not adopted an official position in support of, or in opposition to, Ma'alaea Mauka.

Sincerely,

Robert W. Riebling

Robert W. Riebling
President

Copy to: Anthony Ching, Executive Officer
State of Hawaii
Land Use Commission
P.O. Box 2359
Honolulu, HI 96804

MUNEKIYO & HIRAGA, INC.

MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSURU "MILES" HIRANO
KAREN KAWAHARA

MARK ALEXANDER ROY

July 26, 2007

Lynn Britton, President
Ma`alaea Community Association
50 Hau'oli Street
Maalaea, Hawai`i 96793

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN) for Proposed Ma`alaea Mauka Residential Subdivision and Related Improvements, Land Use Commission Petition (A06-765)

Dear Ms. Britton:

Thank you for your letter dated August 21, 2006, providing comments on the EISPN for the subject project. On behalf of the applicant, Ma`alaea Properties LLC, we would like to offer the following in response to the comments noted:

1. ***MA`ALAEA TODAY***

We have noted your comments regarding Haycraft Beach Park. A discussion of potential impacts from the proposed subdivision on recreational facilities in the area will be included in the Draft EIS, as well as any applicable mitigation measures.

2. ***POLICE PROTECTION IMPACTS***

We have noted your comments regarding police service. A discussion of potential impacts to exiting police service limits resulting from the proposed subdivision will be included within the Draft EIS, as well as applicable mitigation measures.

3. ***RECREATIONAL FACILITIES IMPACTS***

As noted above, a discussion of potential impacts from the proposed subdivision on shoreline access opportunities will be included in the Draft EIS, as well as any applicable mitigation measures.

4. ***ROADWAY INFRASTRUCTURE IMPACTS***

Your comments regarding traffic infrastructure in the area have been noted. A Traffic Impact Analysis Report (TIAR) has been completed for the proposed project.

A discussion of the findings and recommendations of the TIAR will be included in the Draft EIS, as well as any applicable mitigation measures.

5. *WASTEWATER TREATMENT IMPACTS*

A regional wastewater treatment facility has been incorporated within the plans for the proposed project. The proposed facility will provide the highest level of treatment producing R-1 quality effluent. R-1 effluent is classified as suitable for irrigation purposes. The applicant intends to reuse/recycle the R-1 effluent to facilitate irrigation activities on agricultural lands located to the north of the proposed subdivision. In accordance with State Department of Health regulations, reuse of R-1 effluent will occur during dry conditions. Under rainfall conditions, however, R-1 effluent will be redirected to onsite injection wells for disposal in accordance with applicable federal, state and county regulations. Preliminary plans and engineering/drainage reports for the proposed wastewater treatment facility, as well as a discussion of potential impacts and proposed mitigation measures, as applicable, will be included in the Draft EIS for the project.

6. *LIGHT POLLUTION IMPACTS*

We have noted your comments regarding light pollution. A discussion of the potential for light-related impacts to be generated by the proposed project will be included in the Draft EIS, as well as any applicable mitigation measures.

7. *CUMULATIVE AND SECONDARY IMPACTS*

As noted under item No. 4, a TIAR has been completed for the proposed subdivision to assess impacts on local and regional roadways. The findings and recommendations of the TIAR will be discussed in the draft EIS, as well as any applicable mitigation measures.

The project site for the subdivision, designated as Project District 12 (PD12) by the Kihei-Makena Community Plan, was originally planned to include up to 1,150 residential units, as well as a park, community center, open space, buffer areas and collector roadways. Although, the recommended spatial allocation for PD12 is principally confined to that of residential uses, there are currently commercial uses (retail, restaurants, cafés, general stores etc.) operating at the Ma`alaea Triangle Complex which is located across Honoapi`ilani Highway from the project near the Ma`alaea Small Boat Harbor. In addition, Project District 11, located on the makai side of the highway, is designated in the Kihei-Makena Community Plan to include residential, commercial and public land uses. It is anticipated, with the planned

development of PD11 in the future, that combined services available in the direct vicinity of the project site will enable the Ma`alaea area to make the transition toward being a more self-sufficient residential community.

In regards to public facilities, coordination with the State of Hawaii and the County of Maui is currently being undertaken to address school, fire and police requirements for the proposed subdivision.

8. VISITOR INDUSTRY IMPACTS

Transient vacation rentals will not be permitted within the Ma`alaea Mauka Residential Subdivision. The subdivision is being proposed with the specific objective of addressing the shortage of residential workforce housing units currently being experienced in Maui County.

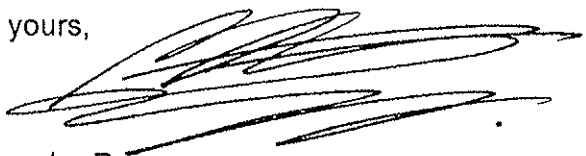
9. COMMUNITY MEETINGS

Your comments regarding the position of the Ma`alaea Community Association in regards to the proposed project have been noted. We look forward to continuing to meet with the Ma`alaea Community Association as project plans become more defined.

We appreciate the input provided by Ma`alaea Community Association. A copy of the Draft EIS will be provided for your review and comment.

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,



Mark Alexander Roy
Project Manager

MAR:yp
cc: Steve Kikuchi, Ma'alaea Properties LLC
Lloyd Lee, M&E Pacific, Inc.
Jim Geiger, Mancini Welch and Geiger LLC
Bert Saruwatari, DBEDT, Land Use Commission
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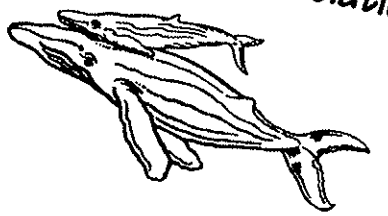
Ma'alaea Community Association



50 Hau'oli Street
Ma'alaea, Maui 96793

November 13, 2006

Hon. Alan Arakawa, Mayor
County of Maui
200 S. High Street
Wailuku, HI 96793

Dear Mayor Arakawa:

After two years of careful study, the Board of Directors of the Ma'alaea Community Association has adopted a resolution in opposition to the Ma'alaea Mauka housing development proposed for Project District 12 (TMK 3-6-01:18).

The text of the resolution is attached for your information and consideration.

Sincerely,

Robert W. Riebling

Robert W. Riebling
President

Copies to:

Mayor-Elect Charmaine Tavares
Council Member Michelle Anderson
Planning Director Michael Foley
✓Steven Kikuchi, Ma'alaea Properties LLC

Ma'alaea Community Association

50 Hau'oli Street
Ma'alaea, Maui 96793

RESOLUTION IN OPPOSITION TO MA'ALAEA MAUKA

WHEREAS the proposed Ma'alaea Mauka development incorporates little or no supporting infrastructure and depends for infrastructure primarily on other future developments which may never take place; and

WHEREAS the addition of thousands more vehicles to Honoapi'ilani Highway at the Kapoli Street chokepoint will lead to increased chronic traffic congestion since, with no stores or other amenities, the new residents would have to drive to Wailuku, Kahului, Kihei or Lahaina for most of their needs; and

WHEREAS the additional influx of people wanting to access the Ma'alaea shoreline and Haycraft Park would seriously exacerbate the already serious traffic, parking and policing problems on Hau'oli Street and at the park, and could lead to increased criminal trespass on the private properties of the Ma'alaea community; and

WHEREAS participation in the proposed Ma'alaea Mauka sewer project would impose an enormous financial burden on Hau'oli Street property owners, already struggling under mounting insurance, utility and maintenance costs; and

WHEREAS a two-thirds majority of Ma'alaea residents expressed opposition to the Ma'alaea Mauka project in an unbiased public opinion poll conducted by this Association

BE IT THEREFORE RESOLVED that the Board of Directors of the Ma'alaea Community Association hereby adopts a position in *firm opposition* to the Ma'alaea Mauka housing development as currently planned.

The Board reserves the right to amend or rescind this resolution at any time, subject to changes in circumstances.

ADOPTED UNANIMOUSLY BY THE BOARD OF DIRECTORS
November 11, 2006

MUNEKIYO & HIRAGA, INC.

MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSURU "MICH" HIRANO
KAREN KAWAHARA

MARK ALEXANDER ROY

July 30, 2007

Lynn Britton, President
Ma`alaea Community Association
50 Hau'oli Street
Ma`alaea, Hawai`i 96793

SUBJECT: Resolution in Opposition to Proposed Ma`alaea Mauka Residential Subdivision and Related Improvements, Land Use Commission Petition (A06-765)

Dear Ms. Britton:

We are writing to you today, on behalf of the applicant, Ma`alaea Properties LLC, to confirm receipt of the resolution in opposition to the subject project, dated November 13, 2006.

It is our understanding that a number of concerns raised in the resolution reflect those outlined in your letter, dated August 21, 2006, which provided comments on the Environmental Impact Statement Preparation Notice (EISPN) for the proposed subdivision. A letter providing responses to the comments outlined in your August 21st letter was subsequently prepared and mailed to the Ma`alaea Community Association (MCA).

The Draft Environmental Impact Statement (EIS) for the project is currently being prepared by our office, a copy of which will be provided to MCA for review upon its completion. We would be happy to meet with the board of directors of the Ma`alaea Community Association following review of the Draft EIS to discuss any outstanding concerns regarding the project.

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,

Mark Alexander Roy
Project Manager

MAR:yp
cc: Steve Kikuchi, Ma'alaea Properties LLC
Lloyd Lee, M&E Pacific, Inc.
Jim Geiger, Mancini Welch and Geiger LLC
Bert Saruwatari, DBEDT, Land Use Commission
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Wailuku Main Street Association, Inc.
Tri-Isle Main Street Resource Center
A Non-Profit Organization
2035 Main Street, Ste. I • Wailuku, Maui, HI 96793
Tel (808) 244-3888 • Fax (808) 242-2710

To: Mark Roy, Planner
Munekiyo & Hiraga Inc.

Project Review
Structure and Design Committee
August 22, 2006
Ma'alaea Mauka

The Structure and Design Committee met to review the proposed Ma'alaea Mauka Environmental Impact Statement. The Committee offers the following comments:

The Committee noted that from a small town stand point, what is being proposed in a neo-traditional sense is no town at all to support the proposed residential subdivision. The proposed preliminary subdivision plan is completely contrary to the concept of a small town. Because of Honoapiilani Highway is dividing this project from Ma'alaea, any development on this parcel should be done so that it is self-sufficient like a small town.

The Committee appreciates this opportunity to review the project.
Sincerely,

WAILUKU MAIN STREET ASSOCIATION, INC.
-Tri-Isle Main Street Resource Center-

Jim Niess, AIA
Structure & Design Committee Chair

Jocelyn A. Perreira, Executive Director/
Tri-Isle Main Street Program Coordinator

MUNEKIYO & HIRAGA, INC.

MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSURU "MO" HIRANO
KAREN KAWAHARA

MARK ALEXANDER ROY

July 31, 2007

Jocelyn A. Perreira, Executive Director
Wailuku Main Street Association
Tri-Isle Main Street Resource Center
2035 Main Street, Suite 1
Wailuku, Hawai`i 96793

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN) for Proposed Ma`alaea Mauka Residential Subdivision and Related Improvements, Land Use Commission Petition (A06-765)

Dear Ms. Perreira:

Thank you for your letter dated August 22 2006, providing comments on the EISPN for the subject project and also for allowing us to meet with your Structures and Design Committee (SDC) on March 20, 2007, to deliver a presentation on the project.

As discussed at the SDC meeting, the Ma`alaea Mauka residential subdivision is being proposed by the applicant (Ma`alaea Properties, LLC) with the specific objective of addressing the shortage of housing currently being experienced in Maui County. The project site for the subdivision, designated as Project District 12 (PD12) by the Kihei-Makena Community Plan, was originally planned to include up to 1,150 residential units, as well as a park, community center, open space, buffer areas and collector roadways. Although the spatial allocations for PD12 is principally confined to that of residential uses, it is noted that there are currently commercial uses (retail, restaurants, cafés, general stores etc.) operating at the Ma`alaea Triangle Complex which is located across Honoapi`ilani Highway from the project near the Ma`alaea Small Boat Harbor. In addition, Project District 11 (PD11), located on the makai side of the highway, is designated in the Kihei-Makena Community Plan to include both residential and commercial components. It is anticipated, with the planned development of PD11 in the future, that combined commercial uses available in the direct vicinity of the project site will enable the Ma`alaea area to make the transition toward being a more self-sufficient residential community.

On a separate note, as discussed with the SDC at its April 25, 2007 meeting, the applicant has recently initiated discussions with the County of Maui and the State Department of Education to explore the possibility of offsite land dedication for the construction of new school, fire and police facilities. The area being considered for such dedication lies in the Waikapu community vicinity approximately two (2) miles to the north of the project site.

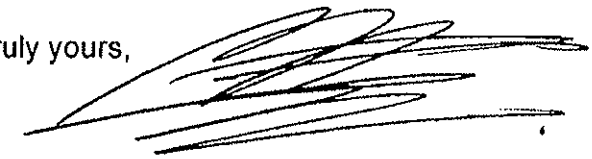
The applicant is currently in the process of developing a conceptual land use plan for the proposed site based on feedback received from meetings with the State Department of Education and Department of Fire and Public Safety. Preliminary site analysis has indicated that the property, owned by applicant, would also be an appropriate location for a Village Mixed Use component due to the lack of services currently available to promote self-sufficiency within the Waikapu community.

On behalf of the applicant, Ma'alaea Properties LLC, we look forward to meeting with the Wailuku Main Street Association and the Structure & Design Committee in the near future as project plans for both sites become more defined.

We appreciate the input provided by your office. A copy of the Draft EIS will be provided for your review and comment.

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,



Mark Alexander Roy
Project Manager

MAR:yp
cc: Steve Kikuchi, Ma'alaea Properties LLC
Lloyd Lee, M&E Pacific, Inc.
Jim Geiger, Mancini Welch and Geiger LLC
Bert Saruwatari, DBEDT, Land Use Commission
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AUG 16 2006

Director of Council Services
Ken Fukuoka

COUNTY COUNCIL

COUNTY OF MAUI
200 S. HIGH STREET
WAILUKU, MAUI, HAWAII 96793
www.co.maui.hi.us/council/

August 14, 2006

Mr. Mark Alexander Roy
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Roy:

SUBJECT: **PROPOSED MAALAEA MAUKA RESIDENTIAL SUBDIVISION**

Thank you for the opportunity to review the Environmental Impact Statement Preparation Notice for the proposed Maalaea Mauka Residential Subdivision at TMK (2) 3-6-01:018, Maalaea, Maui, Hawaii. After review of the document, I have no comments on the project at this time.

Sincerely,

JOSEPH PONTANILLA
Council Member

cc: Anthony Ching, Land Use Commission

MUNEKIYO & HIRAGA, INC.

MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSURU "MICH" HIRANO

KARLYNN KAWAHARA

January 5, 2007

Councilmember Joseph Pontanilla
Maui County Council
200 South High Street
Wailuku, Hawai`i 96793

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN) for Proposed Ma`alaea Mauka Residential Subdivision and Related Improvements, Land Use Commission Petition (A06-765)

Dear Councilmember Pontanilla:

We are writing to you today, on behalf of our client, Ma`alaea Properties, LLC, to thank you for your letter dated August 14, 2006 on the EISPN for the subject project.

We appreciate the input from your office. A copy of the Draft EIS will be provided for your review and comment.

Should you have any questions or require additional information, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,

Mark Alexander Roy, Planner

MAR:tn
cc: Steve Kikuchi, Ma`alaea Properties LLC
Lloyd Lee, M&E Pacific, Inc.
Jim Geiger, Mancini Welch and Geiger LLC
Bert Saruwatari, DBEDT, Land Use Commission
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LINDA LINGLE
GOVERNOR OF HAWAII

GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186
E-mail: oeqc@health.state.hi.us

August 7, 2006

Anthony Ching
Land Use Commission
235 South Beretania St., 4th floor
Honolulu HI 96813

Attn: Bert Saruwatari

Dear Mr. Ching:

Subject: Environmental impact statement (EIS) preparation notice
Maalaea Mauka Subdivision

Include the following in the draft EIS:

Air quality: Include a full discussion of the impacts on air quality from the nearby MECO generation station and the Pohakulepo quarry. Include a windrose or other graphic which indicates wind directions. If appropriate include any planned mitigation measures.

Alternative transportation modes: State policy (HRS 26, 226, 264, 344) requires the promotion of alternative forms of transportation systems that reduce reliance on the private automobile, conserve energy, decrease pollution and provide safe accommodation for their users. Pursuant to this policy, discuss what provisions are being made to create bicycle lanes or facilities, promote pedestrian safety and/or encourage other non-motorized modes of transportation.

Soil contamination: Section 2 notes that the land was previously used for agricultural activities. Is any of the soil contaminated and will it need to be remediated?

Permits and approvals: If an SMA permit is required add it to your list of permits and approvals. Also indicate the status of each. If certain applications have not yet been made, indicate the expected dates of application.

Significance criteria: Criterion #11 in the EISPN is incomplete. It should state and be evaluated according to the following italicized text: "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." Include a complete discussion in the natural hazards section of the draft EIS.

Sustainable building techniques: Please consider applying sustainable building techniques presented in the "Guidelines for Sustainable Building Design in Hawaii." In the final EA include a description of any of the techniques you will implement. Contact our office for a paper copy of the guidelines or go to our website at http://www.state.hi.us/health/oeqc/guidance/sustainable.htm.

Housing: In your discussion of housing, indicate the number of affordable units and their prices.

Tables: Table 1 lists "Custom Lots (single family homes)" and "Single Family Homes" as separate categories. What is the difference?

Acronyms list: A list of acronyms used in the text would be helpful for the reviewer. Please include such a list.

Community meetings: Include a *synopsis* of issues raised at the meetings.

Archeological resources: Include documentation from the State Historic Preservation Division of DLNR showing its concurrence with the conclusions and suggested mitigation in your attached archeological report.

Contacts: Enclose copies of any pre-consultation correspondence.

If you have any questions please contact Nancy Heinrich at 586-4185.

Sincerely,

Genevieve Salmonson

GENEVIEVE SALMONSON
Director

c: Mark Roy, Munekiyo & Hiraga

MUNEKIYO & HIRAGA, INC.

MICHAEL T. MUNEKIYO
GIVEN OHASHI HIRAGA
MITSURU "MICH" HIRANO
KAREN KAWAHARA

MARK ALEXANDER ROY

June 28, 2007

Genevieve Salmonson, Director
Office Of Environmental Quality Control
Attention: Leslie Segundo,
Environmental Health Specialist
235 South Beretania Street, Suite 702
Honolulu, Hawai`i 96813

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN) for Proposed Ma`alaea Mauka Residential Subdivision and Related Improvements, Land Use Commission Petition (A06-765)

Dear Ms. Salmonson:

Thank you for your letter dated August 7, 2006, providing comments on the EISPN for the subject project.

On behalf of the applicant, Ma`alaea Properties LLC, we would like to offer the following responses to the comments noted.

1. ***AIR QUALITY***

A discussion outlining potential air quality impacts and applicable mitigation measures related to the proposed project will be included in the Draft Environmental Impact Statement (EIS).

2. ***ALTERNATIVE TRANSPORTATION MODES***

The need to promote alternative forms of transportation is acknowledged. The applicant will coordinate with the County of Maui 's Department of Public Works and Environmental Management (DPWEM) and Department of Transportation during the plans preparation phase of work to identify opportunities for the incorporation of design elements (such pedestrian sidewalks, bicycle lanes and bus stops) aimed at reducing reliance on private automobile use.

3. SOIL CONTAMINATION

Based on the former use of the area for sugarcane and pineapple cultivation, the applicant is proceeding with a Phase II Environmental Site Assessment to assess soil conditions within the property. The findings of the Phase III ESA will be discussed in the Draft EIS, as well as any applicable remediation measures.

4. PERMITS AND APPROVALS

Permit requirements for the proposed project and anticipated timing of respective applications will be discussed in the Draft EIS.

5. SIGNIFICANCE CRITERIA

A discussion of the significance criteria, as specified in Section 11-200-12 of the Hawai`i Administrative Rules, will be included within the Draft EIS.

6. SUSTAINABLE BUILDING GUIDELINES

The applicant will review the *"Guidelines for Sustainable Building Design in Hawai`i"* to identify any sustainable building opportunities that can be incorporated during the plans preparation phase of work for the proposed project.

7. HOUSING

A discussion relating to affordable housing requirements will be included in the Draft EIS.

8. TABLES

The applicant intends to provide a portion of lots within the proposed subdivision as "Custom Lots" whereby each lot would be purchased as "lot-only" by potential buyers. The buyer would then be responsible for the planning, design and construction of a single-family residence in compliance with the design guidelines that would govern the custom lots phase of the proposed project. "Single-Family Homes", on the other hand, refers to lots that would be offered for sale following the planning, design and construction of a single-family residence by Ma`alaea Properties LLC. The unit mix breakdown for the proposed subdivision will be discussed in the Draft EIS document.

9. ACRONYMS LIST

A list of acronoyms will be included within the draft EIS for the proposed project.

10. COMMUNITY MEETINGS

A summary of community meetings held in conjunction with the proposed project will be included in the Draft EIS.

11. ARCHAEOLOGICAL RESOURCES

The archaeological inventory survey reports prepared for the properties affected by the proposed project are currently under review by the Department of Land and Natural Resources (DLNR), State Historic Preservation Division (SHPD). Any SHPD approval letters received during the EIS preparation process will be incorporated into the respective document.

12. CONTACTS

Copies of all letters received during review of the EISPN, as well as responses to significant comments will be included in the Draft EIS.

We appreciate the input provided by your office. A copy of the Draft EIS will be provided for your review and comment.

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,

Mark Alexander Roy
Project Manager

MAR:yp
cc: Steve Kikuchi, Ma`alaea Properties LLC
Lloyd Lee, M&E Pacific, Inc.
Jim Geiger, Mancini Welch and Geiger LLC
Bert Saruwatari, DBEDT, Land Use Commission
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REFERENCES

REFERENCES

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