

# **FINAL ENVIRONMENTAL IMPACT STATEMENT** **MAKAĪWA HILLS**

'Ewa District, Island of O'ahu  
Tax Map Keys: 9-1-15: Por. 5, 17; 9-2-03: Por. 2, Por. 5, Por. 84



**Applicant:**

Makaiwa Hills, LLC  
1001 Kamokila Blvd., Suite 250  
Kapolei, Hawai'i 96707

**Accepting Authority:**

Department of Planning and Permitting  
City and County of Honolulu

**Prepared by:**

Group 70 International, Inc.  
Architecture • Planning • Interior Design • Environmental Services  
925 Bethel Street, 5<sup>th</sup> Floor, Honolulu, Hawai'i 96813 (808) 523-5866

**October 2007**

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Kapolei, Hawai‘i 96707

This Document is prepared pursuant to Chapter 343, Hawai‘i Revised Statutes, as amended, and Chapter 200 of Title 11, State of Hawai‘i Department of Health Administrative Rules, Environmental Impact Statement

This document and all other ancillary documents were prepared under my direction.

Responsible Official: \_\_\_\_\_

  
Stephen Kelly, AICP  
Manager, Development  
Makaīwa Hills, LLC and  
Kapolei Property Development, LLC  
affiliates of the James Campbell Company, LLC

Date: **October 25, 2007**

Prepared By:



Group 70 International, Inc.  
Architecture ■ Planning ■ Interior Design ■ Environmental Services  
925 Bethel Street, Fifth Floor, Honolulu, HI 96813

**October 2007**

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To facilitate the readers’ ability to distinguish the revision made from the Draft EIS to the Final EIS, substantive changes and additions are **highlighted**. Text that has been deleted is indicated by a ~~strikethrough~~. New, revised and deleted sections, figures and appendices are noted.

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GLOSSARY OF ACRONYMS

<b>BMPs</b>	Best Management Practices
<b>BWS</b>	Honolulu Board of Water Supply
<b>cfs</b>	cubic feet per second
<b>County</b>	City and County of Honolulu
<b>CWA</b>	Clean Water Act
<b>CWRM</b>	State of Hawai'i Commission on Water Resource Management
<b>dBA</b>	decibels A-weighted <sup>2</sup>
<b>DEIS</b>	Draft Environmental Impact Statement
<b>DLNR</b>	State of Hawai'i Department of Land and Natural Resources
<b>DOA</b>	State of Hawai'i Department of Agriculture
<b>DOE</b>	State of Hawai'i Department of Education
<b>DOH</b>	State of Hawai'i Department of Health
<b>DOT</b>	State of Hawai'i Department of Transportation
<b>DP</b>	Development Plan
<b>DPP</b>	City and County of Honolulu Department of Planning and Permitting
<b>DTS</b>	Department of Transportation Services
<b>EPA</b>	United States Environmental Protection Agency
<b>The Estate</b>	The Estate of James Campbell
<b>FIRM</b>	Flood Insurance Rate Map
<b>FY</b>	Fiscal Year
<b>GP</b>	General Plan
<b>GPD</b>	Gallons Per Day
<b>HFD</b>	Honolulu Fire Department
<b>HPD</b>	Honolulu Police Department
<b>HRS</b>	Hawai'i Revised Statutes
<b>HRWP</b>	Honouliuli Recycled Wastewater Plant
<b>JCC</b>	James Campbell Companies
<b>JCIP</b>	James Campbell Industrial Park
<b>KPD</b>	Kapolei Property Development
<b>LLC</b>	Limited Liability Corporation
<b>LOS</b>	Level of Service
<b>MGD</b>	Millions of Gallon per Day
<b>msl</b>	mean sea level
<b>NOI</b>	Notice of Intent
<b>NPDES</b>	National Pollutant Discharge Elimination System
<b>NRCS</b>	U.S. Department of Agriculture Natural Resources Conservation Service
<b>OR&amp;L</b>	O'ahu Railway and Land Company

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<b>OWMP</b>	O'ahu Water Management Plan
<b>P/E</b>	precipitation/evaporation
<b>RCRA</b>	Resource Conservation and Recovery Act
<b>SCP</b>	Sustainable Communities Plan
<b>SHPD</b>	State Historic Preservation Division
<b>SIHP</b>	State Inventory of Historic Properties
<b>SPH</b>	separate-phase hydrocarbon
<b>SY</b>	Sustainable Yield
<b>UIC</b>	State Department of Health Underground Injection Control
<b>USFWS</b>	United States Fish and Wildlife Service
<b>USGS</b>	United States Geological Survey
<b>WMA</b>	Watershed Management Area
<b>WMP</b>	Watershed Management Plan
<b>WQP</b>	Water Quality Plan
<b>WRPP</b>	Water Resources Protection Plan
<b>WUZ</b>	Water Use Zone
<b>WWTP</b>	Honouliuli Wastewater Treatment Plant

## **1.0 SUMMARY**

## 1.0 SUMMARY

### 1.1 PROJECT SUMMARY

<b>Project Name:</b>	Makaīwa Hills
<b>Applicant:</b>	Makaīwa Hills, LLC 1001 Kamokila Blvd., Suite 250 Kapolei, Hawai'i 96707 Contact: Steve Kelly, AICP Phone: (808) 674-3289 E-mail: stevek@kapolei.com www.kapolei.com
<b>EIS Accepting Authority</b>	City and County of Honolulu Department of Planning and Permitting
<b>Planning/Environmental Consultant:</b>	Group 70 International, Inc. 925 Bethel Street, 5 <sup>th</sup> Floor Honolulu, Hawai'i 96813 Contact: Jeff Overton, AICP Phone: (808) 523-5866 ext. 104
<b>Project Area:</b>	1,780.705 acres (approximately 1,781 acres)
<b>Project Location:</b>	Island of O'ahu, 'Ewa District on the southern flanks of the Wai'anae Range, Makakilo to the east, the City of Kapolei and Kalaeloa/Barbers Point Harbor to the south ( <i>Figures 1.1, 1.2</i> )
<b>Tax Map Key:</b>	TMK 9-1-15: 5 (por.), 17; TMK 9-2-03: 2 (por.), 5 (por.), 84 (por.) ( <i>Figure 1.3</i> )
<b>Land Court Lots:</b>	Lots 17257 (por), 4024, 2681, 16893
<b>Landowner:</b>	Makaīwa Hills, LLC 1001 Kamokila Blvd., Suite 250 Kapolei, Hawai'i 96707
<b>Existing Uses:</b>	Primarily vacant undeveloped land, with cattle and horse grazing, and an ornamental tree nursery.
<b>Proposed Uses:</b>	Residential, Mixed Use Commercial, Preservation, Agricultural
<b>State Land Use District:</b>	Urban ( <i>Figure 1.4</i> )
<b>City &amp; County of Honolulu 'Ewa Development Plan:</b>	Low & Medium Density Residential, Community Commercial Center, Agriculture & Preservation, Parks & Golf Courses ( <i>Figures 1.5 and 1.6</i> )

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<b>City &amp; County of Honolulu Zoning:</b>	Restricted Agriculture (AG-1): 95.89 acres General Agriculture (AG-2): 1,684.82 acres ( <i>Figure 1.7</i> )
<b>Special Management Area:</b>	Not in Special Management Area or Shoreline Setback Area
<b>Permits Required:</b>	Change of Zone; Subdivision; Roadway, Water, Wastewater, and Drainage Master Plan approvals; Wastewater Pump Station, Sewer Connection, NPDES, Grading, Building and Driveway & Sidewalk permits
<b>Flood Zone:</b>	Flood Insurance Rate Map Zone D (undetermined flood hazard)
<b>EIS Trigger:</b>	Proposed roadway construction connection to State Highway (i.e., State lands); Major Change of Zone request to City and County of Honolulu
<b>Proposed Project:</b>	Makaīwa Hills, LLC proposes to develop Makaīwa Hills, a new 4,100 unit residential community. Site improvements would include construction of residential units at low-, medium- and high-densities, a community commercial center, neighborhood retail center, recreational facilities (e.g., parks, open spaces), an elementary school, parks, community facilities and associated infrastructure (e.g., new roadways, intersection improvements, utility, water, and wastewater distribution systems).

## 1.2 PROJECT LOCATION AND SITE

The proposed Makaīwa Hills project site encompasses 1,780.705 acres of undeveloped land on the southern slopes of the Wai‘anae Range in ‘Ewa, O‘ahu, Hawai‘i (*Figure 1-1*). It is located west of the Makakilo residential community, east of the Waimānalo Gulch Sanitary Landfill, mauka (north) of the City of Kapolei, the Honokai Hale and Nanakai Gardens communities, the future Kapolei West community and Ko ‘Ōlina Resort, and south of agriculture and preservation-zoned lands that are generally unimproved except for Camp Timberline, a privately operated camp facility, several private residences and several telecommunications sites. The site slopes from north to south, at an elevation of about 1,300 feet above mean sea level (AMSL) at the mauka boundary to an approximately 50 feet at Farrington Highway.

The affected Tax Map Key (TMK) parcels are listed in *Table 1-1* with respective acreage, and shown graphically on *Figure 1.3*. *Figure 1.7* illustrates current zoning in the area. Makaīwa Hills, LLC, owns all the parcels and is the developer.

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**Table 1-1**  
**Project Area Land Court Lots, Tax Map Key Parcels and Acreage**

LAND COURT LOTS	ACRES	TMK PARCELS	ACRES
Lot 17257 (por.)	3.819	9-1-15: 5 (por.)	59.077
Lot 4024	55.258		
Lot 2681	95.885	9-1-15: 17	95.885
Lot 17257 (por.)	849.147	9-2-03: 2 (por.)	849.147
Lot 17257 (por.)	200.171	9-2-03: 5 (por.)	200.171
Lot 16893	576.425	9-2-03: 84 (por.)	576.425
<b>Total Project Area</b>	<b>1,780.705</b>		<b>1,780.705</b>

As identified on *Figure 1.3*, two parcels (TMKs 9-1-15: 11 & 23) totaling approximately 9 acres contain storage tanks for potable and irrigation water. These two out parcels owned by the Board of Water Supply within the lower portion of the project area are not part of the proposed project, and are classified as Agricultural District by the State Land Use Commission. Old Farrington Highway, which winds through the southeast corner of the project area, is also an out-parcel owned by the County. While all the subject land is presently zoned for agriculture, as indicated on *Figure 1.7*, only about 6 percent of the site contains good quality agricultural soils (about 100 acres just mauka of the H-1 Freeway/Farrington Highway). The vast majority of the project site (70 to 80%) is classified as stony steep lands.

### 1.3 APPLICANT AND LANDOWNER

Makaīwa Hills, LLC, the applicant for the proposed change in zoning and the landowner of the project area, is a joint venture between Kapolei Property Development, LLC, an affiliate of the James Campbell Company, LLC, and Monarch at Kapolei, LLC, an affiliate of The Monarch Group. The joint venture acquired its interest in the project area from the Estate of James Campbell in 2004. Subdivision and lot consolidation of the project area into the lots listed in *Table 1-1* was completed in 2006.

The Estate of James Campbell was the property owner of the project area for 127 years prior to the transfer of ownership to Makaīwa Hills, LLC. After 106 years as a private trust, the Estate of James Campbell officially became the James Campbell Company on January 20, 2007 per James Campbell's will, a rare transition of a trust of its size into a private company. Unlike most trusts that liquidate and distribute assets, the majority of the Estate's assets remained intact, allowing the ongoing business of the Estate to continue beyond 2007. The Company's Kapolei Property Development, LLC affiliate also continues with its mission of creating the urban core of the City of Kapolei and supporting surrounding areas such as Makaīwa Hills.



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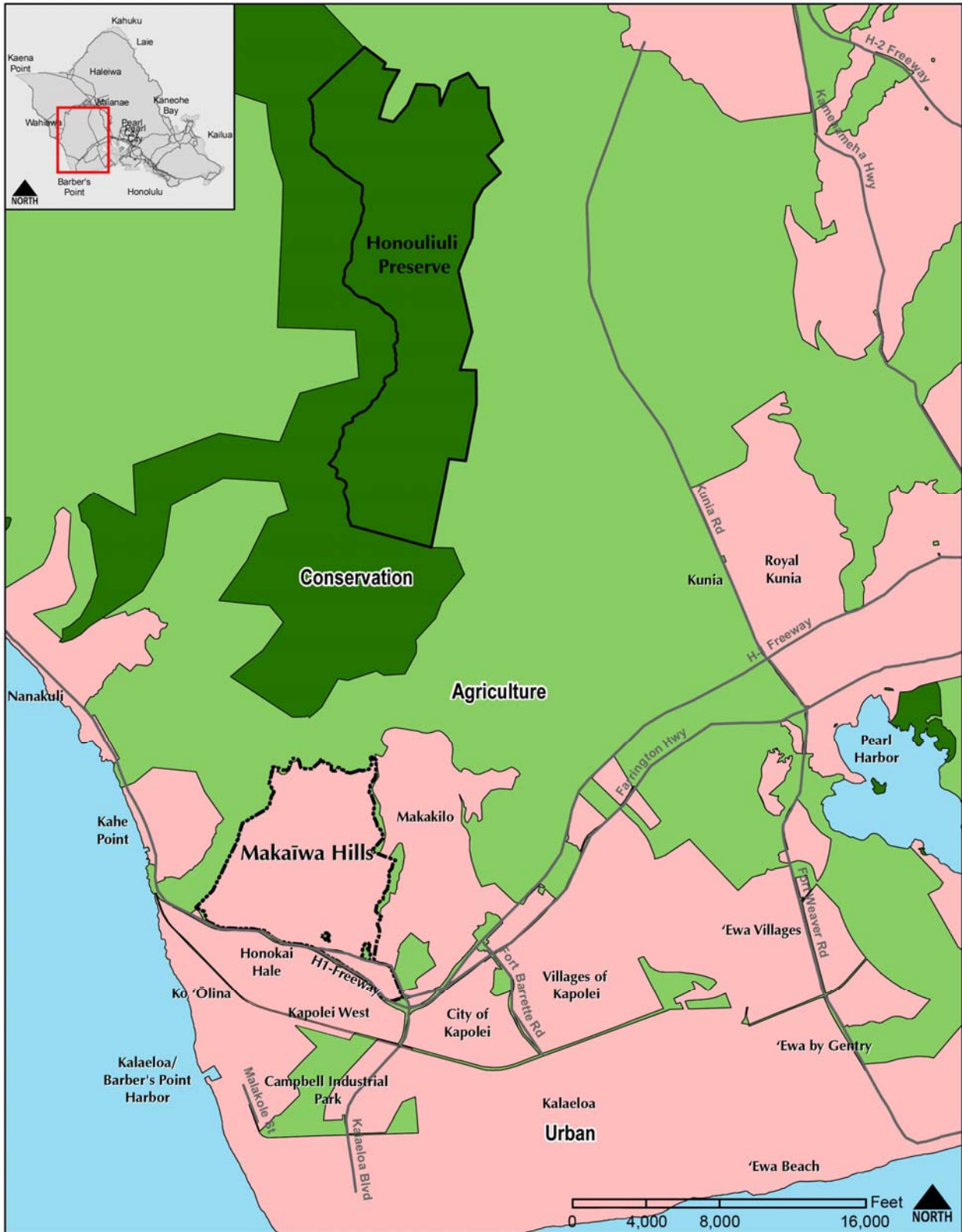


Figure 1.1 Regional Map

**MAKAĪWA HILLS**  
**Final Environmental Impact Statement**

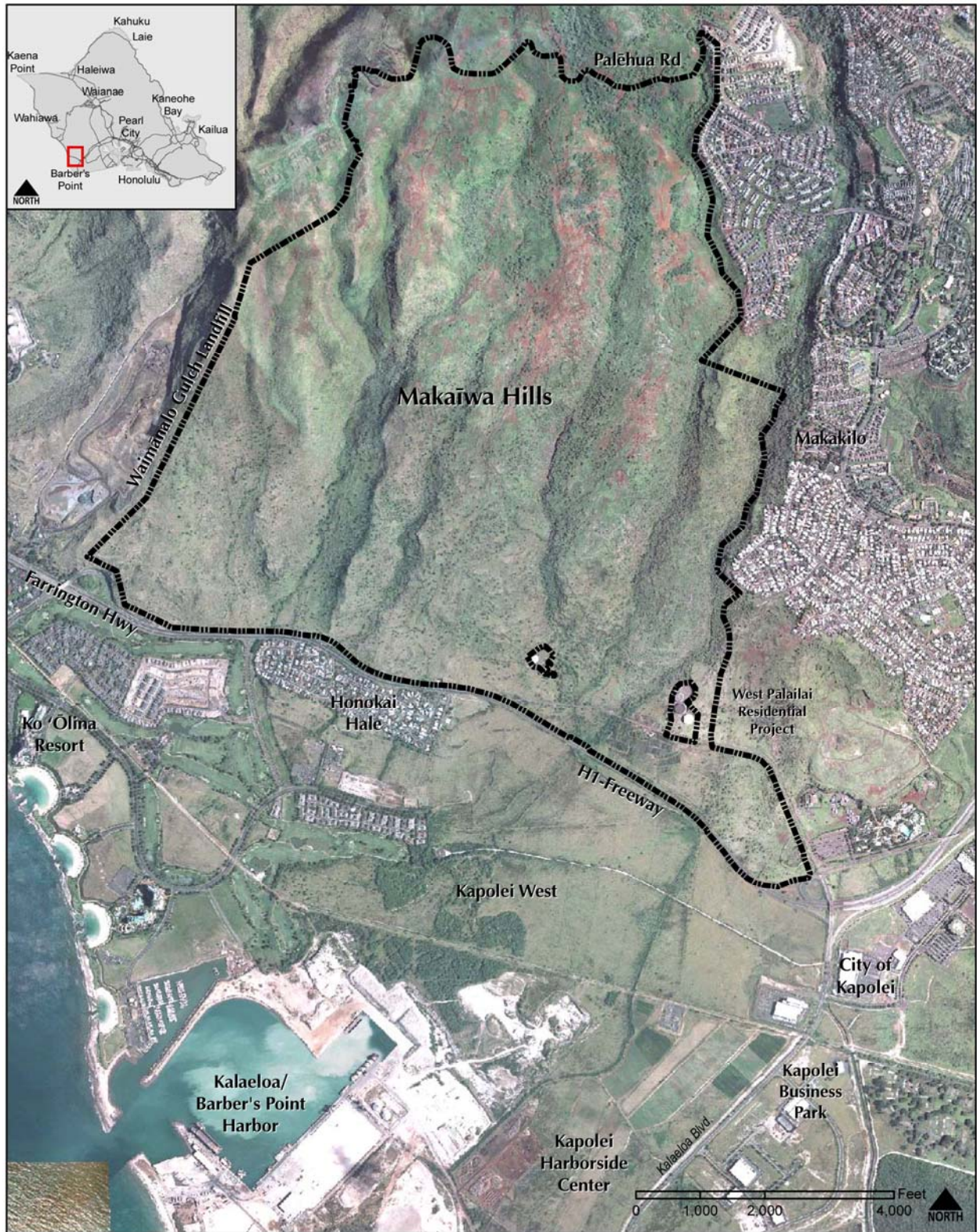


Figure 1.2 Location Map

**MAKAĪWA HILLS**  
**Final Environmental Impact Statement**

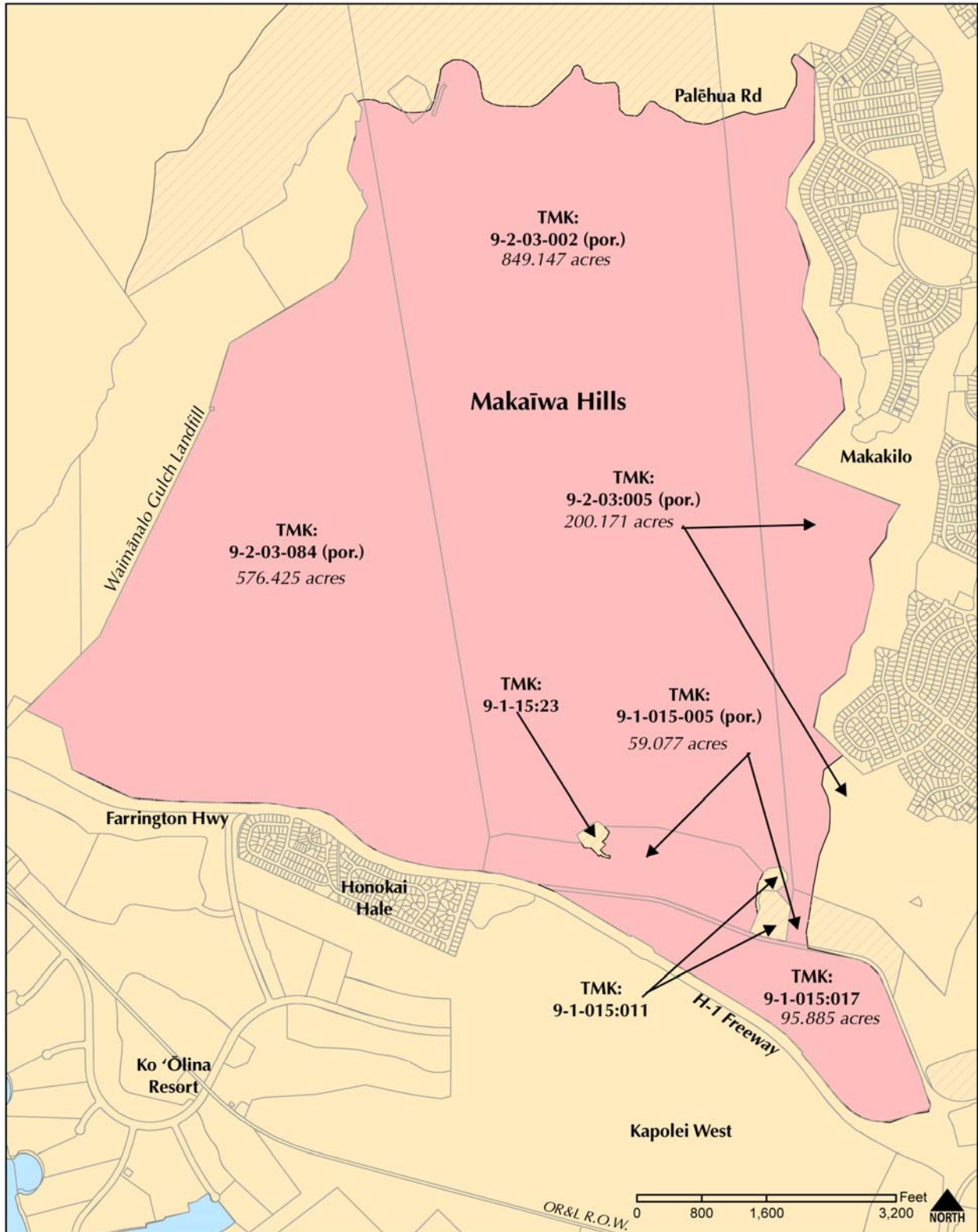


Figure 1.3 Tax Map Keys

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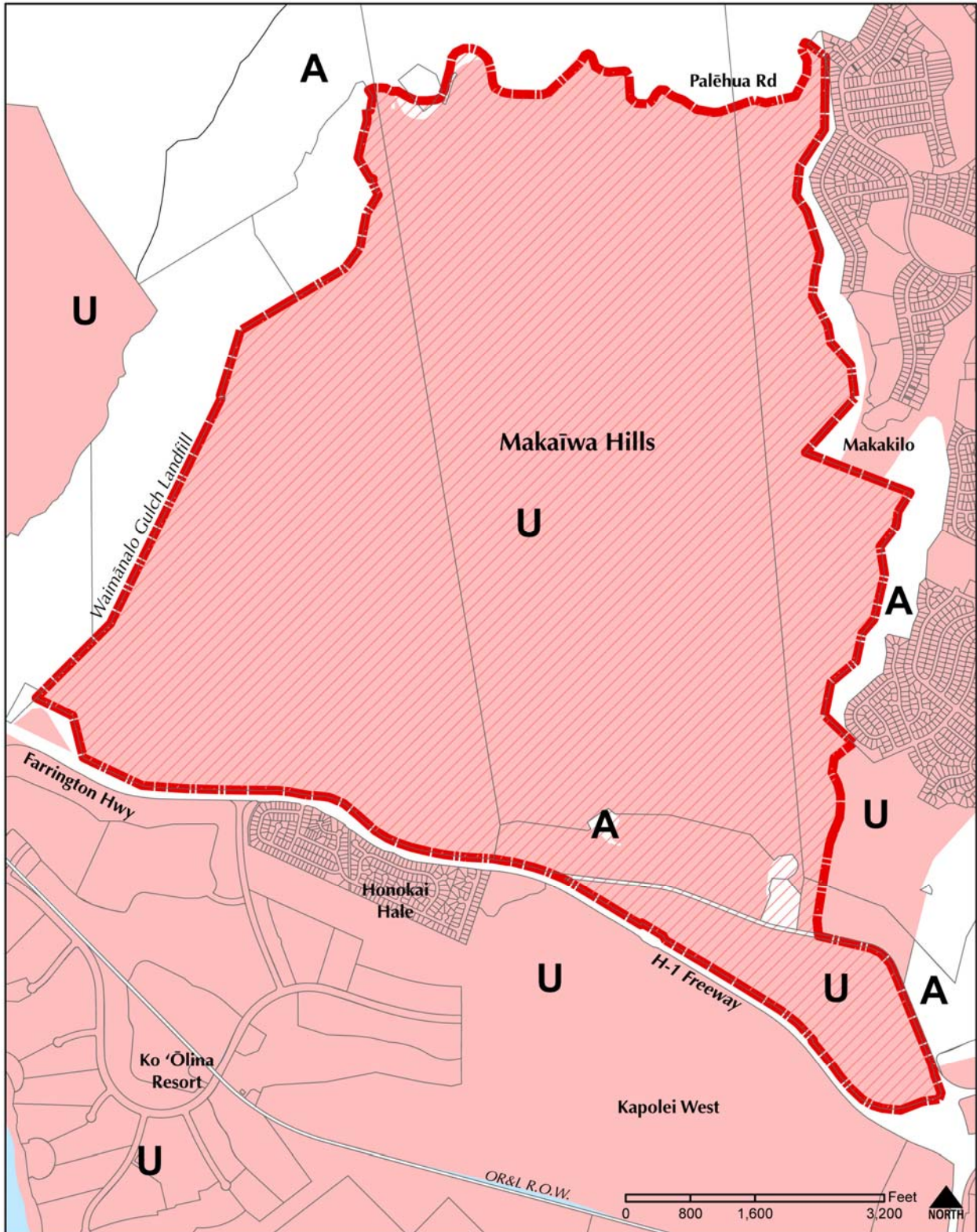


Figure 1.4 State Land Use District Classifications

## General Plan Development Pattern

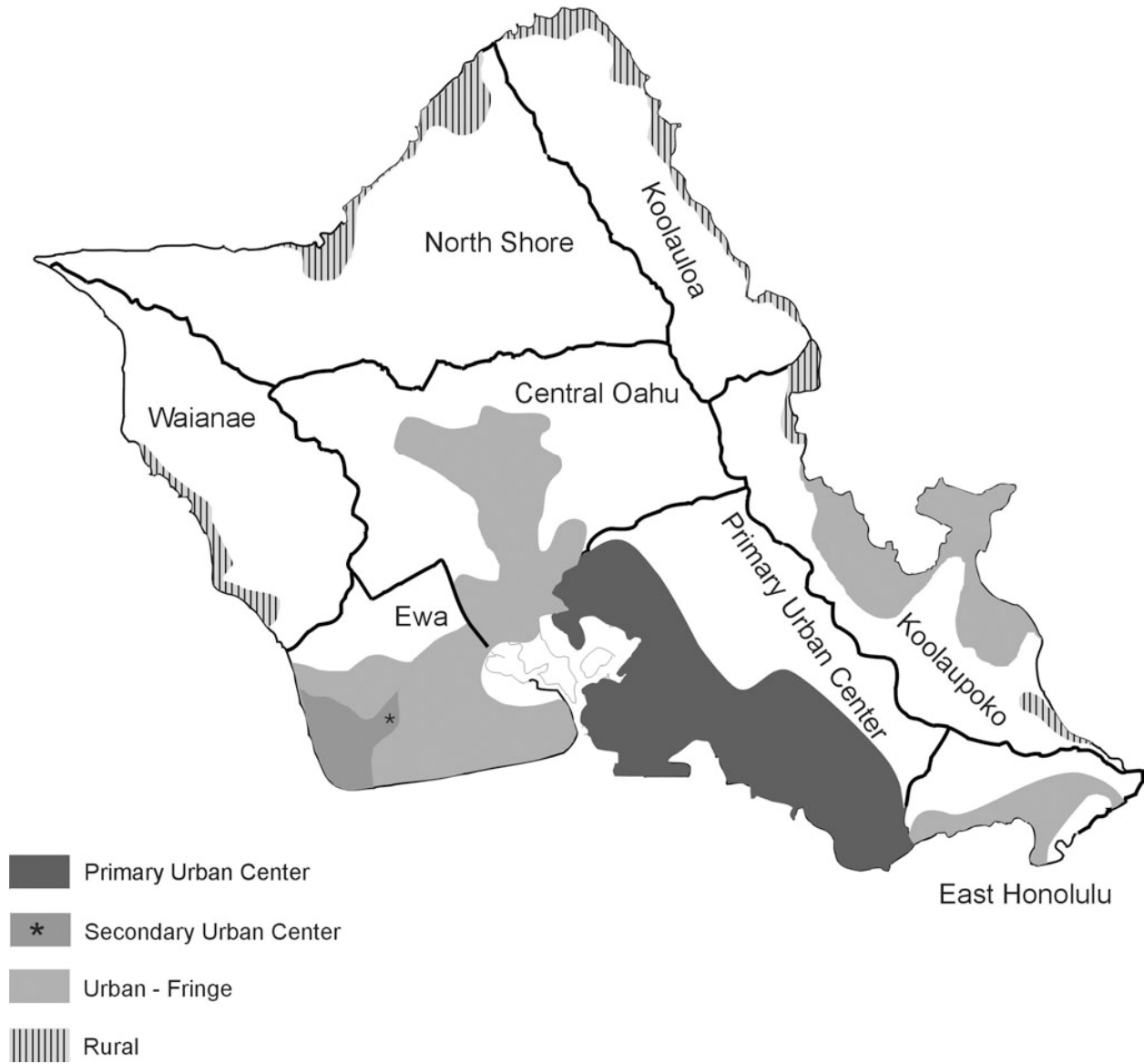


Figure 1.5 O'ahu General Plan Development Pattern Map

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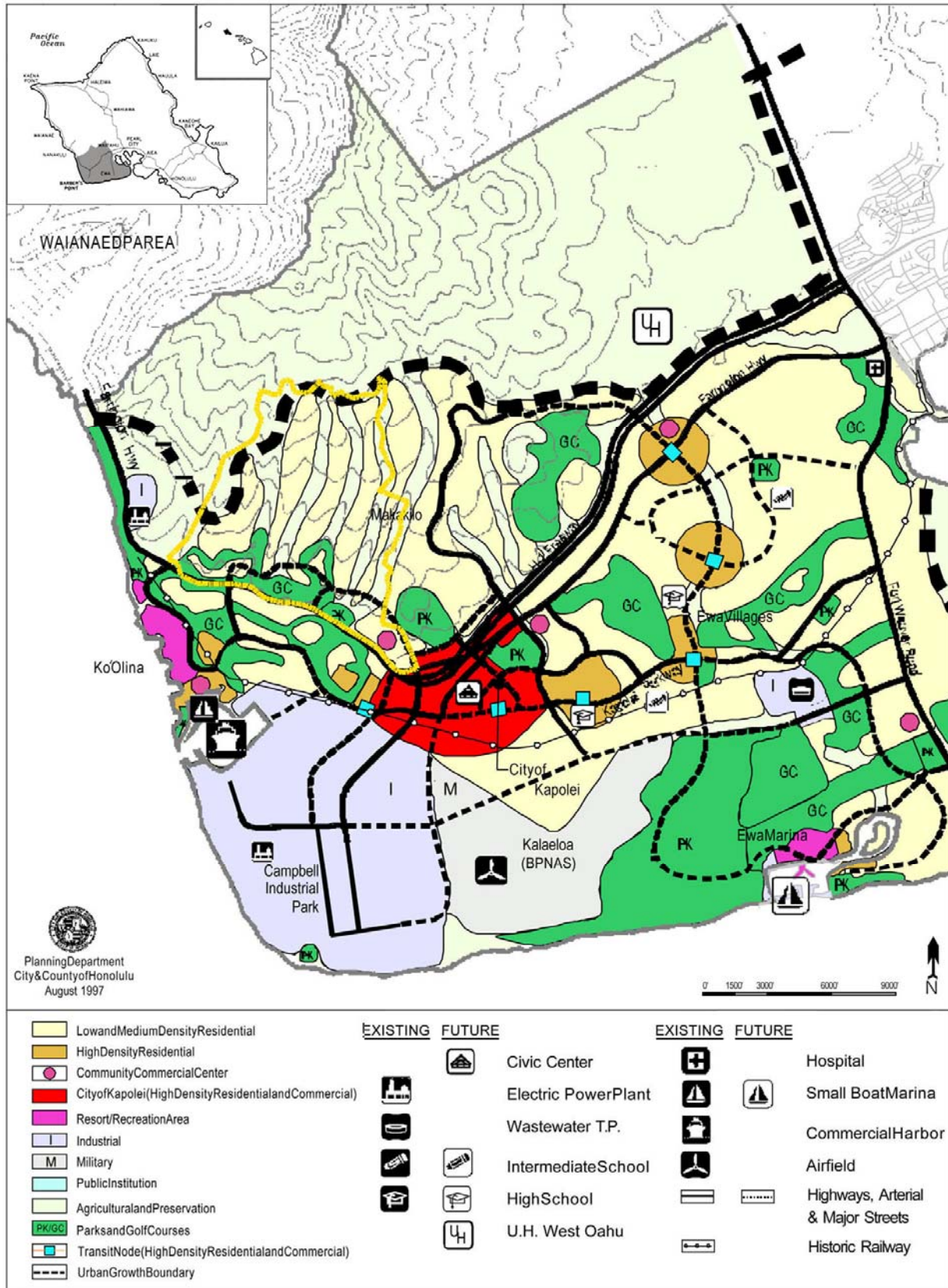


Figure 1.6 City and County of Honolulu 'Ewa Development Plan Urban Land Use Map

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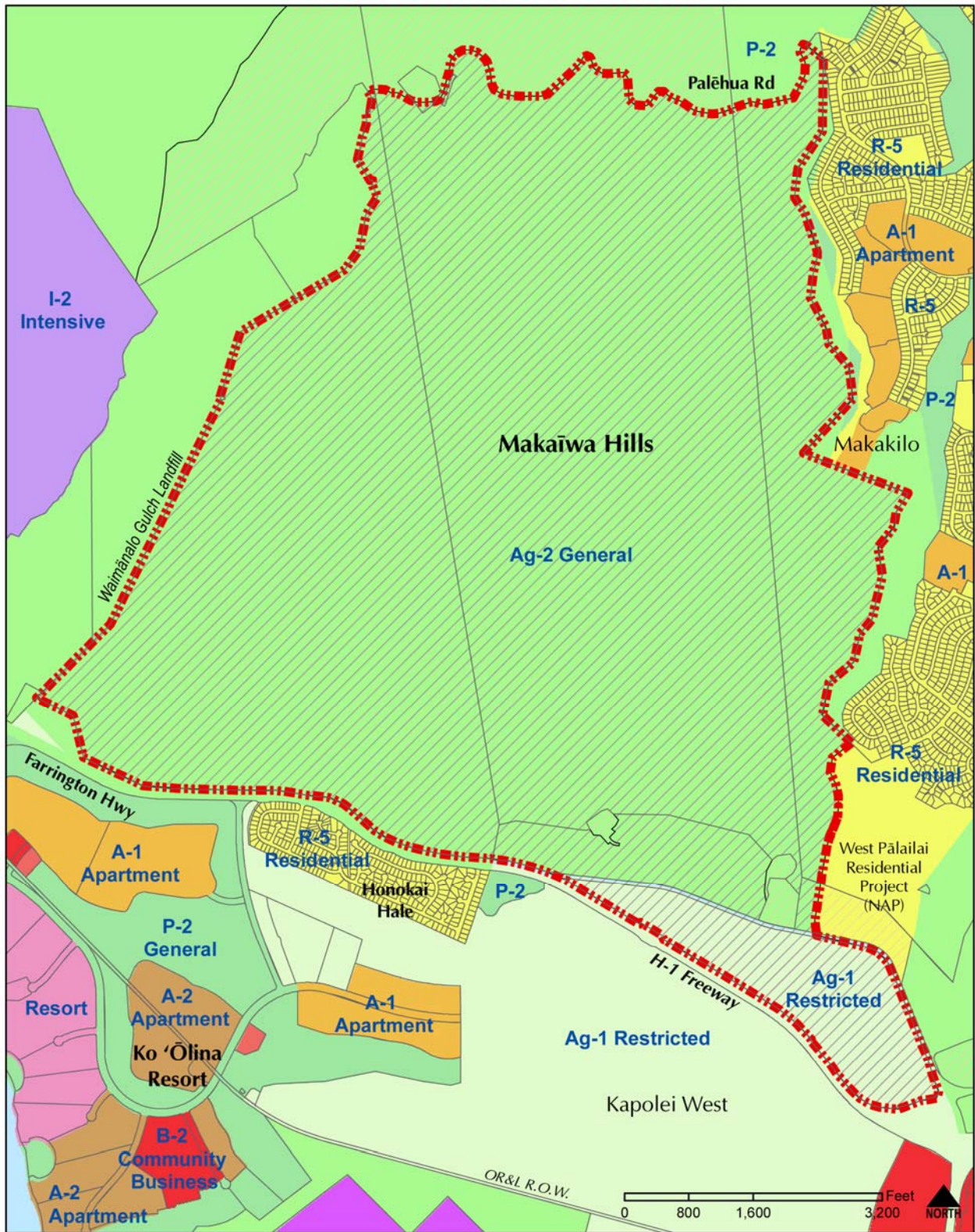


Figure 1.7 City and County of Honolulu Zoning

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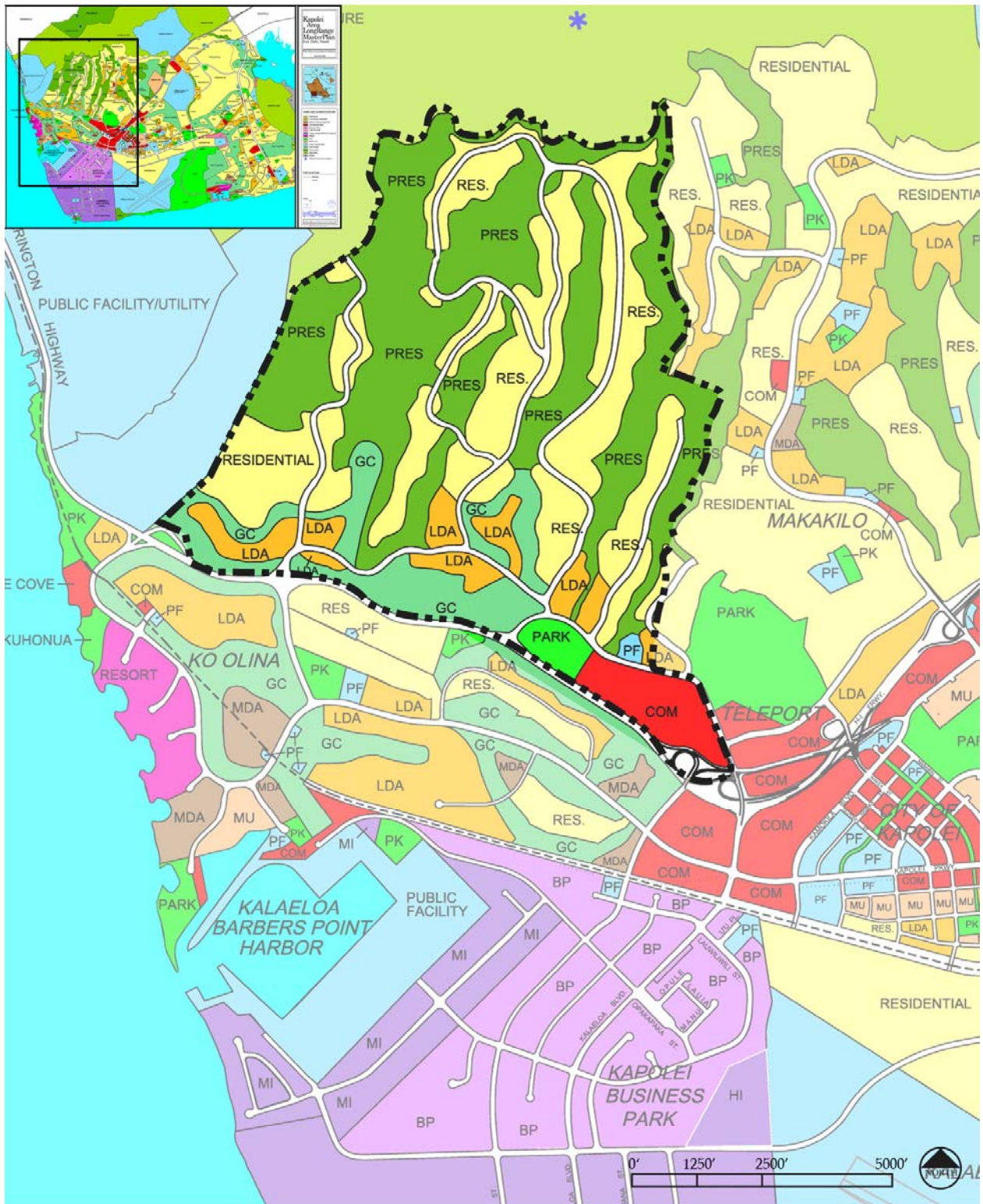


Figure 1.8 The Kapolei Area Long Range Master Plan



## 1.4 PROPOSED ACTIONS

Makaīwa Hills, LLC proposes the development of Makaīwa Hills, a residential community, on 1,781 acres of undeveloped land in 'Ewa, O'ahu (*Figure 1.1*). Planned improvements include construction of 4,100 new single- and multi-family residential units at low- and medium-densities, a community commercial center, a neighborhood retail center, recreational facilities (e.g., parks, open spaces), an elementary school, community facilities and associated infrastructure (e.g., new roadways, intersection improvements, electrical power, wastewater and potable water distribution systems). Affordable housing would be provided in accordance with City and County of Honolulu (County) standards.

Makaīwa Hills requires County zoning changes from agricultural districts to a variety of residential and business zoning districts. The proposed changes in land use are consistent with 1993 Urban District designation by the State Land Use Commission and with both the County's 'Ewa Development Plan and The Kapolei Area Long Range Master Plan (*Figures 1.6 and 1.8*). Makaīwa Hills will provide opportunities for residences and employment within the Kapolei area. This new community is a component in the successful implementation of the City of Kapolei, and will provide a wide range of housing opportunities, including affordable homes consistent with the 'Ewa Development Plan.

## 1.5 REASONS FOR PREPARING THE EIS

A Final Environmental Impact Statement (EIS) for Makaīwa Hills (Wanket, Inc., 1991) was accepted by the County Department of General Planning (DGP) in April 1991. That EIS supported an application to the DGP for a Development Plan Land Use Map Amendment. At that time, the project included 2,130 residential units, and reserved the option to seek a future amendment for a proposed golf course. A State Land Use District Boundary Amendment Petition for Urban District designation was approved in 1993, allowing 4,100 residential units and supporting land uses on the property.

The Department of Planning and Permitting (DPP) currently has administrative authority for the Change of Zone request, and DPP will serve as the accepting authority for the forthcoming EIS. While the acceptance of the 1991 Final EIS by DPP's predecessor (the DGP) remains valid as an accepted environmental document under Chapter 343 HRS, the present project is larger in scope than the 2,130 units that were studied in the 1991 EIS. Both DPP and OEQC concur with the landowner's decision that a new EIS be prepared to address the current project plan. The purposes of the new EIS are to disclose the potential environmental effects of the current project plan, describe measures proposed to minimize adverse effects, and discuss alternatives to the proposed development.

An EIS Preparation Notice was published in OEQC's Environmental Notice on October 23, 2006. ~~This A Draft EIS was filed with~~ published by OEQC on April 8, 2007, and copies ~~have been~~ were distributed to interested parties for review and comment (*Section 9*). ~~This Final EIS incorporates comments received and responses to those comments, along with appropriate revisions to accommodate necessary changes.~~ Briefly, the purpose of the EIS is to disclose the probable

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environmental effects of the proposed development; describe measures to minimize adverse effects; and discuss alternatives to the proposed development.

Makaīwa Hills involves the use of State land and services (i.e., planned roadways, water, sewer, utility and drainage facilities, etc.), which triggers the State EIS requirement. In addition, the EIS is required to support a major change in County zoning from agriculture to various residential and apartment zoning districts and commercial mixed-use zoning district.

This document is organized in 10 sections.

*Section 1* contains a Project Summary.

*Section 2* contains the Project Description with site attributes and project elements.

*Section 3* describes the Purpose and Need for the Change in Zoning

*Section 4* describes Existing Conditions, Probable Impacts and Mitigative Measures.

*Section 5* identifies the Consistency with Applicable Public Plans and Policies.

*Section 6* considers Project Alternatives.

*Section 7* is a summary of Unresolved Issues.

*Section 8* identifies References.

*Section 9* identifies the Agencies and Parties Consulted.

*Section 10* identifies the Preparers of the EIS.

The following technical appendices are provided to support this ~~draft~~ Final EIS.

<i>Appendix A</i>	Residential Market Analysis
<i>Appendix B</i>	Commercial Market Analysis
<i>Appendix C</i>	Preliminary Engineering Report
<i>Appendix D</i>	Traffic Impact Assessment Report
<i>Appendix E</i>	Agricultural Impact Assessment
<i>Appendix F</i>	Economic Impact Assessment
<i>Appendix G</i>	Archaeological Data Recovery and Preservation Plan
<i>Appendix H</i>	Cultural Impact Assessment
<i>Appendix I</i>	Mikiko Market Assessment
<i>Appendix J</i>	Survey of Botanical, Avian, and Mammalian Resources
<i>Appendix K</i>	Arthropod Survey
<i>Appendix L</i>	Air Quality Assessment
<i>Appendix M</i>	Acoustical Study
<i>Appendix N</i>	1993 Findings of Fact, Conclusions of Law, and Decision and Order
<i>Appendix O</i>	Geotechnical Analysis

## 1.6 SUMMARY OF ANTICIPATED IMPACTS

Anticipated beneficial and adverse impacts of the proposed project are briefly discussed below. Detailed analysis of beneficial and adverse impacts is provided in *Section 4* of this document.

### 1.6.1 Potential Beneficial Impacts

#### **Economic Factors**

In the short-term, built-out of the Makaīwa Hills community will boost the economy by providing design and construction-related employment for the next 10 to 15 years. The new town center and neighborhood commercial center will support diversified business opportunities in the State. The project will also provide employment options for the expanding residential communities of Kapolei, 'Ewa, Central O'ahu and the Wai'anae Coast. In the long-term, the project is anticipated to provide ~~4,100~~ 1,250 permanent jobs at full build-out and occupancy. The jobs will consist of retail and school jobs, home and grounds maintenance jobs, and home-office jobs. There will be substantial net revenue benefits to the State and County through excise tax, income tax, and property tax revenues.

#### **Roadways and Traffic**

With the growth of the City of Kapolei, regional traffic patterns are expected to significantly improve, primarily by removing essentially one car off the H-1 Freeway for each Kapolei job created. Additionally, road improvements related to Makaīwa Hills will improve the connectivity of thoroughfares in the Kapolei region.

#### **Housing**

The 4,100 planned units at Makaīwa Hills will provide a diverse range of residential opportunities from affordable multi-family apartments, to suburban community neighborhood housing, to single-family estate lots. This master planned community with panoramic ocean views will help alleviate the acknowledged housing shortage on O'ahu.

#### **Land Use**

Completion of the project will fulfill the vision, goals, objectives, and policies stated in State and County long-range planning documents for the City of Kapolei/'Ewa region as applicable to Makaīwa Hills. These government plans are supportive of the planned build-out of a residential mixed-use community at the project area. Additionally, development of the residential community in the project area will preclude its potential use as an alternative landfill site.

#### **Education**

The developer will provide the ~~location~~ land and access for an approximately 12-acre public elementary school and an approximately 18-acre public middle school to the State Department of Education (DOE) to help overcome a shortage of schools in the region.

#### **Cultural Resources**

Pre-historic and historic sites within the project area have been recorded in several archaeological studies. Valuable data has been recovered, and significant sites will be preserved in perpetuity. These sites may be accessible for future research and education.

**Soils**

The implementation of permanent Best Management Practices, including landscaping and other means of covering presently barren soil, is expected to result in a 52% reduction in soil loss due to erosion.

**1.6.2 Potential Adverse Impacts****Topography and Soils**

The project will involve land disturbance, such as grading and grubbing, to develop the infrastructure and residential mixed-use community. Although there will be significant areas of grading, more than half the property will remain unaffected by development activities. There will be a short-term impact on soils, with the potential for erosion during construction.

**Water Resources**

The new community at Makaīwa Hills will require on-site expansion of the existing potable water system. Development of the new project will increase potable demand in the region by ~~4.94~~ 1.88 MGD. There will also be demand for approximately 0.17 MGD of non-potable water for landscape irrigation in the makai portion of the project area.

**Wastewater**

There are no existing wastewater facilities currently within the project site. The project will generate an estimated ~~4.50~~ average rate of 1.37 MGD of wastewater from the various project uses. Wastewater management facilities will include a sewage collection system and pump stations on-site. Wastewater from the project area will be conveyed from the on-site pump stations to off-site transmission facilities leading to the Honouliuli Wastewater Treatment Plant (WWTP). The Honouliuli WWTP has a design average dry weather flow liquid capacity of 38 MGD, and a solids capacity of 28 MGD. At present, the solids side is at capacity although construction is underway to expand capacity.

**Roadways and Traffic**

Construction activities will create some short-term impacts primarily from trucks, heavy equipment and other vehicles that will use existing roads – primarily Farrington Highway in the vicinity of the project site, and Old Farrington Highway. While construction vehicles are relatively slow and difficult to maneuver, it is anticipated that they will only marginally affect overall traffic flow. Commuting construction workers will slightly increase traffic levels, although their effect is anticipated to be negligible.

The project will have long-term impacts on surrounding areas resulting from new traffic circulation patterns and increases in traffic volumes.

**Power and Communication**

The new residential mixed-use community will result in increased use of electrical energy and utility services. The project area is currently not served by Hawaiian Electric Company (HECO) or Hawaiian Telecom, though they do provide service to the surrounding areas of Kapolei, Ko 'Olina, Honokai Hale and Makakilo.

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### **Visual Resources**

The introduction of new residential mixed use community to the landscape will affect some existing view planes from makai areas and select Makakilo locations. As the majority of the site is currently open space, there are broad panoramic views across the site and from makai locations. However, views of the site from makai locations are limited by existing development within Ko 'Olina, Honokai Hale, and Kapolei. Existing electrical transmission lines and poles adjacent to and on-site also affect the visual setting. The uneven terrain of the property limits current and future views across the entire site at ground level.

### **Air Quality**

Short-term impacts from fugitive dust may occur during the project construction phase. To a lesser extent, exhaust emissions from stationary and mobile construction equipment, from the disruption of traffic, and from workers' vehicles may also affect air quality during the period of construction.

After construction of the proposed project is completed and it is fully occupied, carbon monoxide concentrations in the project area will likely increase due to emissions from project-related motor vehicle traffic, but worst-case concentrations should remain within both the State and the national ambient air quality standards.

### **Noise**

Construction activities at the project site would generate noise impacts that are temporary in nature. Anticipated construction noise would be at 80 to 90+ dB at a distance of 50 feet from heavy construction equipment. Other than the construction workers, who must abide by occupational health and safety standards for hearing protection, the nearest receptors in residential areas will be more than 500 feet from the property boundary. The noise generated during construction would not be a health risk but could be a nuisance. Long-term property maintenance activities and traffic noise are anticipated to have minimal adverse noise impacts at the neighboring residential areas of Makakilo.

### **Agriculture**

Rezoning and residential/mixed-use development of this land forecloses the land's future option for agriculture. This new community, however, supports existing growth policies of the General Plan of the County that calls for continued development of a Secondary Urban Center. The majority of the soils in the project area are considered poor by the U.S. Soil Conservation Service's Agricultural Lands of Importance to the State of Hawai'i (ALISH) map series. Only six percent of the project area is designated as Prime soils for agricultural use.

### **Solid Waste**

Substantial amounts of solid waste will be generated during the construction phases. No significant short-term or long-term impacts on the existing solid waste collection and disposal system are anticipated as a result of the proposed development.

## 1.7 SUMMARY OF MITIGATIVE MEASURES

### **Topography and Soils**

The project grading operations will be conducted in compliance with the dust and erosion control requirements of the County. Specific attention will be made to avoid disturbance to steep slope areas. Grading Permit review and approval, the grading plans for the site will be reviewed by the Department of Planning and Permitting and specific conditions may be attached. During construction, soils erosion control measures will follow NPDES permit requirements. Long-term soil erosion protection will be established at Makaīwa Hills with extensive planting and slope management measures. Specific attention will be made to avoid disturbance to steep slope areas. The project will balance earthwork cut and fill quantities within the site as construction progresses. The existing topography will be altered only to the extent necessary for the construction of the proposed improvements.

### **Cultural Resources**

Measures will be implemented to protect the resources at significant sites. These sites may be accessible for future research and education.

### **Water Resources**

Initial development of the site will require the construction of at least one reservoir and pump station. At a minimum, a 440' system reservoir will need to be constructed, along with a pump station connecting to the 215' reservoirs. In an effort to reduce the drinking water requirements of the project, a dual water system is proposed. Non-potable water is planned for irrigation use at some of the proposed commercial areas, school and parks at the lower elevations. A water reuse plan will be developed to include additional information about the irrigation, management, public education, and other required information per the Recycled Water Guidelines.

### **Wastewater**

The Makaīwa Hills project area will be served by a new sewage collection system and new pump station. Wastewater from the project areas will be conveyed from the new pump station to the Honouliuli Wastewater Treatment Plant (WWTP). The project will be responsible for its fair share of facilities improvements related to the additional wastewater flows of the new residential mixed-use community.

### **Drainage**

There are no existing drainage improvements in the project area. To alleviate potential flooding problems from the project, drainage improvements are planned for the project area that will manage the quantity and quality of storm water runoff ~~on~~ from the project site. These improvements will include an on-site drainage system of grassed swales, roadway catch basins/manholes and pipe culverts. Surface runoff will be conveyed to the gulches through a series of on-site drainage channels and detention features. ~~Runoff will be managed on-site to avoid adverse off-site drainage conditions.~~ Existing downstream/off-site drainage improvements have been designed to accommodate peak runoff from the project per County drainage standards.

### **Roadways and Traffic**

With the growth of the City of Kapolei, regional traffic patterns are expected to significantly improve, primarily by removing essentially one car off the H-1 Freeway for each Kapolei job

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created. Additionally, road improvements related to Makaīwa Hills will improve the connectivity of thoroughfares in the Kapolei region. New roadway improvements are proposed on adjacent roadways to accommodate traffic needs at the interim build-out (2015) and full occupancy of the project by 2020. The actions proposed to mitigate project traffic impacts include the addition of roadway lanes, turning lanes and traffic controls at various points in and around the project.

### **Visual Resources**

To mitigate adverse visual effects, the planning for Makaīwa Hills considered the project area's topography and panoramic views, and will include sensitive design guidelines for the built environment, with ample landscaping. Development activities will have a short term adverse effect on views that will be minimized by screening. Portions of the new residential mixed-use community will be visible from locations makai of the property, and from select locations in Makakilo. The height of the structures will be within the height limits established by the future project zoning and the 'Ewa Development Plan. Consideration will be taken to avoid adverse views from public areas, and residential views makai of and adjacent to the site.

### **Air Quality**

Implementing any air quality mitigation measures for long-term traffic-related impacts is unnecessary and unwarranted. The impact of construction activities on air quality will be mitigated by conforming to dust control measures, which must be implemented to ensure compliance with State regulations. Fugitive dust emissions will be controlled by watering active work areas, using wind screens, keeping adjacent paved roads clean, and covering open-bodied trucks. Other dust control measures include limiting the area that can be disturbed at any given time and stabilizing inactive areas. Paving and landscaping of project areas will reduce dust emissions. Exhaust emissions will be mitigated by moving construction equipment and workers to and from the project site during off-peak traffic hours.

### **Noise**

Construction activities will meet State DOH standards for noise. Equipment mufflers and construction curfew periods will mitigate noise impacts. Particular attention will be given to noise mitigation in areas closest to nearby existing residential areas. Construction activities will be limited to daytime hours.

The design of the new development will assure compliance with the State Department of Health Community Noise Control rules. Structural noise mitigation measures will be implemented for any residential structures constructed adjacent to Farrington Highway and closer than 300 feet from the centerline.

### **Solid Waste**

A solid waste management plan will be developed that will identify efforts to minimize waste generated at Makaīwa Hills during construction and operation. The plan would include a recycling program for construction contractors, residents and commercial uses to minimize solid waste disposal requirements. Grounds maintenance crews will separate green waste for appropriate disposal to one of the composting companies on O'ahu. Chipping and composting will be utilized to the extent practicable; especially during the operational phase. These activities will reduce the amount of green waste that needs to be transported off-site.

## **1.8 COMPATIBILITY WITH LAND USE POLICIES AND PLANS**

The proposed action is compatible with existing State policy documents (i.e. Hawai'i State Plan and Functional Plans). The proposed action is also compatible with the O'ahu General Plan and the 'Ewa Development Plan. Makaīwa Hills is a major residential area in the Kapolei Area Long-Range Master Plan and the County's 'Ewa Development Plan. Both of these plans recognize Makaīwa Hills as part of the expansion of the City of Kapolei and foresee Kapolei developing as a balanced city providing a full range of urban services, housing, jobs, businesses and public facilities consistent with a vital urban center. A major goal of the plans is to balance growth in the residential population with growth in the regional economy so that future residents will have an opportunity to work within the region they live, thereby reducing traffic congestion.

## **1.9 SUMMARY OF ALTERNATIVES TO THE PROPOSED PROJECT**

The potential benefits and impacts of three alternative development schemes for Makaīwa Hills were evaluated along with a no-action alternative. These analyses and summaries are provided in *Section 6* of this document.

### **1.9.1 No-Action Alternative**

The no-action alternative would involve no changes to the existing site or land use at Makaīwa Hills. This alternative will assume the development of the land in accordance with the current agricultural zoning of the site. Under this alternative, the land would probably remain undeveloped. The rural character would be retained, and any adverse or beneficial impacts created by the proposed project would not be generated. If the project was not implemented at this time, it is probable that the land would remain in its present condition until other alternatives, more profitable to the owners, surfaced.

### **1.9.2 Intensive Residential Development**

Under this alternative, the 1,781-acre Makaīwa Hills property would be developed for a more intensive use, with approximately 6,000 dwelling units. Open space could potentially remain at about the same area as the preferred alternative, in the range of 50% of the overall site area. Development would be primarily focused on providing low, medium and, in particular, high density residential, apartment and apartment mixed uses (totaling approximately 5,900 dwelling units). Affordable housing would constitute approximately 1,800 units, or 30% of the total dwelling units. An estimated 100 large lot or estate single-family residential parcels would be established at the upper reaches of the project site. This alternative also calls for about 100 acres divided between public facilities, community activity centers, and more intense commercial development to provide added services for the larger population base.

### **1.9.3 Low Density Agricultural Subdivision (no Change of Zoning)**

Under this alternative, the entire 1,781-acre property would remain as Agricultural zoning (AG-1 and AG-2) and be developed as an agricultural subdivision. The property would be allocated for low density residential use to accommodate up to 850 single-family farm dwellings on large lots of



two acres or greater. Agricultural uses of the individual lots would be required to comply with State Land Use law. Without a zone change, there would be no requirement to develop affordable housing and an elementary school as part of this project. This level of development would produce only 20% of the number of homes as the proposed project. While no commercial uses would be planned, approximately 20 acres would be designated for public facilities. This alternative would create fewer impacts due to population, traffic, water use, and wastewater generation; however, it would also result in fewer community benefits and government revenues.

#### **1.9.4 Development of the Makaīwa Gulch Sanitary Landfill**

The Waimānalo Gulch landfill, adjacent to the project area, is nearing capacity and the current expansion phase is expected to be filled by 2010 or sooner. However, the County is proposing expansion of the landfill's operational use and size until 2015. Consistent with the City's recent studies of potential landfill sites on O'ahu, Makaīwa Gulch is rated as the highest ranking alternative location for establishing a new landfill. The site is already designated on the City's Public Infrastructure Map as a potential future landfill location. The property in the area of the landfill would remain as Agricultural zoning (AG-1 and AG-2), and the solid waste disposal activity would occupy the majority of the southwestern corner of the property. The remainder of the site could potentially be developed for residential/commercial uses or used for other alternative uses. Activities associated with the current practice of land disposal at the existing landfill would be transferred to this new location. The landfill use would incur typical impacts associated with landfill operations, such as noise, dust, odors, truck traffic, windborne debris, vectors, nighttime operations and lighting.

#### **1.10 SUMMARY OF UNRESOLVED ISSUES**

At the time of publication of this document, there are several unresolved issues for this project. The affordable housing that will be developed as part of Makaīwa Hills is subject to reaching an agreement with the County prior to project commencement. Detailed project design information, such as the specific architectural and landscape design for the residential and commercial elements of the project, has not been completed. Continued discussions with County authorities are necessary regarding alternative financial techniques, such as the establishment of Community Facilities Districts, to facilitate the development of necessary yet costly public infrastructure. Finally, regional transportation issues involving State Highway improvements and the County's recently approved mass transit project have numerous unresolved details that may affect Makaīwa Hills.

A further discussion of unresolved issues is provided in *Section 7*.

#### **1.11 SUMMARY OF REQUIRED APPROVALS, PERMITS AND PLANS**

Development of the proposed project would require a number of permits and approvals from County and State agencies. A summary of possible required approvals is provided below. Permits and approvals required for the Proposed Action would be pursued following acceptance of the Final Environmental Impact Statement. All permits and approvals, including ministerial permits,

# MAKAĪWA HILLS

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such as grading and building, will be obtained in the appropriate sequence as required for site development, infrastructure and the construction of project elements.

County approvals: Draft and Final EIS; Change in Zone; Subdivision Approvals; Grading, Building, Driveway and Sidewalk Permits; Roadway, Water, Drainage and Wastewater Master Plans, Wastewater Pump Station, Sewer Connection Permit.

State approvals: Roadway Construction Plan Approval; National Pollutant Discharge Elimination System Permit.

## **2.0 PROJECT DESCRIPTION**

## **2.0 PROJECT DESCRIPTION**

This section presents the background and history of the Makaīwa Hills project area, including the regional context, existing and surrounding uses of the land, land use history, the 1993 Land Use Commission approval, and community outreach and involvement and a full description of the project concept for Makaīwa Hills, including physical site characteristics, development features, preservation areas and infrastructure. Proposed zoning districts for the new community are summarized in this section, along with necessary permits and approvals. The projected development costs and infrastructure financing and timing are also discussed.

### **2.1 BACKGROUND AND HISTORY**

#### **2.1.1 Regional Context**

The proposed Makaīwa Hills project area encompasses approximately 1,781 acres of undeveloped land on the southern slopes of the Wai‘anae Range in ‘Ewa, O‘ahu, Hawai‘i (*Figure 1.1*). The project area is within O‘ahu’s area for focused growth, where the City of Kapolei is emerging as a new urban core and job center on O‘ahu, with mixed use, commercial and industrial areas creating jobs for local residents with residential areas establishing a population base to fill the jobs consistent with the growth policy of the County put forth in the O‘ahu General Plan and ‘Ewa Development Plan.

Makaīwa Hills is a major residential area in the Kapolei Area Long-Range Master Plan and the County’s ‘Ewa Development Plan. Both of these plans recognize Makaīwa Hills as part of the development of the City of Kapolei into a new urban core on O‘ahu. These plans foresee Kapolei developing as a balanced city providing a full range of urban services, housing, jobs, businesses and public facilities consistent with a vital urban center. A major goal of the plans is to balance growth in the residential population with growth in the regional economy so that future residents will have an opportunity to work within the region they live, thereby reducing traffic congestion across O‘ahu.

Since the early 1990’s, the project area has been designated by both the County and the State for a new residential community, however, initial development plans stalled in the economic slowdown of the mid-1990’s and while Campbell Estate focused on the development of the City of Kapolei as O‘ahu’s new urban core and job center.

The Makaīwa Hills project area consists of dry rolling foothills on southwest facing slopes of the Wai‘anae Mountain Range in the ‘Ewa District, O‘ahu. The area slopes northeast to southwest, from approximately 1,300 feet above mean sea level (MSL) to 50 feet above MSL at Farrington Highway. There are several notable gulches that divide the site. Vegetation is primarily grassland currently utilized as cattle pasturage, with scattered shrub and tree areas of variable density. The panoramic views of O‘ahu’s southwestern coastline and the ocean are a prominent feature of the project area.

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### 2.1.2 Existing and Surrounding Land Uses

The project area is located west of the Makakilo residential community, east of the Waimānalo Gulch Sanitary Landfill, mauka (north) of the City of Kapolei, the Honokai Hale and Nanakai Gardens communities, the future Kapolei West community and Ko 'Ōlina Resort, and south of agriculture and preservation-zoned lands that are generally unimproved except for Camp Timberline, a privately operated camp facility, several private residences and several telecommunications sites.

To the east, the project area borders the Makakilo residential community. A wide vacant gulch separates the project's development area, with the closest homes in Makakilo nearly 1000 feet distant. With its first increments constructed in the 1970's, Makakilo has grown to a residential area of more than 8,000 homes with over 26,000 residents. This community contains both single-family and multi-family developments, with the final multi-family increments under construction. An adjacent 69.2-acre parcel on the eastern boundary of the project area is an undeveloped increment of the Makakilo development area with existing Residential zoning (R-5). This property, referred to as the West Pālailai Residential project, is owned by Makaīwa Hills, LLC. It is separate from and will precede the Makaīwa Hills project, and is not part of the proposed action as described in this EIS.

To the west, the project area borders on the Waimānalo Gulch Sanitary Landfill. The Landfill's current expansion increment is scheduled to be fully utilized and closed by 2008, although there are plans to expand the landfill and maintain its use through 2015.

To the north (mauka) are agricultural- and preservation-zoned lands that are generally unimproved, except for Camp Timberline (a privately-operated camp facility), several telecommunication sites, and approximately 20 private residences.

To the south, across the H-1 Freeway/Farrington Highway arterial, are the urban lands of the western 'Ewa Plain including the proposed Kapolei West and Kapolei Commons project areas, the Ko 'Olina Resort and the City of Kapolei to the project area's southeast.

Two parcels in the lower portion of the project area (TMKs 9-1-15: 11 & 23), totaling approximately 9 acres, contain BWS storage tanks. These out-parcels are not part of the proposed project. There are water storage reservoirs on these sites, one is the Barbers Point Reservoirs for potable supply, and the other is for non-potable irrigation water. Additionally, Old Farrington Highway, which cuts through the southeast corner of the project area, is a roadway owned by the State Department of Transportation (DOT).

### 2.1.3 Land Use History and Cultural Setting

The historical and cultural context of the subject property and surrounding region is an important consideration in the planning for this new community. This summary of traditional and historical literature accounts relates to the pre-history and modern land use of this land (Cultural Surveys Hawai'i, 2006) (*Appendix H*).

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### **Prehistory and Early History**

Although no specific documentation of prehistoric or early historic land use is known for the project area, various Hawaiian legends and early historical accounts indicate that the surrounding area of Honouliuli Ahupua'a was once widely inhabited by prehistoric populations, including the Hawaiian ali'i. This would be attributable to the plentiful marine resources available along the coast, along with habitations and fishing shrines. Other subsistence-related features of the area include the irrigated lowland suitable for wetland taro cultivation, as well as the lower forest area of the mountain slopes to procure forest goods.

Exploitation of the forest resources along the slopes of the Wai'anae Range acted as a viable subsistence alternative during times of famine. These upper valley slopes may have also been a significant locale for sporadic quarrying of basalt for the manufacturing of stone tools.

The Hawaiian ali'i were also attracted to the region, as described various legends and historical accounts of Honouliuli (Sterling and Summers, 1978). There are historical accounts that Ko 'Olina was a vacationing place for chief Kākuhihewa.

Leeward O'ahu trails encircled and crossed the Wai'anae Range, allowing passage from West Loch to the Honouliuli lowlands, past Pu'u Kapolei and Waimānalo Gulch to the Wai'anae coast (John Papa 'Īī, 1973). A portion of this trail network passed along the southern boundary of the project area, along the present Farrington Highway.

Archaeological sites are present along the barren coral plains and arid coast of southwest Honouliuli Ahupua'a, as well as those along the slopes of the Wai'anae Range. These indicate that prehistoric and early historic populations also adapted to these less inviting areas, despite the environmental hardships.

Subsequent to western contact in the area (ca. 1790), the landscape of the 'Ewa plains and Wai'anae slopes was adversely affected by the removal of the sandalwood forest, and the introduction of domesticated animals and new vegetation species. Domesticated animals including goats, sheep and cattle were brought to the Hawaiian Islands by Vancouver in the early 1790s, and allowed to graze freely about the land for some time after. Intensive sandalwood harvesting, occurred from 1815 to 1830. The project area was probably extensively impacted by the cutting and burning of forests.

During this same time, exotic vegetation species were introduced to the area. Introduced species were suited to terrain disturbed by the dwindling sandalwood forest and the erosional effects of animal grazing. These included Prickly pear cactus, Haole koa, Guava (c. 1790) Bermuda grass, Wire grass (c. 1835-1840), Lantana and Kiawe (c. 1828-1837) (Frierson 1972).

### **Mid to Late 19th Century**

During the Great Māhele of 1848, the project area was included in the largest award granted in Honouliuli Ahupua'a to Miriam Ke'ahi-Kuni Kekau'ōnohi (Native Register). One of Liholiho's (Kamehameha II's) wives, Kekau'ōnohi acquired all unclaimed land within the ahupua'a, comprising a total of 43,250 acres. Her heirs subsequently leased this land to James Dowsett and John Meek in 1871 for stock running and grazing.

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In 1877 James Campbell purchased most of Honouliuli Ahupua'a - including the present study area - for a total of \$95,000. By 1881, the Campbell property of Honouliuli prospered as a cattle ranch with "abundant pasturage of various kinds" (Haun and Kelly, 1984).

In 1889 Campbell leased his property to Benjamin Dillingham, who formed the O'ahu Railway and Land Company in 1890. To attract business to his new railroad, Dillingham subleased all land below 200 feet in elevation to William Castle who in turn sublet the area to the 'Ewa Plantation Company for sugar cane cultivation (Frierson 1972). Throughout this time and continuing into modern times, cattle ranching continued in the area, and Honouliuli Ranch, established by Dillingham, was the "fattening" area for the other ranches (Frierson 1972).

'Ewa Plantation Co. grew quickly and continued in full operation up into modern times. As a means to generate soil deposition on the coral plain and increase arable land in the lowlands, the 'Ewa Plantation Co. installed ditches running from the lower slopes of the mountain range to the lowlands and then plowed the slopes vertically just before the rainy season to induce erosion (Frierson, 1972). Two ditches, which were likely used for this procedure, are still present along the southern boundary of the project area.

### **Modern Land Use**

Sometime after 1959, the United States Army purchased or exchanged land with the Campbell Estate for the construction of the Nike-Hercules anti-aircraft missile base located at the head of Waimānalo Gulch, at the outer edge of the northwest project area boundary. The presence of this facility suggests that military activities of some sort may have occurred within the project area as well; however, no hazardous waste impacts are known to exist from this facility.

The 'Ewa Plantation Company continued operating until 1970, when the O'ahu Sugar Company (OSCo) took over operations. Sugarcane cultivation in the region continued until 1995 when OSCo closed. Approximately 100 acres of the project area were once cultivated in sugarcane by O'ahu Sugar Co., Ltd. on fields located on the flatlands between the H-1 Freeway and Old Farrington Highway. However, the fields were fallowed in the early 1980s, primarily because of difficult access problems after the H-1 Freeway was built, but also because of relatively low yields, rocky soils on much of the land, and the long hauling distance to the mill. Since the 1980s, the flatlands have been used for grazing cattle and horses, and for a nursery.

As mentioned above, since the 1870s, most of the foothills have been used for grazing cattle. From about 1947 to about 1990, much of this land was part of the 4,700-acre Tongg Ranch. Since about 1990, the area has been leased on an annual basis to another cattle grazing operation. The current grazing operation is quite small, with less than 200 cattle, primarily occupying the southeastern corner of the property. The cattle need to be transported off-site periodically to provide better grazing conditions.

### **2.1.4 Physical Site Characteristics**

The project area consists of several large, gently sloping ridges divided by erosional gulches extending up to the mauka property boundary. Although the gulches stand out in the topography as the major geomorphic features, the vast majority of the land is composed of evenly sloping smooth ridges. Because the drainage pattern is parallel, these ridges take on an even, relatively undissected appearance in relief with even contours. These ridges are the most feasible routes for

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mauka-makai traversing. Some low outcrops are present but the land is generally composed of gently dipping, even lava flows with highly weathered crust.

There are no surface waters or permanent streams on the property. Storm runoff follows natural channels in the gulches, releasing to drainage routes makai of Farrington Highway.

The vast majority of the project area (70-80%) is classified as stony steep lands. The soil cover is generally thin with heavily weathered boulder - cobble rubble. Only in the upper elevations do small, level, non-rocky natural alluvial terraces occur in shallow drainages where soil cover is evenly distributed. These mauka soil areas may have a relationship to the mauka increase in vegetative cover, but even here rainfall is below 30 inches per year. The gulch slopes have extensive exposed rock, boulders and loose rock material on the slopes. Consistent soil depth is found in the more level ridge areas.

The present vegetation in the project area is predominantly exotic species introduced since 1790. These species commonly include kiawe (*Prosopis pallida*), koa haole (*Leucaena glauca*), klu (*Acacia farnesiana*), indigo (*Indigofera suffruticosa*), lantana (*Lantana camara*), cactus (*Opuntia megacantha*), Christmas berry (*Scinus terebinthifolius*), 'uhaloa (*Waltheria indica*) with a few trees of java plum (*Syzygium cuminii*), silk oak (*Grevillia robusta*) and Eucalyptus species located within the northern limits of the project area. Various other grasses and xerophytic shrubs are also a common ground cover. Cotton (*Gossypium tomentosum*), sugar cane (*Saccharum officinarum*), and scattered koa haole are found specifically along the lowlands of the property where sugar cane was once cultivated.

Vegetation type and density varies according to the topographical environment and erosional effects within the project area. The vegetation adjacent to the deeply eroded stream channels (within the flood zones) can be extremely thick and lush with tall grasses predominating, often reaching a height of 2 m. Past ranching activity across the property limit existing mature trees and vegetation to the slopes and gulches. Periodic fires limit the growth of ground cover vegetation. The upper valley slopes are characterized by clusters of trees and low shrubs and grasses surrounded by pockets of denuded ground surface.

Waimānalo Gulch, occupied by the County's sanitary landfill, drops sharply away off the western boundary of the project area, especially in the upper portions of the property (*Figure 2.1*). The landfill has completely filled the lower portions of the gulch, which will be grassed over and maintained as open space.

### 2.1.5 1993 Land Use Commission Conditions of Approval

Makaīwa Hills was designated as Urban Land Use District in October 1993 by the State Land Use Commission (Docket A92-687). Conditions of approval were imposed on the project, which are applicable to the current plans for Makaīwa Hills (*Table 2-1*). These conditions are briefly summarized in the list below. *Appendix N* includes a copy of the 1993 Makaīwa Hills Findings of Fact, Conclusions of Law, and Decision and Order.



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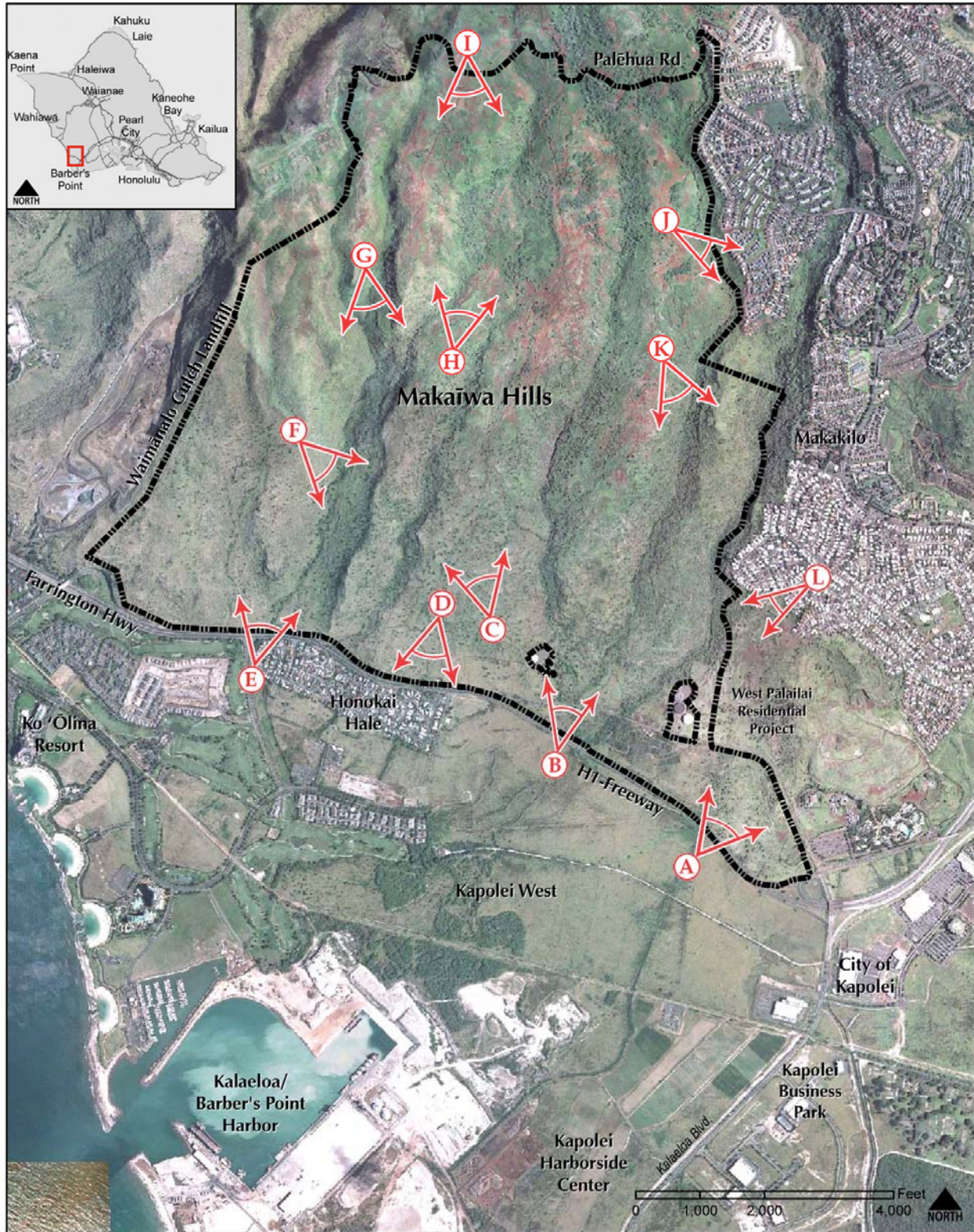


Figure 2.1 Site Photos (key)

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A. View of Pu'u Pālailai and BWS water tanks



B. Mauka view from Farrington Highway



C. View mauka from makai central area



D. View makai from central area



E. View mauka from Kō'i'o Road intersection with Farrington Highway



F. View makai from central western ridge

**Figure 2.1 Site Photos**

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*G. View makai from Mauka western ridge*



*H. View mauka from central area*



*I. View makai from Pālehua Road*



*J. View of Makakilo from mauka eastern ridge*



*K. View makai from mauka eastern ridge*



*L. View of site from Nohona Street*

**Figure 2.1 Site Photos**

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**Table 2-1  
Applicable Land Use Commission Conditions for Makaīwa Hills**

Condition	Timing for Compliance	Status
Provide affordable housing opportunities	Prior to applying for zoning	Agreement has been reached that affordable housing opportunities shall be provided to the satisfaction of the County.
Provide land for mauka recreation	Prior to applying for zoning	MH LLC is working with the DLNR, Division of State Parks, to identify the outdoor recreation opportunities mauka of the petition area prior to applying for zoning.
Participate in local and regional transportation improvements on a pro-rata basis	Prior to applying for zoning	<p>The Petitioner helped secure passage of Chapter 33A, ROH relating to Impact Fees for Traffic and Roadway Improvements in ‘Ewa. This ordinance helps fund the six priority regional highway projects identified in the ‘Ewa Highway Master Plan.</p> <p>MH LLC will continue to work with the State DOT and the County DTS to reach agreement on the project's fair share of transportation improvements and any required updates to the ‘Ewa Highway Master Plan and Chapter 33A.</p>
Monitor traffic attributable to the project and undertake mitigative measures	No timing specified	MH LLC will monitor traffic as required when the development proceeds.
Seek alternative transportation options, and assist regional transportation management	No timing specified	The Petitioner continues to participate in LOTMA, a regional program for transportation management. LOTMA reports are submitted to the Commission.
Pro-rata contribution to adequate wastewater transmission and disposal	No timing specified	MH LLC agrees to an equitable pro-rata participation in the funding and construction of adequate wastewater system facilities.
Fund the design and construction of drainage improvements for the project	No timing specified	MH LLC will fund the design and construction of required drainage improvements to the satisfaction of State & County agencies.
Fund and construct adequate civil defense measures for the project	No timing specified	As the project proceeds, MH LLC will work with Civil Defense agencies to provide adequate civil defense measures.
Pro-rata contribution to school facilities serving the project area	Prior to applying for zoning	MH LLC will secure agreement with the DOE as to the participation needed to provide appropriate school facilities.
Prepare a detailed historic preservation mitigation plan	Prior to the initiation of ground altering construction activities	MH LLC has submitted data recovery and preservation plans to the State Historic Preservation Division (SHPD) for review and approval.

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Condition	Timing for Compliance	Status
Follow established procedures if historic resources are identified at the project	Upon identification of new historic resources, the fieldwork portion of new mitigation plans must be successfully executed per SHPD prior to work proceeding in the immediate vicinity of the find.	In conjunction with the data recovery and preservation plans currently being reviewed, the Petitioner has identified new archaeological sites within the project area. These new sites have been documented and are being incorporated into the data recovery and preservation plans, as will any new sites identified during construction.
Prepare a fire plan	Prior to applying for zoning	MH LLC has consulted with DLNR on the proposed fire plan, which is included in the Draft EIS.
Prepare an integrated solid waste management plan	In accordance with a schedule and timeframe satisfactory to the Department of Health.	MH LLC will cooperate with city and state agencies to conform to the program, goals, and objectives of Chapter 342G.
Implement sound attenuation measures	No timing specified	MH LLC will provide sound attenuation measures, when and where they are determined to be needed.
Attenuate noise in sensitive residential areas	No timing specified	MH LLC intends to comply with this condition as required.
No homes in areas with exposure to noise levels of 65 Ldn or greater	No timing specified	MH LLC will comply with this condition.
Grant aviation and noise easement in areas subject to 55 Ldn	No timing specified	MH LLC will comply with this condition.
Notify prospective buyers of the presence of the adjacent landfill and HECO plant	No timing specified	MH LLC will provide the required notice to prospective buyers.
Notify buyers of pre-existing farming activities that may be a nuisance	No timing specified	MH LLC will provide the required notice to prospective buyers.
Participate in air quality monitoring program	No timing specified	The Petitioner has participated in an air quality monitoring program accepted by DOH in connection with A87-613 (The City of Kapolei).
Coordinate with the BWS and DLNR to obtain the required water for the project	No timing specified	MH LLC will comply with this condition.

Since 1993, the owners have satisfied several of these conditions, and remain in compliance with the requirements. There are several conditions that must be addressed in detail during this planning, EIS and zone change process. Makaīwa Hills, LLC will continue to work closely with involved agencies to satisfy these conditions.

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### 2.1.6 Community Outreach and Involvement

The James Campbell Company and its affiliates including Makaīwa Hills, LLC place a high value on meaningful community relations and have a long history of involving the community as active partners in the development of the Kapolei region. This partnership with the community dates back more than 25 years ago when the Estate of James Campbell first began planning for the City of Kapolei. At that time (1980's), Campbell Estate solicited input from an advisory committee of area residents to help formulate the Kapolei Master Plan covering the area from Fort Weaver to Ko 'Olina, including the residential area of Makaīwa Hills.

In the early 1990s, the community was consulted as part of Campbell Estate's efforts to urbanize Makaīwa Hills with a 2,130 unit residential development that included a golf course. Numerous individual and group meetings were held resulting in broad levels of support for Makaīwa Hills. The project went through numerous community meetings and public hearings in the early 1990's as part of the County's Development Plan Amendment process and State Land Use Boundary Amendment. The Neighborhood Board recommended approval of the project, however, the development plans did not advance in the economic downturn of the mid-1990's. The project was approved at the State Land Use Commission in 1993 as a residential community with 4,100 homes.

Community consultation is considered an ongoing process. Campbell Estate maintained a continuous dialogue with the community even though the Makaīwa Hills project did not progress in the 1990's. Campbell Estate, and now the Campbell Company and its affiliates, continues to keep the community informed as a matter of course on all things Kapolei and remain responsive to the community. Management representatives consistently attend the monthly meetings of the Makakilo/Kapolei/Honokai Hale Neighborhood Board No. 34 to answer questions, provide information and act as a resource. The Company maintains a website ([www.Kapolei.com](http://www.Kapolei.com)), publishes the Kapolei Magazine, and publishes a monthly newsletter in the neighborhood paper, the Voice of Kapolei, as a way of keeping the community informed. Members of the Makakilo/Kapolei/Honokai Hale Neighborhood Board have consistently noted for the record that the Campbell Company has been exemplary in its efforts to keep the community informed.

In 2006, in an effort to again engage the community in the planning for Makaīwa Hills, Campbell and Makaīwa Hills, LLC representatives embarked on a time-intensive effort to seek community comment on the project. This began with individual meetings followed by small group meetings with plans for larger group meetings in 2007. As of ~~March 1,~~ October 1, 2007, Company representatives have consulted with a total of more than ~~60~~ 100 individuals in the community. This includes ~~29~~ over 60 individual meetings with ~~32~~ more than 50 community members from the Kapolei, Honokai Hale and Waianae areas. These individual meetings included all of the members of the Makakilo/Kapolei/Honokai Hale Neighborhood Board and most of the members of the Waianae Neighborhood Board. Two hikes on the site were conducted for community members. In addition, numerous group meetings have been held with organizations such as the Honokai Hale/Nanakai Gardens Community Association, the Ko 'Olina Resort group of community associations and several others. Meetings will continue with a variety of community associations as the project progresses.

The general response of the community to this outreach was one of appreciation for the opportunity to comment at an early stage. This was especially true for some community members

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who felt that Campbell was not required to consult them. They generally liked the idea that the project may preclude a landfill on the site. They also supported the job creation and affordable housing aspects of the project and in the urban core of the City of Kapolei. The main areas of concern expressed include: traffic, infrastructure, cultural preservation, and schools. A commitment was made to continue the dialogue with an effort to addressing these concerns in the project's progressing planning and design.

## 2.2 MAKAĪWA HILLS PROJECT CONCEPT

Makaīwa Hills, LLC proposes to develop Makaīwa Hills, a residential community, on 1,781 acres of undeveloped land overlooking the Pacific Ocean and Ko 'Olina Resort mauka of the City of Kapolei, between Makakilo and Waimānalo Gulch. The project requires a zoning change from the existing Restricted Agriculture (AG-1) and General Agriculture (AG-2) zoning to a variety of residential, commercial and preservation designations consistent with the 'Ewa Development Plan. The property was Urbanized at the Land Use Commission in 1993 for development of up to 4,100 residential units. Accordingly, the project's land use plan and analysis is premised on this 1993 Land Use Commission Decision and Order.

### 2.2.1 Planning Process

Planning for Makaīwa Hill began in the 1980s with discussion of the potential residential community to be developed along the lands mauka of Farrington Highway, above Ko 'Olina and the City of Kapolei. The project went through numerous community meetings and public hearings in the early 1990's as part of the County's Development Plan Amendment process and State Land Use Boundary Amendment. The Neighborhood Board recommended approval of the project; however, the development plans did not advance in the economic downturn of the mid-1990's. The project was approved at the State Land Use Commission in 1993 as a residential community with 4,100 homes.

More recent planning for the site since 2005 has involved an updated approach, with added emphasis on sustainable design principles and lower impacts to the natural landscape of the project area. Planners and architects examined the site features and needs of the surrounding community, and conducted a two-day planning charrette to create a design philosophy for the new community:

*Makaīwa Hills is intended as a unique community with a Hawaiian sense of place, a strong sense of community and spectacular views. Primary community characteristics include a focus on quality design and construction, large open spaces, internal and external access and connectivity and community diversity. The design of all aspects of the community should reflect the following major guiding themes.*

### **A Sense of Hawai'i**

Site planning and architectural design at Makaīwa Hills should appropriately reflect the unique Hawaiian setting of the area to provide the community with a sense of authentic Hawai'i. This includes such features as the use of mauka-makai open space to underscore the traditional importance of the ahupua'a and to retain a connection to the original setting of the land.

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Architecture should reflect traditional or contemporized Hawaiian styles while landscape design should incorporate native plantings. Identification of cultural design elements, important cultural sites and the history of the land will help create a cultural awareness for the residents and guests.

### **A Sense of Community**

Design at Makaīwa Hills should reflect an integrated community with a strong sense of connectivity, both internally between neighborhoods and externally to nearby jobs and services. Designing for connectivity will help create a livable and sustainable community that relates to its surroundings. A strong sense of identity and place should guide the design of the community, its public spaces and residential neighborhoods. This includes design measures such as the use of common signage styles, signature neighborhood entry features and cohesive roofing materials. The Makaīwa Hills town center should be a unique social environment where residents and neighbors can gather and feel they are a part of the community.

### **Prominent Views**

A defining feature of Makaīwa Hills is the availability of panoramic views of southern O‘ahu and the ocean. These views should be incorporated into every aspect of site planning and design. Prominent view channels should be maintained through the use of open space and maintaining consistency with the natural terrain of the site. The orientation of individual home sites should reflect the best possible view. As a hillside community, the roofs of lowland housing, commercial and community structures should be designed to minimize intrusive view impacts from the homes above.

### **A Unique Community**

Makaīwa Hills is intended as a unique community that embodies diversity in a safe and quality environment. A diversity of housing types is encouraged provided the designs meet essential criteria outlined in the Development Guidelines and more specific design guidelines. Public and commercial areas within the community should reflect a village atmosphere where residents are able to access desired services and a vibrant social setting in close proximity to their homes. The community should be a unique setting on the Island of O‘ahu.

Over the past two years, Makaīwa Hills, LLC has conducted numerous meetings and planning sessions with the DPP and numerous other agencies to examine planning concepts, regional and site specific issues, and conformance with the Ewa Development Plan Update. In order to address related infrastructure issues, meetings have been held with the agency representatives, including the Department of Transportation, Honolulu Board of Water Supply, Department of Environmental Services, and Department of Transportation Services and State Department of Transportation. Specific issues have been addressed in the planning process, and there continues to be an on-going dialogue with these agencies.

## **2.2.2 Sustainability**

Planning and preliminary design studies for Makaīwa Hills have been conducted following sustainable development principles and guidelines. The project will include select land development and building construction practices as established following guidance under several recognized references:



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- US Green Building Council's Pilot Version of LEED (Leadership in Energy and Environmental Design) for Neighborhood Development.
- The Office of Environmental Quality Control (OEQC) issued "Guidelines for Sustainable Building Design in Hawai'i: A Planner's Checklist" (OEQC 1999)

Sustainable design principles that are applied to Makaīwa Hills are consistent with the LEED-ND Rating System. This system rate proposed projects according to: Smart Location and Linkage, Neighborhood Pattern and Design, Green Construction and Technology, and Innovation and Design Process. Although Makaīwa Hills is in the early planning stages, the project will qualify for credits under each of the major categories.

- Smart Location and Linkage: Key aspects of qualification are agricultural land conservation, reduced automobile dependence, bicycle network, housing and jobs proximity, school proximity, steep slope protection, conservation management.
- Neighborhood Pattern and Design: The project will be an open community, with aspects of compact development. There will be a diversity of housing types, with affordable components. Streets will be walkable, with a relationship to future transit, and there will be access to public spaces. The project has included community outreach and involvement in the planning process.
- Green Construction and Technology: Makaīwa Hills will involve construction activity pollution prevention, and reduced water use. Site disturbance will be minimized through site design. Available options for on-site energy efficiency, wastewater management and construction waste management will be considered, along with light pollution reduction.
- Innovation and Design Process: LEED accredited professionals will be involved in the preparation of Design Guidelines for Makaīwa Hills.

### 2.2.2.1 Land Development Practices

Sustainable land development practices apply to Makaīwa Hills at both the community (master developer) and neighborhood (builder) levels. A broad range of green land development practices includes consideration of: ecologically sensitive areas, land use planning, transportation, cultural resources, site planning, stormwater, community landscape, irrigation and technology. Design guidelines will provide a way for the master developer to communicate green values to neighborhood builders.

#### Ecologically Sensitive Areas

Planning for Makaīwa Hills has conducted an inventory for ecologically sensitive areas (none indicated), land use suitability analysis, avoidance and protection, restoration and enhancement, edge transition and buffering, linkage and monitoring,

#### Land Use Planning

Makaīwa Hills includes mixed-use Village Center core, with co-location of uses to reduce vehicle miles traveled, reduce development footprint, integrate of open space, provide a balanced mix of services, and jobs/housing balance.

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### Transportation

Connectivity is an essential theme to the plan for Makaīwa Hills, including pedestrian-oriented and transit-ready design, multi-modal orientation, higher minimum level of service of streets, traffic calming features, trails and bikeways, and shared parking.

### Cultural Resources

An Archaeological Inventory Survey and Data Recovery and Preservation Plan have been prepared for Makaīwa Hills, with plans for avoidance, integration and interpretation of significant sites.

### Site Planning

As the project advances in to more detailed site planning and design, consideration will be made for orientation to the sun and wind, reduced grading, natural design, clustering, reduced street widths, and reduced heat-island effect.

### Stormwater

Makaīwa Hills is planned to include runoff mitigation measures including silt control, low-flow bio-filtration, retention and detention, polishing, aquifer recharge, and low-velocity design.

### Community Landscape

Elements of the landscape planned at Makaīwa Hills include ecological associations, reduced water consumption, design for shade, renewable hardscape materials, ambient light, and habitat creation/restoration.

### Irrigation

The project will include weather station monitoring, central computer control, zoning, brackish non-potable water, and total water balance planning.

### Technology

The project will include high-speed digital systems, telecommuting, and may establish a community intranet.

#### 2.2.2.2 *Green Building Practices*

Strategies to include green building elements will be encouraged for use by builders in the vertical technologies applied for this new community. Green building practices that will be considered for application at Makaīwa Hills include:

### Energy Conservation

Elements for energy conservation could include increased insulation, low-emissivity windows, primary room orientation, sealing Energy Star appliances, tankless water heaters, shading devices, operable windows and photovoltaic panels.

### Resource Conservation

Elements to be included will be low-flow fixtures, recycled content, recycled materials, and sustainably produced materials.

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### Construction Waste Reduction

Makaīwa Hills will seek to reduce landfill waste through landfill diversion, waste management practices, coordinated recycling and waste removal.

### Architectural Design

For the various structures to be developed at the project, design guidelines will encourage efficient forms, compact design, dimensional economies, adaptability, and reduced solar loading.

### Occupant Environmental Quality

Built elements of the project will be encouraged to include cross-ventilation, natural light, air filtration systems, noise control, low-emission materials, and allergen reduction.

#### 2.2.2.3 Sustainable Design Techniques Considered

The OEQC guidance outlines considerations for applicable sustainable development techniques. The OEQC Guidelines state, “[a] sustainable building is built to minimize energy use, expense, waste and impact on the environment. It seeks to improve the region’s sustainability by meeting the needs of Hawai‘i’s residents and visitors today without compromising the needs of future generations.” Techniques from “Guidelines for Sustainable Building Design in Hawai‘i: A Planner’s Checklist” considered in the design of the Makaīwa Hills community include:

### Site Selection and Site Design

1. *Select a site with short connections to existing municipal infrastructure (sewer lines, water, waste water treatment plant, roads, gas, electricity, telephone, data communication lines and services). Select a site close to mass transportation, bicycle routes and pedestrian access.*

The project area is adjacent to existing development on two sides, and is located within close proximity to existing utilities and municipal infrastructure. The project is located next to The City of Kapolei, with existing parks, retail, and other community amenities. Makaīwa Hills will include on-site parks, retail, school and community amenities, and will connect to them through a network of pedestrian and bicycle greenways adjacent to roadway corridors.

### Site Preparation and Design

1. *Prepare a thorough existing conditions topographic site plan depicting topography, natural and built features, vegetation, location of site utilities and include solar information, rainfall data and direction of prevailing winds. Preserve existing resources and natural features to enhance the design and add aesthetic, economic and practical value. Design to minimize the environmental impact of the development on vegetation and topography.*

The existing resources and natural features of Makaīwa Hills and the surrounding areas are discussed and shown in the Draft EIS, including aerial photographs. Significant archaeological sites have been protected in the master plan. These sites will remain accessible to the public via the proposed street and pedestrian pathway networks. There are no endangered plants and the site is dominated by invasive alien species.

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2. *Locate building(s) to encourage bicycle and pedestrian access and pedestrian oriented uses. Provide bicycle and pedestrian paths, bicycle racks, etc. Racks should be visible and accessible to promote and encourage bicycle commuting.*

A network of pedestrian/bicycle paths will extend throughout the project area adjacent to roadway routes. These paths will linking the different neighborhoods. Design Guidelines are being prepared for the project area, and it is proposed that buildings are located close to the street to provide a comfortable environment for pedestrians and bicyclists.

Roadways at Makaīwa Hills will be designed to encourage pedestrian and bicycle use. The interior community roadways have narrow lanes designed for slow travel speeds. The master plan avoids long, straight segments of neighborhood through-streets, and roadways will also have slight bends to allow for natural traffic calming. Street trees will provide a comfortable pedestrian environment.

#### Building Design

1. *For natural cooling, use: reflective or light colored roofing, radiant barrier and/or insulation, roof vents; light colored paving (concrete) and building surfaces; tree planting to shade buildings and paved areas; and building orientation and design that captures trade winds and/or provides for convective cooling of interior spaces when there is no wind.*

Makaīwa Hills will include natural cooling elements such as street trees, covered porches and verandas. The Design Guidelines developed for the project will address these elements.

#### Energy Use

1. *Use renewable energy. Use solar water heaters and consider the use of photovoltaics and Building Integrated Photovoltaics (BIPV).*

Renewable energy devices will be encouraged as practical within the new community, including the use of solar design features.

#### Landscape and Irrigation

1. *Incorporate water efficient landscaping (xeriscaping) using the following principles:*
  - a. *Soil analysis/improvement: Use (locally made) soil amendments and compost for plan nourishment, improved water absorption and holding capacity.*
  - b. *Appropriate plant selection: Use drought tolerant and/or slow growing hardy grasses, native and indigenous plants, shrubs, ground covers, trees, appropriate for local conditions, to minimize the need for irrigation.*
  - c. *Mulches: Use mulches to minimize evaporation, reduce weed growth and retard erosion.*

The Landscape Design Guidelines that are being developed for Makaīwa Hills will specify the use of native and indigenous plants. Where feasible, landscaping will include the use of locally made soil amendments and compost; use of drought tolerant and/or slow growing vegetation; and the use of mulches.

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2. Irrigate with non-potable water or reclaimed water when feasible. Collect rainwater from the roof for irrigation.

Non-potable drinking water will be used for irrigating common areas in the makai portion of Makaīwa Hills.

3. Use pervious paving instead of concrete or asphalt paving. Use natural and man-made berms, hills and swales to control water runoff.

Roadways through undeveloped areas will use landscaped or grassed swales for drainage. Makaīwa Hills will employ drainage designs that encourage bio-filtration. The slowing and filtering of settlement of runoff waters will be implemented, as practical.

Energy consumption at Makaīwa Hills will be may include incorporating select items from the City and County of Honolulu Building Energy Code, and the Hawai'i Model Energy Code design guidelines.

### 2.2.3 Summary of Proposed Land Uses

The Makaīwa Hills Conceptual Land Plan is shown in *Figure 2.2* and summarized in *Table 2-2*. The project area will be developed with five primary land use components, including: (1) a range of residential designations, (2) mixed-use areas (3) community serving commercial, (4) substantial preservation areas, (5) necessary infrastructure, and (6) public facilities. Site improvements would include construction of 4,100 new single- and multi-family residential units at low- and medium densities, a community commercial center, neighborhood retail center, recreational facilities, (e.g., parks, trails, open spaces) a public elementary school and a public middle school, an amenity center and associated infrastructure (e.g., new roadways, utilities, drainage, wastewater and potable water distribution systems). Affordable housing would be provided in accordance with State and County standards.

**Table 2-2**  
**Summary of Land Uses and Project Areas**

Land Use	Acres (+/-)	Percent of Total	Acres in Open Space	% in Open Space
Residential	1,027 857	58% 49%	423 311	41% 36%
Mixed Use	128 114	7% 7%	44 30	34% 26%
Commercial	30	2%	10	30% 33%
Education	30	2%	10	33%
Preservation*	582 750	33% 42%	569 735	98%
TOTAL	1,781	100%	1,050 1,096	59% 62%

*Figures are approximate*

*\*includes agriculturally zoned lands*

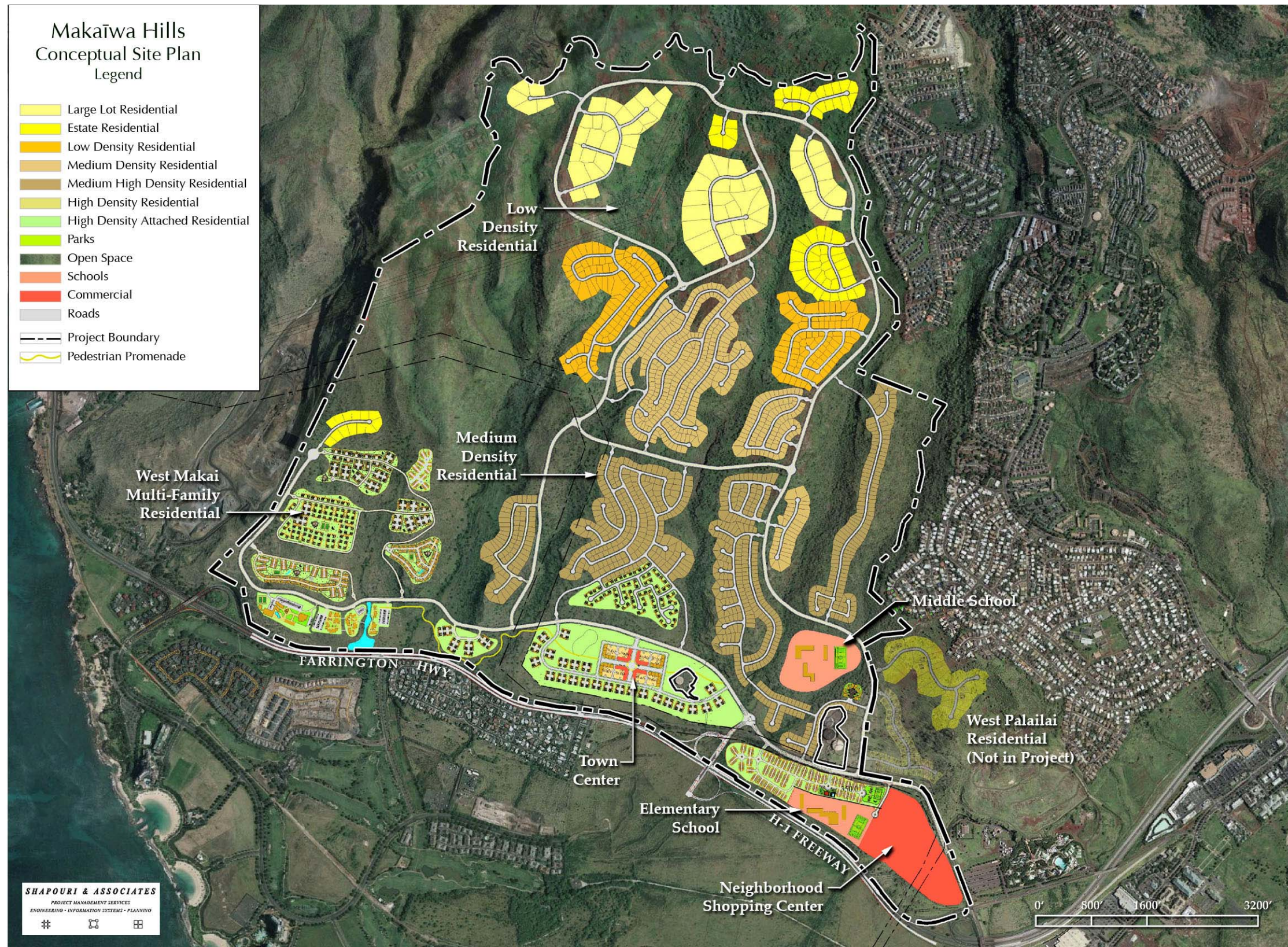


Figure 2.2. Makaīwa Hills Conceptual Land Plan

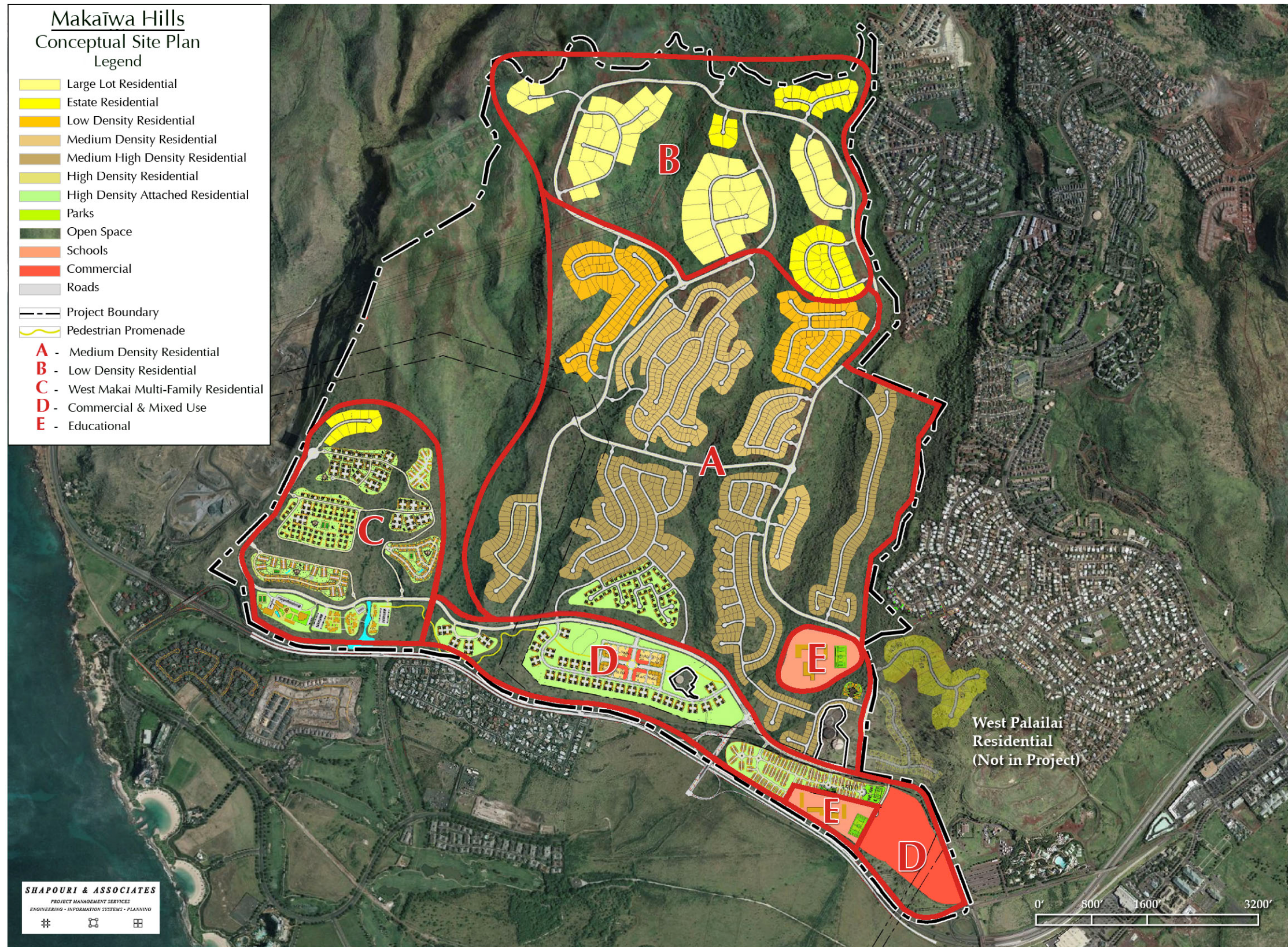


Figure 2.3. Makaīwa Hills Land Areas

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The current land plan for Makaīwa Hills is based on conceptual designs, which are subject to change. The project area designations, acreages and unit counts will be further refined as the project advances through the various permit approval stages. However, such refinements are not expected to affect the integrity of this EIS. The total residential unit count will not exceed 4,100 units.

### 2.2.4 Residential Areas

The residential component of the Makaīwa Hills development includes a combined total count of 4,100 residential units, consisting of a mix of low- and medium-density dwellings. Of the 4,100 units, ~~1,619~~ 1,594, or approximately 40%, will be single-family residences, while the remaining ~~2,481~~ 2,506, or about 60%, will be a variety of multi-family configurations.

The plan establishes a diversity of ocean view residential products with higher density town homes and commercial areas at the lower elevations. Residential densities will gradually decrease further up the slope, with larger individual residential lot sizes as the elevation rises. This decreased density and larger lots will minimize grading and thus, impacts to landforms and scenic views of the upslope areas.

The majority of residential units will be created in the lower central portion of the property (Land Area A), close to neighboring transit connections and where slopes are mild to moderate. Residential zoning designations here will include Business- and Apartment-Mixed Use (BMX-3 and AMX-1 & -2) in mixed use areas, Apartment (A-1) for medium-density town homes, and Residential (R-5, R-7.5) designations for the smaller to medium sized single-family lots.

The residential areas at Makaīwa Hills are envisioned as a variety of traditional or contemporized Hawaiian architectural expressions designed to combine well with the natural terrain and panoramic ocean views. These styles may include homes with dual or split-pitch roofs, generous use of natural materials, and provisions for generous outdoor spaces such as patios, courtyards, and lanais.

A blending of site planning, architectural and landscape architectural planning will provide the foundation for quality-oriented communities that will provide residents with a sense of permanence and identity. Residential structures will be designed appropriately to assist in perpetuating a unique and sustainable “sense of place”. Dwelling design will reflect the tropical island lifestyle, climate and natural beauty of the land. Residences will be designed to preserve view corridors and to avoid the appearance of a wall when viewed from adjacent properties. Designs will incorporate varied building heights, varied rooflines and projections with special attention paid to roof characteristics and materials.

In addition, gardens, terraces, courtyards, lanais, and other outdoor spaces are planned to appear as if they are natural transition between the homes and the land. Smooth transitions between lots will be provided rather than harsh elevation changes. Generous use of natural elements such as stone and wood coupled with lush tropical landscaping can aid in achieving this goal. Gentle berming and lush landscape shall be introduced to minimize the visual impact of retaining walls.



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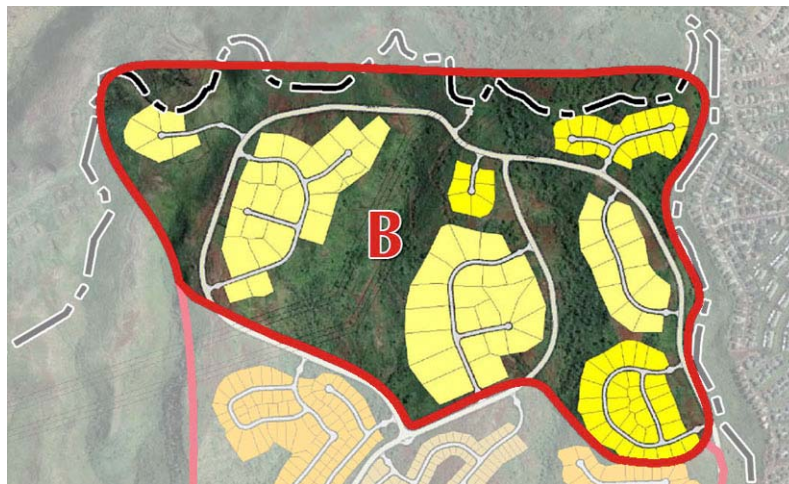
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*Makaiwa Hills – Land Area A*

Homes will be available across the spectrum of income levels. The applicant will establish an affordable housing component in the lower/makai residential areas that will serve to meet the needs of households earning below 140% of the median income. This component may include the provision of on-site or off-site housing units, or acceptable in-kind substitutes. Thirty percent of the total residential units, or approximately 1,230 units, will be available as affordable housing per County requirements. There is a strict set of criteria for purchase and resale of these units, established and monitored by the County. The applicant will coordinate closely with the State and County to comply with affordable housing conditions.

The larger single-family residential lots (Land Area B) will be zoned R-10 & R-20, with lot sizes from 10,000 to 20,000 square feet. These sensitive, grade-adaptive custom lots will be located in the upland ridge areas. The siting of individual development areas and connecting roadway system will respect natural slope conditions to avoid the steeper areas, maximize open space, and minimize site disturbance.



*Makaiwa Hills – Land Area B*

An extensive network of open space being proposed is designed to establish defined edge conditions and intimate residential areas, presenting the opportunity for unique neighborhoods with individual character and identity within the community. Approximately 60% of the project

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area will remain in open space, which includes significant amounts of open space within the residential areas. Active and passive public parks in excess of the County's park dedication requirements will be provided throughout the project area.

The western portion of the project area (Land Area C) is planned as a series of multi-family residential enclaves with quality amenities. This area of Makaīwa Hills will be zoned A-1 & AMX-1, and will create a unique residential setting with appeal to condominium buyers, retired couples, and possibly second home buyers. Community amenity and recreational facilities will be integrated in the area makai portion of this development area. The unique topography of this area creates a secluded feel to the community. While this area is situated closest to the existing Waimānalo Gulch Sanitary Landfill, a number of mitigating qualities make it suitable for development, including 1) a landscaped open space buffer of approximately 250 feet between the boundary of the project area and the nearest residential unit, 2) presently utilized portions of the landfill will soon be capped, landscaped and maintained as open space, 3) planned expansion cells within the landfill are out of sight down below the edge of the gulch, and will have been closed by the time the nearest residential units are proposed to be developed, 4) access roadways to the expansion areas are buffered by topography from the project area, and 5) the fact that the prevailing tradewinds reduce potential noise impacts and blow dust and odors away from the project area.

Figure 2.4 shows a rendered perspective view of the future Makaīwa Hills community, looking across the site toward Diamond Head and Pu'u Pālailai. This view shows the context of residential community development on the ridge areas, with low density residential lots in the mauka lands, and more dense community development in the more makai ridge areas. Makaīwa Hills will preserve large green open space corridors that respect the steep slope gulch environments. The makai area depicts the higher density mixed-use residential and commercial areas fronting Farrington Highway, including the Town Center/Main Street area.



Makaīwa Hills – Land Area C



Figure 2.4 View from Makaiwa Hills toward Diamond Head and Pu'u Pālailai across project area

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### 2.2.4 Mixed Use and Commercial Areas

Commercial and residential uses will be mixed in the land plan concept for Makaīwa Hills (Land Area D). In general, the entire makai corridor will combine residential and business components, serving the Town Center/Main Street area and the adjoining neighborhoods with the numerous benefits of mixed-use land development policies. Approximately ~~33~~ 30 acres in the southeast corner of the proposed Makaīwa Hills development will be established as a Business Mixed Use district that will include a shopping center containing commercial and office components.

Innovative “smart growth policies” recommend integrating mixed land uses into neighborhoods to create vibrant, livable communities. By locating different, yet compatible land uses in close proximity to one another, alternatives to driving such as walking or biking become more practical. Streets, public spaces and pedestrian-oriented retail become places where people meet, where pedestrians are attracted back onto promenades and where community life is revitalized.

Mixed land uses also provide a more diverse and sizable population and commercial base for supporting viable public transit. Such smart growth policies can enhance the vitality and perceived security of an area by increasing the number and attitude of people out in the public.

Mixed land uses can convey substantial fiscal and economic benefits. Commercial uses in close proximity to residential areas are often reflected in higher property values, and therefore help raise local tax receipts. Businesses recognize the benefits associated with areas able to attract more people, as there is increased economic activity when there are more people in an area to shop. In a service economy, when communities mix land uses, their neighborhoods can be more attractive to workers who increasingly balance “quality of life” criteria with salary to determine where they will settle.



Makaīwa Hills – Land Area D

A Town Center/Main Street concept is planned that would provide small-scale shopping and service amenities at a centralized location that is in close proximity to the majority of residents at Makaīwa Hills. This concept is intended as a unique social environment where residents and neighbors can gather and feel they are a part of the community. This area will contain stores,

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shops, or service establishments consistent with the uses allowed under AMX-2 zoning that reinforce the concept of a vibrant walkable small town center. The types of businesses include banks, coffee shops, juice bars, neighborhood grocery stores, convenience/sundry stores and small service shops. As the population of Makaīwa Hills grows, the numbers and types of small businesses will expand to meet the community's needs as a large percentage of the units in the project are planned within walking distance from this area. The major grocery and other services will be available at the nearby neighborhood retail shopping center in the project, also within walking distance from the denser residential neighborhoods.

Buildings in the Town Center/Main Street area may be three to four stories tall with design guidelines that establish a village scale. Structures will be compatible in scale, mass, and form with adjacent structures in the pattern of the surrounding area. Commercial retail uses are planned for some ground floor spaces, with apartment residential uses comprising the rest of the buildings. Vehicle parking will be served in lots positioned behind buildings fronting the Main Street area. Residents living in the community will be able to easily transit this area using sidewalks, and extensive pedestrian and bicycle paths. The Town Center will connect with the project areas to the east and west via roadways and pathways, with ample landscaping, park areas and open space. A conceptual rendering of this project area is shown in *Figure 2.5*.

A neighborhood retail shopping center is proposed in the southeast corner of the project. This shopping center is planned to include full service grocery and drug stores, and a complete assemblage of retail services. The area is conveniently positioned along the main project collector roadway, near the connection with the H-1 Freeway. At this location, residents of Makaīwa Hills will have convenient access to the neighborhood commercial services. In addition, residents of the Makakilo community will also have convenient access to the new shopping center services without having to cross the H-1 Freeway to reach the Kapolei Shopping Center.

Colliers Hawaii Consulting prepared a Market Assessment and Feasibility Study (2005) to determine highest and best use of the commercial property areas at Makaīwa Hills. In addition to drug store and grocery store anchors, a medical/wellness facility and mixed-use retail and office building are proposed. The specific tenants have not been identified. The study addressed regional demand for commercial space at the proposed project, and did not differentiate between the two commercial areas within the project. The study indicates adequate demand for the range of commercial uses planned at both project areas. More refined analysis of the tenant mix at the Neighborhood Shopping Center versus the Town Center will be conducted as the project progresses since this type of analysis is highly dependent on the commercial market conditions at the time of development.

The proposed zoning for the 30-acre neighborhood retail shopping center is BMX-3, and approximately 150,000 square feet of floor area is proposed. This proposed zoning district at Makaīwa Hills is intended to provide for employment and retail opportunities in close proximity to -- or together with -- multi-family residential uses. Based on recommendations from DPP planners in continuing discussions about this commercial location, the landowner is considering various concepts that could include residential units at this site. The landowner believes there is a strong potential to provide an innovative residential product at this location that incorporates well with the predominating, community-serving commercial uses. This is consistent with the mix of uses planned along the project's entire makai corridor.

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Potential uses in the western portion of the project include an integrated community amenity center to serve the adjoining multi-family residential community (Land Area C). Proposed zoning is Apartment Mixed Use (AMX-1). The proposed amenity center will provide a number of recreational facilities, such as tennis courts, basketball courts, playgrounds, sand volleyball, swimming pool, spa, exercise room, sauna, audio/video/meeting room, kitchen facilities for large parties and multi-purpose playing fields.

### 2.2.6 Preservation Areas

The Makaīwa Hills land plan integrates the natural features of the area, including slopes, gulches and large continuous open space areas. The preservation of open space was determined to be a crucial element during the project's planning process; accordingly open space is a primary component of the land plan, and will be achieved in part by the designation of Preservation-zoned (P-2) lands and retention of Agriculture-zoned (AG-2) lands that would remain in their natural condition, except for potential limited grazing and recreational use.

Open space has significance not only for environmental reasons, but also from a market perspective. As such, significant amounts of open space will also be provided within the other zoned areas of the project area. Residential enclaves will have open space in undeveloped portions, in the landscaped, graded sections, as well as in the 30-foot fire buffer areas described more fully in Section 4.4.1 – the Makaīwa Hills Fire Plan. Commercial and business mixed use areas will also include substantial landscaped open space areas. Altogether, approximately ~~4,050~~ 1,096 acres, or about ~~59~~ 62% of the project area, will be kept in open space.

Land will be available for recreational uses of lands mauka of the project area. Discussions are underway with the Department of Land and Natural Resources regarding the details of how the mauka lands may be accessed.



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Figure 2.5. Makaiwa Hills Town Center Conceptual Rendering

### 2.2.7 Access and Circulation

Farrington Highway/H-1 Freeway forms the southern boundary of the project area and the primary accesses to the project will be off of these roadways (*Figure 2.2*). The Pālailai Interchange, a component of the Kapolei Interchange Complex, is found in the southeast corner of the project area. The State-owned Old Farrington Highway winds its way through the southeastern portion of the site, connecting the Pālailai Interchange on the east to Farrington Highway on the west. Pālehua Road, a private unimproved narrow roadway, forms the northern boundary of the project area before turning mauka for approximately another 2.5 miles to provide access to the private agricultural residences, telecom sites and mauka conservation lands. A complete description of the existing and proposed access and circulation systems is provided in *Appendix D*.

At the conceptual level of this EIS, the Makaīwa Hills circulation system is designed to promote a safe and efficient balance between the various travel modes, such as bicycle and pedestrian facilities, convenient and centrally located transit stops and terminals, traffic calming and other methods. Various Transportation Demand Management strategies will be employed to reduce overall vehicular demand in and around the project site. Use of bicycles, walking and coordination with The Bus and the future mass transit stop near the project are important elements in the project's transportation systems. The developer will continue to work closely with the County DPP to prepare a comprehensive Transportation Management Plan as the project's design progresses.

Additionally, the land and roadway planning for Makaīwa Hills has focused on enhancing connectivity internal to the project and with accesses to and from the project. As noted in *Figure 2.2*, three project access points are planned including new direct access connections between the project and the existing Makakilo and future Kapolei West communities. The internal roadway system consists of loop collector with multiple accesses to the residential hillside clusters which maximize connectivity given the project's unique hillside conditions. Discussions with DPP on the project in its planning phases and about the 'Ewa Connectivity Study have assisted with incorporating connectivity into the project's circulation systems.

Detailed roadway master planning for Makaīwa Hills will be conducted in concert with the County DPP and DTS to realize the project's smart growth and connectivity objectives. The street pattern in the community will be refined with a more detailed consideration of the project's phasing, TIAR findings and County roadway and subdivision standards.

#### **Kapolei Interchange Complex Access**

Current access to the lower portions of the project area is from the eastern end of Old Farrington Highway. This access, at the intersection of Kalaeloa Boulevard and Farrington Highway, will be improved and expanded as part of the Kapolei Interchange Complex project to serve the first phases of the Makaīwa Hills development. Construction on the first phase of the Interchange Complex is scheduled to begin in 2007 and will include a westbound off-ramp from the H-1 Freeway that will feed directly to the intersection of Kalaeloa Boulevard and Farrington Highway, providing access to the project area. Subsequent phases of the Interchange Complex expansion will include grade separated improvements that will allow direct access between the project area and the City of Kapolei. Approximately 750 units of residential development within Makaīwa Hills can be served by this first access point.



**New Road D Intersection/Interchange**

When needed, after approximately ~~750~~ 856 units of residential development in Makaīwa Hills, a second proposed new mauka/makai access roadway to Farrington Highway will be constructed at its future intersection with “Road D” between Kalaeloa Boulevard and Honokai Hale. This access is referred to as the Road D at-grade intersection. This system of access roadways will eventually be expanded into a full grade separated interchange allowing access to and from Makaīwa Hills from both eastbound and westbound lanes of Farrington Highway. The specific layout of these proposed improvements has not yet been designed and the graphic representations made herein are intended only as generalized depictions. The design of the intersection and interchange will be coordinated with the DOT.

This new access would be developed after the start of the Area 2 development, with the initial connection proposed as an at-grade intersection with Farrington Highway. The ~~750~~ 856 residences of the first phase plus approximately ~~1,535~~ 1,432 residences in the project’s second phase approximates the traffic level that could be accommodated by the combination of 1) the initial access at the Kalaeloa Boulevard-Farrington Highway intersection plus 2) the addition of the access to the Road D at-grade intersection with Farrington Highway.

The Road D connection to Farrington Highway is proposed for upgrading to a full grade separated interchange at the beginning of the third phase of development, which is anticipated to start in approximately 2015-2016.

While this interchange would ultimately serve existing and planned communities and developments in the region including Ko ‘Olina Resort, Honokai Hale, Nanakai Gardens, Kapolei West, Kapolei Harborside Center and others, this intersection and eventual interchange will be built as part of the Makaīwa Hills project because of the need to provide a second mauka access off Farrington Highway to the project area to serve the 4,100 proposed units. It will therefore be constructed as part of the Makaīwa Hills project as warranted by development within the project area as described in *Appendix D*. This Traffic Impact Assessment Report analyzes the incremental development of this interchange, using the context of traffic conditions 1) up through 2015 with an at-grade intersection and 2) at full build out in 2020 with the grade separated interchange.

**Makakilo Nahona Street Access**

Access from Makakilo is proposed with the extension of existing Nohona Street into the Makaīwa Hills development. This would allow circulation between the two communities without the using the H-1 Freeway or passing through the City of Kapolei business area, would improve overall connectivity of the area roadways, and would provide an additional network connection for use in potential emergencies. This connection would be constructed as a two-lane collector street.

**Internal Circulation**

A well-connected network of backbone and internal collector streets and other minor roads will link the various residential areas within Makaīwa Hills. Approximately 63 acres, or slightly less than 4% of the project area, will be allocated for the circulation network. The roadways will be designed to meet County standards, such as no slopes exceeding 10%, and at a minimum, the main circulation routes will be dedicated to the County and remain open to the public.

Additionally, traffic calming measures will be implemented to prevent undesirable or dangerous downhill driving speeds and conditions.

Pursuant to County subdivision standards, the internal circulation network may include:

- “Parkways” for major collector roadways, usually containing a medial strip with landscaped setback park-like areas on each side of the right-of-way, generally heavily planted with trees for its entire length;
- “Boulevards” for major collectors with or without a medial strip, generally shorter than a highway, usually serving through traffic on a continuous route;
- “Drives” for long winding collector roadways, usually through a valley, mountainous area or plateau, having scenic qualities;
- “Streets” for fully improved through-roadways serving local or minor collector traffic;
- “Avenues” for fully improved through-roadways serving local or minor collector traffic, landscaped and planted with trees;
- “Circles” for roadways having a circular form, with only one access point to the adjoining street;
- “Loops” for looped roadways having two access points off the same roadway;
- “Places” for cul-de-sacs;
- “Ways” for cul-de-sacs that are off another cul-de-sac;
- “Courts” for short roadways partially or wholly enclosed by buildings, giving the impression of a small open square; and
- “Malls” for streets or portions thereof on which vehicular traffic is to be restricted in whole or in part, and which are to be used exclusively or primarily for pedestrian travel or promenade.

### **2.2.8 Infrastructure**

Appropriately designed and scaled water supply, wastewater, drainage, and power and utilities infrastructure will be included as integral elements of the proposed development. The following discussion provides brief details of these elements, which are covered in more depth at *Section 4.2*.

#### **Water Supply**

The Board of Water Supply (BWS) system provides potable water service to the ‘Ewa/Kapolei region; however, the BWS system does not serve the project area at present.

Based on a preliminary analysis, two distinct drinking water distribution systems are proposed for the project due to the site topography. The eastern distribution system will require eleven reservoirs and ten booster pumping stations for the five service zones. The western distribution system will require four reservoirs and four booster pumping stations for the four service zones. The proposed onsite potable water system will be designed in accordance with the BWS Water System Standards and is intended to be dedicated to the BWS for operation and maintenance.

Non-potable water for irrigation uses will be provided pursuant to BWS and Department of Health standards in the lower elevations where recycled or brackish water can be used on some commercial and multi-family residential areas.

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### Wastewater

There are no existing wastewater facilities within the project area at present. The project's wastewater system will be connected to the municipal sewer system for conveyance to the Honouliuli Wastewater Treatment Plant (WWTP) for treatment, and ultimate disposal via the Barbers Point Deep Ocean Outfall 1.7 miles offshore of the 'Ewa coastline. The development's connection to a branch of the Ko 'Olina Interceptor sewer line will occur at the southeast corner of the project area.

The onsite collection system will include gravity sewers, force mains, and sewage pumping stations designed in accordance with County standards. A 21-inch off-site sewer will be required to convey an expected average rate of 1.50 1.37 MGD of wastewater from the project area to the existing Ko 'Olina interceptor and Ko 'Olina relief interceptor. Both the on-site collection system and the off-site sewer will be dedicated to the County for operation and maintenance.

### Drainage

There are no existing drainage improvements within the project area, although seventeen culverts of varying size are located adjacent to the site along Farrington Highway. The culverts convey runoff from the 3,662-acre watershed (including the project area) under the highway to downstream drainage facilities at Honokai Hale, Ko 'Olina Resort, and Campbell Industrial Park. Drainage improvements will be constructed to accommodate site runoff in compliance with the County's Storm Drainage Standards.

### Power and Utilities

Electrical systems will be installed to serve the new development. The developer supports the State energy conservation goals and will incorporate energy saving design practices and technologies in the design phase. Energy efficiency design guidelines will be developed as part of the Conditions, Covenants and Restrictions that will apply to the development of the project area. These "guidelines" will be submitted to the Energy Branch, State Department of Business, Economic Development and Tourism for its review and input. Some energy conserving measures that will be included in the guidelines, among others, are:

- Use of timer or occupant-sensing light and air conditioning controls.
- Use of high-efficiency air conditioners and appliances.
- Use of heat pumps and solar heating systems.
- Promotion of energy saving opportunities through innovative building design.
- Use of landscaping for dust control and to minimize heat gain in the area.

Communication services (telephone and cable) will be extended into the area to serve the development.

### **2.2.9 ~~Elementary School~~ Educational Facilities**

Pursuant to continuing discussions with the State Department of Education (DOE), Makaïwa Hills LLC will provide the location land and access for an approximately 12-acre public elementary school and an 18-acre public middle school (Land Area E) to the DOE. The Both schools will be located in the ~~makaï corridor~~ lower section of the project area; the elementary school will be situated between the new project entrance proposed at Road D and the Neighborhood Shopping

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Center at the south-eastern corner, while the middle school will be sited mauka of the existing water tanks upslope from the elementary school. This location will place the schools in close proximity to the higher density makai residential areas, where the majority of school-aged children are expected to reside; further, these fairly level areas will facilitate the construction of school campuses, compared with other potential sites further up the slopes of the development. In addition to supplying this land, and prior to applying for zoning Makaīwa Hills, LLC will secure an agreement with the DOE as to the appropriate pro-rata contribution needed to provide appropriate school facilities for the Makaīwa Hills community.



Makaīwa Hills – Land Area E

### 2.2.10 Public Facilities

Makaīwa Hills will provide new public facilities to serve the community. As indicated above, the applicant will provide land to the State DOE for a new elementary school and a new middle school to serve the region. In addition, the applicant will coordinate with the appropriate County agencies to locate and construct appropriate fire protection, civil defense and recreational facilities.

## 2.3 PROPOSED ZONING DISTRICTS SUMMARY

As depicted in *Figure 2.6* and *Table 2-3*, the preliminary zoning districts being considered range from Business Mixed Use (BMX-3) and Apartment Mixed Use (AMX-1 and -2) in the mixed use areas to Apartment (A-1) for the medium density townhomes, with Residential (R-5, -7.5, -10 and -20) designations for the single-family lots. These residential lots will increase in minimum size from 5,000 square feet at the lower elevations to 20,000 square feet in the furthest mauka areas. Open space regions outside of the developed areas will be either be changed to the General Preservation (P-2) designation or kept in the pre-existing General Agriculture (AG-2) district.

The proposed zoning districts are intended to primarily relate to the project area's physical characteristics and constraints. For example, higher density/intensity apartment, business and mixed use districts are concentrated in the lower area, where slopes are gentler and access to and from the H-1 Freeway/Farrington Highway arterial is facilitated. Single family residential districts

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require larger lots, and thus less intensive development, on the more grade sensitive areas higher up the ridges. Preservation district zoning restricts development and preserves open space in buffer area around much of the project area's perimeter, and in the resource-rich and more hazard-prone gulches. Further, possible grazing in the remaining agricultural district will help limit the fuel mass and thus reduce potential fire risk.

These proposed districts are intended to allow appropriate and flexible use of the lands within their boundaries, and simultaneously prevent the establishment of remnant zoned areas with entitlements yet no plans or purpose for development.

A brief description of the purpose of each of the project's proposed zoning districts follows: is included in *Table 2-3*.

Prior to preparation of the final design and layout of the development, coordination will be conducted with the Department of Planning and Permitting, and other appropriate governmental agencies. Final designs will incorporate the mitigative measures presented in this document, including the archaeological preservation plan and program to be submitted for review and approval to the State Historic Preservation Division.

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**Table 2-3  
Summary of Preliminary Zoning Districts**

Proposed Zoning		Approx. Acreage (acres)	% in Open Space	Residential Units
P-2	The purpose of placing land into the Preservation district is to preserve open space and prevent developing steeply sloped land to protect the public safety and welfare.	<del>456</del> 645 ac.	<del>97%</del> 98%	0
AG-2	Lands proposed to remain in the Agricultural district are relatively usable, given their slope characteristics, and this agricultural designation could allow some beneficial use of these lands, such as grazing for fire protection or economic benefit, potential equestrian use, or possibly some other agricultural use, while still maintaining open space.	<del>426</del> 105 ac.	100%	0
BMX-3	The intent of the Business Mixed Use district is to support the concept of providing residences in very close proximity to employment and retail opportunities, to provide innovative and stimulating living environments and to reduce overall neighborhood energy consumption.	<del>33</del> 30 ac.	<del>32%</del> 31%	<del>0</del> 100
AMX-2	Apartment Mixed Use districts allow for the planned elementary school and some commercial uses in apartment neighborhoods. The commercial uses are intended to support the daily and weekly commercial service needs of the neighborhood, conserve transportation energy by lessening automobile dependency, create more diverse neighborhoods and optimize the use of land and urban services/facilities. In AMX-2 districts, parking lots may extend to side and rear property lines, and additional heights can be allowed with height setbacks.	<del>416</del> 102 ac.	<del>36%</del> 28%	<del>1,250</del> 1,183
AMX-1		<del>23</del> 24 ac.	<del>28%</del> 23%	94
<b>AMX subtotal</b>		<b><del>451</del> 126 ac.</b>	<b><del>32%</del> 27%</b>	<b><del>1,344</del> 1,277</b>
A-1	The predominant use of this zoning designation is to provide a range of living environments within a multi-family dwelling context. This designation will also accommodate the planned middle school.	<del>499</del> 187 ac.	<del>45%</del> 53%	<del>1,137</del> 1,144
R-5	These residential districts would allow a variety of detached, single-family residential densities, ranging from 5,000 square foot smaller-sized lots, up to much larger 20,000 square foot lots that will be adapted to sensitive grade constraints.	<del>342</del> 378 ac.	<del>43%</del> 32%	<del>825</del> 751
R-7.5		<del>432</del> 115 ac.	<del>27%</del> 25%	<del>93</del> 128
R-10		<del>444</del> 27 ac.	<del>36%</del> 28%	579
R-20		<del>243</del> 168 ac.	<del>45%</del> 36%	122
<b>Residential subtotal</b>		<b><del>828</del> 875 ac.</b>	<b><del>40%</del> 36%</b>	<b><del>1,619</del> 2,724</b>

\* note: all numbers are approximate and subject to refinement

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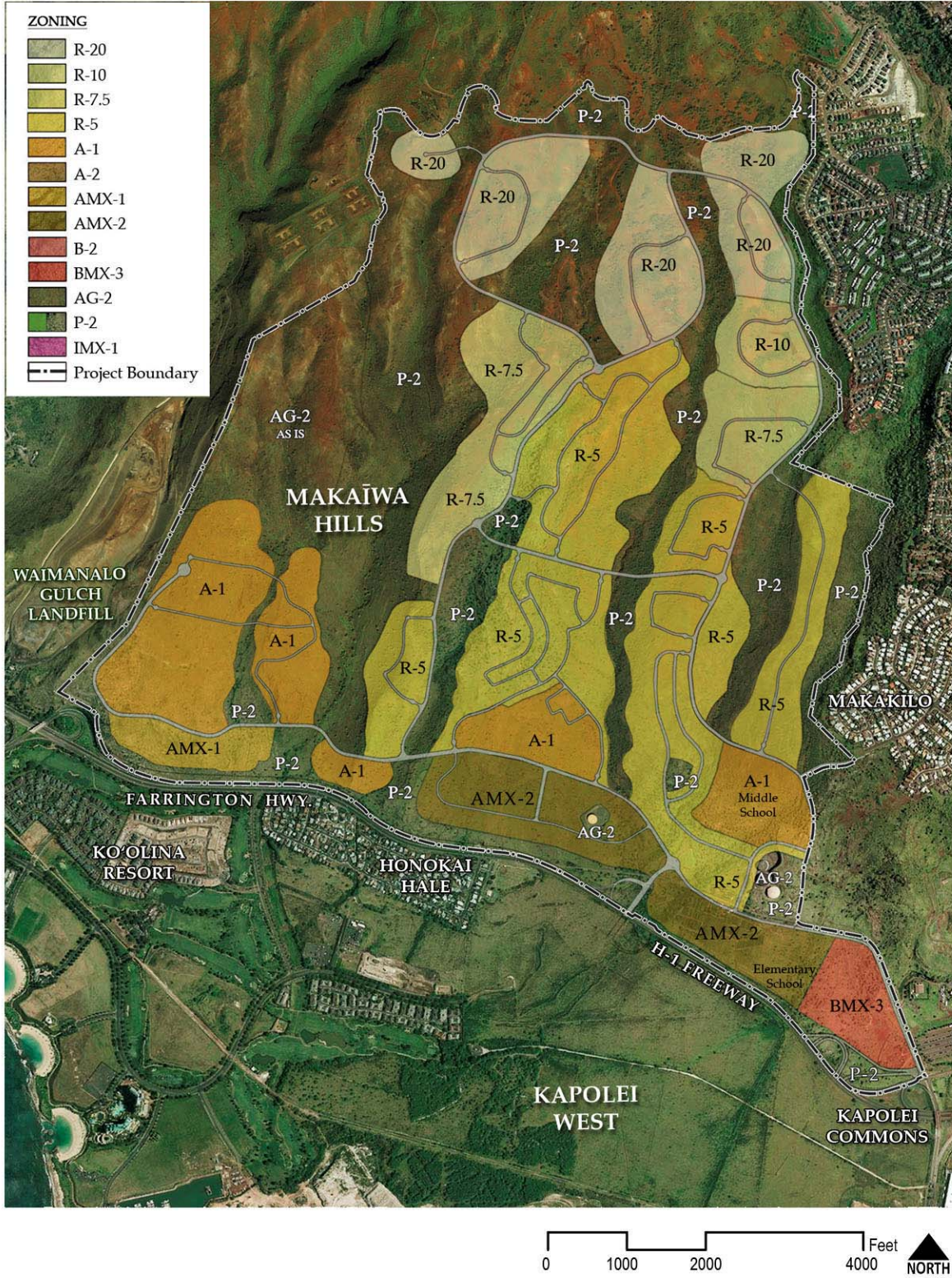


Figure 2.6. Preliminary Zoning Map

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### 2.4 REQUIRED PERMITS, APPROVALS AND PLANS

Project development and implementation is scheduled to begin immediately following approvals of necessary land use amendments, zoning, permits, and available funding. Development of the proposed project would require a number of permits and approvals from State and County agencies. A summary of possible required approvals is provided below. All permits and approvals, including ministerial permits, such as grading and building, will be obtained prior to construction. Due to the early stage of the development process and the conceptual nature of the proposed development, exact submittal dates of the applications and plans are unavailable at this time. As the proposed project progresses further in development phases, the timing of approvals and permits will become clearer.

<b>Permit or Approval Required (anticipated application dates)</b>	<b>Authority</b>
Final EIS (2007)	City and County of Honolulu, Department of Planning and Permitting (DPP)
Change in Zone (2007-2008)	Honolulu City Council
Roadway Construction Plan Approval (2008)	State of Hawai'i, Department of Transportation
Roadway Master Plan (2008)	City and County of Honolulu, Department of Transportation Services
Subdivision Approvals (varies 2008+)	City and County of Honolulu, Department of Planning and Permitting
Grading Permits (2009) Building Permits (2009) Driveway and Sidewalk Permits (2009)	City and County of Honolulu, Department of Planning and Permitting
National Pollutant Discharge Elimination System Permit (2009)	State of Hawai'i, Department of Health
Water Master Plan (2009)	City and County of Honolulu, Board of Water Supply
Drainage Master Plan (2009)	City and County of Honolulu, Department of Planning and Permitting
Wastewater Pump Station (2009)	City and County of Honolulu, Department of Environmental Services
Wastewater Master Plan (2009)	City and County of Honolulu, Department of Planning and Permitting
Sewer Connection Permit (2009)	City and County of Honolulu, Department of Environmental Services

### 2.5 ANTICIPATED DEVELOPMENT SCHEDULE AND EXPENDITURES

Project development and implementation is scheduled to begin immediately following approvals of necessary land use amendments, zoning, subdivision, other permits, and available funding. Construction of roads, commercial sites and house pads, along with support infrastructure and utilities would be phased over an eleven-year period beginning in 2009 and culminating in 2020,



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dependant upon parcel sales and absorption of new homes, which according to the Residential Market Study attached as *Appendix A*, is expected to average approximately 350 homes per year.

Incremental land development is planned to begin in the southeastern corner and progress westward in broad bands across the project area, first at the lower elevations, then across the mid-range of the site, and finally across the upper most portion of the project area.

The initial development areas in the southeast and central portions of the Makaīwa Hills project are expected to be nearing completion by the end of 2015, with the exception of the proposed community shopping center located near the Pālailai Interchange. The development of these initial areas (less the shopping center) is expected to generate the traffic level that could be accommodated by the combination of the initial access at the Kalaeloa Boulevard-Farrington Highway intersection (Pālailai Interchange) plus the addition of the proposed at-grade Road D intersection with Farrington Highway. This intersection would be improved to a grade separated interchange around 2015-2016 to facilitate access to the fully developed site.

Therefore, while full build-out for the Makaīwa Hills project is intended to be completed by 2020, a 2015 traffic analysis was conducted to test the adequacy of the initial at-grade, full-movement intersection at the junction of Road D with Farrington Highway. The results of this analysis are discussed in the traffic section at *Section 4.4*, and are included in *Appendix D*

Project development is expected to occur over a 12-year period starting in about 2008. However, development could require more or less time, depending on future market conditions and home sales. Over the 12-year development period, total construction expenditures for infrastructure, homes and commercial space are estimated at about ~~\$1.54~~ \$1.53 billion. This translates into average construction expenditures of about ~~\$128.4~~ \$127.4 million per year. In practice, construction expenditures will vary from year to year.

In addition to construction expenditures, development activities will generate indirect sales associated with supplying goods and services to construction companies and to the families of the employees of these companies. Based on State economic multipliers, these indirect sales are expected to average about ~~\$106~~ \$105.3 million per year. Although not estimated, additional development costs include planning, permitting, design, financing, County and State exactions, and marketing and sales.

Home sales are expected to reach about ~~\$2.47~~ \$2.45 billion, or an average of about ~~\$206~~ \$204.4 million per year during the 12-year development period. As indicated in *Appendix F*, average prices for the homes are expected to range from about \$315,000 for the affordable multi-family homes to about \$1.3 million for estates on the largest lots (2006\$). Prices for the affordable units are based on U.S. Department of Housing and Urban Development (HUD) price guidelines for Honolulu. Prices for market homes and upscale homes are based on (1) similar products being sold at Makakilo, Ocean Pointe, Mililani Mauka, and Ko 'Olina; and (2) appropriate adjustments for lot sizes, planned amenities, and views. At full development, the commercial property is expected to have a value of about \$96 million.

Taken together, home sales, construction expenditures and indirect sales related to development activities are expected to total about ~~\$440.4~~ \$437.1 million per year during the 12-year development period. About ~~\$249.7~~ \$247.9 million per year will be subject to the 4.5% excise tax

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on final sales, while about \$190.7 \$189.3 million per year will be subject to the 0.5% excise tax on intermediate sales. Development and sales in some years may be much higher or lower than the average, depending on market conditions. Profits on these sales are estimated at about \$50.5 \$50.1 million per year.

### 2.6 INFRASTRUCTURE TIMING AND FINANCING

Construction of roads, commercial sites and house pads, along with support infrastructure and utilities would be phased over a multi-year period. Full build-out for the Makaīwa Hills project is intended to be implemented by 2020, dependant upon parcel sales and absorption.

Discussions have been initiated with County authorities regarding alternative financial techniques to facilitate the development of necessary yet costly public infrastructure that serve the greater region, such as the proposed accesses roadways to the project.

A common option is the establishment of a Community Facilities District to authorize the issuance of bonds to fund regional infrastructure improvements, such as major roadways, within a defined area that will benefit from the financing, and from which special taxes will be collected for the bonds' repayment. As described in the enabling ordinance, Chapter 34 of the Revised Ordinances of Honolulu, annual assessment and special tax amounts for these Districts are billed and collected on the property tax bills issued by the County.

Establishment of such a District as described above would occur once the property has been re-zoned and the necessary design, costing and analysis have been conducted.

### **3.0 PURPOSE AND NEED FOR THE CHANGE IN ZONING**

### 3.0 PURPOSE AND NEED FOR THE CHANGE IN ZONING

Prior to 1993, the project area was classified as Agricultural District by the State Land Use Commission and was zoned Agriculture by the County. These designations were consistent with a small percentage of project area's use for grazing and sugar cane cultivation and the traditional use of Agricultural districts as a default land classification for unimproved lands throughout the State. In 1993, recognizing the Kapolei region's designation as Oahu's growth area by the County, the project area was reclassified into the Urban District by the State Land Use Commission in anticipation of a residential and commercial development. However, the County zoning designation has not yet been changed from Agriculture, thereby creating the present inconsistency that will be corrected with the proposed action.

Re-zoning the site with a variety of residential, commercial and open space designations will provide consistency and conformity with the County's 'Ewa Development Plan (DP) and the State Land Use Commission's anticipated use of the project area. The 'Ewa DP codifies County policies of focusing additional urban growth within the 'Ewa DP urban growth boundary to preserve the countryside and open space characteristics of rural areas around the island, including the Agricultural and Conservation land mauka of the project area. Consistency with government plans and policies for the area is discussed at length in *Section 5.0 Consistency with Applicable Public Plans and Policies*.

#### 3.1 RELATIONSHIP TO THE CITY OF KAPOLEI URBAN CORE

Makaīwa Hills is a major residential element of the Kapolei Area Long-Range Master Plan and the County's 'Ewa Development Plan. Both of these plans recognize the intent of the O'ahu General Plan to develop the City of Kapolei as the second urban core on the island. These plans foresee Kapolei developing as a balanced city providing a full range of urban services, housing, jobs, businesses and public facilities consistent with a vital urban center. A major goal of the plans is to balance growth in the residential population with growth in the regional economy so that many future residents will have an opportunity to both work and reside within their community rather than requiring socially, economically and environmentally inefficient commuting to a single urban core in Honolulu.

In 2005, Decision Analysts Hawaii, Inc. prepared economic and population growth projections for the Kapolei region based on planned private and public projects. The large amount and wide variety of development that is likely to occur, along with the related economic and population projections, indicate that a major transformation of the Kapolei area is occurring from its past role as largely a suburb of Honolulu's Primary Urban Center, to its current and future role as O'ahu's second full-service urban center. As a result of this ongoing transformation, growth in the Kapolei region is likely to continue at a sustained pace. For the 15-year period from 2006 to 2020, the projections indicate that about 23,300 homes will be built in 'Ewa. This projection reflects likely development although demand is likely to exceed the number of homes that will actually be built.

The proposed project addresses one of O'ahu's and 'Ewa's most pressing needs, namely the need to expand the housing inventory. Approval of the Makaīwa Hills development would result in the

availability of a wide variety of housing types, and would help assure an adequate supply of housing within the Kapolei area over the planned development period of 2009 to 2020. Makaīwa Hills is intended to provide housing to a full range of income levels, including homes for business leaders and executives that are generally not available in the region today. The provision of these types of homes will encourage the advancement of the City of Kapolei as a well-rounded and diverse job center.

In addition to providing housing and community amenities, the proposed development will also provide opportunities for short- and long-term employment in its mixed use and commercial areas, thereby contributing to the expansion and diversification of the City of Kapolei's job center.

### 3.2 MARKET ANALYSIS

From a residential market perspective, the high visibility of the Project from the City of Kapolei, and surrounding areas will help attract potential buyers. The residential component of Makaīwa Hills will offer the following advantages:

- A hillside location having sweeping views overlooking Ko 'Olina Resort and the ocean beyond.
- A wide selection of homes, ranging in price from affordable to market, to upscale.
- Upscale homes on comparatively large lots, a product that is rarely offered on O'ahu.
- Short drives to jobs, stores, services and recreation that are available or will be available within the Project or nearby in the City of Kapolei, Ko 'Olina Resort, Campbell Industrial Park, Kalaeloa/Barbers Point Harbor, etc.

#### 3.2.1 Residential Market

As described in detail in the Residential Market Study contained in *Appendix A* of this EIS, the present demand for housing on O'ahu exceeds supply. These demand conditions are the result of the historical gap between new housing production and household growth statistics. Based on an in-depth housing study conducted in 2003 for the State (by SMS Research & Marketing Service), an estimated 76,600 homes will have to be built on O'ahu between 2006 and 2020 in order to keep pace with demand and draw down the housing deficit. However, known residential projects planned and proposed for O'ahu include less than 57,000 homes, of which about 48,500 homes or less are likely to be built by 2020. Thus, there is an expected shortfall of about 28,100 homes. Without the 4,100 units provided at Makaīwa Hills, this shortfall would amount to about 32,200 homes.

Without the proposed Makaīwa Hills project, it is theoretically possible that other planned and proposed projects in 'Ewa could supply these homes, but this would accelerate development of the remaining agricultural lands on the 'Ewa Plain. In practice, however, the State or County might deny some proposed 'Ewa Plain projects in full or in part, or developers might encounter delays in obtaining approvals, obtaining financing, building infrastructure, etc. Therefore, without Makaīwa Hills, there is a risk of a shortfall in housing production in 'Ewa before 2020.

Summarized below are the major issues related to the market for the proposed homes within the project; the range of homes include "affordable," market-priced, and upscale multi-family and

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single-family homes that will be available at Makaīwa Hills. *Table 3-1* shows the anticipated lot sizes for single-family homes, living areas, and the number of bedrooms and bathrooms. For a complete discussion of this topic, please refer to the Residential Market Study contained in *Appendix A* of this EIS.

**Table 3-1  
Proposed Residential Development, Anticipated Prices and Anticipated Years for Absorption**

Type of Home	Anticipated Development				Approximate Prices (2006\$)			Years to Absorb
	Homes	Lot Area (sq ft.)	Living Area (sq ft.)	Beds/Bath	Low	Average	High	
<b>Multi-Family (MF) Homes</b>								
Affordable, Medium-density	900	—	850	2/2	267,750	315,000	362,250	<del>11</del> 12
Market, Medium-density	<del>350</del> 437	—	1,200	3/2	374,000	440,000	506,000	<del>11</del> 12
Market, Low-density	<del>328</del> 320	—	1,500	3/2.5	425,000	500,000	575,000	<del>11</del> 12
Upscale Market, Low-density	<del>903</del> 849	—	1,600	3/2.5	510,000	600,000	690,000	12
Subtotal, Multi-Family Homes	<del>2,481</del> 2,506				\$391,699	\$460,822	\$529,946	
<b>Single-Family (SF) Homes</b>								
Affordable, Medium-density	330	5,000	1,250	3/2	357,000	420,000	483,000	<del>11</del> 12
Market, Medium-density	<del>301</del> 345	5,000	1,500	3/2.5	595,000	700,000	805,000	<del>11</del> 12
Upscale Market, Medium-density	76	5,000	2,000	4/3	680,000	800,000	920,000	<del>12</del> 11
Upscale Market, Medium-low-density	<del>305</del> 127	7,500	2,500	4/3	765,000	900,000	1,035,000	<del>12</del> 11
Upscale Market, Low-density	<del>485</del> 594	10,000	3,200	4/3.5	850,000	1,000,000	1,150,000	<del>12</del> 11
Upscale Market, Estate	122	20,000	3,600	5/4	1,105,000	1,300,000	1,495,000	<del>12</del> 11
Subtotal, Single-Family Homes	<del>1,619</del> 1,594				\$697,326	\$820,383	\$943,440	
Total Homes	4,100				\$512,384	\$602,805	\$693,226	
Affordable Homes	1,230				\$291,695	\$343,171	\$394,646	

### **Anticipated Buyers and Uses of Project Homes**

#### Affordable Homes

Due to qualifying requirements, it is anticipated that the affordable homes will be sold to established O'ahu residents who will occupy their homes. Most of the buyers will probably work in the Kapolei region, while others will commute to jobs outside the region.

#### Market Homes

Most buyers of the market-priced homes are expected to be owner-occupants, while the remaining homes will be purchased by investors who will rent to residents. Most of the buyers and renters of these homes will probably work in the Kapolei region, while others will commute to jobs outside the region.

#### Upscale Homes

Most buyers of the upscale single-family homes and a plurality of the upscale multi-family homes are expected to be executives, managers and professionals who will be working in the Kapolei region. Additional upscale homes are expected to be purchased by investors who will rent to these same categories of workers. Thus, the upscale homes at Makaīwa Hills will allow these workers to become part of the Kapolei community and contribute to it instead of commuting to

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Kapolei from distant communities. Additionally, the more expensive upscale homes will help cover the high infrastructure costs of hillside development, thereby making it feasible for the developer to deliver the planned affordable and market-priced homes.

To a lesser extent, buyers of the upscale homes will include: (1) wealthier retirees who are new to O'ahu and who will become owner-occupants, and (2) part-time residents who desire vacation homes or second homes on O'ahu. It is anticipated that these buyers will be drawn to Makaīwa Hills as a result of the market exposure provided by its proximity to Ko 'Olina Resort, the sweeping views, large lot sizes for many of the single-family homes, and more amenities and high-quality amenities. Upscale homes for such buyers are a common product on the Neighbor Islands.

### **Anticipated Project Home Prices**

Anticipated home prices at Makaīwa Hills are shown in *Table 3-1* for each type of home, including the anticipated average price and the price range (low to high). The prices reflect market conditions in late 2006, while price ranges reflect variations in home models, amenities, and views. Prices for the affordable units at Makaīwa Hills are based on U.S. Department of Housing and Urban Development (HUD) price guidelines for Honolulu. Prices for market homes and upscale home are based on comparable new homes being sold at Makakilo and in other communities in 'Ewa and Central O'ahu.

Over time, these prices will increase in response to general price inflation, higher family incomes, and the increased desirability of a mature region.

### **Anticipated Absorption Rates and Durations**

#### **Affordable and Market Homes**

During the 2009 to 2020 development period for Makaīwa Hills, an annual average of more than 1,300 affordable and market-priced homes are projected to be built in 'Ewa. Makaīwa Hills could capture about 15% or more of this market, an estimate based on the project's locational advantages (near jobs, stores, service centers, etc.), sweeping views, and competitive pricing. It is therefore expected that sales of affordable and market-priced homes at Makaīwa Hills will average about 195 homes per year (1,300 homes per year x 15%). At this rate, the ~~2,209~~ 2,332 affordable homes and market-priced homes at Makaīwa Hills could be absorbed within the ~~44~~ 12-year development period.

#### **Upscale Homes**

During the 2009 to 2020 period, an annual average of about 240 upscale homes are projected to be built in 'Ewa. It is estimated that Makaīwa Hills could capture about 65% or more of this market, based on the project's locational advantages, large lots and homes, sweeping views, and anticipated home prices that will be far lower than those at Ko 'Olina Resort. Thus, sales of upscale homes at Makaīwa Hills are expected to average about 156 homes per year (240 homes per year x 65%). At this rate, the ~~1,894~~ 1,768 upscale homes at Makaīwa Hills could be absorbed in about ~~42~~ 11 years.

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Makaīwa Hills will help house 'Ewa's growing population, and help moderate housing prices on O'ahu by supplying:

- About 1,230 new homes at affordable prices that are below market prices;
- About ~~970~~ 1,102 new homes at market prices in competition with other residential projects in the Kapolei Region and in Central O'ahu, and in competition with existing communities throughout the island; and
- About ~~1,900~~ 1,768 new upscale homes in competition with the few projects in the Kapolei region and in Central O'ahu that offer upscale homes, and in competition with existing communities that have upscale homes.

### 3.3.2 Commercial Market

Makaīwa Hills LLC contracted with Colliers Hawaii Consulting, a division of Colliers Monroe Friedlander, Inc. to provide a market feasibility study that would assist the with the determination of the highest and best use for their commercial development site in west Kapolei.

This study evaluated current commercial real estate market conditions, existing and projected rental rate levels and population growth and consumer expenditures models. It identified that a retail use would be the most feasible commercial development for this site. The survey of the current rental rates for retail, office and industrial properties in the West Oahu market indicates that retail net base rents for new retail developments range from \$3.00 to \$3.50 per square foot per month (psf/mo). These rents are significantly higher than those of office or industrial uses.

The site's location, which is central to the growing residential communities of Kapolei, Makakilo and 'Ewa Beach, is ideal for a retail development. The projected population growth and the forecasted growth in consumer expenditures in this area could support additional retail development of up to 3.0 million square feet by 2025.

The analysis of the current level of retail expenditures in the area indicates that there is tremendous retail potential for retailers that provide general merchandise, apparel, food and beverage, sports and recreation activities as well as educational services. The study identified that residents of the primary trade area currently spend a considerable portion of their consumer dollars outside of the area.

#### **Competition**

Currently, there are three existing shopping centers and six proposed retail developments that would serve as the primary competition to the Makaīwa Hills commercial site. Pearlridge Center, Waikele Center and Pearl Highlands Center combined constitute over 3.0 million retail square feet in the area. All three are successful retail projects that benefit from the growing population that is occurring in West and Central Oahu. These shopping centers comprise the majority of the retail square footage devoted to apparel and specialty shops in the area.

Of the proposed developments, the MacNaughton Group's Kapolei Commons and the Bristol Group's Laulani Village retail developments were recently announced as proceeding with their plans with construction delivery by 2008. Both are located on 20-acre sites with the potential to



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add more than 800,000 square feet of new retail to this market and will likely derive retail sales from the same primary target area as that of the Makaīwa Hills site.

Several projects are planned along the proposed North-South Road, the UH West O'ahu Commercial, the DHHL Regional Mall and the Estate of James Campbell commercial development site with construction plans likely to begin after 2009. Lastly, Gentry is planning a large retail development to coincide with their residential development at Waiawa. This site is slated for 2009 development.

The primary concerns affecting the feasibility of the site are the lack of infrastructure, the increasing level of competitive retail development in the area, and this project's reliance on continued residential growth to fuel retail consumer expenditures. Despite this site's location being adjacent to the growing neighborhoods in this market, this development site is reliant upon roadways, sewer, water, and power capacity that are currently being developed. Without these required infrastructure elements in place the project's feasibility is likely delayed. Plans are to begin selling homes for the residential component of this development by 2009. The intent is that the infrastructure will be built and in place for the new occupants of this development.

The rising popularity of Kapolei for retailers is increasingly evident with the West O'ahu market's tight vacancy rates and the numerous planned retail developments. By 2009, if everything that is proposed for development was actually built, more than 1.5 million square feet of retail developments are to be constructed. The impact of all this retail square footage is likely to influence the success of each subsequent development. The Kapolei Commons and the DHHL commercial site are currently on the market looking for anchor tenants. As a result, by the time the Makaīwa Hills commercial site is available for development and lease, many retail tenants will already be committed to other projects.

It is believed the levels of residential growth for the primary and secondary trade areas will be able to support more retail development than what is currently planned. Estimates are that by 2015, this market will be able to support a potential maximum 1.1 million square feet of retail space with a smaller square footage allotment for office usage.

### **Strategies**

The attractiveness of this market is evidenced by the number of successful retail shopping centers, as well as the rise in the amount of planned and proposed retail projects in the area. The Makaīwa Hills site has distinct advantages and disadvantages, and successful implementation of the following strategies could minimize the impact of the disadvantages:

- Provide an active oversight over infrastructure development in the area
- Select an experienced master developer for both retail and residential development activities
- Begin development in phases, realizing that market penetration will improve once roadway access is constructed, utilities and power are in place, and a critical mass of residents for the Makaīwa Hills residential development have moved into their new homes
- Secure a well-respected retail/office leasing team of professionals to pre-lease project

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- Aggressively market the Makaīwa Hills retail development to prospective tenants to effectively compete with Kapolei Commons, Laulani Village and the DHHL regional mall developments
- Begin efforts to solicit interest from medical users for potential clinic/wellness facility so that State certification of need and appropriate Board of Health requirements are met.
- Fully understand the primary target consumer shopping requirements and behavior to effectively market against competing retail developments
- Target national tenants that would be unique to the primary trade area and the O'ahu market
- Secure national anchor tenants by offering very attractive lease terms

### Summary of Findings

- The success of a Makaīwa Hills commercial development is contingent upon the timely completion of the many infrastructure elements required (i.e. sewer, water, storm water drainage, utilities, roadways etc...)
- Additionally, the Makaīwa Hills residential component will serve as a primary contributor to the success of the commercial development. Residential sales efforts should already be under way for Makaīwa Hills LLC prior to the pre-leasing activity of the commercial development.
- Currently retail rents exceed office rents in the primary and secondary trade areas. We believe the largest component of this proposed development should be retail use, followed by office.
- Colliers Hawaii Consulting believes that the Makaīwa Hills site is able to support a mixed-use commercial development ranging in size from 800,000 to 950,000 square feet (roughly 73 to 87 acres).
- This development should be phased over a 10 year period with the first phase scheduled between 2011-2015.

## 3.3 ECONOMIC ANALYSIS

The proposed Makaīwa Hills project is consistent with the State's goals to provide economic vitality, stability and growth for present and future generations. Makaīwa Hills will further urbanize the area and strengthen the concept of the secondary urban center at Kapolei. The proposed project will provide diversified housing and employment options for a growing population in the Kapolei/Ewa area. Availability of commercial lands at Makaīwa Hills will contribute to a balanced urban setting, and will stimulate economic activity through a multiplier effect.

### 3.3.1 Economic

Summarized below are the major economic impacts and benefits that will be provided by Makaīwa Hills. For a complete discussion of this topic, please refer to the Economic and Fiscal Impacts study contained in *Appendix F* of this EIS.

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### Development Activities

The development of Makaïwa Hills will involve the following activities: (1) construction of internal roads, water delivery systems, sewer systems, utilities systems, etc.; (2) construction and sale of homes; (3) sale of improved lots for commercial development; (4) construction of buildings by companies that buy the lots; and (5) sale of some improved buildings to other companies.

### Expenditures, Sales and Profits

Over the anticipated 12-year development period, total construction expenditures for infrastructure, homes and commercial space are estimated at about ~~\$1.54~~ \$1.53 billion. This translates into average construction expenditures of about ~~\$128.4~~ \$127.4 million per year. In practice, construction expenditures will vary from year to year.

In addition to construction expenditures, development activities will generate indirect sales associated with supplying goods and services to construction companies and to the families of the employees of these companies. Based on State economic multipliers, these indirect sales are expected to average about ~~\$106~~ \$105.3 million per year.

Although not estimated, additional development costs include planning, permitting, design, financing, County and State exactions, and marketing and sales

Home sales are expected to reach about ~~\$2.47~~ \$2.45 billion, or an average of about ~~\$206~~ \$204.4 million per year during the 12-year development period. Average prices for the homes are expected to range from about \$315,000 for the affordable multi-family homes to about \$1.3 million for estates on the largest lots. Prices for the affordable units are based on U.S. Department of Housing and Urban Development (HUD) price guidelines for Honolulu. Prices for market homes and upscale homes are based on (1) similar products being sold at Makakilo, Ocean Pointe, Mililani Mauka, and Ko 'Olina; and (2) appropriate adjustments for lot sizes, planned amenities, and views.

At full development, the commercial property is expected to have a value of about \$96 million.

Taken together, home sales, construction expenditures and indirect sales related to development activities are expected to total about ~~\$440.4~~ \$437.1 million per year during the 12-year development period. About ~~\$249.7~~ \$247.9 million per year will be subject to the 4.5% excise tax on final sales, while about ~~\$190.7~~ \$189.3 million per year will be subject to the 0.5% excise tax on intermediate sales. Development and sales in some years may be much higher or lower than the average, depending on market conditions.

Profits on these sales are estimated at about ~~\$50.5~~ \$50.1 million per year.

### Employment

Construction employment is expected to average about ~~650~~ 640 jobs ranging over a variety of skills, including entry-level, semi-skilled, skilled, management, and professional positions.

As with indirect sales, development activities will generate indirect jobs associated with supplying goods and services to construction companies and to the families of the employees of these

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companies. Based on State employment multipliers, indirect employment related to Project development is expected to average nearly 980 jobs.

Thus, total direct plus indirect employment associated with Project development activities will average about ~~4,630~~ 1,620 jobs. It is estimated that about ~~4,140~~ 1,130 of these jobs will be in the Kapolei region. The actual job count will fluctuate over time, depending on the pace of construction. Development activities will provide jobs to construction workers and other workers who already live on O'ahu. As other construction projects are completed on the island, O'ahu construction workers will be hired to work on the various components of the Project.

### Payroll

Development activities are expected to generate a total payroll of about ~~\$70.7~~ \$70.3 million per year, of which about ~~\$32.4~~ \$32.2 million will be for construction workers and ~~\$38.3~~ \$38.1 million for indirect employment. These estimates are based on the average number of direct and indirect jobs that will be supported and average wages as reported to the DLIR. Wages will range from about \$25,000 annually to over \$100,000, and are expected to average about \$50,000 per year for construction jobs, and about \$38,900 for indirect jobs.

### Population and Housing

During the 12-year development period, jobs provided by the Project will support about ~~3,590~~ 3,570 residents housed in about ~~4,080~~ 1,070 homes. About ~~4,430~~ 1,420 residents and ~~430~~ 425 homes will be supported by construction jobs, and the remainder will be supported by indirect jobs. Development activities will support the families of many construction workers and other workers who already live on O'ahu. Most of the residents are expected to live in the Kapolei region: estimated at about ~~2,230~~ 2,210 residents housed in about ~~670~~ 660 homes.

### Long-Term Operations

At full development, on-site economic activities are expected to generate about ~~\$130.3~~ \$130.7 million per year in revenues. This estimate includes retail sales (about \$72 million per year), rents from homes and commercial space, services provided from home offices, and home and grounds maintenance. Most of the retail sales are expected to come from the purchase of goods and services from Makaīwa Hills residents. Corresponding profits will amount to about \$13 million per year at full development of the Project.

On-site operating employment is expected to total about ~~4,100~~ 1,250 jobs, including retail jobs, home and grounds maintenance jobs, and home-office jobs. The new jobs will provide employment to (1) workers who already live in the Kapolei region and nearby communities but who must commute to distant jobs, and (2) workers who will be new residents of the Kapolei region and nearby communities. Corresponding payroll is estimated at about \$33.4 million per year. Current activities on the project site generate 3 or 4 jobs.

The 1,250 jobs noted above includes about 155 public-school jobs attributable to Makaīwa Hills at full development, with about 100 jobs located at the two public schools within the Project Area and about 55 jobs located at nearby public schools (such as the high school where Makaīwa Hills students will attend). Approximately 100 of the jobs (65%) will be professional education staff, most of whom will receive wages exceeding \$50,000 per year.

**Expenditures by New Retirees and Part-time Residents**

At full development of the Project, an estimated 374 349 upscale homes will be owned and occupied by wealthier retirees new to O’ahu, and about 184 173 upscale homes will be owned and occupied by wealthier part-time residents. Consumption expenditures by these two groups are estimated at about \$27.8 \$25.8 million per year and \$7.2 \$6.8 million per year, respectively. These expenditures will introduce a stable source of new income to Hawai’i coming from overseas. As such, they will amount to export income to Hawai’i similar in nature to visitor expenditures.

**3.3.2 Fiscal**

The project will provide a net financial gain to both the County and the State. Sufficient tax revenues and other revenues will be available to provide the same level of service to residents living in the project that is currently provided to other residents on O’ahu, and to help fund various government facilities and services that will benefit communities throughout O’ahu and the State.

The following section summarizes the fiscal impacts to the County and the State. Please refer to *Appendix F* for a complete discussion of the topic.

**City and County of Honolulu**

**Development Activities**

Most County revenues derived from Project development activities will come from (1) highway impact fees to support highway improvements in the Kapolei region, (2) the County’s share of the excise tax on final sales that will be used to fund mass transit, and (3) other connect charges and user fees for funding infrastructure. The first two items will generate about \$16.9 \$16.8 million over the 12-year development period, or about \$1.4 million per year.

As with other major projects on O’ahu, the developer will provide or finance its fair shares of certain infrastructure and facilities to support the Project. This may include mass transit, highways, interior roads, water source development, graded and landscaped land for parks, interior water distribution, drainage systems, sewer connections, collector sewers and trunks, a wastewater treatment plant, etc.

For the County, Project development activity will result in a net expenditure of about \$13.9 million over the 12-year development period. Assuming that this expenditure is financed with bonds, the debt service at full development will be about \$910,000 \$920,000 per year.

**Operations at Full Development**

At full development, the Project will generate increased revenues to the County of about \$16.9 million per year. Most of this increase will come from property taxes: an increase of about \$9.28 \$9.22 million per year above the \$26,900 currently collected on the property. Additional revenues will be derived from the County’s share of the excise tax on final sales that will be used to fund mass transit, and from other business-related taxes and user fees which are assumed to be proportional to the number of Project residents and jobs. Other revenues include: fuel taxes; motor

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vehicle weight taxes; water and sewer fees; solid-waste disposal fees; other departmental earnings; public service company taxes; other licenses, permits and fees; and fines, forfeits and penalties.

Expenditures in support of operations are estimated at about \$12.2 million per year. The County's expenditures on mass transit to support the Project are assumed to equal the corresponding excise-tax/mass transit revenues generated by Project operations. Most of the County expenditures will be on services, which are assumed to be proportional to the number of Project residents and jobs. These services include: police, fire, road maintenance, bus service, operations and maintenance (O&M) of water delivery, O&M of sewer systems and the wastewater treatment plant, solid waste disposal, culture and recreation, housing, etc. And as previously mentioned, there will be expenditures on debt service to cover the cost of County improvements and facilities.

At full development, net revenues to the County are expected to reach about ~~\$4.7~~ \$4.6 million per year. Thus, the County will realize a net financial gain that can be used to fund other projects and services. This net financial gain to the County reflects the high property values of upscale homes, no homeowner exemption for second homes and vacation homes, few services when these homes are vacant, and high property tax rates on commercial property. Such a gain to the County differs from that of many other residential communities on O'ahu that are subsidized by tax revenues from resort, commercial, and industrial properties.

### State of Hawai'i

#### Development Activities

State revenues derived from Project development activities generate about ~~\$195.5~~ \$194.1 million over the 12-year development period, or an average of about ~~\$16.3~~ \$16.2 million per year. Most of the revenues will be derived from (1) highway impact fees to support highway improvements in the Kapolei region, (2) school impact fees, (3) conveyance taxes, (4) excise taxes, and (5) corporate and personal income taxes.

State expenditures to support Project development activities are expected to total about ~~\$90.5~~ \$60.3 million over the 12-year development period, or an average of about ~~\$7.5~~ \$5.0 million per year. The major expenditures will be on highway improvements (about \$5.1 million based on the impact fee) and on schools (about ~~\$85.4~~ \$55.2 million for K to 12). Other infrastructure and facilities to support the Project are primarily a County responsibility, with most of the fair share provided or financed by the developer or by companies that will occupy buildings at Makaīwa Hills. Construction activities will require few on-site services from the State. Furthermore, most required services will be provided by construction companies.

Unlike the County, the State derives substantial net revenues from development activity. Over the 12-year construction period, the State will net about ~~\$105~~ 133.9 million from development activities, or an average of about ~~\$8.7~~ \$11.2 million per year. Net revenues are high because of the many upscale homes that will be subject to higher-rate conveyance taxes, and the amount of economic activity associated with building and selling upscale homes.

#### Operations at Full Development

At full development of the Project, operations will generate revenues to the State of about ~~\$53.3~~ \$53.4 million per year. State revenues will include excise taxes, corporate and personal income

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taxes, and other revenues that are assumed to be proportional to the number of Project residents and jobs. Other revenues include: the public service companies tax; fuel tax; motor vehicle weight tax; charges for various licenses, permits, and services; departmental earnings; etc.

Expenditures in support of operations are estimated at ~~\$39.7~~ \$34.5 million per year, including about ~~\$15~~ \$9.7 million for education (K to 12) and the remainder for other services. Other services - which are assumed to be proportional to the number of Project residents and jobs - include university and adult education, health, highway maintenance, natural resources, parks and recreation, government administration, and miscellaneous expenditures.

Thus, at full development, net revenues to the State are expected to reach about ~~\$13.7~~ \$18.9 million per year. Net revenues are high because of the high incomes of many Project occupants combined with their exposure to higher income-tax rates; high consumption expenditures; and reduced services provided to retirees and part-time residents (e.g., no children attending Hawai'i's schools so no school improvements or services and few services when the homes are vacant).

### 3.4 BALANCING POPULATION, EMPLOYMENT AND HOUSING

State and County economic and growth policies support development of the City of Kapolei as a second urban core on O'ahu. Substantial additional development is planned and projected for the Kapolei/Ewa region. The amount and variety of development reflects the ongoing transformation of Kapolei/Ewa from its past role as largely a suburb of the Honolulu's Primary Urban Center into the burgeoning City of Kapolei.

While Kapolei/Ewa has provided workers who would commute to jobs in the Honolulu and elsewhere, the area is becoming a major supplier of jobs for those who live in the region and surrounding communities. Similarly, while Kapolei/Ewa has provided consumers who purchase many goods and services outside the region, the area now offers a full range of goods and services (both private and public) to residents, visitors, and businesses in Kapolei and beyond.

In order to provide for a sustainable and successful new urban center, a balanced mix of population, employment and housing are needed in Kapolei. The diverse range of housing choices, along with the variety of employment opportunities offered at Makaïwa Hills signify the development will be an essential component in this mix.

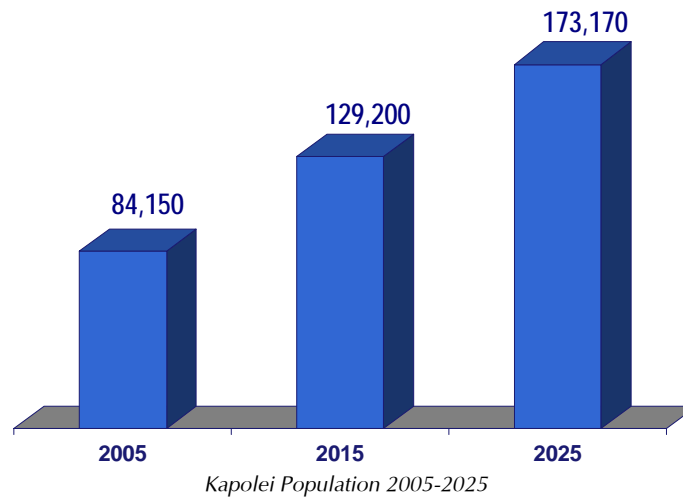
#### 3.4.1 Population

##### ***Regional***

Kapolei is the fastest growing region in the State of Hawai'i. Kapolei's 2005 population of 84,150 is projected to grow to 129,000 by 2015 and up to 173,000 by 2025. Kapolei's population in 1990 was 43,000. The area has experienced a 60% increase in its population in just 10 years. In comparison, the population for the County as a whole increased only 4.8% from 836,231 to 876,156 between 1990 and 2000. Almost 85% of the residents of Kapolei are high school graduates and over 22% have college degrees (Campbell Estate, 2005). The median age is relatively low at 31.2 years, compared to the County's median age of 35.7 years. The median family income is \$62,340.

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### **Makaīwa Hills Impact**

The Makaīwa Hills project will provide housing for approximately 4,100 households. Assuming the average size of households of the development is comparable to the O’ahu 2000 average, the project would increase population to the area by approximately ~~42,050~~ 11,600. The majority of this increase would be represented by families relocating from other areas of O’ahu, but there will be some in-migration associated with the upscale units (about 680 retirees new to O’ahu, and about 130 part-time residents). This in-migration population is likely to consist of second home buyers who spend a portion of the year in Hawai’i.

The population increase associated with the project is planned and has been incorporated into the City and County projections for future development and regional growth. The increase in population associated with Makaīwa Hills supports the long range community and government vision to transform the ‘Ewa Plain from rural to urban/suburban character with the City of Kapolei being the economic center. The increases in population are viewed as a beneficial social impact, but there are potential impacts associated with increases in population that will be addressed elsewhere in this EIS, such as loss of open space, and increases in traffic and water consumption.

### **3.4.2 Employment**

#### **Regional**

Currently, over 25,000 jobs exist in the Kapolei/‘Ewa region. James Campbell Industrial Park is the area’s largest job center, providing approximately 4,600 jobs. There is substantial new employment projected within the Kapolei region, and both short-term and long-term employment will be created at Makaīwa Hills, where workers will be able to work and live within their own region.

Over the next 20 years, there will be approximately 40,000 new jobs created in the Kapolei region. New employment growth stems from a diverse range of planned private industry and public sector positions in and around the City of Kapolei that will provide numerous new blue and

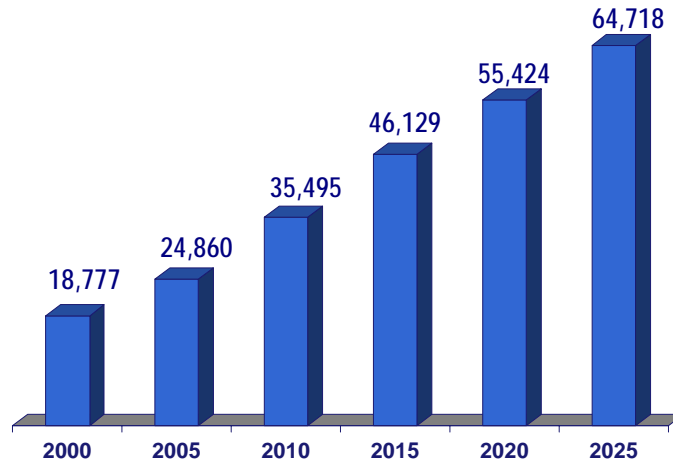


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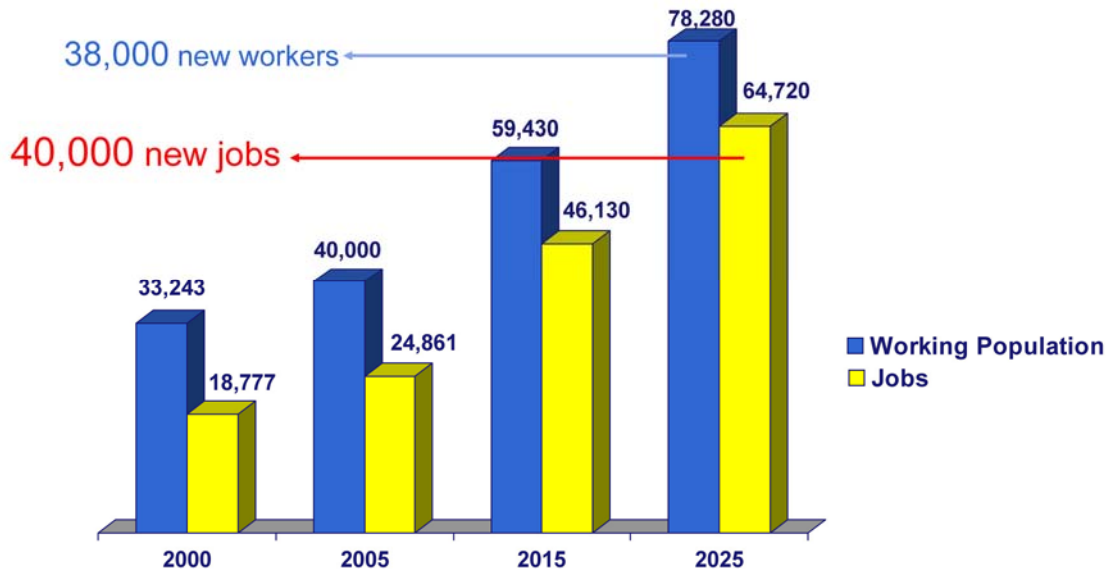
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while collar job opportunities for the expanding communities of Kapolei, 'Ewa, Central O'ahu and the Wai'anae Coast. By 2025, 65,000 jobs are expected to be located in the Kapolei/'Ewa region.

Kapolei is also the fastest growing job center in the state. In the next 20 years, jobs are expected to grow by 160%.



Number of Jobs in the Kapolei Region 2000-2025



Working Population vs. Jobs

### Makaīwa Hills

During the 12-year development period, jobs provided by project development will support about 3,590 3,570 residents housed in about 1,080 1,070 homes. About 1,430 1,420 residents and 430 420 homes will be supported by construction jobs, and the remainder will be supported by indirect jobs. Development activities will support the families of many construction workers and

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other workers who already live on O'ahu. Most of the residents are expected to live in the Kapolei region: estimated at about ~~2,230~~ 2,210 residents housed in about ~~670~~ 660 homes.

At full development, on-site operating employment is expected to total about ~~4,100~~ 1,250 jobs, including retail and public school jobs, home and grounds maintenance jobs, and home-office jobs. The new jobs will provide employment to (1) workers who already live in the Kapolei region and nearby communities but who must commute to distant jobs, and (2) workers who will be new residents of the Kapolei region and nearby communities. These jobs support contemporary public policy of redirecting traffic currently flowing into Honolulu's Primary Urban Center by developing a Second Urban Center at the City of Kapolei.

### 3.4.3 Housing

#### Regional

In 2005, Decision Analysts Hawaii, Inc. (DAHI) prepared economic and population growth projections for the Kapolei region. Sponsored by the Aina Nui Corporation in cooperation with other major developers in 'Ewa, this study projects likely development in 'Ewa based on the details of planned private and public projects in 'Ewa. The development plans include, but are not limited to, residential, resort, commercial, industrial, university, harbor, civic and infrastructure projects. The projections covered the period from 2006 to 2025, and addressed the anticipated average annual growth in the following areas: the resident and visitor population; employment; residential, resort, commercial, and industrial development; and government projects.

For the 15-year period from 2006 to 2020, the projection indicates that about 23,300 homes will be built in 'Ewa (5 years at an average rate of 1,560 homes per year + 10 years at 1,545 homes per year). This projection reflects likely development, although demand is likely to exceed the number of homes that will actually be built.

As compared to other areas of the island, there is a very high level of affordable housing provided by private developments in the 'Ewa Development Plan region. According to a June 2005 Mikiko Corporation report (*Appendix I*), the 'Ewa DP Area recorded a higher share of affordable housing sales than did the rest of O'ahu. The region has offered approximately 7% to 10% more affordable housing units for sale than the island as a whole in recent years. There are also significantly more affordable housing units for sale in the region recently than in the past. Compared to 2000, 'Ewa homes sold recently represented 77% more units affordable to those in the 80% to 140% of the median income category. Given these factors, the 'Ewa region has been satisfying an increasing share of O'ahu's affordable housing needs, well in excess of its "fair share". The region is hosting approximately 22% of the island's affordable for-sale housing transactions. Considering the relative number of households, the region's "fair share" would have been about 6% in 2000 and 7% over the last year.

#### Makaīwa Hills

The proposed 4,100 residences at Makaīwa Hills will help supply a range of needed housing on O'ahu and in 'Ewa up to about 2020. Furthermore, the Project will foster competition among developers, thereby providing more choices to home buyers and moderating housing prices.

Makaīwa Hills is expected to stabilize home prices, thereby contributing to more affordable home prices by adding to O‘ahu’s housing inventory:

- About 1,230 new homes at affordable prices that are below market prices
- About ~~970~~ 1,102 new homes at market prices in competition with other residential projects in the Kapolei region and Central O‘ahu
- About ~~1,900~~ 1,768 new upscale homes which will divert demand away from other projects and existing communities.

### **3.5 REDIRECTING REGIONAL TRAFFIC**

#### **3.5.1 City of Kapolei Urban Core Expansion**

Public policy is to reduce traffic currently flowing into the existing Honolulu Primary Urban Center by developing a second urban core with an equitable balance of quality jobs and a variety of attractive housing options in the City of Kapolei. A major goal of the plans for the Kapolei region is to balance growth in the residential population with growth in the regional economy so that many future residents will have an opportunity to both work and reside within their community rather than requiring socially, economically and environmentally inefficient commuting to a single urban core in Honolulu.

As noted above, at full development, on-site operating employment at Makaīwa Hills is expected to total about ~~1,400~~ 1,250 jobs, including retail and public school jobs, home and grounds maintenance jobs, and home-office jobs. These new jobs, along with the growth of employment opportunities within the City of Kapolei to over 65,000 jobs, will provide employment to (1) workers who already live in the Kapolei region and nearby communities but who must commute to distant jobs, and (2) workers who will be new residents of the Kapolei region and nearby communities. These jobs support contemporary State and County governmental policy of redirecting traffic currently flowing into Honolulu’s Primary Urban Center by developing the City of Kapolei.

With the growth of the City of Kapolei, regional traffic patterns are expected to significantly improve, primarily by removing essentially one car off the H-1 Freeway for each Kapolei job created, since, according to the Jobs and Traffic Benchmark Study by OmniTrak Group Inc. currently only 1 in 5 of Kapolei residents work in the region, and 89% of Kapolei residents surveyed drive their own vehicle to work, with only 10% riding in van pools or The Bus. With job creation now projected to outpace worker-aged population, new development in Kapolei will help resolve rather than add to the existing regional traffic problem.

#### **3.5.2 Mass Transit**

While the regional traffic situation is expected to evolve and improve considerably over time, some Kapolei residents will inevitably work in Honolulu and other O‘ahu residents will drive to Kapolei from outside the region to work. Therefore, as Honolulu’s recently approved multi-modal mass transit system comes on line, those Kapolei residents working outside the region can capitalize on the system for daily commuting, whether by bus, rail or ferry. Conversely, those

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working in Kapolei and living outside the region may also use the new mass transit system, thereby removing additional long-distance commuter vehicles from O'ahu's roadway system.

Makaīwa Hills will be linked by bus to the nearby transit centers planned for Kapolei West and the City of Kapolei just across the H-1 Freeway. From these hubs, travel to other points in 'Ewa, Leeward and Central O'ahu, and Honolulu is expected to be greatly simplified with the recently approved mass transit system and an expanded bus system in the interim prior to the development of a fixed guideway transit system.

Based on the November 2006 Alternatives Analysis Report for the Honolulu High-Capacity Transit Corridor Project ("AA"), which was prepared to assist in the selection of the mode and general alignment alternative for high-capacity transit service, the Honolulu City Council determined that a fixed guideway system is the best selection for the long-term needs and demands of O'ahu's growing population. Accordingly, late in 2006 the City Council approved a fixed guideway system as the Locally Preferred Alternative for Honolulu's mass transit system.

The approved fixed guideway alternative would include the construction and operation of a fixed guideway transit system between Kapolei and UH Mānoa. The system could use any of a range of fixed guideway transit technologies that meet performance requirements and could be either automated or employ drivers. The specific technology of the fixed guideway system has yet to be determined by the City Council.

The fixed guideway system is planned to operate between 4 a.m. and midnight, with a train arriving in each direction at each station between every three and six minutes. The system is planned to operate with a unified fare structure with TheBus, with transfers and passes usable on both systems. A possible fare-collection system would include one that operates on an honor basis. No gates or fare inspection points would be used in the stations. Fare machines would be available at all stations and standard fare boxes would be used on buses. Fare inspectors would ride the system and check that passengers have valid tickets or transfers. Violators would be cited and fined.

As depicted in *Figure 3.1*, the routing of the approved Locally Preferred Alternative will run between Kapolei and UH Mānoa. Currently, over 60% of the population on O'ahu is served by this corridor. By 2030, this will increase to nearly 70%. The 'Ewa and Kapolei area is projected to have the highest rate of growth over this time period. While several additional areas could be served with potential future expansion of the system, the proposed corridor would directly serve the greatest number of people. Other areas would be served by increased bus service feeding into the fixed guideway system.

Along the corridor, stations are being evaluated at locations with dense population and around major activity centers, and at locations where good bus connections can be provided. During the mass transit project's scoping process in December 2005, many station locations were suggested by members of the public. The suggested locations were evaluated based on how near it was to other adjacent locations being considered, how many residents and jobs would be located walking distance from the station, if land is available to provide park-and-ride facilities, and if the system could be designed to provide a straight and level section of track for a station in that location. In the future, the results of these evaluations will be incorporated into the final decisions

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for the mass transit project. As noted above, Kapolei Commons, just across the H-1 Freeway from the Makaīwa Hills project area, will host a transit center serving as a node connecting various bus and rail routes.

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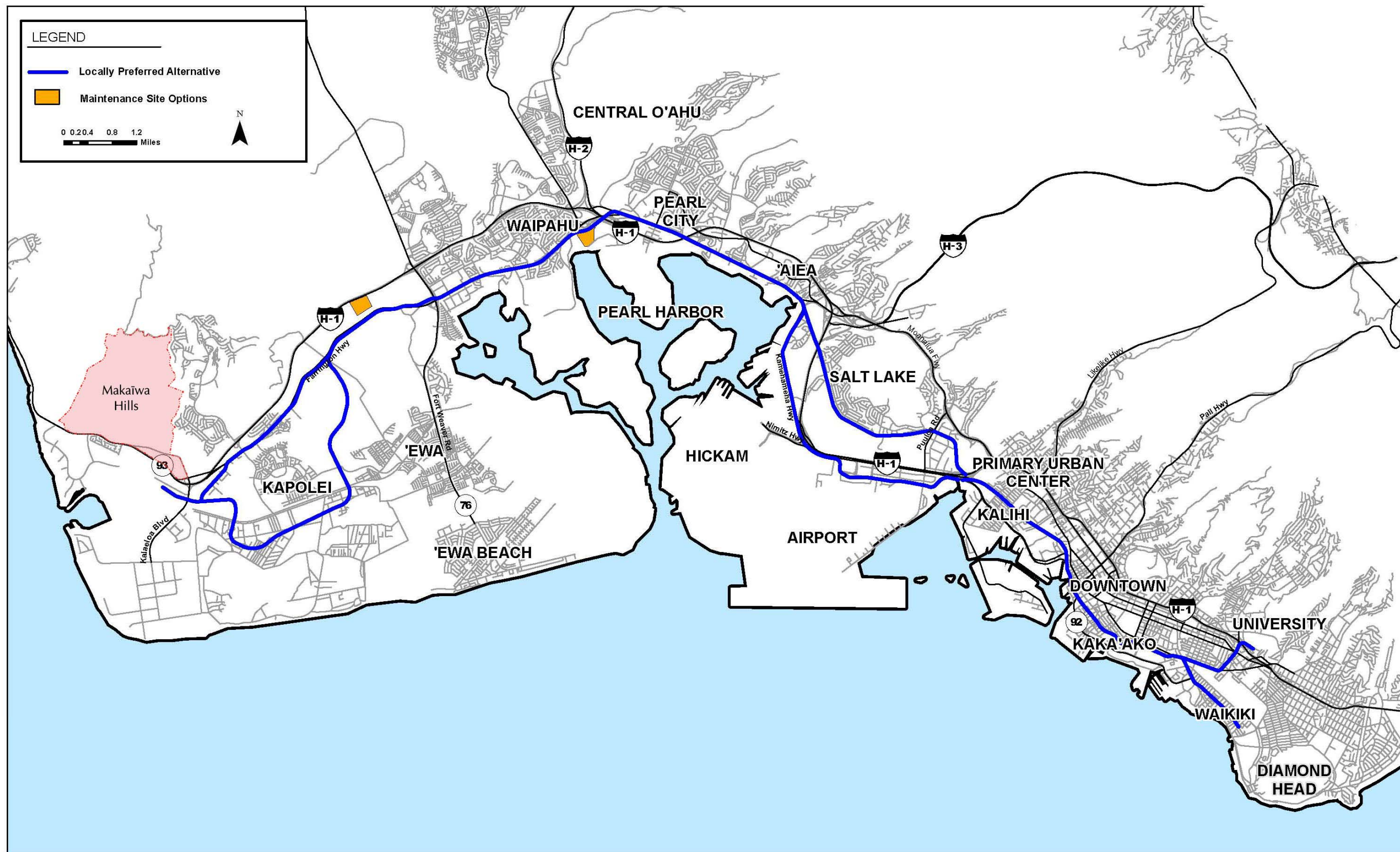


Figure 3.1 City and County of Honolulu Mass Transit Locally Preferred Alternative

## **4.0 EXISTING CONDITIONS, PROBABLE IMPACTS AND MITIGATIVE MEASURES**

## 4.0 EXISTING CONDITIONS, PROBABLE IMPACTS AND MITIGATIVE MEASURES

Existing conditions and potential impacts associated with the development and operation of the Makaīwa Hills project are discussed in this section. Also described are mitigative measures that are proposed to minimize anticipated adverse impacts.

### 4.1 NATURAL ENVIRONMENT

#### 4.1.1 Topography

##### 4.1.1.1 Existing Conditions

The project area is situated on the southernmost slope of the Wai‘anae Mountain Range. The project site elevation ranges from 50 feet (ft) mean sea level (MSL) at the southern boundary along the highway to 1,300 feet MSL at the northern boundary along Palēhua Road.

Topography over the majority of the project area is characterized by three major gulches including Makaīwa Gulch, Pālailai Gulch and Awanui Gulch and three unnamed minor gulches, all dissecting the project area from north to south. These gulches represent an early stage of erosional development and lack a well-defined pattern of drainage evidenced for the most part by deep intermittent stream channels coupled by small subsidiary channels transecting the typically wide valley floors. The deeper erosional channels appear to be only seasonally active during the winter months, and are typically dry during the summer and fall seasons.

Although the gulches stand out in the topography as the major geomorphic features, the vast majority of the land is composed of gently sloping smooth ridges. Because the drainage pattern is parallel, these ridges take on an even, relatively undissected appearance in relief with consistent contours. These ridges are the most feasible routes for mauka/makai traversing. Some low outcrops are present but the land is generally composed of gently dipping lava flows with highly weathered crust.

Slopes as low as 0-2 percent are found in the southeastern corner of the site. Across the plateaus and ridges, slopes of about 10 percent are common. Slopes are steeper within the gulches, varying from 15 to 50 percent. See *Figure 4.1* for site topography.

##### 4.1.1.2 Probable Impacts

The overall intent of the grading plan will be to establish a balance of cut and fill on the project site. Grading within the project site will primarily be limited to the ridges and plateau areas where slopes are less steep, favoring development. The steep gulch areas will generally remain in a natural or undeveloped state. The grading concept for the residential lots will be to provide a level pad area for the structure rather than leveling the entire lot.



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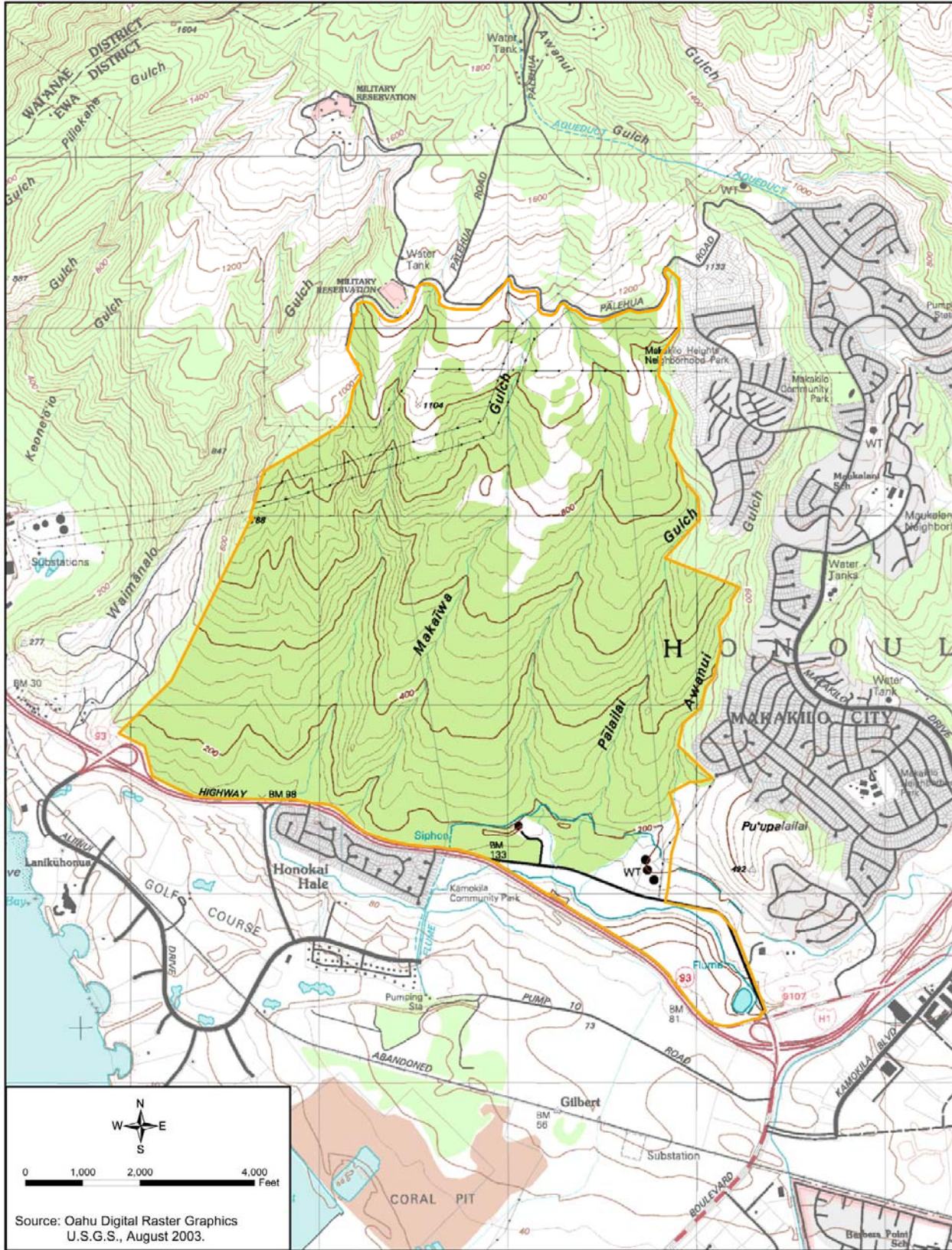


Figure 4.1 Existing Site Topography

However, some grading in the gulches may be required to support roadways and low bridges or culverts between ridges. There are options for roadway crossings of the several gulches and gullies that traverse the project area; these options are highly dependent on the specific topographic and geologic conditions at each of the crossing locations. In general, the land planning for Makaīwa Hills has balanced the need to minimize major topographic crossings with the desire to create connectivity throughout the project. Preliminarily, the landowners are proposing roadway fill and culvert designs that create a stable roadway base and can help manage gulch runoff conditions. Bridges or other types of spans are options that can be considered if large amounts of culvert fill material would be required; however, constructing bridges would add substantial additional expenses that may make multiple crossings cost prohibitive. As the project's roadway design progresses to the subdivision and site development approval phases, the landowner will work closely with DPP on the specific designs of these improvements.

#### *4.1.1.3 Mitigative Measures*

Efforts will be undertaken to balance the earthwork quantities of cut and fill. This will also minimize the amount of construction traffic in the region. Grading operations will be in conformance with the applicable ordinances of the City and County of Honolulu. Mitigation will consist of implementing construction period erosion control best management practices, as noted in the in *Section 4.1.4*.

### **4.1.2 Climate**

The project is located in the semi-arid 'Ewa region, which is one of the sunniest areas on O'ahu. Rainfall is light, averaging approximately 20 inches per year at the lower elevations and around 30 inches annually near the mauka boundary. Most of the total annual precipitation occurs during the winter storm season, between October and April, while the summer months are hot and dry (Decision Analysts Inc, 2006). Average low temperatures range from about 61 degrees Fahrenheit (°F) in winter to about 70°F in the summer. Average high temperatures range from about 80°F in the winter to about 88°F in the summer. Temperatures at the upper reaches of the project area are generally 5°F to 10°F cooler than at the bottom of the slope, due to the significant difference in elevation (about 1,200 feet).

Steady northeast tradewinds prevail during the spring and summer months; during the fall, the tradewinds tend to give way to light and variable winds throughout the winter. Low-velocity surface winds of less than 10 miles per hour occur frequently. Storms are infrequent and generally occur during the winter months, although tropical storms and hurricanes occasionally approach the island between June and November.

### **4.1.3 Hydrology**

#### *4.1.3.1 Existing Conditions*

The Pacific Ocean is less than a mile from the southwest corner of the project area. The project area occupies 1,781 acres of a 3,646-acre watershed (the lower watershed boundary has been set along the H-1 Freeway/Farrington Highway alignment for simplification). The watershed extends from Makakilo to the east, to the western ridge forming Waimānalo Gulch to the west. The northern watershed boundary extends over 16,000 feet mauka of Farrington Highway to the crest

of the Waiʻanae mountain range. Watershed elevations range from about 50 feet along Farrington Highway to about 2,300 feet at the northern boundary.

There are no perennial streams or existing drainage improvements within the project site, but there are gulches that carry storm water during occasional storm events towards the coastal plain makai of the project area. Approximately seventeen culverts are located adjacent to the project site, conveying storm runoff from the site and mauka areas under the H-1 Freeway/Farrington Highway. See *Section 4.2.8* for further discussion on drainage issues.

The project area is located over the ʻEwa Kunia Aquifer of the Pearl Harbor Aquifer Sector. The aquifer beneath the project area is basal (fresh water in contact with seawater) and the water table is the upper surface of the saturated aquifer. Due to the nature of the limestone caprock beneath the ʻEwa coastal plain, groundwater flow from the ʻEwa Kunia Aquifer is deflected from its expected direction under the coastal plain (perpendicular to the shoreline), and instead moves in a westerly direction essentially paralleling the shoreline, eventually crossing the shoreline north of Kahe Point after traveling under the landfill at Waimānalo Gulch. The coastal caprock overlying the aquifer precludes discharge into the shallow offshore area, and instead forces the groundwater down to significant depths, where it emerges and mixes with seawater hundreds of feet below the sea surface.

Groundwater is recharged through local rainfall and infiltration from surface water drainage. While some brackish groundwater is extracted for irrigation use in close proximity to the project area, no drinking water is extracted from this aquifer within or down-gradient from the site due to the brackish characteristics of the groundwater here. Drinking water will be provided to Makaīwa Hills from offsite sources via the BWS system, as discussed below in *Section 4.2.6*. No BWS drinking water wells exist at the site.

#### *4.1.3.2 Probable Impacts*

The residential development will result in the application of fertilizers and pesticides. Although accidents may occur, the chemicals applied by homeowners are generally relatively benign, over-the-counter products, while those applied by professional exterminators and landscapers in commercial areas are generally applied in strict accordance to manufacture's instructions. It is anticipated that the bulk of any chemicals of concern would biodegrade in the topsoil. Probable impacts related to surface water drainage are discussed in *Section 4.2.8*.

Over half of the site will remain **in** undeveloped **open space**, but there will be an increase in impervious surfaces. Impervious surfaces generally reduce the rate of rainfall infiltration and thus, ground water recharge, but 1) the area rainfall is one of the lowest on the island and 2) much of the storm water run-off from the impervious surfaces (e.g., roofs, driveways) will sheet flow to landscaped or natural areas for subsequent infiltration into the groundwater regime.

Impacts on sustainable yields are discussed in *Section 4.5.2.1*, although no groundwater source wells are proposed to be located in the project area. Further, no drinking water source wells exist down-gradient from the project site. The hydrogeology of the area is such that when groundwater reaches the coastal environment, discharge occurs not at the shoreline, but only at significant depths offshore, where substantial mixing with seawater occurs. Accordingly, the project is not expected to significantly impact groundwater quantity or quality within, or down-gradient from,

the site; likewise, significant impacts on the coastal environment due to groundwater inputs are not expected from the project.

4.1.3.3 *Mitigative Measures*

During construction, impacts to surface water resulting from soil erosion will be minimized by compliance with the County's grading ordinance, and the applicable provisions of the Department of Health's Water Quality Standards (Title 11, Chapter 54, HAR) and Water Pollution Control requirements (Title 11, Chapter 55, HAR). Additionally, standard Best Management Practices (BMPs) will be employed to further minimize impacts. These BMPs will be detailed in subsequent construction plans, and may include limiting site grading to increments of not more than 15 consecutive acres at a time, the use of temporary sprinklers in non-active construction areas, stationing water trucks onsite during construction to provide immediate sprinkling in active construction zones, use of temporary berms and cut-off ditches, use of temporary silt fencing and screens, thorough watering of graded areas after construction activity has ceased for the day and on weekends, and sodding or planting slopes immediately after grading work has been completed.

More detailed soils analyses will be performed as planning of the project proceeds. Additional BMPs, if required, may be recommended by the project's soils civil engineers as building types and locations are further defined. Measures may also include removal of unsuitable soils under foundations and/or special foundation designs. Additionally, requirements of Title 11, Chapter 26, Paragraph 35 (Rodents; demolishing of structure and clearing of vacant sites and vacant lots) will also be followed.

Additional mitigative measures regarding on-site and off-site drainage issues are provided in Section 4.2.8.

4.1.4 **Erosion**

4.1.4.1 *Existing Conditions*

The project site is divided into nine subareas for the purpose of calculating soil erosion potential. These subareas represent sites that vary in soil erosion potential characteristics such as terrain and/or drainage network. For a complete discussion of this summarized section, please refer to the Preliminary Engineering Report included as *Appendix C* to this document.

Calculation of Soil Erosion Potential

The U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) uses the Universal Soil Loss Equation (USLE) to estimate long term average annual soil erosion losses from sheet and rill erosion. It is used to estimate erosion on forest land, farm fields, construction/development sites, and other areas. Soil losses can be estimated for present conditions or for a future condition. The soil loss equation is:

$$A = RKLSCP$$

where: A = soil loss (tons/acre/year)  
R = rainfall factor  
K = soil erodibility factor

L = slope length factor  
S = slope gradient factor  
C = cover and management factor  
P = erosion control practice factor

The rainfall factor (R) is based on the NRCS Erosion and Sediment Control Guide for Hawai'i. The soil erodibility factor (K) for each subarea was selected after evaluating the U.S. Department of Agriculture Soil Survey and City and County of Honolulu Soil Erosion Standards and Guidelines, and is based upon the weighted average of all K values for soil types in each subarea. The cover and management factor (C) is also based on a weighted average for C values within each subarea and has been calculated to reflect conditions both before and after the development of the project. Both R and K factors will remain constant for the site before and after the proposed project is constructed.

The slope length factor (L) and slope gradient factor (S) are combined into an LS factor for calculations. The differences in LS factors between subareas reflect the differences in topography. The LS factors show a decrease with development due to site grading and construction of an underground drainage system, which is expected to reduce the slope and length of overland flow.

The existing soil erosion potential for the nine subareas was estimated using the USLE. The total estimated soil loss under existing conditions is ~~41,800~~ 42,500 tons/year. This fairly high quantity of soil erosion occurs primarily because no erosion mitigation measures currently exist on-site. Adjacent to the project site, a number of culverts under Farrington Highway allow storm runoff along with any suspended soil to continue its downhill flow toward the 'Ewa Plain and the ocean beyond.

#### 4.1.4.2 Probable Impacts

##### Short Term Impacts

The construction of the project will involve land disturbing activities that result in soil erosion, such as the removal of existing vegetation (clearing and grubbing) and leveling, removing, and replacing soil.

The USLE can be used to estimate soil erosion potential based on these short-term construction impacts. For calculation purposes, it is assumed that construction will be in phases over a 15-year period. Based on approximately 1,200 acres subject to some level of clearing and grubbing, affecting 80 acres per year was assumed for estimating short term soil erosion potential. This results in an estimated 38,000 tons per year of soil erosion potential from the project site during the grading period.

##### Sediment Yield

Sediment yield is the amount of material eroded from the land surface over a specific period. Construction activities within the project site may contribute to sediment yield in the area. A sediment yield analysis (versus calculation of soil erosion potential) was not performed as part of the project's Preliminary Engineering Report, since sediment yield is not currently part of the City & County of Honolulu Erosion Control Standards. However, erosion and sediment control measures will comply with the applicable standards in place at the time of design and

construction. Sediment yield analysis will also be conducted if required by the applicable standards in place during design and construction.

#### *Long Term Impacts*

Based on revised calculations of the USLE that include unique LS factors for each sub-area of the project site, the soil erosion potential at the project site should decrease by 37,100 22,280 tons/year or 89 52 percent to a total of 4,700 20,220 tons/year after the development of the Makaīwa Hills project. This decrease in soil erosion results from a number of factors incorporated into the USLE, such as reduction of erodible surfaces (with an increase in buildings and pavement); a reduction of length and slope of overland flow due to site grading and the construction of a storm drain system; and an increase in landscaped area (reduction of bare ground); and the proposed implementation of a variety of other mitigative measures to control erosion and soil loss from the site. A detailed discussion and comparison of the soil erosion potential for the existing and developed conditions is provided in *Appendix C*.

#### 4.1.4.3 *Mitigative Measures*

Short-term soil erosion may be reduced by implementing mitigative measures such as limiting grading to not more than 15 consecutive contiguous acres at a time (pursuant to Section 14-15.1(e), ROH) and seeding half of the area. This will reduce estimated erosion potential for the site by 17,800 tons per year or 48 percent. Additional erosion control measures that would lessen construction impacts even further include:

1. Minimize time of construction.
2. Retain existing ground cover until the latest practicable date before construction.
3. Early construction of drainage control features.
4. Use of temporary area sprinklers in non-active construction areas when ground cover is removed.
5. Station water truck on site during construction period to provide for immediate sprinkling, as needed, in active construction zones (weekends and holidays included).
6. Use temporary berms and cut-off ditches, where needed, for control of erosion.
7. Thorough watering of graded areas after construction activity has ceased for the day and on weekends.
8. Sod or plant all cut and fill slopes immediately after grading work has been completed.

Grading and Erosion Control Plans will be prepared in accordance with Chapter 14 of the Revised Ordinances of Honolulu and the "Rules Relating to Soil Erosion Standards and Guidelines." ~~compliance with Chapter 23, Revised Ordinances of Honolulu.~~ Further, the contractor will be required to perform all grading and stockpiling operation in conformance with the applicable provisions of Chapter 54 (Water Quality Standards) and Chapter 55 (Water Pollution Control) of Title 11 Administrative Rules of the State Department of Health.

4.1.5 Soils

4.1.5.1 Existing Conditions

As shown in *Figure 4.2*, the project area consists of 14 soil types plus a former reservoir site. The complete names of the soil types and their slopes are shown in *Table 4-1*.

**Table 4-1  
Soil Types, Slopes and Acreages**

Type	Description and Slope	Acreage
EaB	Ewa silty clay loam, 0 to 3% slopes	14.1
EwC	Ewa stony silty clay, 6 to 12% slopes	5.3
HLMG	Helemano silty clay, 30 to 90% slopes	160.4
HxA	Honouliuli clay, 0 to 2% slopes	26.0
HxB	Honouliuli clay, 2 to 6% slopes	29.4
LPE	Lualualei extremely stony clay, 3 to 35% slopes	149.2
LvB	Lualualei stony clay, 2 to 6% slopes	16.4
MBL	Mahana-Badland complex	56.0
McC2	Mahana silty clay loam, 6 to 12% slopes, eroded	38.2
McD2	Mahana silty clay loam, 12 to 20% slopes, eroded	2.9
McE2	Mahana silty clay loam, 20 to 35% slopes, eroded	19.8
MuC	Molokai silty clay loam, 7 to 15% slopes	5.9
rRK	Rock land	1.7
rSY	Stony steep land	1253.3
W	Former reservoirs	2.1

*Table 4-1* shows the estimated acreage of each soil type according to its quality as rated by the Natural Resources Conservation Service (NRCS), formerly known as the Soil Conservation Service. As indicated, rSY (stony steep land) is the predominant soil type, comprising over 70% of the project area.

For further discussion on agricultural capabilities and soil ratings, please refer to *Section 4.2.5*, and *Appendix E*.

4.1.5.2 Probable Impacts

The project could impact soils by causing soil erosion and through the loss of agricultural lands. As noted in *Section 4.1.4*, soil erosion could result from clearing, grubbing and future construction. After construction is completed however, and landscaping and vegetative plantings have been established, it is expected that the level of erosion will decrease from the existing condition as a result of a reduction of erodible surfaces (with an increase in buildings and pavement); a reduction of length and slope of overland flow due to site grading and the construction of a storm drain system; and an increase in landscaped area (reduction of bare ground). The estimated soil erosion potential for the project has been calculated to decrease by ~~37,100~~ 22,280 tons/year or ~~89~~ 52 percent after development.

*Section 4.2.5* and *Appendix E* will discuss the impact of the project on high quality agricultural soil as the land is developed.

*4.1.5.3 Mitigative Measures*

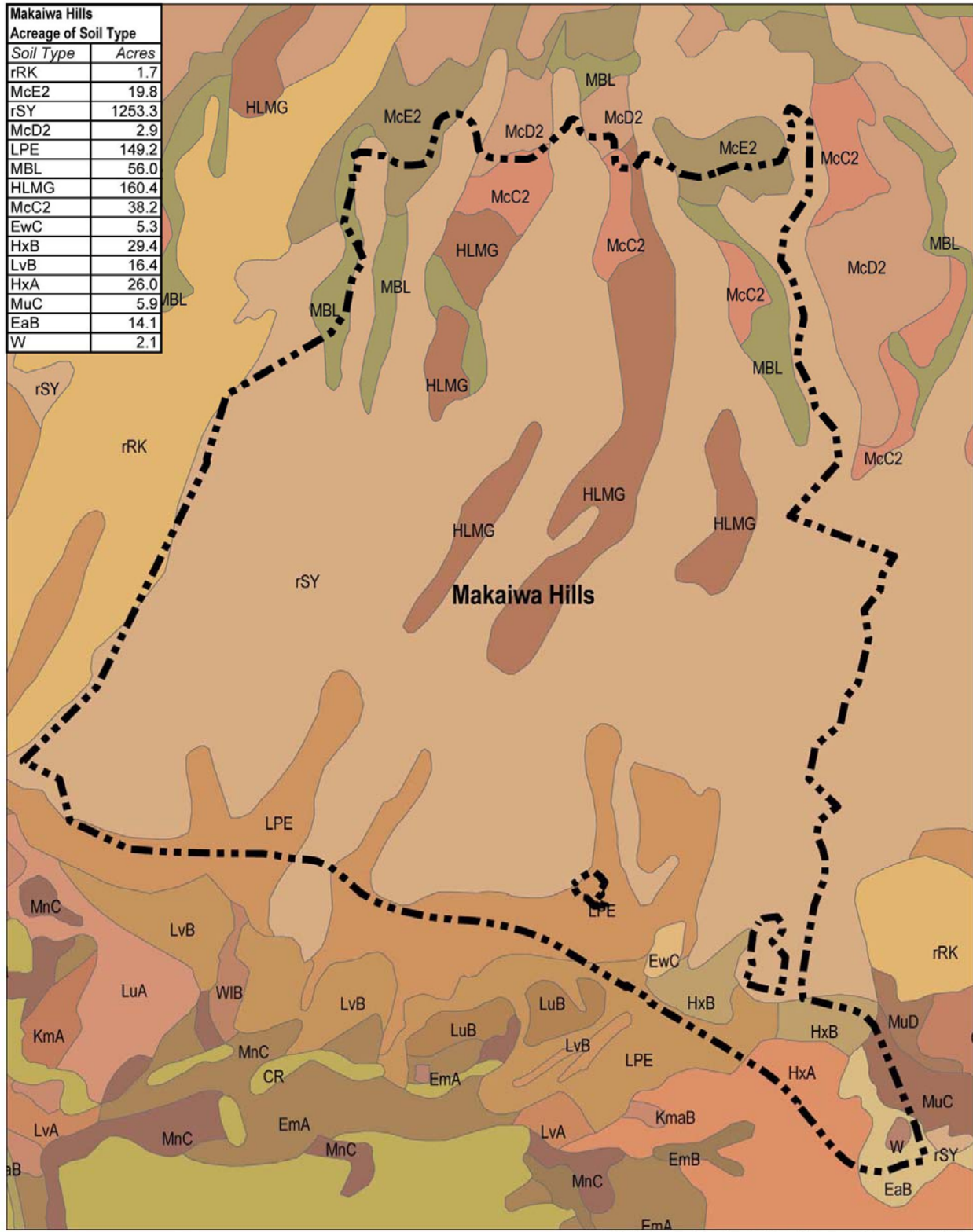
During construction, soil erosion will be minimized by compliance with the County's grading ordinance, and the applicable provisions of the Department of Health's Water Quality Standards (Title 11, Chapter 54, HAR) and Water Pollution Control requirements (Title 11, Chapter 55, HAR). Additionally, standard Best Management Practices (BMPs) will be employed to minimize impacts. These BMPs will be detailed in subsequent construction plans, and may include limiting site grading to increments of not more than 15 consecutive acres at a time, the use of temporary sprinklers in non-active construction areas, stationing water trucks onsite during construction to provide immediate sprinkling in active construction zones, use of temporary berms and cut-off ditches, use of temporary silt fencing and screens, thorough watering of graded areas after construction activity has ceased for the day and on weekends, and sodding or planting slopes immediately after grading work has been completed.

More detailed soils analyses, including soil stability, will be performed as planning of the project proceeds. The geotechnical analysis conducted for the project site (attached as *Appendix O*), notes that: the variable soil expansion conditions found on the site can be mitigated by techniques commonly used throughout the islands, such as removal during earthwork grading, special subgrade preparation/moisture conditioning, special foundation design, and the importation of select fill to reduce the effects of the potentially expansive soils on new foundations, concrete slabs and pavements. Additional BMPs, if required, may be recommended by the project's soils civil engineers as building types and locations are further defined.

As discussed below in *Section 4.2.5*, no mitigative measures are recommended for the small impact the project will have on the loss of agricultural soils.



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**Figure 4.2 Soils Map**

#### 4.1.6 Rockfall and Slope Stability

##### 4.1.6.1 Existing Conditions

The gently sloping makai area and ridges between the gulches are not subject to significant rockfall and slope stability issues, and only the presently undeveloped gulches are potentially subject to rockfall hazards do not exhibit evidence of significant geotechnical hazard.

##### 4.1.6.2 Probable Impacts

Development within the project area is focused on the gently sloping ridges, which are not subject to significant rockfall and slope stability issues. Only necessary roadways will cross through the gulch areas and thus be potentially exposed to rockfall hazards. The geotechnical analysis conducted for the project site (*Appendix O*) indicates that based on the project's design, the rockfall hazard is minimal, and post-development slope stability should not be a concern when appropriately mitigated. Therefore, the project is not expected to create the potential for rockfall hazards for the new residents or the surrounding community.

##### 4.1.6.3 Mitigative Measures

The conceptual land plan for Makaīwa Hills has taken care to place residential areas along the bluff tops and elevated ridges. No homes are planned to be developed at potentially hazard-prone locations below the rocky gulch hillsides. The planning for roadway construction will take care to avoid routing roadways near steep banks with rockfall potential. As necessary and appropriate, measures such as the removal of rock outcroppings and surface boulders and the installation of retaining walls and boulder curtains will be utilized to assure roadways and other areas are not endangered by potential rockfalls.

#### 4.1.7 Natural Hazards

##### 4.1.7.1 Existing Conditions

The seismic risk classification for the island of O'ahu is Zone 1, which suggests the entire island is subject to only minor earthquake damage 2A. Potential health risks to prospective residents occupying homes within a previously uninhabited seismically sensitive area will be addressed by requiring all structures to be constructed in accordance with the County's Building Code to assure public safety concerns are addressed. . Based on a review of the O'ahu Civil Defense Agency's tsunami evacuation zone maps, the project area is not exposed to coastal hazards, such as storm waves or tsunami inundation, due to the site's elevation and distance from the shoreline.

The site is designated as Zone D, an area of "undetermined, but possible flood hazards" on the Flood Insurance Rate Map (FIRM), but the sloped topography and gulches indicate flooding would not be a concern on the ridges where development will be focused.

Wildfires have occurred along the Wai'anae mountain range, especially in areas of low rainfall. Wildfires burned 35 to 40% of the project area in August 2005. The affected area was the ridgeline between Waimānalo Gulch and Makaīwa Gulch and lower portion of Makaīwa Gulch. There is also a burned section in the southeast corner of the site along Old Farrington Highway.

Some vegetation is returning to these once barren areas. Since the site is undeveloped, there was no risk to human health at the project site. There is potential for a wildfire to spread onto or from the project area with associated risks to human health, property and endemic species that may occur on and adjacent to the site.

#### 4.1.7.2 *Probable Impacts*

The new development will not increase the potential for or risk from seismic hazards. Structures built on-site will conform to the Uniform Building Code to mitigate potential hurricane or earthquake damage.

The 'Ewa region has the lowest annual rainfall on O'ahu, but there are occasional storm events that can produce torrential precipitation. Storm water flows onsite will be directed via topography to the gulches away from the areas proposed for development. *Section 4.2.8* discusses how drainage and storm water will be managed to prevent exacerbation of any flood risk to the proposed or surrounding communities.

As residential communities expand into areas of low rainfall at the urban/wildlands interface, there is an increased risk from wildfires. While the development of the site will decrease the acreage of wildlands that are subject to wildfire, the project may potentially 1) increase the risk to human health and property from the spread of wildfire from adjacent wildlands, 2) increase the number and types of wildfire ignition sources (e.g., fuel storage, vandals, cigarettes) on the site and adjacent wildland areas, and 3) indirectly, result in adverse impact to resources or habitats located in the adjoining wildland areas consumed by wildfire initiated on the project site or by residents of the development. The Mākāiwa Hills Fire Plan will reduce the potential for wildfires to occur.

#### 4.1.7.3 *Mitigative Measures*

As the development plans are finalized, specifications for locating five required Early Warning Sirens will be coordinated with the O'ahu Department of Emergency Management. Community centers and other appropriate buildings will be constructed to hurricane-resistant standards so that these structures may be utilized as emergency refuge shelters during emergencies.

Of the natural disasters discussed, only mitigation in the form of a Fire Plan is required for wildfire potential. The following section describes the Fire Plan that has been developed for the project.

#### 4.1.7.4 **Mākāiwa Hills Fire Plan**

Consultations with the DLNR's Division of Forestry and Wildlife have led to the inclusion of the required Fire Plan within this EIS as an appropriate means of satisfying the Land Use Commission's requirement to prepare such a Plan.

Pursuant to common standards, the Mākāiwa Hills Fire Plan consists primarily of a defensible space to be established around all urban/wildland interface boundaries and providing access to the boundaries to allow for fire fighting if necessary. These fire buffers, along with fire prevention accessways, are shown on *Figure 4.3*. The defensible space will be at least 30 feet of open space that will 1) provide the fire department adequate room to battle oncoming wildfire before it reaches structures, 2) potentially stop the spread of a structural fire before it ignites wildland

vegetation, 3) provide an opportunity for a structure to survive a wildfire on its own when fire fighting resources are not available, and 4) potentially prevent serious fires from starting. Fire access roads are also shown.

Additionally, the project will provide adequate emergency water supply that meets County fire department standards, such as a hydrant system and storage tanks. Fire prevention signage will be posted within and around the development.

Further, to reduce the fire hazard at the interface, landscaping choices will 1) minimize the use of grasses and shrubs that tend to produce a lot of plant tissue in the wet season and then leave behind a lot of dry biomass available to burn in the dry season, and 2) maximize the use of xeric plants that do not drop or retain a lot of dry leaf litter. Small shrubs and slow-growing, broad-leaf trees are preferential. The plantings in the interface area should be maintained with adequate watering to prevent an accumulation of dry biomass (i.e., fuel for a fire). The use of drought-tolerant plants would minimize the amount of water required.

Developers and property owners will be encouraged to implement appropriate measures to mitigate wildfire prevention, such as the following advice from the DLNR's Division of Forestry and Wildlife.

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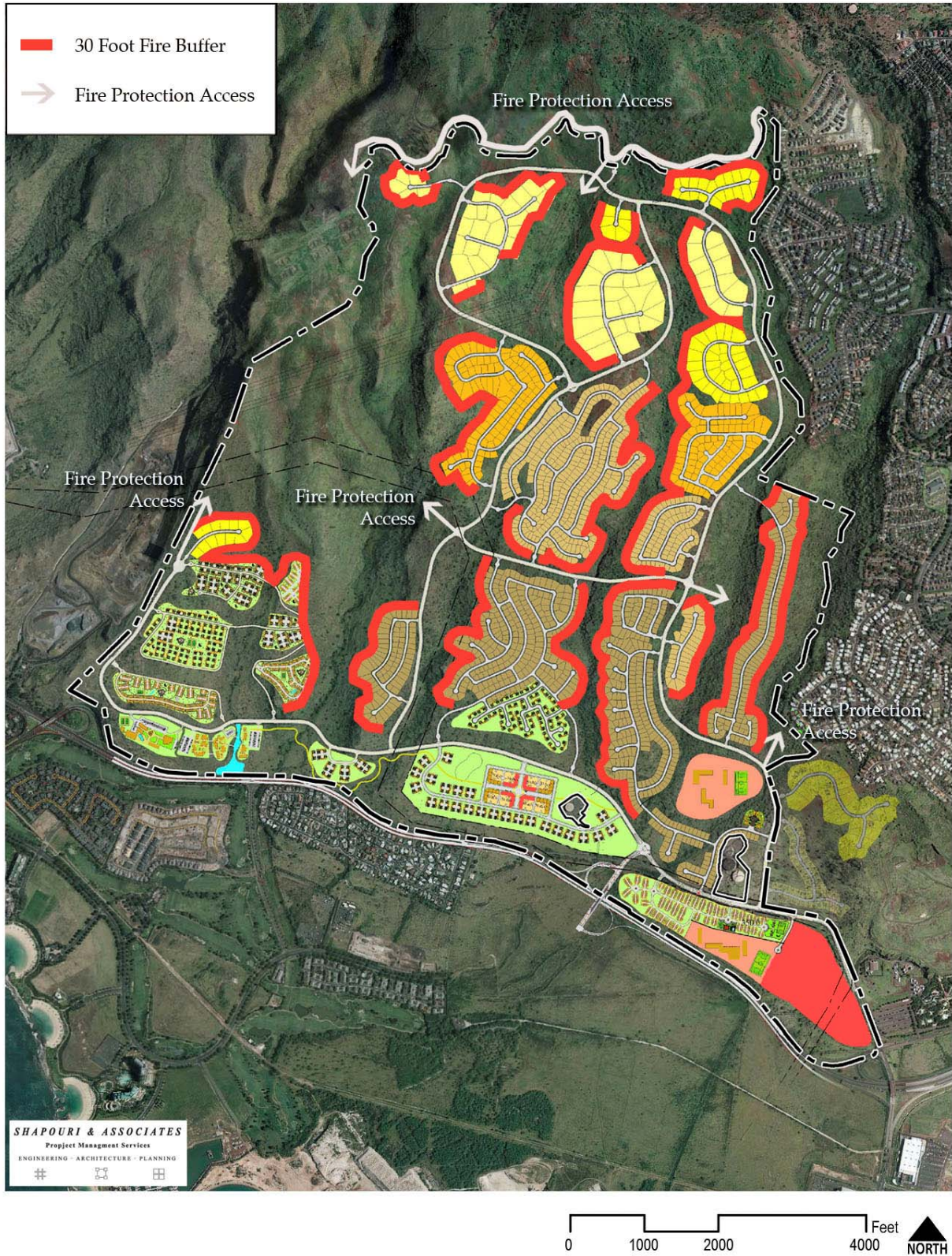
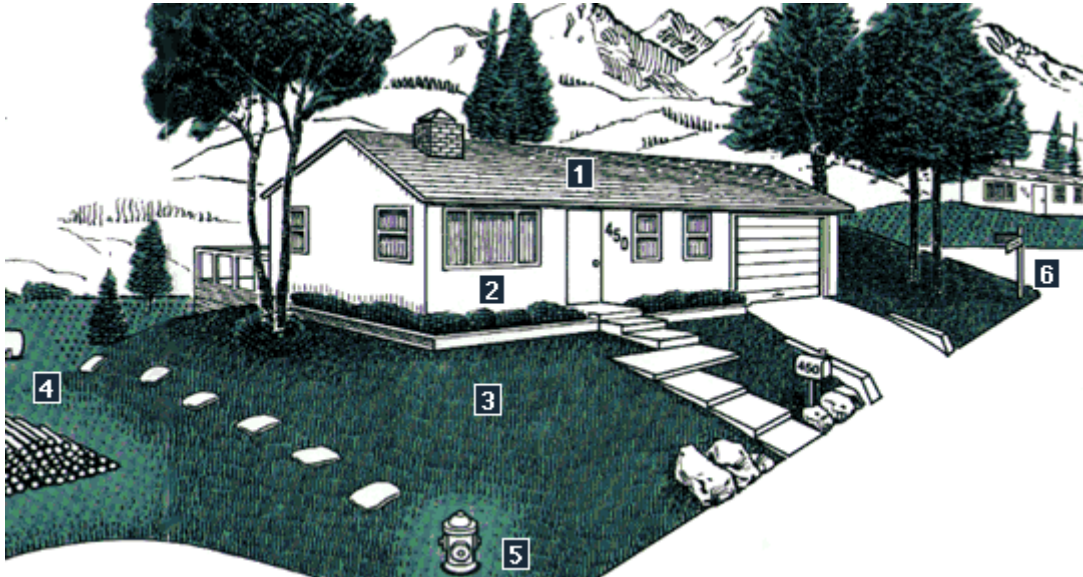


Figure 4.3 Fire Plan Prevention Measures



*How to Make Your Home Fire Safe - Exterior*

**Exterior**

1) Roof

- Remove dead branches overhanging your roof
- Remove any branches within 10 feet of your chimney
- Clean all dead leaves and needles from your roof and gutters
- Install a roof that meets the fire resistance classification of "Class C" or better
- Cover your chimney outlet and stovepipe with a nonflammable screen of 1/2 inch or smaller mesh

2) Construction

- Build your home away from ridge tops, canyons and areas between high points on a ridge
- Build your home at least 30 feet from your property line
- Use fire resistant building materials
- Enclose the underside of balconies and above ground decks with fire resistant materials
- Install only dual-paned or triple-paned windows

3) Landscape

- Create a "defensible space" by removing all flammable vegetation at least 30 feet from all structures and replacing it with fire resistant plants
- On steep slopes, remove flammable vegetation out to 100 feet or more
- Space native trees and shrubs at least 10 feet apart
- For trees taller than 18 feet, prune lower branches within 6 feet of the ground
- Choose ornamental landscaping plants that are fire resistant
- Reduce the number of trees in heavily wooded areas
- Maintain all plants by regularly removing dead branches, leaves and needles

4) Yard

- Stack woodpiles at least 30 feet from all structures and clear away flammable vegetation within 10 feet of woodpiles

- Locate LPG tanks (butane and propane) at least 30 feet away from any structure and clear 10 feet around the tanks
- Remove all stacks of construction materials, pine needles, leaves and other debris from your yard

5) Emergency Water Supply

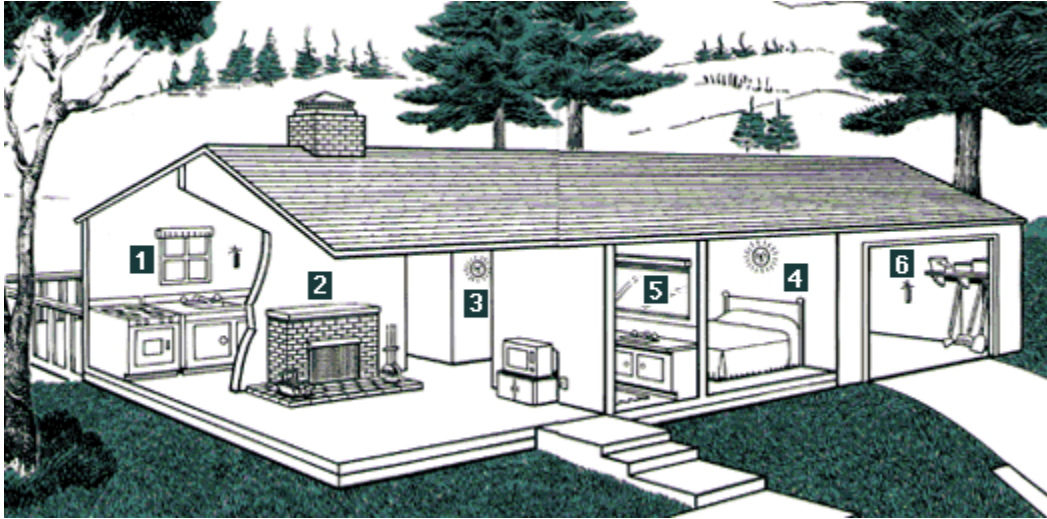
- Maintain an emergency water supply that meets fire department standards such as a community water hydrant system, a cooperative emergency storage tanks with neighbors or a minimum storage supply of 2,500 gallons on your property
- Clearly mark all emergency water sources
- Create easy firefighter access to your closest emergency water source

6) Access

- Identify at least two exit routes from your neighborhood
- Construct roads that allow two-way traffic
- Design road width, grade and curves to allow access for large emergency vehicles
- Construct driveways to allow large emergency equipment to reach your house
- Design bridges to carry heavy emergency vehicles, including bulldozers carried on large trucks
- Post clear road signs to show traffic restrictions such as dead-end roads, and weight and height limitations
- Make sure dead-end roads and long driveways have turnaround areas wide enough for emergency vehicles
- Construct turnouts along one-way roads
- Clear flammable vegetation at least 10 feet from roads and 5 feet from driveways
- Cut back overhanging tree branches above roads
- Construct fire barriers, such as greenbelts
- Make sure that your street is named or numbered, and a sign is visibly posted at each street intersection
- Make sure that your street name and house number are not duplicated elsewhere in the county
- Post your house address at the beginning of your driveway, or on your house if it is easily visible from the road

**Outside**

- Designate an emergency meeting place outside your home
- Practice emergency exit drills regularly
- Make sure that electric service lines, fuse boxes and circuit breaker panels are installed and maintained as prescribed by code
- Contact qualified individuals to perform electrical maintenance and repairs
- Consider installing residential sprinklers



*How to Make Your Home Fire Safe - Interior*

**Interior**

1) Kitchen

- Keep a fire extinguisher in the kitchen
- Maintain electric and gas stoves in good operating condition
- Keep baking soda on hand to extinguish stove-top grease fires
- Move the handles of pots and pans containing hot liquids away from the front of the stove
- Place flammable curtains and towels away from burners on the stove
- Store matches and lighters out of the reach of children
- Properly store flammable liquids in approved containers and away from ignition sources such as pilot lights

2) Living Room

- Install a screen on your fireplace
- Store the ashes from your fireplace (and barbecue) in a non-combustible container and dispose of only when cold
- Clean fireplace chimneys and flues at least once a year

3) Hallway

- Install smoke detectors between living and sleeping areas
- Test smoke detectors monthly and replace batteries twice a year
- Install child safety plugs (caps) on electrical outlets
- Replace electrical cords that do not work properly, have loose connections or are frayed

4) Bedroom

- If you sleep with the door closed, install a smoke detector in the bedroom
- Turn off electric blankets and other electric appliances when out in use
- Do not smoke in bed

5) Bathroom

- Disconnect hot appliances such as curling irons and electric irons when done; store in a safe location until cool
- Keep flammable items such as towels away from wall and floor heaters



6) Garage

- Mount a fire extinguisher in the garage
- Have tools such as a shovel, hoe, rake and bucket available for use in a wildfire emergency
- Install a solid door with self-closing hinges between living areas and the garage
- Dispose of oily rags in metal containers
- Store all combustibles away from ignition sources such as water heaters
- Disconnect electrical tools and appliances when not in use
- Allow hot tools such as glue guns and soldering irons to cool before storing

**Disaster Preparedness**

- Store at least a three-day supply of food that does not require refrigeration and generally does not need cooking
- Store at least a three-day supply of drinking water
- Store a portable radio, flashlight, emergency cooking equipment, portable lanterns and batteries
- Maintain first aid supplies to treat the injured until help arrives
- Keep a list of valuables to take with you in an emergency; if possible, store these valuables together to save time later
- Consider a portable generator to supply power to lights and cooking appliances
- Have a contingency plan to enable family members to contact each other
- Make sure that all family members are ready to protect themselves with STOP, DROP, AND ROLL

**4.1.8 Scenic and Visual Resources**

*4.1.8.1 Existing Conditions*

The visual character of the 'Ewa district has been altered from its formally rural agricultural character to an emergent urban setting with Kapolei's development a city. This alteration is most apparent along the low-lying 'Ewa Plain and along the H-1 Freeway. The mauka side of this arterial both to the east and west of the project area is characterized by urban features: the Makakilo residential community, Hawaiian Adventures Waterpark, the Pālalailai interchange and Ko 'Olina overpass, and the Waimānalo Gulch landfill.

The main feature of the visual setting is the relationship between the 'Ewa Plain and the foothills, with the alignment of H-1 Freeway/Farrington Highway along the intersecting seam of these two land features. The 'Ewa Development Plan identifies the makai views from the highway as significant. Makai views provide an expansive panorama past the shoreline to the horizon. The shoreline tends to be obscured by shoreline vegetation and buildings when viewed from the Freeway. Even with recent developments and the Campbell Industrial Park in the distance, there is still of expansive views to the urbanized 'Ewa plain.

Mauka views from the Freeway provide close-up views of the foothills. These views are not identified as significant on the 'Ewa Development Plan Open Space map. The Makakilo community is an example of previous development in the foothills. While this development is certainly noticeable from the H-1 Freeway, its impact on the mauka views is lessened due to the low building heights and softening of the rooflines by mature trees and landscaping.

4.1.8.2 Probable Impacts

There will be short-term construction related impacts to mauka views as areas are graded, buildings constructed, and landscaping installed. These impacts will persist until the landscaping is established. The construction will be conducted in phases; which limits the total area of adverse impact on views from the highway.

Long-term, the project will have no impact on the significant makai views from the freeway/highway alignment.

Looking mauka, the long-term impacts of the project would be new a residential community ascending up the Wai'anae foothills. About two miles of the project area that abuts the highway will be readily visible. Most of the immediate frontage will be zoned General Preservation (P-2) and maintained as an open space buffer, while the remainder just behind this will be either Apartment (A-1), Apartment Mixed Use (AMX-1 or -2) or Business Mixed-Use (BMX-3) or Apartment Mixed Use (AMX-2). All of this frontage would be landscaped to present an attractive entrance to the community. The accompanying view analyses (*Figure 4.4*) provide visual perspectives of the proposed project from various vantage points, including the Ko 'Olina resort, Honokai Hale, Kamokila Park, and from Makakilo. Conceptual renderings (*Figures 2.4, 2.5*) illustrate how the makai area may look when developed. Comparatively, Makaīwa Hills is anticipated to be much less impactful from a visual perspective than Makakilo because of the Makaīwa Hills planning intent to minimize disturbance to the landscape in the mauka sections of the property with larger and lower density lot sizes.

The natural gulches in the slopes of the foothills within the project area will be preserved as part of the conceptual land use plan's open space system, which is consistent with the 'Ewa Development Plan. Large swatches of open space will also be maintained throughout and between the various residential enclaves.

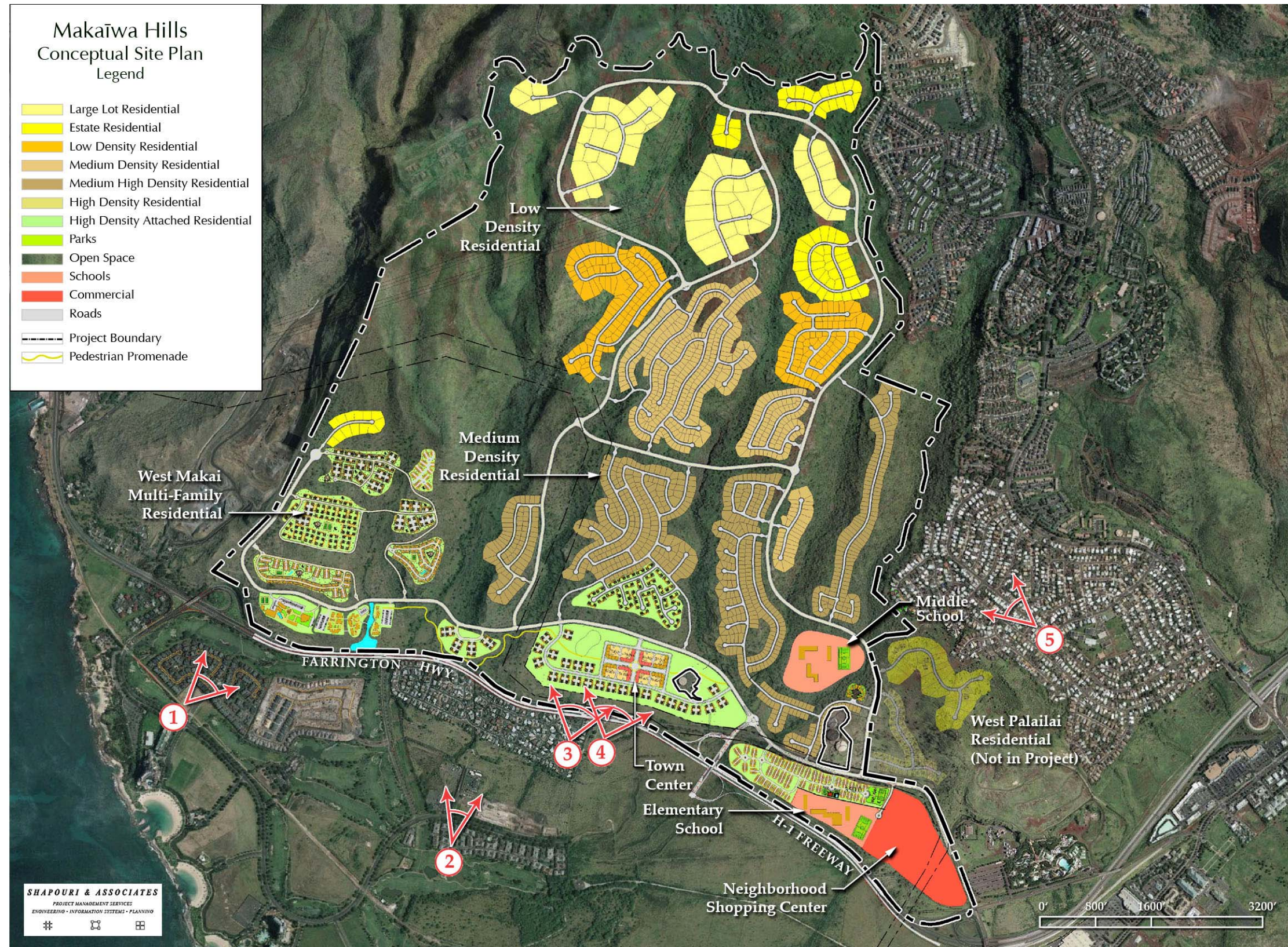


Figure 4.4a View Analysis (Photo Key)



Current View



Proposed View

Figure 4.4b View Analysis 1 (from Ko 'Olina Coconut Plantation)



Current View



Proposed View

Figure 4.4c View Analysis 2 (from Ko 'Olina Fairways)



Current View



Proposed View

Figure 4.4d View Analysis 3 (from Honokai Hale)



Current View



Proposed View

Figure 4.4e View Analysis 4 (from Kamokila Park)



Current View



Proposed View

Figure 4.4f View Analysis 5 (from Wainohia Street, Makakilo)



#### 4.1.8.3 Mitigative Measures

The Makaīwa Hills design guidelines will emphasize terracing to maintain existing gentle slopes. The conceptual land plan was specifically designed to mitigate the visual impact of the project on the viewshed. Significant open space, large lots and lower densities up the slopes will result in a noticeably improved visual perspective compared to other hillside developments on O‘ahu. Additionally, the transition between the graded areas and natural topography will be blended to avoid harsh lines. The exterior color palette of the structures will be earth tones to integrate with the surrounding landscape. Similar roofing materials and colors across the entire development would further preserve the foothill views.

Special attention will be paid to the project area’s H-1 Freeway/Farrington Highway frontage to mitigate the foreground views from this public perspective.

#### 4.1.9 Flora

##### 4.1.9.1 Existing Conditions

A pedestrian botanical survey was conducted by Rana Productions, Ltd, in late November and early December, 2005 noting the occurrence and relative abundance of all species of plants observed; the subsequent report is included as *Appendix J*. A primary goal of the survey was to determine if there were any federal or State of Hawai‘i listed endangered, threatened, proposed, or candidate botanical resources on or in the immediate vicinity of the project site; none were found.

As described in *Section 4.1.7*, a wildfire occurred at the project site in the summer of 2005. Some emergent vegetation was evident when the survey was conducted in December, 2005.

Seventy-two plant species were identified in the survey. Five of these are indigenous, but none of the five are endemic. The vegetation is characterized by flowering plants that are overwhelmingly dominated by alien plant species, especially grasses. The project area has three distinct vegetation areas: 1) higher elevation grass/scrub land with common shrubs (e.g., klu (*Acacia farnesiana*), ‘ilima (*Sida fallax*), wild basil (*Oscimum basilicum*) and trees (Christmas berry (*Schinus terebinthifolius*)), 2) kiawe forest (*Prosopis pallida*), and 3) Buffelgrass (*Cenchrus ciliaris*) community on grasslands. Kiawe abundance increases downslope with closed canopy forest at the base of the gulches. In the steep gulch margins that were not conducive to grazing, Guinea grass is especially dense and tall. On more gentle slopes, the grasses that have been grazed are shorter and there are areas of erosion with sparse vegetation.

##### 4.1.9.2 Probable Impacts

The results of the botanical survey indicate there are no special concerns related to botanical resources in the project area. The native species are likely to be located on the steep slopes of the gulches, which will not be developed. No adverse short-term or long-term direct or indirect impacts to flora are anticipated.

4.1.9.3 *Mitigative Measures*

The project will emphasize the maintenance and enhancement of native plantings and xeriscape landscaping within the open space areas and the developed areas.

**4.1.10 Fauna**

4.1.10.1 *Existing Conditions*

The project area was surveyed by Rana Productions, Ltd, in late November and early December, 2005; the subsequent report is included as *Appendix J*. A primary goal of the survey was to determine if there were any federal or State of Hawai'i listed endangered, threatened, proposed, or candidate mammalian or avian resources on or in the immediate vicinity of the project site; none were found. The results of a separate survey for invertebrate fauna are discussed below in *Section 4.1.11*.

Dogs, cats, mongoose, horses and cattle were the mammals observed during the survey. All of the mammals observed are introduced species. Twenty-one avian species were observed, and only one is indigenous, the migratory Pacific Golden Plover, which breeds in the high Arctic and winters in Hawai'i and the tropical Pacific. Avian diversity and densities were low, which was not surprising given the sparse vegetation.

The pueo or short-eared owl was not observed but is regularly seen along the length of the Wai'anae coast. Pueo forage in short grasslands such as range land or areas recently burnt by fire for insects, rodents and sometimes small birds. The potential for nesting sites is low based on the 1990 and 2006 surveys. The O'ahu population is an endangered species under the State endangered species program, but not the federal program.

Although no rodents were detected during the course of this survey, it is likely that roof rats (*Rattus r. rattus*), Norway rats (*Rattus norvegicus*), European house mice (*Mus domesticus*) and possibly Polynesian rats (*Rattus exulans hawaiiensis*) use resources within the general project area. All of these introduced rodents are deleterious to remaining native ecosystems.

No unique habitats were identified on the site, and none of the habitats are critical for the fauna identified.

In addition to the results noted in *Table 4-2*, a Barn Owl (*Tyto alba*) and Cattle Egret (*Bubulcus ibis*) were observed in the upper portion of the property. Native species of note are discussed further in the full report contained in *Appendix J*. No signs were observed of feral goats or pigs, but these common enemies of native host plants found in many similar environments on O'ahu.

4.1.10.2 *Probable Impacts*

There will be no anticipated direct short or long term impacts to State or federal candidate, proposed, or listed threatened or endangered faunal species. Although no pueo (Hawaiian Owls) were observed, there may be a minor indirect impact on pueo through reduction of potential

foraging area with the decrease of rangelands (grasslands); however, substantial amount of similar grasslands will remain both on the project site and in the surrounding areas.

Clearing of vacant lands can result in rodent migration to adjacent properties, creating a public health nuisance for nearby residential areas.

#### 4.1.10.3 Mitigative Measures

Requirements of Title 11, Chapter 26, Paragraph 35 (Rodents; demolishing of structure and clearing of vacant sites and vacant lots) will be followed.

The maintenance and enhancement of native plantings throughout the development will support the fauna found at the site.

### 4.1.11 Invertebrates

#### 4.1.11.1 Existing Conditions

Field surveys were conducted at the Makaīwa Hills site in October and November, 2006. A general assessment of terrain and habitats was conducted at the start of the survey. Surveying efforts were conducted at various times of day and night, a technique which is vital for a thorough survey. Native botanical resources identified by Char (1990) and by Guinther (David and Guinther 2006) were an important focus of the surveys.

~~In addition to the results noted in Table 4-2, a Barn Owl (*Tyto alba*) and Cattle Egret (*Bubulcus ibis*) were observed in the upper portion of the property. Native species of note are discussed further in the full report contained in Appendix J. No signs were observed of feral goats or pigs, but these common enemies of native host plants found in many similar environments on O'ahu.~~

#### 4.1.11.2 Probable Impacts

No federally or state listed endangered or threatened species were noted in the survey. The O'ahu Tree Snail (*Achatinella*), listed on the federal endangered species list, was not found. The habitat (elevation, host plants, and moisture levels) make the area inappropriate for the snail. Blackburn's sphinx moth (*Manduca blackburni*), an endangered species that favors drylands was also not found in this survey. Neither the moth's native host plant, 'aiea (*Nothocestrum sp.*), nor the best alien host, tree tobacco (*Nicotiana glauca*), was observed on the property. The moth has not been seen on O'ahu for many decades. No anticipated actions related to the proposed project activity in the surveyed locations are expected to threaten entire species or entire populations.

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Table 4-2  
List of Invertebrates

Species / common name	Status	Abundance	Recovered at/by
<b>MOLLUSCA GASTROPODA PULMONATA</b>			
(Snails and Slugs)			
<b>Succineidae</b>			
<i>Succinea sp. Hawaiian amber snail</i>	End	R	under stones
<b>ARTHROPODA ARANEAE (Spiders)</b>			
<b>Lycosidae</b>			
<i>Lycosa sp. Wolf spider</i>	End	O	under stones at light
<b>ARTHROPODA INSECTA</b>			
<b>Collembola (Springtail)</b>			
<b>Entomobryidae</b>			
<i>undetermined sp. 1</i>	?	O	under stones
<i>undetermined sp. 2</i>	?	O	under stones
<b>LEPIDOPTERA</b>			
<b>Cosmopterigidae (Case bearers)</b>			
<i>Hyposmocoma sp. 1 (straight, slender case)</i>	End	O	under stones
<i>Hyposmocoma sp. 2 (curved, broad case)</i>	End	O	under stones
<b>Crambidae (micro-moths)</b>			
<i>Eudonia sp.</i>	End	U	at light
<i>Tamsica hyacinthina (Meyrick 1899)</i>	End	C	at light
<i>Mestolobes sp.</i>	End	C	at light
<b>Noctuidae (Miller moths)</b>			
<i>Ascalapha odorata (Linnaeus, 1758)</i>	Adv	O	at light
<b>Black witch moth</b>			
<b>Oecophoridae</b>			
<i>Thyrocopa abusa Walsingham, 1907</i>	End	R	at light
<b>Pyralidae</b>			
<i>Cactoblastis cactorum (Berg, 1885)</i>	Pur	O	in Opuntia
<i>Prickly Pear Moth / Argentine cactus moth</i>			
<b>Sphingidae (Hawk moths)</b>			
<i>Agrilus cingulata (Fabricius, 1775)</i>	Adv	A	at light
<b>Sweetpotato hornworm</b>			
<i>Deilephila nerii (Linnaeus), 1758</i>	Adv	U	at light
<b>Oleander hawk moth</b>			
<i>Hyles lineata (Fabricius), 1775</i>	Adv	U	at flower
<b>Whiteline sphinx</b>			
<b>HETEROPTERA (True bugs)</b>			
<b>Miridae (leaf bugs)</b>			
<i>Hyalopeplus pellucidus (Stal, 1859)</i>	End?	R	swept from Sida

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Species / common name	Status	Abundance	Recovered at/by
<b>Transparentwinged plant bug</b>			
<b>HYMENOPTERA (Wasps, Bees, Ants)</b>			
<b>Formicidae</b>			
<i>Anoplolepis gracilipes</i> Long-legged ant	Adv	AA	on soil
<i>Pheidole megacephala</i> Big-headed ant	Adv	A	on soil
<b>ODONATA (Dragonflies and Damselflies)</b>			
<b>Libellulidae (Skimmers)</b>			
<i>Pantala flavescens</i> (Fabricius, 1798)	Ind	O	in flight on ridge
<i>Globe skimmer</i>			in flight at Farrington Hwy

Status:

- End endemic to Hawaiian Islands
- Ind indigenous to Hawaiian Islands
- Adv adventive
- Pur purposefully introduced
- ? unknown

ABUNDANCE = occurrence ratings for plants by area:

- R Rare seen in only one or perhaps two locations.
- U Uncommon- seen at most in several locations
- O Occasional seen with some regularity
- C Common observed numerous times during the survey
- A Abundant found in large numbers; may be locally dominant.
- AA Very abundant abundant and dominant; defining vegetation type.

4.1.11.3 Mitigative Measures

The survey found the slopes and gulches provide native species with shelter on remaining native plants. Accordingly, it is prudent to treat these areas with care, as here was the highest concentration of native mini-wildlife. Fulfillment of the project's concept of retaining and integrating open space and natural features, including slopes and gulches, should preserve habitats for many native species.

Additionally, landscaping with native dryland plants will serve to provide habitat for native arthropods, while creating an interesting recreation area for walking and bird watching. Importantly, using dryland plants to landscape will mean that long-term watering cost will be reduced following an initial establishment period. Native plants will remain green and thus more fire resistant throughout the summer. Native plantings will have very low maintenance costs as well (no hedge trimming or weed whacking). Planted in a mix of ground cover, shrub, and tree heights, native plants will also help slow run off on slopes and retain moisture. Native insects will find this refuge over time at no added cost. Such plantings will provide educational, visual and aesthetic benefit to residents.

4.2 BUILT ENVIRONMENT

4.2.1 Current Land Uses and Regulation

4.2.1.1 Existing Conditions

Land Regulation

The project area is approximately 1,781 acres of undeveloped land in Honouliuli, ‘Ewa District, Honolulu. The project area encompasses several parcels including Tax Map Keys (TMK) (1) 9-1-15:17 & portion of 05, and (1) 9-2-03: portions of 02, 05 & 84.

The project area was reclassified from Agricultural District to the Urban District by the State Land Use Commission in 1993, establishing that the development of up to 4,100 residential units as the highest approved and anticipated use of the property. *Table 4-3* and *Figures 1.3, 1.4 and 1.5* summarize the State and County land use designations.

**Table 4-3  
State and County Land Use Designations**

Jurisdiction	Existing Designation(s)	Proposed Designation(s)
State Land Use District	Urban District	Same
County Zoning	AG-1 (Restricted Agriculture). AG-2 (General Agriculture)	AG-2; P-2 (General Preservation); R-5, R-7.5, R-10, R-20 (various Residential districts). A-1 (Low-density Apartment); AMX-1, AMX-2 (Low- and Medium-density Apartment Mixed Use); BMX-3 (Community Business Mixed Use).
City & County of Honolulu ‘Ewa Development Plan	Low & Medium Density Residential; Community Commercial Center; Agriculture & Preservation; Parks & Golf Courses	Same

Adjacent Land Use

The site is bounded by the H-1 Freeway/Farrington Highway to the south (with the existing Honokai Hale residential subdivision, and the proposed Kapolei West master planned development south of the highway); the County’s Waimānalo Gulch Sanitary Landfill to the west; generally undeveloped agricultural lands to the northwest and north, and the Makakilo residential community to the east.

A 69.2-acre undeveloped area of previously R-5 zoned land (portions of TMKs 9-2-3: 05 & 9-1-15: 05) abuts both the Makakilo community and the southeast portion of the proposed Makaīwa Hills development. While this land is also owned by Makaīwa Hills, LLC, the development of the 100 to 250 unit West Pālailai Residential project is separate from the Makaīwa Hills project except for shared infrastructure, is anticipated to precede the Makaīwa Hills project and is not contingent upon the requested zoning change that is the basis of this EIS.

Camp Timberline (a privately operated facility), several telecom sites and a number of private residences are located on leased lands north (mauka) of the project site. Access to Camp Timberline and the private residences is via the privately-owned and gated Palēhua Road, at the top of Makakilo. Abandoned military buildings are also located off of Palēhua Road, north of the project site. The buildings were associated with the former Nike Station.

Waimānalo Gulch, home to a County sanitary landfill, drops sharply away off the western boundary of the project area, especially in the upper portions of the property. The landfill has completely filled the lower portions of the gulch, which will be grassed over and maintained as open space. The current expansion increment is scheduled to be fully utilized and closed by 2008, although there are plans to expand the landfill and maintain its use through 2015.

Two sites totaling approximately nine acres and located within the boundary of the project area contain Board of Water Supply (BWS) storage tanks (for both potable and recycled water); these two parcels (TMKs 9-1-15: 23 and 9-1-15: 11) are owned by the BWS and are situated just north of Old Farrington Highway near the southern boundary of the project (*Figure 1.2*). These parcels are not part of the project area.

#### Current Land Uses

Current uses of the project area, including an ornamental tree nursery and a grazing area for horses and cattle, are described below.

#### *Nursery*

Approximately 11 acres of flatland between the H-1 Freeway and Old Farrington Highway are leased to a nursery, which uses the land as a grow-out area for ornamental trees destined for projects in 'Ewa and elsewhere. The nursery provides two or three jobs.

#### *Grazing*

About 76 acres of the flatland are leased for use as horse pasture. The seven or eight horses are occasionally moved to the lessee's property in Maunawili for grazing. The horses are kept for the personal enjoyment by the family; the operation is not a commercial enterprise and provides no employment. The eventual development of the project will require the operator to find other pasture land on O'ahu.

A livestock company grazes cattle on about 1,694 acres of leased land within the project area. This area includes some of the flatlands between the H-1 Freeway and Old Farrington Highway, plus the majority of the hillside mauka of the Highway up to Palēhua Road. The company's ranch encompasses about 4,009 acres surrounding Makakilo up to the Honouliuli Forest Reserve, most of which is leased from the James Campbell Company.

The current herd of 267 cow/calf units is being rebuilt to about 300 units, reflecting the low grazing capacity of the lands during dry periods. The carrying capacity is low because of low rainfall in the area, rocky soils, and the presence of gulches and very steep slopes on much of the land. The ranch provides employment and a desired lifestyle to three full-time workers and one part-time worker.

4.2.1.2 Probable Impacts

Land Regulation

The proposed development is consistent with the State and County goals and with the State land use classification, but is not consistent with current County zoning. The change from agricultural zoning to a range of residential and commercial zoning districts would bring the County's zoning designation for the site into consistency with the State Land Use classification, and would have beneficial long-term impacts on socio-economics as described in *Section 4.4*. The project is not anticipated to have adverse long-term significant impacts on agriculture, as described below and in *Section 4.2.5*.

Adjacent Land Uses

The BWS tank sites, Camp Timberline, telecommunication sites and the private residences outside the project area are not expected to be adversely impacted by the proposed development. Palēhua Road will remain private and gated, while the BWS tank sites will also be protected behind secured fences.

Makakilo residents will be provided with a valuable new entry and exit route into and out of their community, and will be able to access commercial services without having to cross the freeway. The planned West Pālailai Residential development is anticipated to precede the construction of Makaīwa Hills, and these two residential developments will benefit from the shared use of infrastructure.

The Waimānalo Gulch Sanitary Landfill is expected to continue operations unimpeded by the Makaīwa Hills project, which was designed with buffers such as topography, open space and vegetation to minimize views and other impacts of the landfill. The presence of the landfill is recognized and respected in the conceptual land plan for Makaīwa Hills. The new expansion increment of the landfill extends to the coincidental property line at this location. New roadways and residential development within the project area will be setback from the property boundary, with the closest residential structure located several hundred feet away.

The proposed residences in this western makai portion of the project site will be generally located at the same elevation as the recently closed sections of the landfill, which are currently being re-naturalized. By the time these homes are occupied in this phase of the project, anticipated around 2012-2015, only the upper increment of the landfill, about 1,000 feet further mauka from these residences, may be active.

Current Land Uses

Approximately eleven acres of tree nursery will be replaced by the project. The nursery will relocate offsite if suitable land with water is available at acceptable terms. It is anticipated that the nursery will relocate with no significant impact to its operation. If suitable land with water cannot be obtained, then this nursery will close and other nurseries are likely to increase their operations to compensate for the loss in the supply of ornamental trees. Alternatively, one or more new nurseries may enter the market. The island-wide impact on nurseries would be minor.

The area currently used for horse pasture will be developed. The horse grazing use is not a commercial operation and provides no employment. Other grazing lands for horses are available



on O'ahu, including potentially the 126 acres within the project area to remain in the Agricultural zoning district.

Development of the project will remove about 1,694 acres (42% of current lease area) from cattle operations onsite, resulting in the following estimated impacts: 150 fewer cow/calf units (down 50%), 120 fewer calves per year, \$36,000 less gross annual revenues, 1.2 fewer full-time-equivalent jobs, and \$20,000 less annual payroll. Other grazing lands are available in the region, including potentially the 126 acres within the project area to remain in the Agricultural zoning district. Should those acres be utilized by the cattle operation, the existing grazing area will have been reduced by 39%.

#### 4.2.1.3 Mitigative Measures

In light of the relatively small adverse impact to employment and to the nursery and cattle industries, no mitigation is necessary or proposed for the loss of 11 acres of nursery, the horse grazing activities, and the reduction in local cattle grazing area. No mitigation is proposed for the reduction of 98 acres of prime land from the O'ahu agricultural land inventory.

The timing for closure of the Waimānalo Gulch Sanitary Landfill by 2008, versus planned development of the western portion of the project by 2015 or beyond, indicates that there will be no direct landfill operations effects on the new residents; this will be true even if the current proposal to expand the landfill and maintain its use through 2015 is approved. The planned finish elevation of the closed landfill will not have a significant effect on views from this new residential area. The owners will follow the progress of the landfill and coordinate with the County Department of Environmental Services as the closure plan is developed in the years ahead. Also to be discussed is the owners' concern about the proximity of landfill grading and operations to the joint property line.

#### 4.2.2 Traffic

Public policy is to reduce traffic currently flowing into the existing Honolulu Primary Urban Center by developing a new urban core with an equitable balance of quality jobs and a variety of attractive housing options in the City of Kapolei. A major goal of the plans for the Kapolei region is to balance growth in the residential population with growth in the regional economy so that many future residents will have an opportunity to both work and reside within their community rather than requiring socially, economically and environmentally inefficient commuting to a single urban core in Honolulu.

With the growth of the City of Kapolei, regional traffic patterns are expected to significantly improve, primarily by removing essentially one car off the H-1 Freeway for each Kapolei job created. With job creation now projected to outpace worker-aged population, new development in Kapolei will help resolve rather than add to the existing regional traffic problem.

The Makaīwa Hills Traffic Impact Assessment Report (Wilbur Smith Associates, 2007) (*Appendix D*) analyzed the project's impact on key intersections in the area and on the H-1 Freeway ramps that would provide the primary project access. The report examines existing traffic conditions and

forecasts expected conditions at an interim development stage (2015) and at full build-out in 2020 both with and without the project.

The development of the project is planned to begin in the southeast area and to continue westward through the makai areas of the project site, with later development extending mauka. Full development of the project is anticipated in 2020. Initially, the project access would be provided to the H-1 Freeway at the Pālailai Interchange via an extension of Kalaeloa Boulevard mauka from its present intersection with Farrington Highway. Later, a second primary access would be provided to Farrington Highway near the Honokai Hale community at the future junction with Kapolei West Road D. The major internal project roadways would extend mauka and west from the major east-west roadway (Road A) that would connect these two regional access points. Thus, a 2015 traffic analysis was also conducted to test the adequacy of an initial at-grade intersection at the junction of Road D with Farrington Highway.

#### *4.2.2.1 Existing Conditions*

This DEIS section summarizes the existing conditions in the general region of the project. The overall street conditions and future roadway needs in the City of Kapolei area are being reassessed in a separate on-going traffic update study for the roadway master plan study conducted in the early 1990's.

##### *Existing Roadway System*

The major roadway system near the Makaīwa Hills development (the project area) is depicted in *Figure 4.5*. The major roadways within the western City of Kapolei-to-Ko 'Olina area are discussed in the following paragraphs.

##### *H-1 Freeway*

This freeway is the major east-west roadway in the 'Ewa District and connects the 'Ewa area to central Honolulu and other areas of O'ahu. City of Kapolei traffic access to the freeway is via the Makakilo (Makakilo Drive-Fort Barrette Road) and Pālailai (Kalaeloa Boulevard) interchanges. H-1 Freeway has six travel lanes east of the Pālailai Interchange and four lanes west of the interchange to its terminus east of the Honokai Hale community.

##### *Farrington Highway*

This State highway parallels the H-1 Freeway and serves east-west travel through the 'Ewa District from the Waipahu area to the Pālailai Interchange. Farrington Highway serves as the major regional route west from the terminus of the H-1 Freeway just east of the Honokai Hale residential area. The section between Kamokila Boulevard and Kalaeloa Boulevard is a two-lane roadway. Farrington Highway continues west of the H-1 Freeway terminus as a four-lane divided highway to connect to the Ko 'Olina and Waianae coast areas.

##### *Kalaeloa Boulevard*

This major roadway provides access from the H-1 Freeway at the Pālailai Interchange to the Kapolei Business Park, Campbell Industrial Park, and Barbers Point Harbor. The roadway also provides access to the City of Kapolei area via the Kapolei Parkway connection to Kamokila Boulevard. Kalaeloa Boulevard is a four-lane divided roadway from the H-1 Freeway to Malakole

Road, and is a two-lane street within the Campbell Industrial Park area makai of Malakole Street. Traffic signal controls are provided at the intersection with the Kapolei Parkway.

#### *Wakea Street*

The existing street extends only one-block south of Kamokila Boulevard. North of Kamokila Boulevard, the street right-of-way is being used temporarily as the transit terminal for TheBus routes serving the Kapolei area. This roadway is planned for extension southward to serve as a key north-south arterial within the commercial core area of the City of Kapolei.

#### *Kamokila Boulevard*

This major roadway connects Farrington Highway to the Kapolei Parkway and Kalaeloa Boulevard and provides access to the center of the City of Kapolei. Kamokila Boulevard provides two through lanes in each direction. The roadway has a landscaped median area for most of its length and has left-turn lanes at the intersections with cross streets and driveways.

#### *Kapolei Parkway*

This major roadway is planned to be a major traffic artery connecting the City of Kapolei to the Ko 'Olina area to the west and to the Villages of Kapolei and other communities to the east. Within the Kapolei area, the only completed portions of the roadway are the one-block segment between Kalaeloa and Kamokila Boulevards and a short section on the Honolulu side of Fort Barrette Road that provides access to the Kapolei Middle and High Schools, as well as the Villages of Kapolei. These segments have a median-divided roadway with two or more traffic lanes and a bicycle lane in each direction.

#### *La'aloa Street*

This neighborhood collector street provides access to Farrington Highway for the eastern portion of the Honokai Hale residential community. Parking is permitted along both sides of the two-lane street. The street extends to the makai boundary of the community.

#### *Waiomea Street*

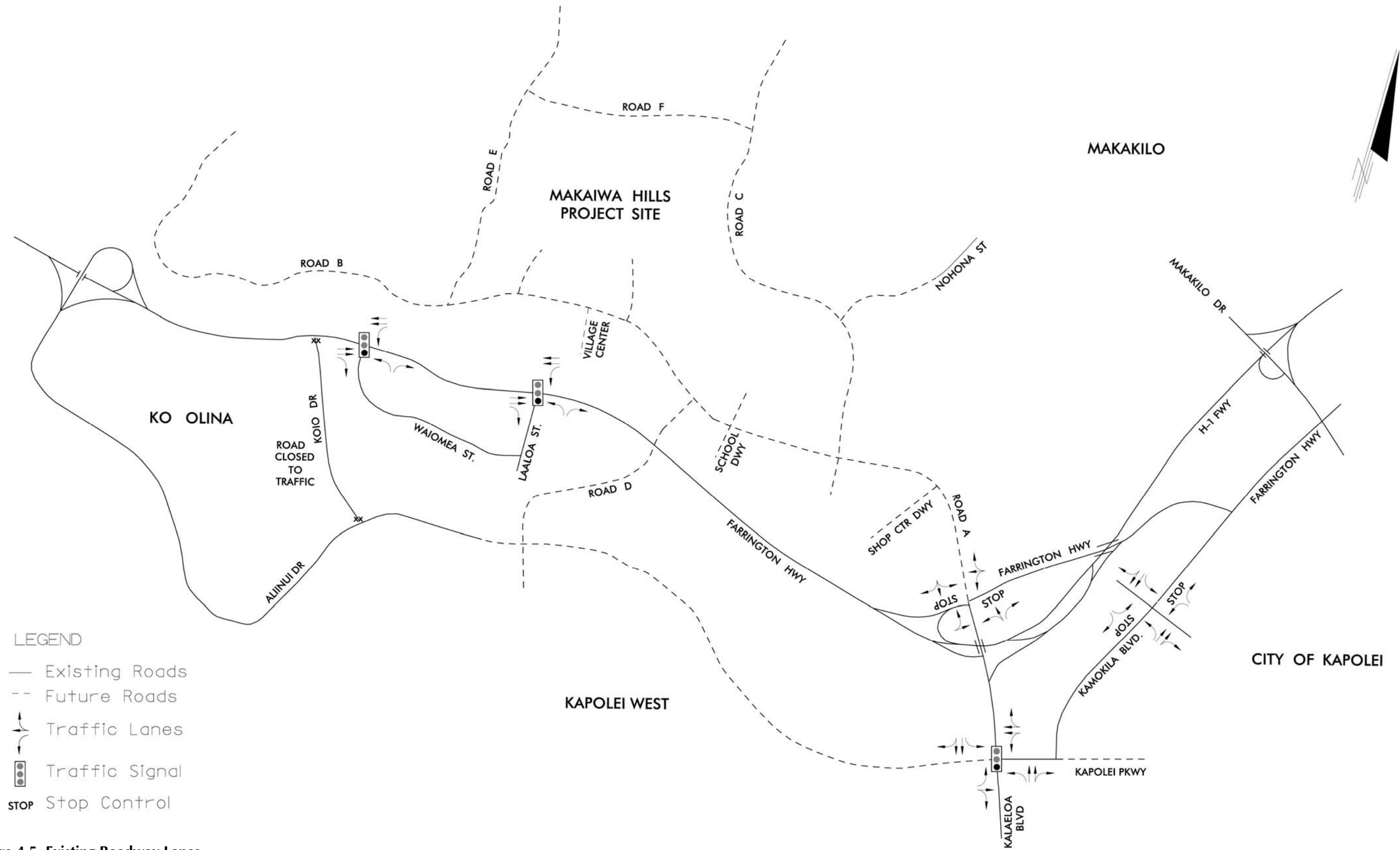
This neighborhood collector street provides access to Farrington Highway for the western portion of the Honokai Hale (Nanakai Gardens) residential community. Parking is permitted along both sides of the two-lane street.

#### *Kō'i'o Drive*

This four-lane roadway with a landscape median is intended to connect Ali'inui Drive to Farrington Highway. The roadway has been barricaded and used only by construction traffic. The connection to Farrington Highway has been constructed to permit only right-in/right-out movements.

#### *Ali'inui Drive*

This four-lane highway with landscaped median provides access to the Ko 'Olina area from Farrington Highway. The junction with Farrington Highway is a trumpet-type interchange. The cross street approaches to Ali'inui Drive are controlled by STOP signs. At present, a guard booth is located near Farrington Highway to monitor access into Ko 'Olina. STOP signs are posted along Ali'inui Drive at the two OR&L rail crossings as the means of crossing protection.



LEGEND

- Existing Roads
- Future Roads
- ↑ Traffic Lanes
- ☐ Traffic Signal
- STOP Stop Control

Figure 4.5 Existing Roadway Lanes

### Existing Traffic Volumes at Key Intersections

Wilbur Smith Associates (WSA) conducted special turning movement counts at the key intersections in the City of Kapolei, Ko 'Olina, and along Farrington Highway during the weekday morning and afternoon peak commute traffic periods in 2005 to early 2006. Traffic counts were made for each 15-minute period between 6:00 and 8:30 AM, and between 3:30 and 6:30 PM. The 15-minute counts were used to identify the peak one-hour volumes at the study intersections in the morning and afternoon commute periods. The peak one-hour volumes generally started at 7:00 or 7:15 AM in the morning commute period, and 4:15 to 4:30 PM in the afternoon peak period.

Peak hour traffic volumes on the H-1 Freeway were based on traffic counts made by WSA on Farrington Highway at the La'aloa and Waiomea Street intersections on February 3, 2005. The WSA May 2005 traffic survey included counts at the H-1 Freeway on- and off-ramps at the Pālailai Interchanges. The Farrington Highway and H-1 Freeway ramp traffic counts were used to derive the traffic volumes along the Freeway through the City of Kapolei.

At most locations along Farrington Highway, the afternoon peak hour two-way traffic volumes are higher than those in the morning peak hour. The peak hour counts used in this study generally reflect the 6:30-7:30 AM, although the peak hour at intersections along Kamokila Boulevard are from 7:00 AM to 8:00 AM. The afternoon peak hour is generally for the 4:30-5:30 PM period, which is the peak hour for the traffic within the City of Kapolei, with an earlier peak hour along Kalaeloa Boulevard and later peak hour along the H-1 Freeway/Farrington Highway.

The section of Farrington Highway adjacent to the project site accommodates high volumes of traffic in the Honolulu-bound direction in the morning peak period, with a volume of about 1,680 eastbound and 1,390 westbound vehicles along the section between the Pālailai Interchange and Honokai Hale. The afternoon peak hour volumes along this section are about 30% higher than the morning volumes with traffic heavier in the Waianae-bound direction in the afternoon peak period (2,370 westbound versus 1,660 eastbound vehicles).

### Existing Traffic Conditions at Key Intersections

Traffic conditions were analyzed for the weekday morning and afternoon peak one-hour traffic volumes. The analyses were made for the key intersection near the project site, and for the key H-1 Freeway ramps at the Pālailai Interchange. The methodology and criteria used in analyzing the traffic conditions at the intersection and on the freeway are described in *Appendix D*.

The overall traffic conditions at each of the key intersections are summarized in *Table 4-4* for the weekday morning and weekday afternoon peak traffic hours. The existing peak hour traffic volumes at the Farrington Highway intersections with La'aloa and Waiomea Streets amount to approximately 58% of intersection capacity in the morning peak hour and 75% of capacity in the afternoon peak hour. The overall levels of vehicle delay are at very acceptable conditions (LOS A or B). However, the vehicles waiting to turn left into or out of the two side streets typically experience long delays (LOS D or E).

**Table 4-4  
Existing Traffic Conditions at Key Intersections**

Intersection	Type of Traffic Control	Morning Peak Hour			Afternoon Peak Hour		
		V/C	ADPV	LOS	V/C	ADPV	LOS
Farrington Highway – Waiomea Street	Signal	0.58	14.1	B	0.74	6.3	A
Farrington Highway – La’aloa Street	Signal	0.58	9.1	A	0.75	12.6	B
Kalaeloa Boulevard – Farrington Highway	STOP sign LOS for NB Left Turn	0.44	6.5	D	1.29	71.1	F
Kalaeloa Boulevard – Kapolei Parkway	Signal	0.64	20.88	C	0.93	42.2	D
Wakea Street – Kamokila Boulevard	STOP sign LOS for NB Left Turn	0.32	42.8	E	0.70	49.1	E

V/C – Ratio of the traffic volume to the theoretical capacity of the intersection  
 ADPV – Average delay per vehicle, in seconds  
 LOS – Level of service

The traffic turning left from the STOP sign-controlled Kalaeloa Boulevard approach onto the Westbound On-Ramp at the Farrington Highway intersection experienced long delays in the weekday afternoon peak hour. The traffic analysis indicates an average delay of about 3 minutes per vehicle. Field observations noted the occasional formation of queues of up to 10-12 vehicles at times in the weekday afternoon peak hour. The average delays during the weekday morning and Saturday peak hours were at acceptable levels (LOS D).

The overall traffic conditions at the signal-controlled Kalaeloa Boulevard intersection with Kapolei Parkway were at very acceptable overall levels in the weekday morning peak hour with the morning peak hour traffic approximating 64% of the intersection capacity and the average delay for all traffic passing through the intersection at an acceptable LOS C. The afternoon peak hour volumes approximated 93% of the estimated intersection capacity with the primary conflict between the high volume of mauka-bound traffic and the makai-bound left-turn along Kalaeloa Boulevard. Overall average delay was LOS D in the afternoon peak hour, with LOS E for the left-turn from makai-bound Kalaeloa Boulevard.

Existing Conditions at Pālalailai Interchange Ramp Junctions with Freeway Lanes

Each on-ramp merge or off-ramp diverge area along the freeway was analyzed using the 2000 Highway Capacity Manual (HCS 2000), with the results summarized in Table 4-5. Eastbound On-ramp KC-1 from the Eastbound Weaving Roadway and westbound Off-ramp PD to Kalaeloa Boulevard are not included in the analysis since freeway through lanes are added or reduced via these ramps.

The HCS 2000 analysis estimates the average vehicle density and travel speeds along the 1,500-foot section of freeway through lanes affected by traffic entering or exiting the freeway, with the density also used to identify the level of service within this ramp influence area along the freeway mainline. The analysis is made for the two outside lanes that are most directly affected by the

traffic entering/exiting the ramps and, for sections with three or more through freeway lanes, the conditions in the other lanes that are less affected by the ramp traffic.

LOS C or better conditions are estimated for each of the ramp merge/diverge areas for the Pālalailai Interchange for both peak hours. The merge or diverge of each of the ramps with the freeway through lanes presently operate at very acceptable densities and with little impact on traffic speeds.

**Table 4-5  
Traffic Conditions along Freeway Merge and Diverge Areas**

Ramp Junction	Peak Hour	Average Speed (mph)		Traffic Density (vplph)	Level of Service
		Near Ramp	Other Lanes		
<b>Eastbound Freeway</b>					
Off-ramp PB to Kalaeloa Blvd.	AM	50.8	NA	20.4	C
	PM	50.9	NA	20.3	C
Off-ramp PC to EB Weaving Roadway	AM	50.4	NA	17.8	B
	PM	50.6	NA	18.8	B
<b>Westbound Freeway</b>					
On-ramp PA from Kalaeloa Blvd.	AM	51.1	NA	14.9	B
	PM	50.6	NA	23.2	C

Near Ramp is the 1,500-foot section of the 2 lanes closest to ramp. Other lanes are lanes closest to median if 3 or more lanes on freeway. Level of Service is for 2 lanes near ramp.  
Vplph = vehicles per lane per hour for 2 lanes near ramp.

Traffic conditions are not presented for the junction of On-ramp KC-1 from Kalaeloa Boulevard since it joins the eastbound freeway as an added through lane and no merge maneuver is necessary. The on-ramp from the Eastbound Weaving Roadway has an estimated potential capacity of about 2,100 vehicles per hour. The afternoon peak hour volumes amount to about one-half of the capacity.

Similarly, the westbound freeway drops from three lanes to two lanes with the drop of the outside lane as the entry to the loop Off-ramp PD. This off-ramp for westbound traffic exiting from the H-1 Freeway to Kalaeloa Boulevard and Farrington Highway has an estimated capacity of about 1,800 vehicles per hour. The morning peak hour volume of just over 900 vehicles amounts to about half of the potential ramp capacity.

Existing Public Transportation

The County provides public transportation services to the City of Kapolei and along Farrington Highway adjacent to the Makiwa Hills development area. TheHandiVan provides door-to-door service for persons who have difficulty in accessing the fixed route service.

*Kapolei Transit Center*

The City and County of Honolulu has constructed a temporary Transit Center on the alignment of the future extension of Wakea Street mauka of Kamokila Boulevard. The Transit Center provides a transfer site for all of TheBus local and regional routes that serve the City of Kapolei and the

surrounding communities. Upon commencement of the construction of the Kapolei Interchange, the Transit Center will be relocated, with the planned future site near the intersection of the Kapolei Parkway and Kama'aha Avenue.

#### *TheBus Stops*

Bus stops for the existing TheBus routes are located along both sides of Farrington Highway at the intersections with La'aloa Street and Waiomea Street. There is also a TheBus stop located within the Hawaiian Waters Adventure Park along the driveway that connects the East and West Water Park entry/exit driveways.

#### *TheBus Routes*

The existing bus routes that provide service along Farrington Highway near the Makaīwa Hills project site include the following:

#### *Route C Country Express*

Route C provides an express/limited stop service through the City of Kapolei area, with the route extending to the Honolulu Downtown area and Ala Moana Center to the east and along the Waianae Coast to Makaha to the west. Route C buses use the freeway east and west of the City of Kapolei and enters/exits the freeway at the Makakilo and Pālailai Interchanges to provide service along Farrington Highway and Kamokila Boulevard between the two interchanges. The service operates seven days a week from about 4:30 AM to 11:00 PM. Route C travels along Farrington Highway past the Project site with a stop at La'aloa Street near the site.

#### *Route 40 Makaha-Honolulu*

This trunk route provides regular service between the Waianae Coast and the central areas of Honolulu, with the route following Farrington Highway through the City of Kapolei and Waipahu areas. This route travels past the Project site along Farrington Highway between the Kapolei Transit Center and the Waianae Coast. Buses travel mauka on Kalaeloa Boulevard, turn east on Farrington Highway, and turn left into the Water Park East Driveway to access the bus stop within the park. The buses exit the Water Park West Driveway and return to Kalaeloa Boulevard to travel to Waianae or the Kapolei Transit Center. These buses also service the bus stops at Honokai Hale. The route provides service at a 30-minute frequency through the daytime and evening and hourly service through the night.

#### *Bicycles and Pedestrians*

There are no bicycle lanes provided along the sections of Farrington Highway or Kalaeloa Boulevard near the project site. There are bicycle lanes located along Farrington Highway east of the Kamokila Boulevard intersection, with a continuation of the bicycle lanes along Kamokila Boulevard west of the intersection. Bicycle lanes are also provided along the block of Kapolei Parkway between Kamokila and Kalaeloa Boulevards.

The section of Farrington Highway extending eastward from the Kalaeloa Boulevard intersection to the freeway overpass has a 4- to 8-foot wide paved shoulder along each side of the roadway. Bicyclists using this section of roadway would be expected to ride along the paved shoulder. Along most other major roadways near the project site, bicycles would use paved shoulder areas, wide outside lanes, or travel within the regular traffic lane.



There are no sidewalk facilities and few marked crosswalks provided along the sections of Farrington Highway and Kalaeloa Boulevard near the project site. There are marked crosswalks across Farrington Highway at La'aloa and Waiomea Streets intended primarily for use by bus passengers to access the bus stops on the mauka side of the highway. There are sidewalks along Kamokila Boulevard and along the Kapolei Parkway with marked crosswalks provided at the intersection.

#### 4.2.2.2 *Planned Improvements*

##### Planned Regional Transportation Improvements

A number of roadways and/or improvements have long been planned for the Kapolei area. These actions are identified by three major planning documents, the O'ahu Regional Transportation Plan (ORTP), the Transportation Improvement Program (TIP) and Ordinance 02-52.

The ORTP is a long-term vision document that outlines transportation goals, objectives, and policies for O'ahu. The 20-year horizon of the plan guides future development of the major surface transportation facilities and programs. Based upon projected transportation needs, financial resources, and community input, the ORTP identifies short-range and long-range strategies and actions to promote the development of an integrated intermodal surface transportation system that facilitates the safe, efficient, and economic movement of people and goods. The ORTP is updated every five years.

The TIP is a short-term, three-year implementation program for federally-assisted surface transportation projects that will be undertaken by the State and City. Projects in the TIP must be consistent with the ORTP. The TIP describes and prioritizes approved federally-assisted and major locally-funded transportation programs and projects. The TIP identifies funding amounts by source of funding, jurisdictional responsibility, type of project, and year of funding for these projects. The TIP undergoes an annual review and a major biennial update.

Ordinance 02-52 was passed in 2002 and relates to impact fees for traffic and roadway improvements in 'Ewa. Through this ordinance the County determined that in order to maintain an acceptable level of road service and to preserve the quality of life in the area, additional funding resources are required and there is a need for a system of assessing, on a pro-rata share basis, a portion of the reasonably anticipated costs of improving and expanding the capacity of the 'Ewa roadway and traffic facilities necessitated by the new land development within the region.

The following roadways and/or modifications are identified within the ORTP, TIP, Ordinance 02-52, or adjacent development projects as planned transportation improvements for the Kapolei area by the County, State, or adjacent property developers.

- Construction of Hanua Street Extension from Malakole street to Pālailai Interchange (ORTP# 84,111);
- Construction of additional ramps at Pālailai Interchange to accommodate Hanua Street connection to freeway (ORTP# 84,111);
- Construct the Kapolei Interchange
- Construct Road D between the Kapolei Parkway and Farrington Highway
- Construct the Kapolei Parkway

- Construction of Kapolei Parkway as six-lane roadway from Hanua Street Extension to Kamokila Boulevard (ORTP #s 265 and 266, TIP #s 11B/C21 and 11C/C22, 'Ewa HMP)
- Widen Kalaeloa Boulevard to six lanes at the Kapolei Parkway intersection

#### Planned Public Transportation Improvements

The City and County of Honolulu provides public transportation services along Farrington Highway and Kalaeloa Boulevard near the Makaīwa Hills Project development area. These include a number of TheBus bus routes between the Waianae Coast and the Kapolei Transit Center in the City of Kapolei via the Pālailai Interchange. TheHandiVan provides door-to-door service for persons who have difficulty in accessing the fixed route service.

#### *TheBus Routes*

The fixed-route bus network for the area is expected to be modified to increase coverage west of the City of Kapolei as development occurs in new areas, and service increased as the employment and number of residents increase. Candidates for new TheBus fixed-route service would include:

- Extension of bus service along the section of Kapolei Parkway between Kalaeloa Boulevard and Ko 'Olina once this extension is complete.
- Extension of bus service along the Wakea Street extension and Farrington Highway to the Pālailai Interchange once the new Wakea Street overpass is complete.

#### *Kapolei Area Transit Centers*

The Kapolei Transit Center will be relocated when the Kapolei Interchange is constructed, as an extension of Wakea Street will be used to connect the City of Kapolei to the new interchange. The new Transit Center is planned for a site along the Kapolei Parkway near Kama'aha Avenue, with the facility serving as a transfer point between area routes as well as providing park-and-ride spaces for use by transit patrons.

A second area transit center is planned for the area immediately west of the Honolulu Advertiser facility that will also accommodate transfers between area transit routes as well as provide park-and-ride spaces. This second facility would be developed on the Kapolei West Parcel L in conjunction with the mixed use development planned for that site.

#### *Honolulu Transit Fixed-Guideway System*

The City and County of Honolulu is planning to develop a public transit guideway that will extend from the central Honolulu area as far westward as the planned City of Kapolei transit centers in the City of Kapolei and the Kapolei West Parcel L. The initial sections of the guideway are expected to be in operation prior to 2015. At the time of the Makaīwa Hills traffic study, the phasing of the construction of the guideway was under consideration by the City and County of Honolulu. Therefore, it was unknown whether the guideway section serving the Kapolei or Parcel L transit centers would be in service by 2015 or 2020. Therefore, the 2015 and 2020 traffic forecasts for the Makaīwa Hills Project reflect only the completion of the two transit centers as bus facilities.

#### Growth of H-1 Freeway Through-Traffic

A growth factor was applied to existing traffic volumes on the H-1 Freeway to reflect increased travel between the Waianae Coast areas west of Ko 'Olina and the areas of O'ahu east of the Kapolei area that pass through but do not stop within the Kapolei-Ko 'Olina area. The growth

factor was determined from the traffic counts for the State DOT count station located on the H-1 Freeway west of Makakilo Drive (count station #H10-A).

The historic counts indicated an average annual growth rate of 0.5% per year between January 1999 and January 2002. The 0.5% annual growth rate was assumed to continue through the study period. With this rate, the 2005 freeway volumes are estimated to increase 5.1% by 2015 and 7.8% by 2020. These volumes are further increased by the forecast trips to/from the new development within and near the City of Kapolei.

Traffic Conditions Without the Project at 2020

The 2020 forecasts without the project include the build-out of the Kapolei West area; the completion of most of the commercial and industrial areas along Kalaeloa Boulevard and Hanua Street. The forecasts reflected build-out of the City of Kapolei area east of Kalaeloa Boulevard as well as most of the Ko 'Olina development.

The major portion of the roadway projects planned for the area was assumed to be in place by yearend 2020. Key roadways relative to this study include:

- Completion of the Kapolei Parkway from 'Ewa Beach to Ko 'Olina
- Completion of the improvements at the Makakilo, Kapolei, and Pālailai interchanges
- Widening of Kalaeloa Boulevard to six lanes between the Pālailai Interchange ramps and the OR&L track line
- Construction of Road D within the Kapolei West development between the Kapolei Parkway and Farrington Highway, with only right-turns into and out of Road D permitted at Farrington Highway
- Construction of the Hanua Street Extension and the extension of Malakole Street eastward to connect to the Kalaeloa Redevelopment Area roadways to increase access to the Kalaeloa Boulevard corridor land uses

The regional transportation plan includes the widening of Farrington Highway to six lanes from the Pālailai Interchange to the Waiānae Coast between 2016 and 2030. Since it is not known whether the widening will be completed by 2020, the 2020 analyses were made both with the existing four-lane and planned six-lane roadways.

Morning peak hour traffic along Farrington Highway west of the Pālailai Interchange is projected to increase from the existing 3,100 vehicles to 4,800 in 2020; the increase in the afternoon peak hour is projected to increase from 4,050 to 6,100 vehicles.

The projected traffic growth with the planned roadway system would approximate or exceed the capacity of several key intersections:

- Farrington Highway (four lanes)-Kō'i'o Drive mauka-bound right turn in afternoon peak hour based on right-in/out with YIELD control
- Farrington Highway (four lanes)-Waiomea Street in afternoon peak hour
- Farrington Highway (four lanes)-La'aloa Street in afternoon peak hour

The traffic conditions at the Farrington Highway at-grade intersections would be improved to acceptable levels of capacity use and overall traffic delays with the planned widening of Farrington Highway to provide three through lanes in each direction.

The analysis of 2020 traffic conditions at the ramp junctions along the H-1 Freeway/Farrington Highway at the freeway weaving sections and ramps near the Project site indicated the merge area for the westbound on-ramp from Hanua Street at the Pālailai Interchange would operate at LOS D conditions in the afternoon peak hour with Farrington Highway remaining a four-lane roadway. The high volume of traffic entering the westbound freeway would reduce speeds to an estimated 49.6 mph in the freeway lanes along the merging section.

#### 4.2.2.3 *Probable Impacts*

##### *Probable 2015 Traffic Conditions with Partial Project Development*

The initial development areas in the southeast and central portions of the Makāiwa Hills project area are expected to near completion by the end of 2015, with the exception of the proposed community shopping center located near the Pālailai Interchange. The development of these areas, less the shopping center, is expected to approximate the traffic level that can be accommodated by the combination of the initial access at the Kalaeloa Boulevard-Farrington Highway intersection plus the addition of an at-grade Road D intersection with Farrington Highway.

Therefore, while full build-out for the Makāiwa Hills project is intended to be completed by 2020, a 2015 traffic analysis was conducted to test the adequacy of an initial at-grade, full-movement intersection at the junction of Road D with Farrington Highway. The results of this analysis are discussed below and included in *Appendix D*

##### *2015 Planned Roadways*

The planned area roadway system described for 2020 is expected to be largely in place by 2015 with the exception of two projects:

The Road D junction with Farrington Highway was analyzed as an at-grade intersection rather than the planned future interchange; and

Farrington Highway was analyzed only with the four existing through lanes since the present OMPO Regional Transportation Plan identifies the widening project as occurring after year 2015.

##### *2015 Project Trip Generation*

The initial development areas, less the community shopping center, are estimated to generate a total of 1,444 and 1,662 vehicle trips to or from the land uses within the project in the weekday morning and afternoon peak hours, respectively. The 2015 vehicle trips amount to 56.4% of the total project trips for the morning peak hour and 50.0% of the afternoon peak hour trips. The project in 2015 would generate an estimated 17,600 vehicle trips to or from the various land uses on a typical weekday.

An estimated 960 and 950 vehicles are projected to use the section of Road D mauka of Farrington Highway in the morning and afternoon peak hours, respectively. About 40% to 50% of these vehicles would be traveling on Farrington Highway/H-1 Freeway to/from areas east of the project, about 20% would be accessing Farrington Highway west of Road D, and the remainder would be using Road D to travel to the Kapolei Parkway.

Traffic volumes along Road A mauka of Farrington Highway are estimated at 440 vehicles in the morning peak hour and 570 vehicles in the afternoon peak hour. This section of roadway would be primarily used by project trips to/from the City of Kapolei and by travel from the southeast portion of the project to/from the Honolulu direction via the Kapolei Interchange ramps.

#### 2015 Key Intersection Conditions

Traffic conditions for the key intersections near the project site are summarized for the 2015 weekday morning and afternoon commute peak hours in *Table 4-6*. The addition of the project traffic would adversely impact several key intersections as described in the following paragraphs:

The initial analysis of the Road D intersection with Farrington Highway was based on each roadway having two through lanes in each direction, double left-turn lanes, and separate right-turn lanes. With these lanes the forecast 2015 traffic would exceed intersection capacity by 30% in the afternoon peak hour.

Traffic at the Wakea Street intersection with Kamokila Boulevard would approximate capacity in the afternoon peak hour, versus 92% without the project. Average delay is estimated at LOS D with or without the project.

The projected traffic along Farrington Highway would slightly worsen the capacity problems and delays anticipated at the intersections with Kō'i'o Drive, Waiomea Street, and La'aloa Street.

The Road D junction with Farrington Highway would eventually be reconstructed as a grade-separated interchange, and Farrington Highway is planned for future widening to six lanes. Several alternative at-grade intersection configurations were assessed that would restrict the left-turns at the Road D-Farrington Highway intersection with the left turns accommodated through "jug-handle" movements, and with a short section of auxiliary through-lane added through this intersection. For the options with the left-turn restrictions, the left turns would be accommodated by the construction of several of the future ramp connections that would be constructed for the graded-separated interchange, but with Road D continuing to cross Farrington Highway at-grade (*Figure 4.6*). The accommodation of the left turns through jug-handle connections would avoid the provision of separate turn phases and green-time for the left-turn movements at the Road D-Farrington Highway intersection.

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**Table 4-6  
2015 Traffic Conditions at Key Intersections  
Makaīwa Hills Partial Development**

Intersection	Scenario	Morning Peak Hour			Afternoon Peak Hour		
		V/C	ADPV	LOS	V/C	ADPV	LOS
Farrington Hwy. - Kō'i'o Dr.	No Project	0.68	56.7	F	0.78	66.3	F
NB Right Turn	With Project	0.72	64.4	F	0.85	83.2	F
Farrington Hwy. - Waiomea St.	No Project	0.80	14.6	B	1.01	41.3	D
	With Project	0.82	15.1	B	1.04	47.9	D
Farrington Hwy. - La'aloa St.	No Project	0.80	6.0	A	1.01	38.8	D
	With Project	0.82	13.4	B	1.04	49.1	D
Farrington Hwy. - Road D	No Project (RIRO)	0.45	44.5	E	0.55	48.3	E
	With Project (Signal)	0.93	58.3	E	1.30	125.9	F
Kō'i'o Dr.- Ali'i Nui Dr.	No Project (STOP)	0.05	13.0	B	0.10	22.6	C
	With Project (STOP)	0.06	14.1	B	0.17	27.1	D
Road D- Kapolei Pkwy.	No Project	0.20	30.8	C	0.20	30.0	C
	With Project	0.30	30.4	C	0.38	31.1	C
Hanua St.- Kapolei Pkwy.	No Project	0.60	29.9	C	0.65	27.5	C
	With Project	0.64	28.9	C	0.62	27.6	C
Kalaeloā Blvd.- Farrington Hwy.	No Project	0.33	21.7	C	0.50	26.2	C
	With Project	0.36	26.8	C	0.56	29.0	C
Kalaeloā Blvd.- Kapolei Pkwy.	No Project	0.65	28.1	C	0.74	31.1	C
	With Project	0.73	29.1	C	0.76	32.6	C
Wakea St.- Farrington Hwy.	No Project	0.37	4.9	A	0.46	11.3	B
	With Project	0.41	10.3	B	0.52	15.8	B
Wakea St.- Kamokila Blvd.	No Project	0.63	30.3	C	0.92	40.6	D
	With Project	0.64	30.1	C	1.02	44.6	D
Road D-Road A- Road B	With Project	0.45	27.4	C	0.37	29.9	C
Road A-School Dwy.	With Project (STOP)	0.09	13.7	B	0.02	11.7	B
Road A-Road C	With Project (STOP)	0.27	14.3	B	0.36	18.8	C
Road B-Village Center Main Rd.	With Project (STOP)	0.53	19.8	C	0.19	9.2	A

V/C = Ratio of the traffic volume to the theoretical capacity of the intersection.

ADPV = Average delay per vehicle, in seconds.

LOS = Level of service.

NA = Not Analyzed

This analysis indicated that the projected 2015 peak hour traffic could be accommodated by the following modifications to the “conventional” at-grade Road D-Farrington Highway intersection:

- Prohibit left turns on all four approaches at intersection.
- Construct Eastbound On- and Off-ramp to provide “jug-handle” to accommodate the left turns.
- Construct Westbound On- and Off-ramp to provide “jug-handle to accommodate left turns.
- Widen Road D through the intersection to provide three lanes in each direction, with the lanes dropped as left-turn lanes at the intersections with the two jug-handle ramps.

- Provide a third westbound lane on Farrington Highway through the intersection, with the lane ending about 500 feet or more beyond the intersection.

The proposed jug-handle modifications to the Road D-Farrington Highway intersection, with the auxiliary lanes, would result in afternoon peak hour traffic at 79% of capacity if the auxiliary lane were fully used. Approximately 20% or more of the westbound traffic would have to use the auxiliary lane to provide acceptable conditions for the overall intersection in 2015.

Therefore, the Project proposes the initial construction of the Road D junction with Farrington Highway as an at-grade intersection with left-turns restricted and the future ramps added to provide jug handle routes to accommodate the left turns.

Probable 2020 Traffic Conditions with Project Build-out

*2020 Project Trip Generation*

At full build-out, the land uses within Makaīwa Hills are estimated to generate a total of about 37,900 vehicle trips to and from the site on a typical weekday. The project is estimated to generate 2,560 and 3,555 vehicle trips in the weekday morning and afternoon peak hours, respectively. The estimated numbers of peak hour trips by area are presented for the major development phases of the project site in *Table 4-7*.

**Table 4-7  
Vehicle Trip Generation for 2020 Project Build-out**

Areas	Morning Peak Hour			Afternoon Peak Hour		
	Total	Enter	Exit	Total	Enter	Exit
1 Southeast	892	361	531	1,230	696	534
2 Central Makai	794	224	570	1,016	600	417
3 Southwest	298	111	187	524	280	244
Mauka Areas 4 through 9	577	156	420	784	494	290
Totals	2,560	852	1,708	3,554	2,070	1,485

Wilbur Smith Associates; November 30, 2006

With the full development of the Makaīwa Hills Project, the Road D Interchange would provide the major access for the Project and accommodate most of the travel to areas outside the Project vicinity. With the Project, the Road D Interchange ramps would be used by about 1,530 vehicles in the morning peak hour as compared to 40 vehicles using the makai-side right-in/right-out connection without the Project. In the afternoon peak hour, the traffic volumes using the ramps are projected at 1,630 vehicles with the Project as compared to the 72 vehicles using the right-in/right-out connection without the Project.

Project traffic is estimated to increase volumes along the H-1 Freeway through the City of Kapolei by 820 vehicles (+12%) in the morning peak hour and 1,050 vehicles (+13%) in the afternoon peak hour.

Current plans for the Makaīwa Hills development have added a middle school with approximately 600 students. Associated with this change, the middle school previously planned for the nearby

Kapolei West development would be changed to an elementary school, and the originally planned elementary school at Makaīwa Hills would be reduced in size to 550 students versus the previously planned 950 students. The changes are intended to reduce the potential travel by elementary school students across Farrington Highway from the Kapolei West community to attend the Makaīwa Hills elementary school by providing a school within their neighborhood. Following the TIAR in Appendix D is an assessment and description of the general changes that might be expected to the travel patterns and traffic flows from those presented in the TIAR for the Makaīwa Hills development.

To summarize these potential changes, the combined middle and elementary schools in Makaīwa Hills are estimated to generate increased vehicle trips based on standard ITE trip generation rates for these schools. This is estimated to increase the total numbers of trips generated by the land uses within Makaīwa Hills by 7.1% above the scenario presented in the project TIAR. In the afternoon peak hour, the estimated 129 peak hour trips would be an increase of 62 vehicles above the previous plan. This would increase the vehicle trips generated in the afternoon peak hour by the Makaīwa Hills development by 1.8% over those analyzed in the TIAR.

However, the effect of the school changes on total area vehicle trips may be less than these increases:

- The Kapolei West elementary school is estimated to generate about 158 fewer morning peak hour vehicle trips that the previously planned middle school, which would offset about one-third of the Makaīwa Hills increase.
- A greater proportion of the school-related trips would be made internal to the Makaīwa Hills and Kapolei West communities, which would lessen potential travel and impacts outside the community.
- More students may walk or bike to a school within their communities, which could lessen the number of vehicle trips.

Based upon the referenced assessment, the proposed revisions to the plans for the Makaīwa Hills and Kapolei West schools could have the following traffic effects:

1. There may be slightly lower vehicle traffic volumes along Road D during the morning peak hour, with a small improvement in intersection conditions along this roadway.
2. Makakilo traffic to/from the middle school would increase traffic volumes along Nohona Street, but the morning peak hour volumes would be expected to be at levels appropriate for a residential area collector street.
3. The relocated sites for the middle school and elementary school in the southeast section of Makaīwa Hills could increase traffic and pedestrian volumes along Road A and Road C, which could result in traffic conditions that satisfy warrants and hasten the need for traffic signal control at the Road A-Road C intersection.



*2020 Key Intersection Conditions*

The peak hour traffic conditions at the key intersections in the vicinity of the project are summarized in *Table 4-8*. The conditions Without (No) and With the Project in the table reflect the planned roadway projects by 2020, with the traffic conditions for the intersections along Farrington Highway shown both with the existing four lanes and the planned six lanes.

The addition of the project traffic, without the widening of Farrington Highway, would adversely impact several of the key intersections as described in the following paragraphs:

The project traffic traveling to/from the Waianae Coast and Ko 'Olina along Farrington Highway would worsen the long delays forecast for traffic turning right out of Kō'i'o Drive during both peak hours, with the delays at LOS F with or without the project.

The projected traffic along Farrington Highway would exceed capacity of the Waiomea and La'aloa Street intersections by 14% to 15% in the afternoon peak hour, versus 10% without the project. The overall average traffic delays at both intersections would be at LOS F, with very long delays for traffic turning left into and out of the side streets.

With STOP sign control, the forecast traffic turning left from the Eastbound Off-ramp onto Road D during the morning peak hour would exceed the estimated gaps available in the traffic along Road D, with extremely long delays (LOS F) for the ramp traffic. The estimated peak hour volumes and delays would not satisfy warrants to allow consideration of a traffic signal.

Traffic at the Kalaeloa Boulevard intersection with the Kapolei Parkway would amount to 97% of capacity in the afternoon peak hour, with average overall delay at LOS D, with the project adding to through traffic along the Kapolei Parkway and to the turns between the east leg of the Kapolei Parkway and the mauka leg of Kalaeloa Boulevard.

Traffic at the Wakea Street-Kamokila Boulevard intersection would exceed capacity in the afternoon peak hour with the project, versus approximating capacity without the project. The project would add to traffic on both Wakea Street approaches and to the turns between the mauka leg of Wakea Street and the east leg of the Kamokila Boulevard.

The planned widening of Farrington Highway to six lanes would improve traffic conditions to acceptable conditions at the Kō'i'o Drive, Waiomea Street, and La'aloa Street intersections, both without and with the project.

Although not included in *Table 4-8*, the traffic conditions at most of the intersections along the major circulation roadway within the Project should operate at acceptable conditions with STOP sign controls. The Road A intersection with Road C would satisfy the MUTCD Warrant #3 for consideration of traffic signal control.

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**Table 4-8  
2020 Traffic Conditions at Key Intersections  
Makaīwa Hills Build-out**

Intersection	Scenario	Morning Peak Hour			Afternoon Peak Hour		
		V/C	ADPV	LOS	V/C	ADPV	LOS
Farrington Hwy. - Kō'i'o Dr.	No Project/4 Lanes	0.97	120.0	F	1.02	127.1	F
	With Project/4 Lanes	1.08	159.9	F	1.20	197.7	F
NB Right Turn with YIELD	No Project/6 Lanes	0.50	28.2	D	0.55	28.7	D
	With Project/6 Lanes	0.54	31.6	D	0.62	35.0	D
Farrington Hwy. - Waiomea St.	No Project/4 Lanes	0.88	22.7	B	1.10	71.2	E
	With Project/4 Lanes	0.93	31.5	C	1.14	88.2	F
	No Project/6 Lanes	0.65	14.9	B	0.77	12.4	B
	With Project/6 Lanes	0.68	14.8	B	0.80	13.4	B
Farrington Hwy. - La'aloa St.	No Project/4 Lanes	0.88	9.6	A	1.10	67.0	E
	With Project/4 Lanes	0.93	17.9	B	1.15	83.8	F
	No Project/6 Lanes	0.63	5.2	A	0.77	11.1	B
	With Project/6 Lanes	0.66	5.0	A	0.80	9.3	A
Road D - EB	No Project	NA	NA	NA	NA	NA	NA
Farrington Ramp	With Project (STOP)	1.19	375.7	F	1.18	303.4	F
Road D - WB	No Project	NA	NA	NA	NA	NA	NA
Farrington Ramp	With Project (Signal)	0.48	14.0	B	0.45	17.2	B
Kō'i'o Dr.-	No Project (STOP)	0.08	16.3	C	0.18	33.2	D
Aliinui Dr.	With Project (STOP)	0.10	19.4	C	0.24	44.7	E
Road D- Kapolei Pkwy	No Project	0.36	20.5	C	0.39	29.9	C
	With Project	0.50	32.0	C	0.71	33.9	C
Hanua St. -Kapolei Pkwy.	No Project	0.91	44.6	D	0.80	44.1	D
	With Project	0.92	40.5	D	0.92	41.5	D
Kalaeloā Blvd.- Farrington Hwy.	No Project	0.35	22.0	C	0.53	27.9	C
	With Project	0.46	28.9	C	0.69	37.5	D
Kalaeloā Blvd.- Kapolei Pkwy.	No Project	0.75	30.8	C	0.90	40.1	D
	With Project	0.87	33.4	C	0.97	50.8	D
Wakea St. - Farrington Hwy.	No Project	0.37	5.0	A	0.52	9.8	A
	With Project	0.43	8.3	A	0.59	13.2	B
Wakea St. - Kamokila Blvd.	No Project	0.65	30.4	C	0.99	43.3	D
	With Project	0.66	30.5	C	1.07	50.6	D

V/C = Ratio of the traffic volume to the theoretical capacity of the intersection.

ADPV = Average delay per vehicle, in seconds.

LOS = Level of service.

NA = Not Analyzed

*2020 Freeway Conditions at Ramps*

The 2020 peak hour traffic conditions were assessed for the weaving sections between the Road D and Pālailai Interchanges as well as the westbound weaving lane between the H-1 Freeway ramps between the Makakilo and Kapolei Interchanges. Also analyzed were the freeway merge/diverge sections for the Pālailai Interchange ramps that would be located within the four lane section of Farrington Highway closest to Project and should be most affected by the Project traffic.

*Weaving Sections between Road D and Pālailai (Hanua Street) Interchanges*

These two weaving sections would be created with the construction of the Road D Interchange. The weaving section in each direction would be about 2,000 feet in length between the on-ramp entry point and off-ramp exit point. A single-lane entry and exit ramp was assumed at each end of the weaving sections. However, the high volume of traffic estimated to use the Westbound On-ramp (1,500 vehicles) in the afternoon peak hour would merit a two-lane ramp entry to the freeway, either without or with the Project.

With Farrington Highway remaining a four-lane highway in 2020, the traffic using the westbound weaving section is projected to result in LOS D conditions in the morning peak hour *Table 4-9*. This would compare to LOS C conditions at the Hanua Street On-ramp merge area without the Project. In the afternoon peak hour, the traffic conditions along the westbound weaving section are estimated at LOS F with the existing two westbound through lanes, which would likely reduce the average speed along this freeway section by about 5 mph from conditions without the Project.

The planned Farrington Highway widening project would provide an additional through lane in each direction through this section. With the additional through lane, the conditions in the westbound weaving section would improve to LOS C and LOS D in the morning and afternoon peak hours, respectively.

The morning traffic conditions in the eastbound weaving section would operate at very good LOS B conditions both with Farrington Highway remaining a four-lane roadway and widened to six lanes in 2020. In the afternoon peak hour, conditions along the eastbound weaving section are estimated at LOS C with the existing two westbound through lanes, LOS B with the addition of a third through lane.

**Table 4-9  
2020 Traffic Conditions at Freeway Ramp Weaving Sections**

Year and Development Scenarios	Morning Peak Hour				Afternoon Peak Hour			
	Density	Weave Speed	Thru Speed	LOS	Density	Weave Speed	Thru Speed	LOS
<b>Westbound Weaving from Makakilo On-ramp to Wakea Off-ramp (Kapolei Interchange)</b>								
No Project 6 Lns	25.37	41.78	48.63	C	19.57	43.89	50.72	B
With Project 6 Lns	27.34	41.03	47.78	C	24.04	42.15	48.98	C
<b>Westbound Weaving from Hanua Street (Pālailai) On-ramp to Road D Off-ramp</b>								
With Project 4 Lns	18.92	35.39	53.17	B	44.82	27.80	44.73	F
With Project 6 Lns	13.34	38.52	55.07	B	30.82	30.50	48.25	D
<b>Eastbound Weaving from Road D On-ramp to Hanua Street (Pālailai) Off-ramp</b>								
With Project 4 Lns	30.15	32.6	50.44	D	21.04	45.87	50.82	C
With Project 6 Lns	21.05	35.66	52.95	C	15.65	39.89	55.88	B

Density = Passenger car equivalents per mile per lane in analyses section.

Weave Speed = Average speed in miles per hour of weaving traffic through analysis section.

Thru Speed = Average speed in miles per hour of non-weaving traffic through analysis section.

LOS = Level of service in weaving area.

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*Westbound Weaving Section between Makakilo and Kapolei (Wakea Street) Interchanges*

This weaving section would be used by Makaīwa Hills traffic exiting the H-1 Freeway onto Farrington Highway to use the mauka extension of Kalaeloa Boulevard (as Project Road A) to enter Makaīwa Hills. The 1,400-foot long weaving section is planned to have a single-lane on-ramp from Makakilo Drive and a single-lane off-ramp at the Kapolei Interchange.

The Project is estimated to have minimal effect on the westbound traffic conditions along this weaving section of the freeway in the morning peak hour, with an estimated 0.8 mph reduction in average freeway speeds. In the afternoon peak hour, the Project traffic is estimated to reduce average speeds along this section by about 1.75 mph. The afternoon conditions are estimated at LOS C with the Project versus LOS B without the Project traffic, as summarized in *Table 4-9*.

*Pālalailai (Hanua Street) Interchange Ramp Junctions*

The planned Eastbound On-ramp from the Hanua Street extension to the H-1 Freeway and the planned Westbound Off-ramp to Hanua Street would be the closest independently operating ramps to the Makaīwa Hills Project, although Project traffic would not normally use either of these ramps. These two ramp junctions are analyzed because each of the ramp junctions would be affected by the addition of the Project traffic in the through lanes, and both ramp junctions are located within the existing four-lane section of the H-1 Freeway beyond the lane drops at the existing Pālalailai Interchange ramps.

The addition of Project traffic in the eastbound freeway through lanes passing the entry of the Hanua Street Eastbound On-ramp would result in a speed reduction of about 1.0 mph in the morning peak hour and minimal change in the afternoon peak hour, as summarized in *Table 4-10*. The traffic conditions in the freeway lanes near the merge point are estimated at LOS C in both peak hours both without and with the addition of the Project traffic.

The westbound freeway lanes near the future Off-ramp to Hanua Street are estimated to operate at LOS B in the morning peak hour with or without the Project. In the afternoon peak hour, conditions are estimated at LOS C both with and without the Project as summarized in *Table 4-10*. The Project is not projected to significantly affect speeds in either peak hour.

**Table 4-10  
2020 Freeway Traffic Conditions at Key Ramp Merge/Diverge Sections**

Freeway Section at Ramp	Scenario	Morning Peak Hour			Afternoon Peak Hour		
		Density	Speed	LOS	Density	Speed	LOS
<b>Eastbound Freeway</b>							
At On-Ramp from Hanua St.	No Project	20.6	50.1	C	21.8	50.6	C
	With Project	25.0	50.1	C	24.9	50.6	C
<b>Westbound Freeway</b>							
At Loop Off-Ramp to Hanua St.	No Project	13.9	49.8	B	20.3	50.6	C
	With Project	16.3	49.8	B	25.7	50.6	C

Density = Passenger car equivalents per mile per lane in analyses section.

Speed = Average speed in miles per hour through weaving area.

LOS = Level of service in weaving area.

4.2.2.4 *Mitigative Measures*

The following actions are proposed to accommodate future transportation needs in the Makaīwa Hills project area. The following paragraphs identify transportation improvements to mitigate the impacts at those locations substantially affected by the projected Makaīwa Hills traffic at build-out in 2020.

Further, in compliance with the 1993 Land Use Commission requirements for transportation management, the developer will monitor traffic when the development proceeds, and will continue participating with the Leeward O’ahu Traffic Management Association (LOTMA) to advocate, develop and implement a program aimed at improving mobility in the Leeward and Central regions of Oahu; and to promote and facilitate the development and use of alternative transportation opportunities that will maximize the use of existing and proposed transportation systems in the Leeward/Central region.

In addition, The project TIAR(s) will be updated periodically to address the traffic conditions and impacts of the project as the planning and permitting progresses as we anticipate this will be a condition of approval for the project’s zone change request. The period for review will follow the pace of build-out for the project, with an update issued for approximately each new increment of 1,000 dwelling units if more than two years have past since the prior study. The planning and design of mitigative traffic lanes and traffic signal warrant studies will be conducted in the project design phase. The owners will participate in constructing mitigation measures to offset project impacts and provide their fair share contributions to traffic improvements as set forth in Chapter 33A ROH, Impact Fees for Traffic and Roadway Improvements in ‘Ewa.

Figure 4.6 depicts the proposed roadway lanes and traffic controls anticipated at full project build-out in 2020.

Road D Junction with Farrington Highway

- Construct initially as at-grade intersection and upgrade to full interchange in incremental phases.
- With the interim at-grade intersection, construct the planned ramps to accommodate the left turns via “jug-handle maneuvers, with no left-turns permitted at the at-grade crossing of Road D with Farrington Highway.
- With the interim at-grade intersection, construct a short section of three traffic lanes in each direction on Road D to increase capacity through the intersection, with these added lanes serving as left-turn lanes onto the jug-handle on-ramps.
- With the interim at-grade intersection, construct a short section of a westbound auxiliary lane along Farrington Highway to increase capacity through the intersection.

Farrington Highway/H-1 Freeway

- When the Road D junction is upgraded to an interchange, construct an auxiliary lane in both travel directions to provide weaving sections between the Pālailai and Road D Interchange ramps.

Road D-Eastbound Farrington Highway Ramps

- Monitor and install traffic signal when warranted by traffic conditions.
- Provide separate left- and right-turn lanes to minimize delays.
- Provide sufficient median width to allow the provision of dual left-turn lanes from makai-bound Road D onto the On-ramp if needed for future conditions.

Road D-Westbound Farrington Highway Ramps

- Install traffic signal.
- Provide double left-turn lanes on the Off-ramp approach.

Road D-Road A-Road B

- Install traffic signal.
- Provide double left-turn lanes on Road D approach.

Kalaeloa Boulevard-Kapolei Parkway

- Provide long signal cycle length, similar to those currently used along Fort Barrette Road, to increase green time and reduce lost time during the peak traffic periods.

Wakea Street-Kamokila Boulevard

- Provide separate right-turn lane on mauka-bound Kamokila Boulevard.
- Re-stripe existing outside through lane on westbound Kamokila Boulevard to provide a shared right-turn/through lane, which would allow right turns to be made from two lanes onto mauka-bound Wakea Street.

Proposed Actions by Others

The following roadways and/or modifications would be needed to provide access at project build-out and are planned as actions by others without the development of the Makaīwa Hills Project:

- Construct the Kapolei Interchange complex. (a DOT project with private fair share and soft match contributions)
- Construct the section of Road D between the Kapolei Parkway and Farrington Highway. (part of the Kapolei West development)
- Construct the Kapolei Parkway .(part of the Kapolei West, Kapolei Commons and City of Kapolei developments)
- Widen Kalaeloa Boulevard to six lanes at the Kapolei Parkway intersection. (a part of area commercial and the Kapolei West developments)
- Construct the Hanua Street extension and new ramps at Pālailai Interchange (a DOT project with private fair share and soft match contributions).

Public Transit and Bicycle Travel

The County recently approved a Locally Approved Alternative of a mass transit guideway system that will extend from UH Manoa, through the central Honolulu area to as far west as the Kapolei West development, just across the freeway from Makaīwa Hills. The presence of a bus and guideway transit station and park-and-ride facility near the Kapolei Parkway-Hanua Street intersection would likely increase public transit usage by Makaīwa Hills residents and workers, which could result in lower vehicle trip generation, particularly for trips via the H-1 Freeway to the central Honolulu area.

The concept plan for the Makaīwa Hills development provides a generally continuous network of major collector roadways for circulation within the community and access to the various development parcels. The street network would provide a framework for bus routes and bicycle travel although the increasing elevation mauka through the project site and the resultant relatively steep grades along the mauka-makai roadways would affect both bus and bicycle travel on these roadways.

The concept plan includes a bicycle path paralleling Farrington Highway to encourage use of bicycles for transportation purposes as well as for recreation. The bicycle path would begin within the commercial area at the west end of the Project area and extend eastward as a separate facility to the Village Center. Bicycle lanes would be provided through the Village Center and the separate bicycle path would resume east of the Village Center to extend to Road D/Road A where it ends in the preliminary concept plan. This planned facility would provide access to the elementary school and the community center. Sidewalks would be provided along the major collector roadways and local streets in conformance with County guidelines and standards.

The following proposed actions could encourage use of these travel modes for travel within the project.

#### Public Transit

- Consultation with City DTS and TheBus staffs should occur in early stages of project design to identify potential routes for TheBus within the Makaīwa Hills area so that the community layout and design can facilitate access to public transit.
- Coordination with the City DTS and TheBus staffs on the potential location of bus stops.
- The community design should provide direct pedestrian linkages between each residential area and the likely bus stop location(s) serving that area to allow convenient access and encourage bus use.
- Bus shelters should be provided at the potential high-use stop locations, such as those serving the commercial areas, the school, and the community center.

#### Bicycles

- The makai bicycle path should be continued east of Road D to provide access at least as far east as the Makaīwa Hills community shopping center. The crossing could be provided at the signal-protected Road D-Road B intersection.
- Bicycle lanes should be provided along Road D between Makaīwa Hills and the Kapolei Parkway to provide a regional linkage. (This will be provided as part of the Kapolei West development).
- The collector streets within the project site should be planned to accommodate bicycle use, and should provide a network of continuous street connections to allow use for bicycle travel by those who prefer not to travel along the major streets.

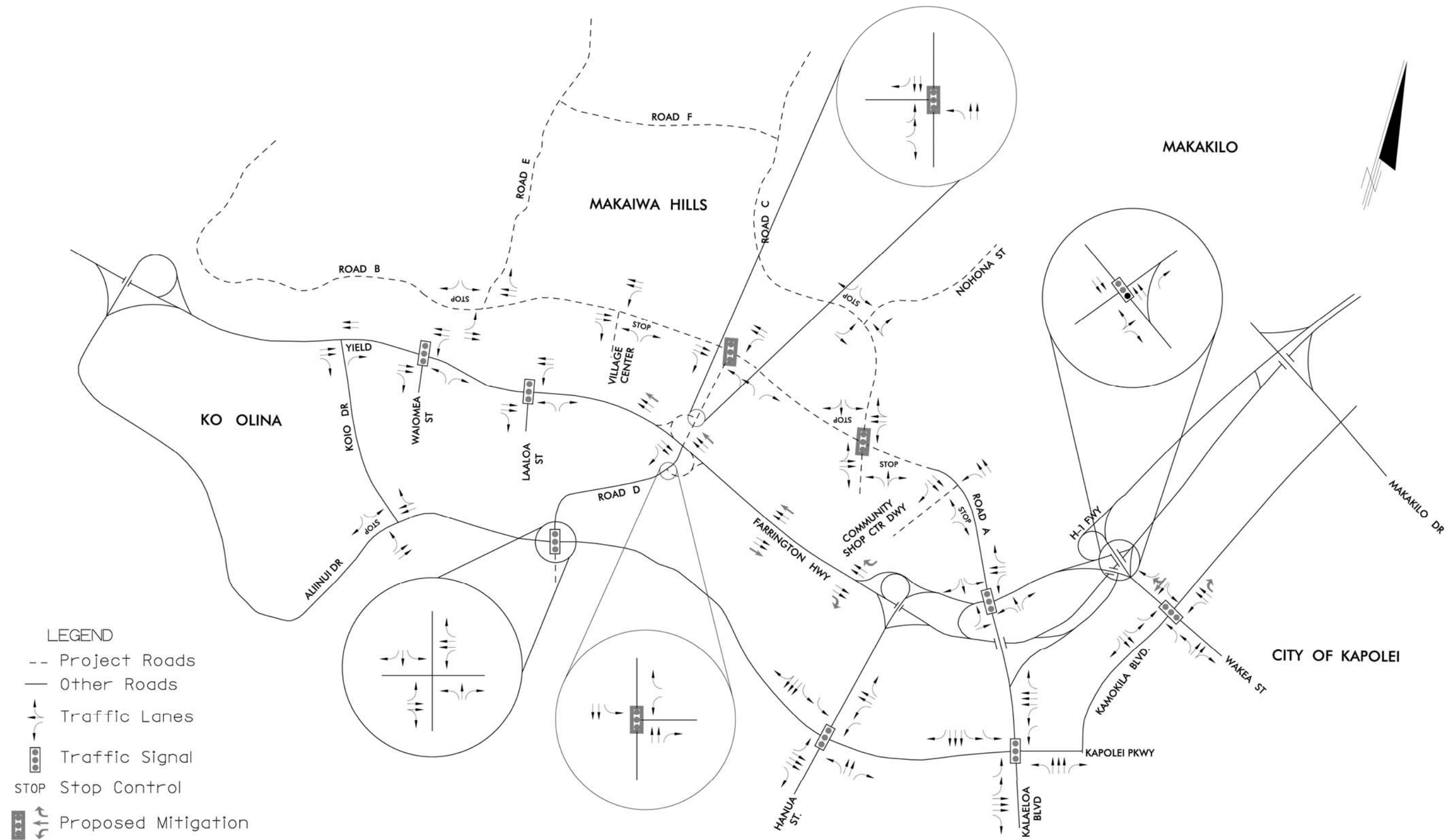


Figure 4.6 Proposed Roadway Lanes and Traffic Controls, Full Project Build-out



### **4.2.3 Air Quality**

#### *4.2.3.1 Existing Conditions*

An air quality study for the development was completed by B.D. Neal & Associates in December 2006 (*Appendix L*). The study examines the potential short- and long-term air quality impacts that could occur as a result of construction and use of the proposed facilities and suggests mitigative measures to reduce any potential air quality impacts where possible and appropriate.

The present air quality of the project area appears to be reasonably good based on nearby air quality monitoring data. Air quality data from the nearest monitoring stations operated by the Hawai'i Department of Health suggest that all state and national ambient air quality standards are currently being met.

Present air quality in the project area is mostly affected by air pollutants from motor vehicles, industrial sources and to a lesser extent by natural sources. The study references a 1993 air pollutant emission summary for the island of O'ahu that suggests much of the particulate emissions on O'ahu originate from area sources, such as the mineral products industry and agriculture.

Sulfur oxides are emitted almost exclusively by point sources, such as power plants and refineries. Nitrogen oxides emissions emanate predominantly from industrial point sources, although area sources (mostly motor vehicle traffic) also contribute a significant share. The majority of carbon monoxide emissions occur from area sources (motor vehicle traffic), while hydrocarbons are emitted mainly from point sources. Based on previous emission inventories that have been reported for O'ahu, emissions of particulate and nitrogen oxides may have increased during the past ten years, while emissions of sulfur oxides, carbon monoxide and hydrocarbons probably have declined.

The H-1 Freeway/Farrington Highway, to the south of the project site, is a major arterial roadway that presently carries moderate to heavy levels of vehicle traffic during peak traffic hours. Emissions from motor vehicles using this roadway, primarily nitrogen oxides and carbon monoxide, will tend to be carried away from the project site by the prevailing winds.

Several sources of industrial air pollution are located in the Campbell Industrial Park, which is located about 3 miles south of the project site at Barbers Point. Industries currently operating there include the Chevron and BHP refineries, H-Power, Kalaeloa Partners, Applied Energy Services, Hawaiian Cement and others. Hawaiian Electric Company's Kahe Generating Station is located a few miles to the northwest at Kahe Point. These industries emit large amounts of sulfur dioxide, nitrogen oxides, particulate matter, carbon monoxide and other air pollutants. Prevailing winds from the east or northeast will carry these emissions away from the site most of the time.

Natural sources of air pollution emissions that also could affect the project area but cannot be quantified very accurately include the ocean (sea spray), plants (aero-allergens), wind-blown dust, and perhaps distant volcanoes on the island of Hawai'i.

#### 4.2.3.2 Probable Impacts

##### Short Term Impacts

Short-term direct and indirect impacts on air quality could potentially occur due to project construction. For a project of this nature, there are two potential types of air pollution emissions that could directly result in short-term air quality impacts during project construction: (1) fugitive dust from vehicle movement and soil excavation; and (2) exhaust emissions from on-site construction equipment. Indirectly, there also could be short-term impacts from slow-moving construction equipment traveling to and from the project site, from a temporary increase in local traffic caused by commuting construction workers, and from the disruption of normal traffic flow caused by lane closures of adjacent roadways.

Fugitive dust emissions may arise from the grading and dirt-moving activities associated with site clearing and preparation work. The emission rate for fugitive dust emissions from construction activities is difficult to estimate accurately. This is because of its elusive nature of emission and because the potential for its generation varies greatly depending upon the type of soil at the construction site, the amount and type of dirt-disturbing activity taking place, the moisture content of exposed soil in work areas, and the wind speed. The EPA has provided a rough estimate for uncontrolled fugitive dust emissions from construction activity of 1.2 tons per acre per month under conditions of "medium" activity, moderate soil silt content (30%), and precipitation/evaporation (P/E) index of 50. Uncontrolled fugitive dust emissions at the project site would likely be somewhere near that level, depending on the amount of rainfall that occurs. In any case, State of Hawai'i air pollution control regulations prohibit visible emissions of fugitive dust from construction activities at the property line. Thus, an effective dust control plan for the project construction phase is essential.

On-site mobile and stationary construction equipment also will emit air pollutants from engine exhausts (primarily consisting of carbon monoxide and nitrogen oxides). The largest of this equipment is usually diesel-powered. Nitrogen oxides emissions from diesel engines can be relatively high compared to gasoline powered equipment, but the standard for nitrogen dioxide is set on an annual basis and is not likely to be violated by short-term construction equipment emissions. Carbon monoxide emissions from diesel engines, on the other hand, are low and should be relatively insignificant compared to vehicular emissions on nearby roadways.

##### Long Term Impacts

During operation of the Mākāiwa Hills project, carbon monoxide concentrations in the project area will likely increase due to emissions from project-related motor vehicle traffic, but worst-case concentrations should remain within both the state and the national ambient air quality standards. See the full report in *Appendix L* for an expanded discussion of the calculations and modeling that led to this conclusion. No significant long-term adverse impacts are anticipated.

The proposed project also will cause indirect air pollution emissions from power generating facilities as a consequence of electrical power usage. Additionally, solid waste generated by the proposed development will likely be hauled away and burned at the H-Power facility at Campbell Industrial Park to generate electricity. Burning of the waste to generate electricity will result in emissions of particulate, carbon monoxide and other contaminants. The estimated indirect emissions from project electrical demand and solid waste disposal together amount to less than 1

percent of the present air pollution emissions occurring on O'ahu. No significant long-term adverse impacts are anticipated.

The adjoining Waimanalo Gulch Sanitary Landfill is scheduled for closure in 2008, although a proposed extension to that date could maintain the operation of the landfill until 2015. The westernmost portion of Makaīwa Hills in closest proximity to the landfill is not planned for construction until after 2015, so there will not be any conflicting impact by the landfill upon the residential community. Prevailing tradewinds would generally blow nuisance odors away from the project site.

#### *4.2.3.3 Mitigative Measures*

To control dust, active work areas and any temporary unpaved work roads during the construction phase should be watered at least twice daily on days without rainfall. Use of wind screens and/or limiting the area that is disturbed at any given time will also help to contain fugitive dust emissions. Wind erosion of inactive areas of the site that have been disturbed could be controlled by mulching or by the use of chemical soil stabilizers.

Dirt-hauling trucks should be covered when traveling on roadways to prevent windage. A routine road cleaning program and/or tire washing program will also help to reduce fugitive dust emissions that may occur as a result of trucks tracking dirt onto paved roadways in the project area. Paving of parking areas and establishment of landscaping early in the construction schedule will also help to control dust. Monitoring dust at the project boundary during the period of construction could be considered as a means to evaluate the effectiveness of the project dust control program and to adjust the program if necessary.

Increased vehicular emissions due to disruption of traffic by construction equipment and/or commuting construction workers can be alleviated by moving equipment and personnel to the site during off-peak traffic hours.

No mitigation is proposed for the potential traffic-related impacts to air quality during operational phase of the proposed development.

Any long-term impacts on air quality due to indirect emissions from supplying the project with electricity and from the disposal of waste materials generated by the project will likely be negligible based on the magnitudes of the estimated emissions compared to the current island-wide emissions. To further moderate any impacts, indirect emissions from project electrical demand could likely be reduced somewhat by incorporating energy-saving features into project design requirements, for example the use of solar water heaters, water heater timers or possibly hot water on demand systems; designing building space so that window positions maximize indoor light without unduly increasing indoor heat; using landscaping where feasible to provide afternoon shade to cut down on the use of air conditioning; installation of insulation and double-glazed doors to reduce the effects of the sun and heat; movable, controlled openings for ventilation at opportune times; and possibly automated room occupancy sensors. Solid waste related air pollution could likely be reduced somewhat by the promotion of conservation and recycling programs within the proposed development.

#### 4.2.4 Noise

##### 4.2.4.1 Existing Conditions

An Environmental Noise Assessment Report for the proposed development was prepared by D.L. Adams Associates in 2006 (*Appendix M*). Noise is defined as “unwanted sound.” Two types of noise measurements were conducted to assess the existing acoustical environment in the vicinity of the project location. The first noise measurement type consisted of continuous long-term ambient noise level measurements (Locations L1 and L2), as shown in *Figure 4.7*.

The second type of noise measurement was short-term and included traffic counts. The purpose of the short-term noise measurements and corresponding traffic counts were to validate a traffic noise prediction model. The noise measurements were conducted between November 8, 2006 and November 15, 2006.

##### Long-Term Noise Measurement Locations

###### *Location L1*

Approximately 500 feet mauka of Farrington Highway. The dominant noise source was vehicular traffic from the highway. Secondary noise sources included birds, wind, occasional aircraft flyovers, and possible farm equipment.

###### *Location L2*

Adjacent to Palēhua Road above the Makāiwa Hills project site. The location overlooked the Waimanalo Gulch land fill and Kahe Point power plant. The dominant noise sources were wind and birds.

At Location L1, the sound levels are relatively dynamic and depend significantly on the vehicular traffic patterns on Farrington Highway. The hourly Leq noise levels generally range from 39 dBA during the low traffic times to approximately 59 dBA during peak hour traffic times. The average day-night level, Ldn was 56 dBA for the measurement period.

Location L2 was very quiet and the ambient noise environment is caused by natural sources such as wind and birds. The hourly Leq noise levels generally range from 31 dBA at night to 55 during the day. The average day-night level, Ldn was 48 dBA for the measurement period.

The Makāiwa Hills project site is outside of the Ldn = 55 noise contours of both Honolulu International Airport and Kalaeloa Airport. Therefore, the project will not be significantly impacted by aircraft noise. However, infrequent aircraft flyovers due to military aircraft operations may be audible at the project site. These flyovers should be infrequent, and therefore, should not significantly impact the proposed development.

There are two public infrastructure plants located to the west of the project site: Waimānalo Gulch Sanitary Landfill and Kahe Point power plant. Noise from these industrial activities may be audible at times but is not expected to exceed the State Department of Health maximum permissible noise level.

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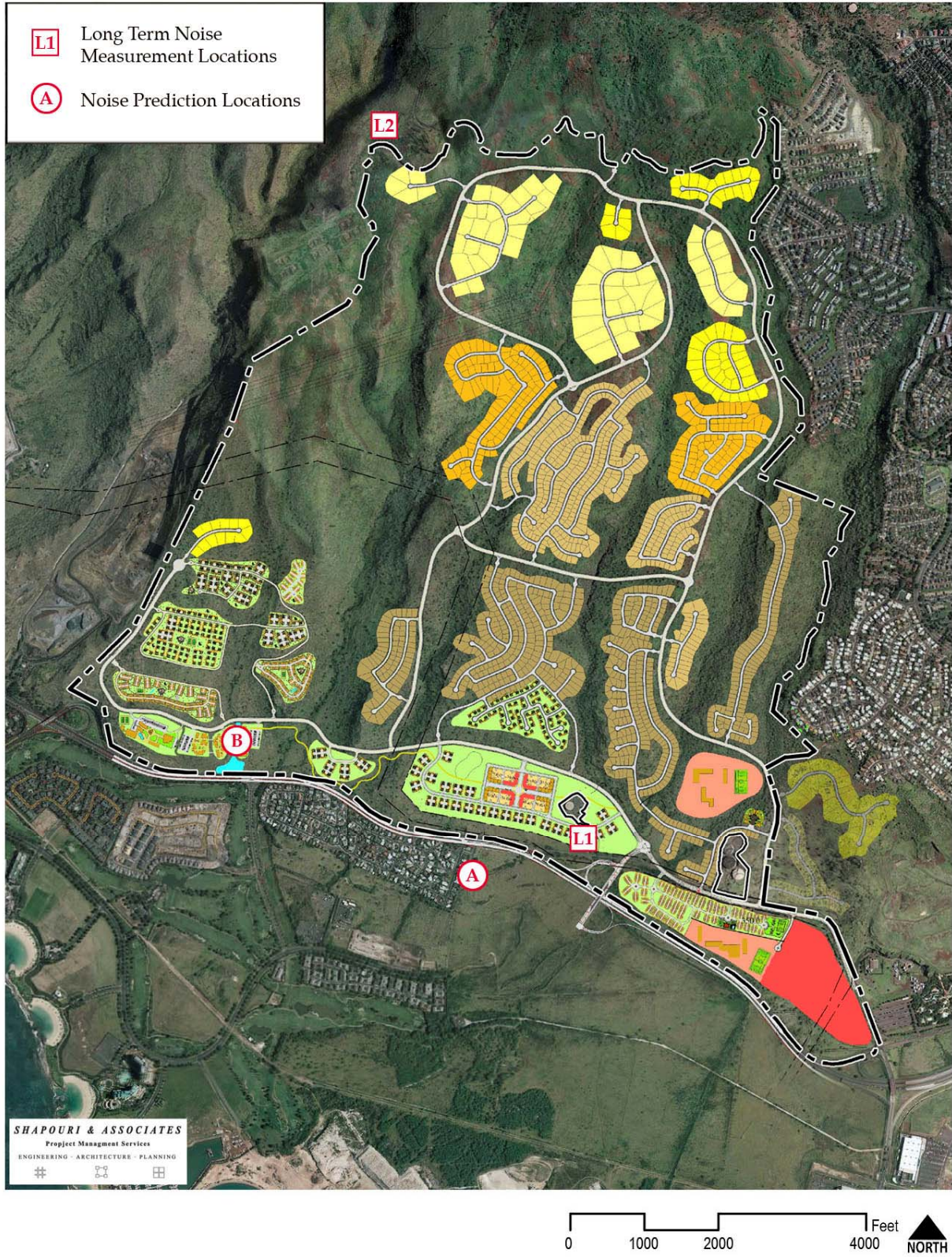


Figure 4.7 Noise Measurement and Prediction Locations

#### 4.2.4.2 Probable Impacts

##### Short Term Impacts

Development of project areas will involve excavation, grading, and other typical construction activities during construction. The various construction phases of the project may generate significant amounts of noise. The actual noise levels produced during construction will be a function of the methods employed during each stage of the construction process. Pile driving and earthmoving equipment, e.g., bulldozers and diesel powered trucks, would probably be the loudest equipment potentially used during construction.

The Makaīwa Hills development may impact existing adjacent properties, such as the homes in the adjacent Makakilo community. Similarly, residences from the initial phases may be impacted by construction noise from subsequent phases due to their proximity to the construction site.

##### Long Term Impacts

The new land development will incorporate stationary mechanical equipment that is typical for residential housing, commercial buildings, etc. Expected mechanical equipment may include air handling equipment, condensing units, etc. Noise from this mechanical equipment and other equipment must meet the State noise rules, which stipulate maximum permissible noise limits at the property line. For multi-family dwellings and commercial areas, the noise limits are 60 dBA during the day and 50 dBA during the night. For residential areas (i.e., single-family homes), noise limits are 55 dBA during the day and 45 during the night. Mitigation of mechanical noise to meet the State DOH noise rules should be incorporated into the project design.

A vehicular traffic noise analysis was completed for 1) the existing conditions, 2) future years 2015 and 2020 projections with the “No Build” condition, and 3) future years 2015 and 2020 projections with the “Build” condition. The traffic noise analysis is based on the traffic counts provided by the Traffic Consultant. Farrington Highway was assumed to be widened to 6 lanes for the year 2020 traffic projections. Vehicular traffic noise levels were calculated for 2 locations along Farrington Highway, Locations A and B, as shown in *Figure 4.7*. The results of the traffic noise analysis are summarized below.

The Makaīwa Hills project will increase vehicular traffic in the area. However, the increase in traffic noise along Farrington Highway in the vicinity of the project site will not significantly increase due to the project. Year 2020 projections of traffic volumes along Farrington Highway (Location A) both with and without the project indicate an increase in traffic noise of less than 3 dB can be expected, which is not a significant noise impact.

Noise from vehicular traffic is the primary noise source where the development is close to Farrington Highway. Results from the traffic noise analysis show that homes within 300 feet from the centerline of Farrington Highway would experience noise levels that exceed the maximum noise limit of 67 dBA for peak hour traffic volumes.

#### 4.2.4.3 Mitigative Measures

##### Short Term Impacts

In cases where construction noise exceeds, or is expected to exceed the State's "maximum permissible" property line noise levels, a permit must be obtained from the State DOH to allow the operation of vehicles, cranes, construction equipment, power tools, etc., which emit noise levels in excess of the "maximum permissible" levels. DOH generally requires the contractor to use reasonable and standard practices to mitigate noise, such as using mufflers on diesel and gasoline engines, using properly tuned and balanced machines, etc. Further, DOH may require additional noise mitigation, such as temporary noise barriers, or time of day usage limits for certain kinds of construction activities and issues permit restrictions.

The DOH noise permit does not limit the noise level generated at the construction site, but rather the times at which noisy construction can take place. Therefore, noise mitigation for construction activities should be addressed using project management, such that the time restrictions within the DOH permit are followed.

##### Long Term Impacts

The design of the new development will give consideration to controlling the noise emanating from stationary mechanical equipment so as to comply with the State Department of Health Community Noise Control rules. Noisy equipment should be located away from neighbors, schools and the residential units, as much as is practical. Enclosed mechanical rooms may be required for some equipment.

Vehicular traffic noise from Farrington Highway may significantly impact the proposed development. The calculated traffic noise levels show that any residences and school buildings constructed adjacent to Farrington Highway and are closer than 300 feet from the centerline will require noise mitigation to meet the criteria. Homes and school buildings should not be built within 75 feet of Farrington Highway, even if noise mitigation treatments are planned.

A comprehensive traffic noise and barrier analysis using roadway coordinates and the FHWA Traffic Noise Model Software was not performed. The guidelines listed below are general in nature and should be applied where residential housing or schools are constructed within the setback limits listed above and noise abatement becomes necessary. Effective noise mitigation measures might include:

- constructing barrier walls and/or earth berms along roadways;
- air-conditioning;
- sound rated exterior wall constructions

Typical exterior-to-interior noise reductions for naturally ventilated homes structures, i.e., with open windows, are approximately 9 dB. Adding absorption to interior spaces, (acoustically softening), can further reduce the noise levels 1 to 5 dB, depending upon the absorption initially present, and the amount of absorption added to the space. Air-conditioned or mechanically ventilated homes structures will also typically exhibit higher exterior-to-interior noise reductions achieved by several types of building constructions. Estimating the noise reduction provided by a barrier, however, is more difficult to generalize. Factors such as distances to roadways and

setbacks, intervening ground conditions, barrier construction, barrier height, roadway elevations, etc., will determine the noise reduction afforded by a traffic noise barrier.

The Makaīwa Hills project site is well outside the Ldn 55 dBA noise contour. Therefore, noise mitigation to attenuate aircraft noise is not necessary.

#### 4.2.5 Agricultural Capability

##### 4.2.5.1 Existing Conditions

While the vast majority of the project area consists of poor quality soils, the project will commit approximately 100 acres of prime agricultural land to a non-agricultural use. Large scale mono-crop cultivation is not presently viable in Hawai'i; however, there is an interest in retaining prime agricultural land for potential diversified agriculture. If local crops were to replace all imported crops in 2010, an estimated 8,600 acres of land on O'ahu would be required. The acreage drops by half when competition with imports is considered. The development of major new crops for export is difficult and only one or two are expected to surface over the next 20 years. Biofuel crops may also be considered for this land, but the economic viability has yet to be determined.

O'ahu has ample land to accommodate the growth of diversified crops. By 2009, about 15,300 acres of farm land will be available on O'ahu, including 9,600 acres on the North Shore and 5,700 acres in Kunia. The limiting factor to the growth of diversified crops is not land supply, but size of the market for crops that can be grown profitably in Hawai'i.

##### Site Soil Characteristics

Three classification systems are commonly used to rate Hawai'i soils for crop production: 1) Land Capability Grouping (Natural Resource Conservation Service); 2) Agricultural Lands of Importance to the State of Hawai'i (ALISH); and 3) Overall Productivity rating (UH Land Study Bureau [LSB]) (Figures 4.8 and 4.9).

- 1) Land Capability Grouping (LCG) was generated by the NRCS (formerly U.S. Department of Agriculture Soil Conservation Service). NRCS rated the soils according to eight levels (I through VIII), with Level I being the most compatible for agriculture. Class II soils have moderate limitations and Class III soils have severe limitations that reduce the choice of plants and require special soil conservation practices. Class IV and above have very severe limitations on crop cultivation. Approximately 6% of the site is classified as III or better, but the majority and remainder of the project site has very severe limitations for supporting crops. *Table 4-11* lists the project area soil types and the rating. Classes I and II are considered high quality soils.



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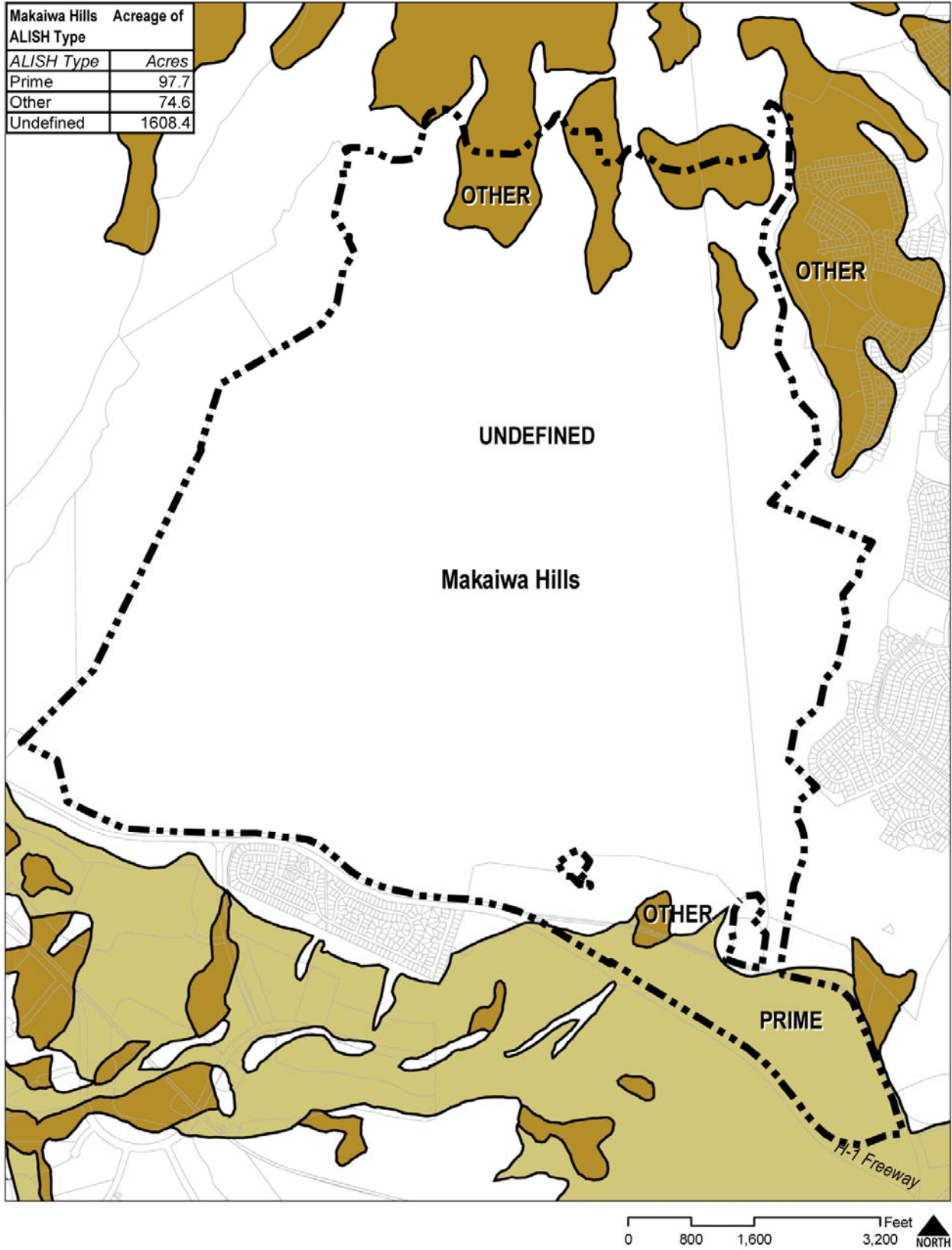
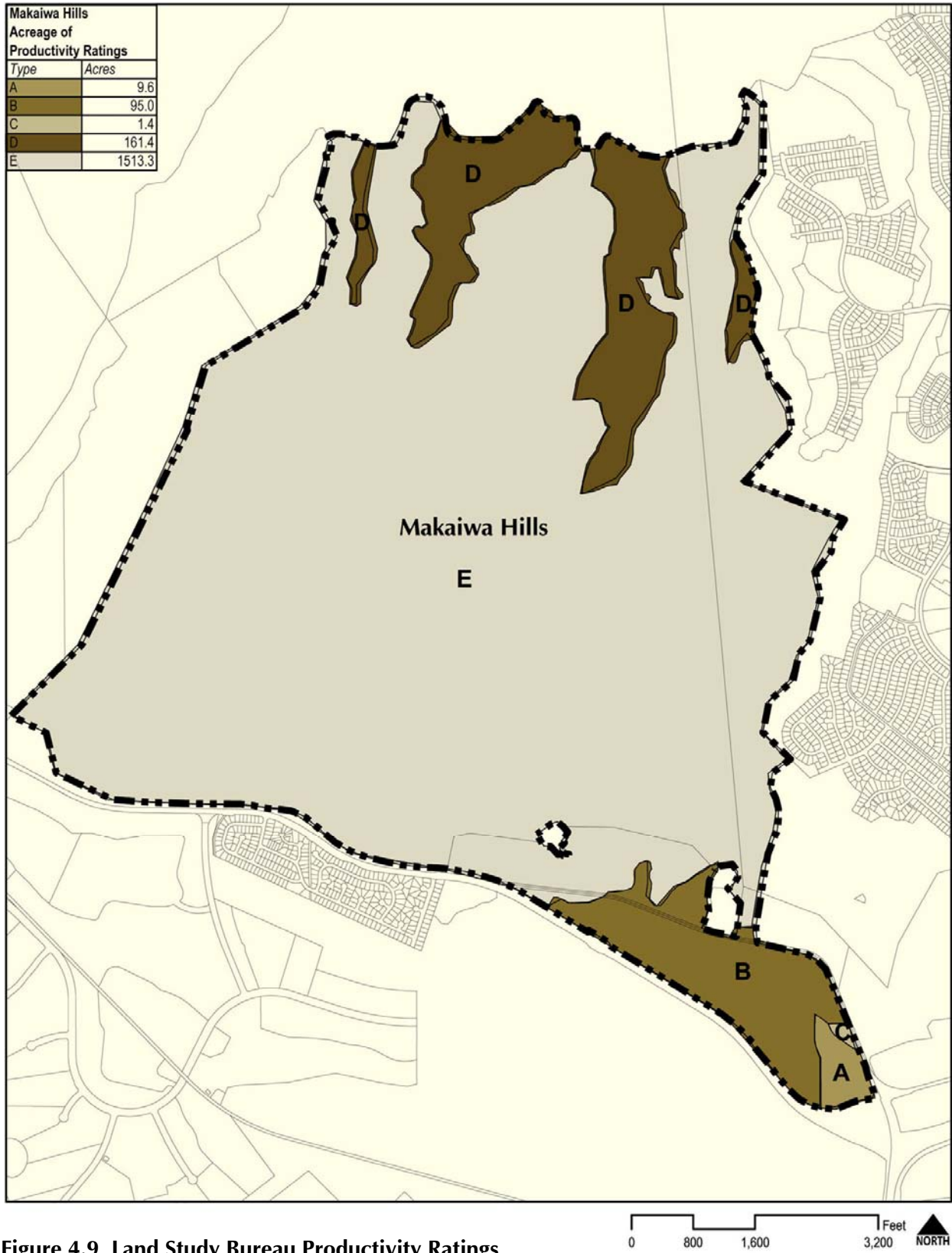


Figure 4.8 Agricultural Land of Importance to the State of Hawai'i

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**Figure 4.9 Land Study Bureau Productivity Ratings**

**Table 4-11  
NRCS Soils Land Capability Grouping**

Soil Type	Soil Type	Slope (%)	Acres	% of Project Area	LCG
<b>Higher Quality Soils*</b>					
HxA	Honouliuli clay	0-2	26	1.5	I if irrigated
EaB	Ewa silty clay loam	0-3	14.1	0.8	II if irrigated
HxB	Honouliuli clay	2-6	29.4	1.7	II if irrigated
	Subtotal		69.5	3.9	
<b>Moderate Quality Soils</b>					
EwC	Ewa stony silty clay	6-12	5.3	0.3	III if irrigated
LvB	Lualualei stony clay	2-6	16.4	0.9	III if irrigated
McC2	Mahana silty clay loam	6-12	38.2	2.1	III if irrigated
MuC	Molokai silty clay loam	7-15	5.9	0.3	III if irrigated
McD2	Mahana silty clay loam	12-20	2.9	0.2	IV if irrigated
<b>Mix of Quality</b>					
MBL	Mahana-Badland complex	-	56	3.1	IV/VIII
<b>Lower Quality Soils</b>					
McE2	Mahana silty clay loam	20-35	19.8	1.1	VI if irrigated
HLMG	Halemanu silty clay	30-90	160.4	9	VII
LPE	Lualualei extremely stony clay	3-35	149.2	8.4	VII
rRK	Rock land	-	1.7	0.1	VII
rSY	Stony steep land	-	1,253.3	70.4	VII
W	Water (irrigation pond)	-	2.1	0.1	not classified
	Totals		1,780.7	100%	

\* LCG I or II are suitable for crop production  
 - No slope specified

- 2) ALISH ratings were developed in 1977 by NRCS, UH and State Department of Agriculture. The three agriculture land categories are described as follows:
  - Prime - best suited for crop production of crops because of its ability to sustain high yields with relatively input and least damage to the environment;
  - Unique – non-Prime and used for the production of specific high value crops; and
  - Other - non-Prime, non-Unique and important to the production of crops.

Those soils that are not suitable for agriculture are not categorized. As shown on *Figure 4.8*, portions of the project area are designated Prime (97.7 acres, or 5.5%) and Other (74.6 acres, or 4.2%). The majority of the site (1,608.4 acres, or 90.3%) is not categorized under ALISH.

- 3) Land Study Bureau (LSB) of the University of Hawai‘i evaluated all lands in the State except those in the Urban District and classified the soils according to five classes of productivity, “A” through “E”. Class “A” represents the soils of highest productivity. Within the project area, the LSB system rates 9.6 acres (0.5%) as “A”, 95 acres (5.3%) as “B” or good, 1.4 acres (0.1) as “C” or fair, 161.4 acres (9.1%) as “D”, and the remaining 1,513.3 acres (85%) as “E” or very poorly suited for agriculture. The LSB ratings are shown in *Figure 4.9*.

In summary, the soil rating systems identified about 100 acres (5.6%) of the project area as comprised of higher quality soils. Nearly all of these better agricultural soils are located on the flatlands in the southeast corner of the project area between the H-1 Freeway and Old Farrington Highway. Consistent with the soil ratings, these 100 acres are characterized by other favorable soil conditions, including deep soils (greater than 30 inches), fine to moderately fine texture, moderate to good machine tillability, moderately to well-drained, gentle slopes and neutral to mildly alkaline pH. Rainfall in this area is low, averaging 20 to 30 inches per year.

Irrigation infrastructure was installed years ago by O'ahu Sugar Company (OSC) prior to the mid-1990s closure of OSC. While the infrastructure has not been well-maintained, potable and non-potable water is available on the flatland area. The area was considered as an agricultural remnant after construction of the H-1 Freeway in the early 1980s, yet road access to the flatland area is good, as is access to Honolulu consumer markets, Honolulu Airport and Honolulu Harbor.

#### 4.2.5.2 *Probable Impacts*

The project will commit approximately 98 acres of land with good quality soils suitable for farming that could support approximately 12.5 jobs if the land were used to grow a typical vegetable or fruit crop. Removing the 100 acres from the inventory of suitable crop land on O'ahu would not appreciably reduce 1) the total amount of suitable land available, 2) agricultural land rents, 3) the growth of diversified crops, or 4) potential agricultural employment.

#### 4.2.5.3 *Mitigative Measures*

No mitigation is proposed for this reduction of 98 acres of land with prime soils from the O'ahu agricultural land inventory.

### 4.2.6 **Water Supply**

#### 4.2.6.1 *Existing Conditions*

##### Drinking Water

The sources of water supply in the 'Ewa/Kapolei region are the Board of Water Supply's (BWS) Hoaea Wells, Kunia Wells I, and Waipahu Wells located in Waipahu. Two transmission mains, 30-inch and 36-inch, along Farrington Highway transmit the water to various distribution systems west along the highway, including the 4.0 MG Makakilo 440 Reservoir, and the 3.0 MG, 4.0 MG, and 5.0 MG Barbers Point 215 BWS Reservoirs. At the Barbers Point reservoirs, which are located within the project site, a booster pump and 24-inch transmission main deliver potable water to Nanakuli.

The regional potable water system in the vicinity of the project site is illustrated in *Figure 4.10*. Currently, BWS does not serve the project site with a potable water system. Therefore, a water storage and distribution system is proposed for Makaīwa Hills. The private residences located north of the project site utilize private water catchment systems.

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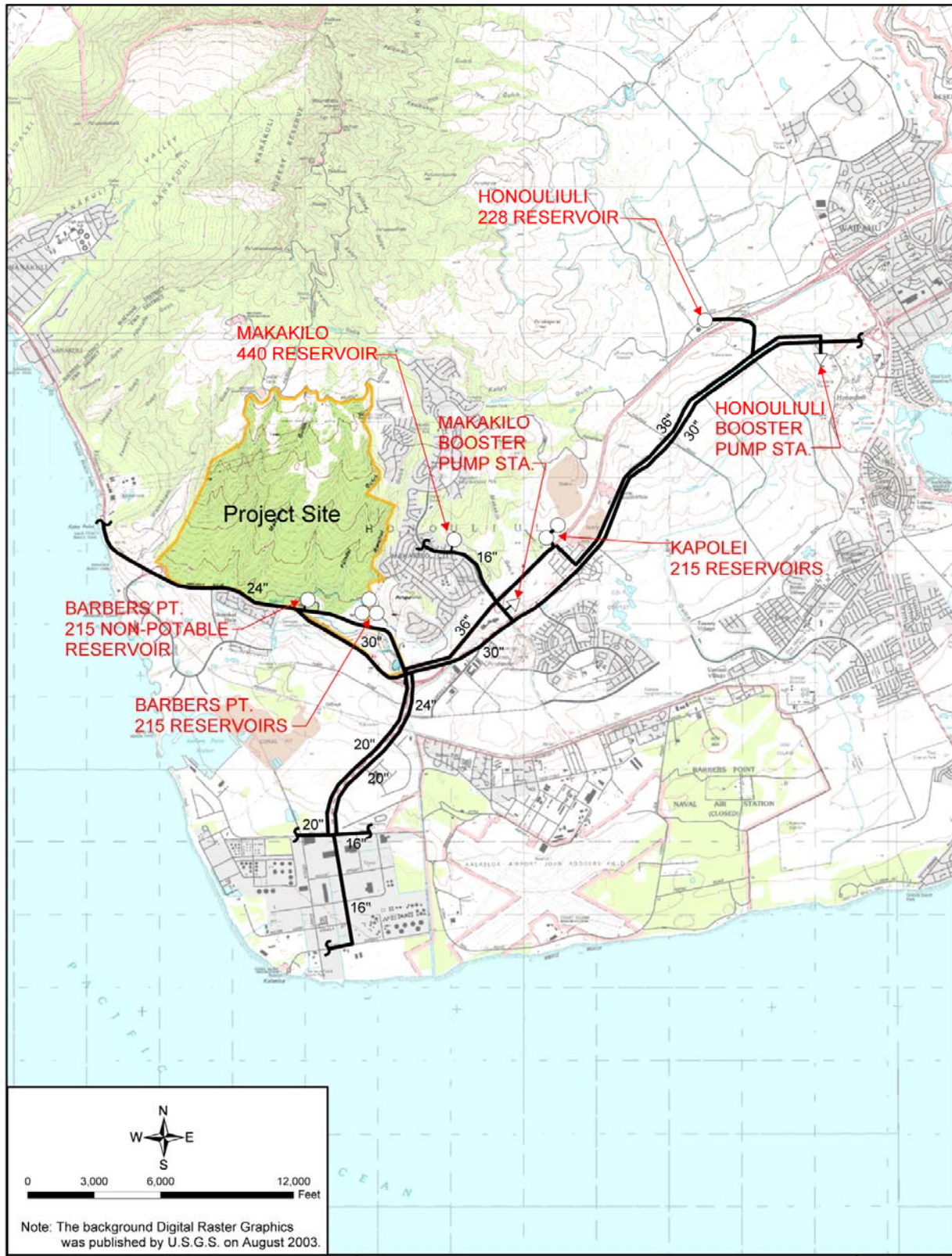


Figure 4.10 Existing Regional Potable Water System

Non-potable Water

There is an existing non-potable water tank located on the project site, which is referred to as the Barbers Point Non-Potable 215 reservoir. This tank is supplied by a non-potable (brackish) well with approximately 1 MGD pumping capacity. The regional recycled water distribution system within the vicinity of the project site is shown on *Figure 4.11*.

The Honouliuli Water Recycling Facility (HWRF) is located in 'Ewa and operates under the Honolulu Board of Water Supply (BWS) water recycling program. HWRF produces R-1 recycled water from wastewater for irrigation uses. The plant capacity is 10 MGD for R-1 recycled water. The current R-1 average daily demands range from 5 to 6 MGD.

According to the Guidelines for Treatment and Use of Recycled Water (hereinafter referred to as Recycled Water Guidelines), allowable R-1 irrigation uses include the following areas: golf courses, parks, playgrounds, schoolyards, athletic fields, residential property where managed by an irrigation supervisor, and roadside and medians.

The existing R-1 distribution system from the HWRF currently serves developments in the 'Ewa/Kapolei region. The west system generally feeds the Barbers Point and Kapolei Golf Courses, as well as the City of Kapolei in the near future. The nearest connection point to the R-1 distribution system is at the 16-inch line located along Roosevelt Road east of the Kalaeloa Boulevard intersection. This is approximately  $\frac{3}{4}$  miles from the project site. BWS does not have any capital improvement projects in the near future to extend the R-1 distribution system.

Brackish groundwater is also being considered as a source of irrigation water, if R-1 water is not available or cannot be used. There is also an existing EP-10 irrigation well cluster that taps the brackish basal aquifer located outside of the project area. Based upon initial discussions with BWS, the future Kapolei West golf course is planned to be served by this existing irrigation well cluster. EP-10 produces up to 5 MGD. Kapolei West golf course has been allocated 1 MGD. Therefore, while there are no plans to utilize EP-10 sourced irrigation water at Makaīwa Hills, 4 MGD of non-potable water may potentially be available for irrigation use provided the water rights can be transferred.

The Preliminary Engineering Report in *Appendix C* provides additional details on water supply issues.

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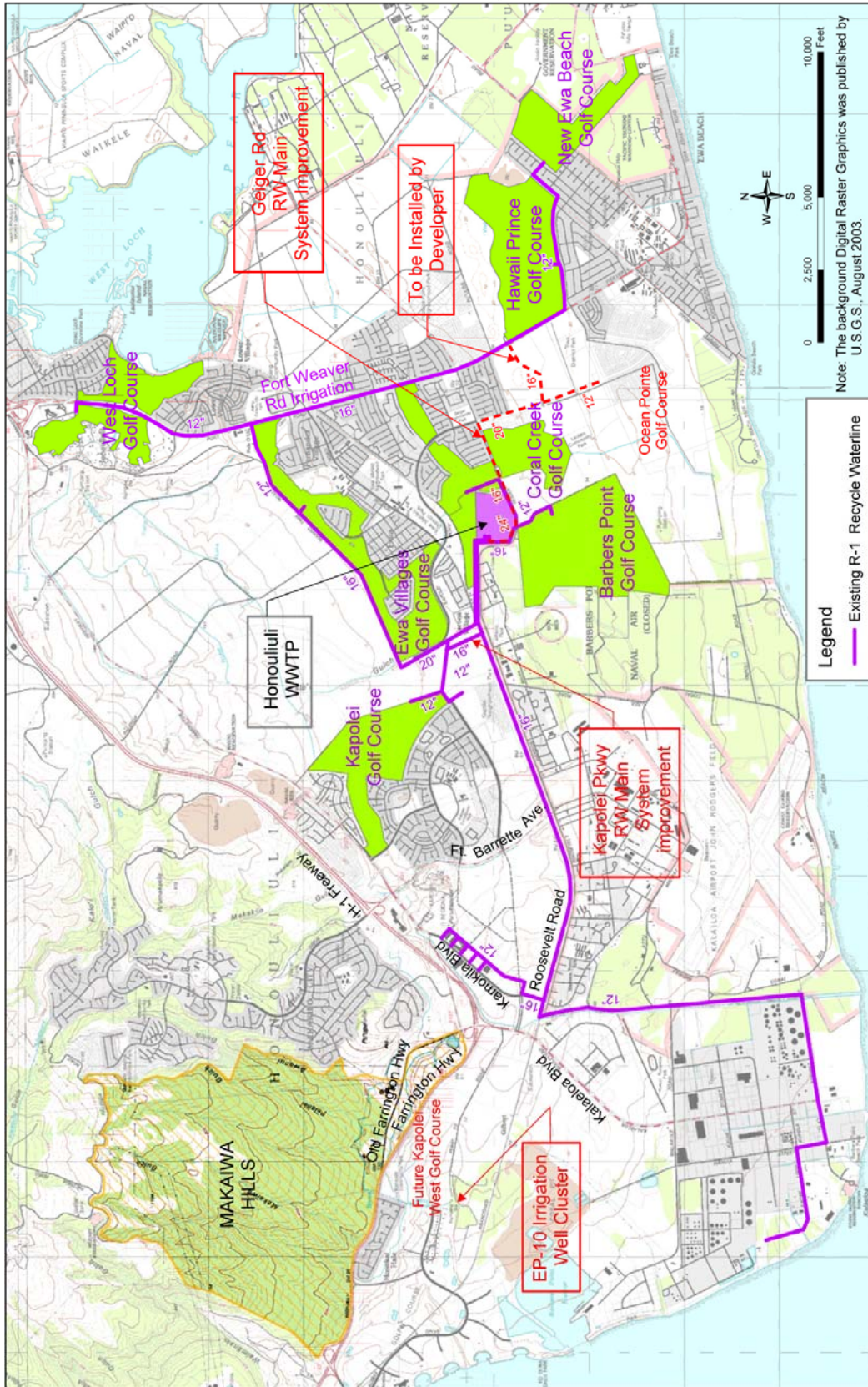


Figure 4.11 Existing Regional Recycled Water System

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4.2.6.2 Probable Impacts

Drinking Water Demand

Water system requirements for Mākaiwa Hills have been considered in BWS regional water system planning. The proposed Mākaiwa Hills development will create additional water demands on the BWS system. Drinking water service will be provided to the proposed residential, commercial and educational developments, while non-potable irrigation water will be supplied to the areas proposed for commercial development. Water demand estimates for the project are based on BWS Water System Design Criteria for the various land uses and are shown in *Table 4-12*.

**Table 4-12  
Estimated Drinking Water Demand**

Land Use	No. of Units	gpd/unit	Average Daily Demand (gpd)	Required Fire Flow Capacity (Flow (gpm)/Duration (hrs))
Residential	<del>4,619</del> 1,594 homes	500	<del>809,500</del> 797,000	1000/1
Duplex	<del>232</del> 216 units	500	<del>116,000</del> 108,000	1000/1
Low Density Apartment	<del>2,249</del> 2,190 units	400	<del>899,600</del> 876,000	1500/1
Educational	1,150 students	60	69,000	200/2
Community Center/School	22 acres	4000	88,000	2000/2
Town Center	<del>115,000</del> 90,000 bldg. sq.ft.	0.12	<del>13,800</del> 10,800	2000/2
Shopping Center	150,000 bldg. sq.ft.	0.10	15,000	4000/3
<b>TOTAL (MGD)</b>			<del>1.94</del> <b>1.88</b>	

Based on the development information in *Table 4-12*, the Average Daily Demand for the development is estimated to be ~~4.94~~ **1.88** MGD. The Maximum Daily Demand is estimated to be ~~2.94~~ **2.82** MGD and a Peak Hour Demand of ~~5.82~~ **5.64** MGD. The proposed system shall be able to accommodate both the above daily demand and the fire flow requirements. The purpose of Fire Storage is to store the volume of water required to meet the largest fire flow in the system.

These quantities of un-allocated drinking water are presently available from BWS sources in the area. These off-site drinking water sources may be adequate to service the project, however, as the supply from these sources is available only on a first-come, first served basis, it is possible that later phases of the project could find the supply had already been allocated to other users in the interim. In this case, it is expected that the BWS will have progressed in its program to desalinate seawater near Barbers Point, and this new source of drinking water would supply subsequent demand based on BWS long-term planning projections for the 'Ewa DP region.

A preliminary hydraulic analysis has been conducted for the proposed Mākaiwa Hills development based on available data for the existing BWS system in the vicinity of the site. Preliminary



indications suggest servicing the proposed development with separate water distribution systems to prevent transmission mains from crossing the gullies except at proposed road crossings. Water service zones within each distribution system were based on the existing Makakilo system service zones, site topography, and the BWS Water System Standards.

The distribution system will draw off the existing 24-inch transmission main located in Farrington Highway on the west side of the Ko ‘Olina Gulch/Stream and the existing 30-inch transmission main from the Barbers Point 215 Reservoirs on the east side of the project area. Each service will be connected where possible along proposed roads crossing the gulches. In addition, because the proposed Makaīwa Hills service zones are based on the service zones already in place for the adjacent community of Makakilo, the potential for connecting the 440-ft tank elevation service zone to Makakilo exists, which could provide additional redundancy.

Refer to *Figure 4.12* for the proposed potable water distribution system. Based upon conceptual design, the distribution systems will be comprised of water mains, 10 reservoirs, and 9 booster pump stations. This infrastructure shall be sized in accordance with BWS Water System Standards. Additional design efforts will seek to reduce the number of reservoirs and booster pump stations. Pipes shall be sized to accommodate maximum daily flow plus fire flow with a residual pressure of 20 psi at the critical fire hydrant; as well as peak hour flow with a minimum residual pressure of 40 psi. The greater of static or pumping pressure shall not exceed 125 psi. The minimum reservoir size shall be 0.1 MG.

Non-potable Water Demand

The potential recycled (non-potable) water uses for this project include irrigation of the commercial landscape areas, roadway medians, community parks, and schoolyards. This recycled water demand is estimated to be 0.17 MGD (*Table 4-13*).

**Table 4-13  
Non-potable Water Demand**

Land Use	No. of Units	gpd/unit	Average Daily Demand (gpd)
Commercial	26 acres	1,440	37,440
School	12 acres	4,080	48,960
Park	20.3 acres	4,080	82,824
Roadway Median	1.5 acres	1,440	2,160
		<b>Total</b>	<b>171,384</b>

The present source of non-potable water used in the area is brackish groundwater and treated R-1 recycled effluent from the HWRF. Based upon initial discussions with BWS, it appears that there is may be an opportunity to transfer the unused portion of water allocation from the EP-10 wells to produce additional non-potable water for irrigation use at Makaīwa Hills; however, the relevant Water Use Permit No. 670 allows water from this source to be used for diversified agriculture, and other uses of this source, such as landscaping irrigation, would require amendments to the permit. The Makaīwa Hills project does not plan to use water from this source. In the interim Instead, Makaīwa Hills could use brackish water for irrigation from the BWS’s Barbers Point Non-Potable 215 reservoir. This tank could be converted to receive non-potable recycled water from HWWTP

when the R-1 distribution reaches the project area in the future or if the EP-10 water rights transfer is able to proceed.

Additional analysis is required to assess the need for additional booster pump stations and storage facilities. The proposed on-site recycled water system is shown on *Figure 4.13*.

#### 4.2.6.3 *Mitigative Measures*

Makaīwa Hills is one of several proposed developments in the ‘Ewa/Kapolei area that will impact the existing regional water system by increasing the demand for drinking water. In an effort to reduce the drinking water requirements of the project, a dual water system is proposed. Non-potable water is planned for use to irrigate the proposed commercial areas, school and park.

The County and the BWS have developed the R1 recycled effluent system that currently serves some of the developments in the ‘Ewa/Kapolei region with non-potable water.

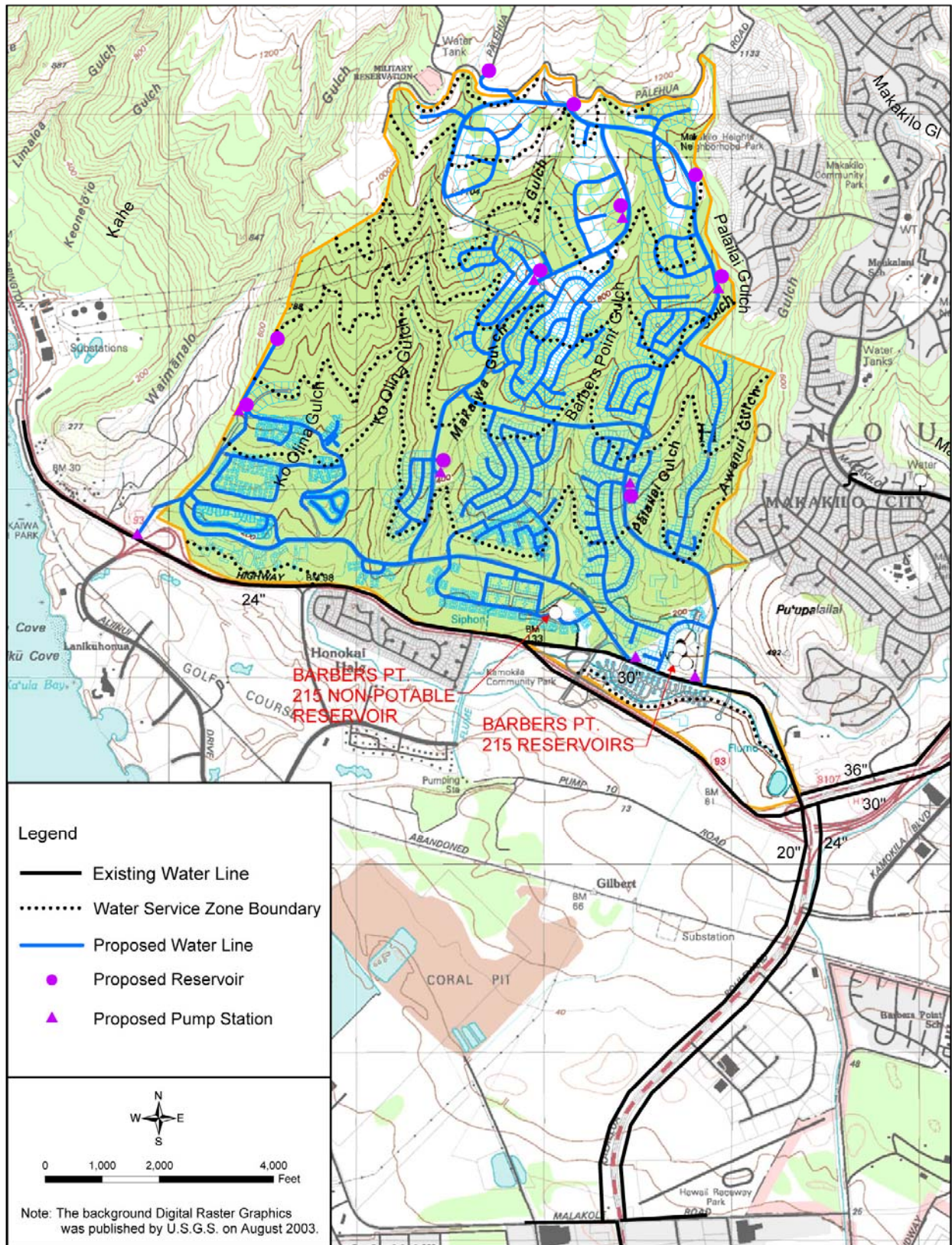
BWS requires new, large developments to submit a potable and non-potable water master plan for review and approval, showing the necessary infrastructure to accommodate the development. The master plan will be developed to provide land use, site layout, phasing, water demands, and infrastructure including proposed source, storage, transmission, and treatment facilities with hydraulic analysis. Additionally, a water reuse plan will be developed to include additional information about the irrigation, management, public education, and other required information per the Recycled Water Guidelines.

The James Campbell Company and/or its affiliates have been working with the BWS to help provide for the needs of the proposed developments in the area. In 1994, The Estate of James Campbell completed construction of the 4 million gallon Kapolei 215 tank. In addition, the James Campbell Company has provided the BWS with the ‘Ewa Shaft wells EP 15 and 16 as an additional source of water for the developments. This shaft was previously used for sugarcane cultivation.

When groundwater resources in the ‘Ewa region become insufficient to supply drinking water demand, desalination of seawater is expected to become a new source of drinking water. While the supply of this resource is limitless, there can be significant energy costs associated with desalinating seawater, depending upon the method utilized. The higher cost of desalinated water is expected to be spread throughout the entire BWS system, as the desalinated water would be freely mixed into the system’s transmission pipelines.

The proposed development will also impact the existing drinking water storage facilities. BWS has indicated that there is some capacity available in the existing storage facilities; however, additional storage facilities will eventually be required at the Barbers Point 215 tank site and at the Kapolei 215 tank site. Implementation of the improvements will be governed by development schedules of the proposed projects in the Kapolei region, and will be coordinated with the BWS.

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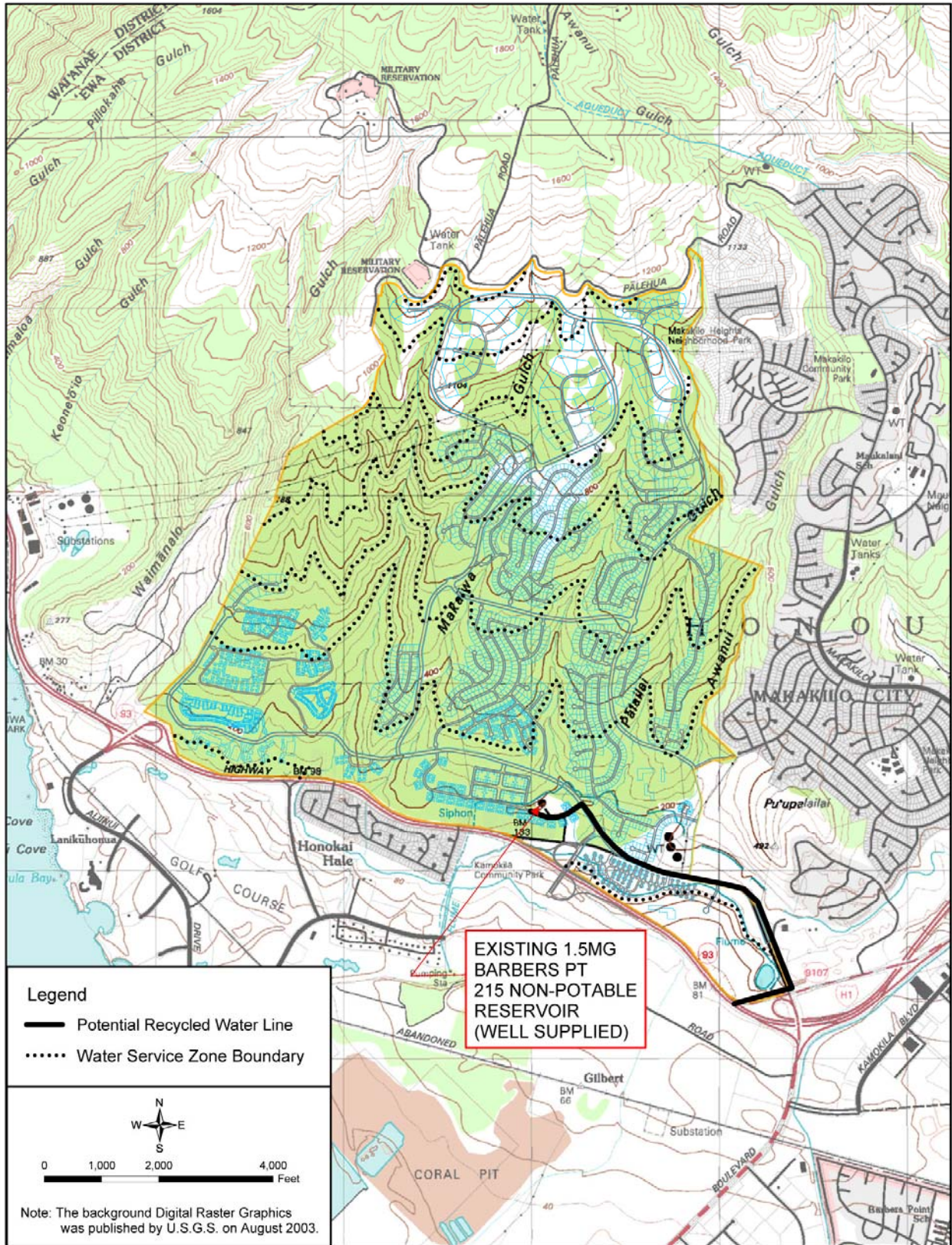


**Figure 4.12 Proposed On-site Potable Water System**

BWS works to secure water supplies for potable and agricultural use. BWS's mission, in addition to water systems and services, is to ensure the sustainability of the island's water resources and to enhance the quality of life for the people of Oahu. They evaluate the water balance within a watershed and determine the available water supply, the water needed for various needs in that watershed, the seasonal cycles of water movement through the watershed and they develop systems to store, treat, and convey water for various uses. Water is treated to achieve water quality objectives for the end uses. In the case of potable water supply, water is treated to minimize risk of infectious disease transmittal, risk of non-infectious illness, and create a palatable water flavor. Water distribution systems shall be designed and built to provide adequate water pressure and flow rates to meet various end-user needs such as domestic use, fire suppression, and irrigation. Any dual water system or use of non-potable water at Makaīwa Hills will be carefully designed and operated to prevent the cross-connection or backflow of the potable and non-potable systems. The development will comply with HAR 11-21 "Cross-Connection and Backflow Control."

The proposed on-site drinking water system (including reservoirs, booster pumps, and distribution mains) will be designed in accordance with the BWS Water System Standards and is anticipated to be dedicated to the BWS for operation and maintenance. By connecting to the existing BWS public water system, the project's drinking water improvements will become a part of Public Water System #335 Waipahu-'Ewa-Waiānae, and will be subject to HAR 11-20 "Rules Related to Public Water Systems." A water master plan will be prepared and submitted to BWS for their review and approval. Short term impacts due to the proposed water system will be construction related and may include dust, noise and traffic disturbances along Farrington Highway. Mitigation of these potential short term impacts can be achieved by limiting construction to off-peak traffic hours, use of wind breaks or watering to reduce dust, implementation of approved traffic control plans, and compliance with applicable Administrative Rules of the State Department of Health, Title 11: Chapter 42 (Vehicular Noise Control for O'ahu), Chapter 43 (Community Noise Control for O'ahu), and Chapter 60 (Air Pollution Control).

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**Figure 4.13 Proposed On-Site Recycled Water System**

#### 4.2.7 Wastewater

##### 4.2.7.1 Existing Conditions

To date, there are no existing wastewater facilities within the project site. The Honouliuli Wastewater Treatment Plant provides wastewater treatment and disposal for developments within the 'Ewa/Kapolei region. The Honouliuli Wastewater Treatment Plant (WWTP) is located on Geiger Road approximately four miles east of the project site in Kapolei. The service area of the plant encompasses a total area of approximately 76,000 acres and ranges from Red Hill along its eastern boundary up to Mililani on its northern boundary, and extends to Makakilo City, Honokai Hale, and Ko 'Olina on its Western Boundary.

Much of the plant's primary treated effluent exits the plant via an 84-inch gravity line and is discharged at the Barbers Point Deep Ocean Outfall located approximately 1.7 miles off-shore from One'ula Park in 'Ewa Beach; while approximately 13 MGD is directed at a splitter box to the secondary treatment facilities. A portion of the secondary treated effluent is disposed of through the ocean outfall, diluting the primary effluent in order to comply with mass emission rate (MER). The remainder of the secondary treated effluent is treated further at the plant's water recycling facility.

The plant, as a whole, presently has a design average dry weather flow liquid capacity of 38 MGD and a solids capacity of 28 MGD. At present, the solids side of the plant is at maximum capacity. The City and County of Honolulu Department of Environmental Services has commenced construction to expand the solids side of the plant by bringing additional aerobic digesters online by February 2009. In addition, there are plans to expand the overall plant capacity to 51 MGD. However, there is currently no timetable for this expansion.

The municipal sewer main near the project site is the 42-inch Ko 'Olina interceptor located south of the project along the O. R. & L. Railroad right-of-way and Renton Road. The Ko 'Olina interceptor is a force main/gravity sewer, which services Honokai Hale and the Ko 'Olina Resort and extends from the Ko 'Olina Resort to Fort Barrette Road. At Fort Barrette Road, the Ko 'Olina interceptor connects to the Makakilo interceptor, a 30-inch sewer that extends from Makakilo along Fort Barrette Road and Franklin D. Roosevelt Road to the Honouliuli WWTP on Geiger Road. To accommodate for increasing wastewater demand, a 42-inch Kapolei Interceptor was constructed sharing the existing sewer easement with the Makakilo 30-inch interceptor along Franklin D. Roosevelt Road from Fort Barrette Road to Honouliuli WWTP. The existing regional wastewater facilities are shown on *Figure 4.14*.

##### 4.2.7.2 Probable Impacts

Wastewater will be generated from the various facilities within the proposed Makaīwa Hills development at an estimated average rate of ~~4.50~~ 1.37 MGD and design peak rate of 7.42 MGD. The estimated wastewater design peak flow calculations are based on the County's Wastewater Standards, which includes the estimated design maximum flow and wet weather infiltration/inflow. For sewer calculations and wastewater contributions for each of the proposed phases land uses of Makaīwa Hills, see *Table 14* in *Appendix C*.

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At present, there is an inadequate solid waste handling capacity at the Honouliuli WWTP to handle the projected wastewater flows from the project site. While there are theoretically a number of alternatives available for the on-site treatment of the wastewater generated by the development, the preferred method of treatment and disposal ~~would be~~ is through the Honouliuli WWTP. On-site treatment, such as the use of aerobic treatment units, are less desirable primarily due to the issues concerning the disposal of the treated effluent and the ongoing operation and maintenance of the plant, which would also require certified treatment plant operators. Disposing of the effluent onsite would be difficult because the majority of the project site is located above the Underground Injection Control line; in which only limited types of Injection wells are allowed. Since expansion of the Honouliuli WWTP's solid waste handling capacity by the County is scheduled to begin soon and will be completed prior to substantial development of Makaīwa Hills, the option of on-site wastewater treatment will not be pursued for the proposed Makaīwa Hills development.

At present, there is inadequate sewer line capacity to transmit the wastewater from the project site to the Honouliuli WWTP. The Kapolei Interceptor Sewer was not sized to include the Makaīwa Hills project. Therefore, it is necessary to explore other alternatives to convey the wastewater. Discussions are continuing with the County regarding the sewer alignment from Ft. Barrette Road to Honouliuli WWTP. The project is exploring two various options at this time.

One option is to add a third interceptor adjacent to the Kapolei Interceptor or in another alignment to be determined. A second option is to work with the County to replace with a new up-sized line the existing Makakilo Interceptor, which is currently planned for rehabilitation.

~~The proposed~~ A conceptual on-site wastewater collection system for the project is illustrated in Figure 4.15. The collection system will consist of gravity sewers, force mains, sewage pumping stations, and sewer easements. Preliminary sizes range from 8" to 21" mains. The concept collection system shown in this figure eliminates the use of sewer pump stations in the upper reaches of the project site through the use of easements that take advantage of the available gravity flow. It may be possible to reduce the number of sewer pump stations shown in the PER along Old Farrington Highway through the use of deep sewers and trenchless technologies. This will be explored further in the sewer master plan. The onsite wastewater collection system shall be dedicated to the County for operation and maintenance. Design and construction of the system will be in accordance with County Standards and applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater System." Implementation of the proposed improvements is subject to approval from the County's Department of Planning and Permitting (DPP).

A sewer master plan and an Application for Sewer Connection will be submitted. The final on-site and off-site sewer master plans will be prepared prior to subdivision application to create development parcels. Preliminary regional sewer master planning is being closely coordinated with several County agencies to assess overall development requirements, agency coordination, project costs and scheduling.

#### 4.2.7.3 *Mitigative Measures*

The County's planned expansion of the plant's solid waste handling capacity is scheduled to begin soon and will be completed prior to substantial development of Makaiwa Hills.

Efforts to upgrade the existing collection system will need to be coordinated with the County to increase sewer capacity along Franklin D. Roosevelt Road from Fort Barrett Road to the Honolulu WWTP. It may be necessary to add a third interceptor line or replace the Makakilo Interceptor with a larger line. The Makakilo Interceptor would have a longer extended life from a replacement project compared to the currently planned rehabilitation project. Therefore this is the preferred option.

#### **4.2.8 Drainage**

##### 4.2.8.1 *Existing Conditions*

The project site occupies 1,781 acres of a primarily undeveloped 3,646-acre watershed. For simplification, the lower boundary of the watershed is set at Farrington Highway. The watershed extends from Makakilo City to the east, and to the western ridge, which forms Waimanalo gulch to the West. The northern boundary of the watershed spans over 16,000 feet mauka of Farrington Highway to the crest of the Waianae mountain range. Watershed elevations vary from approximately 50 feet along Farrington Highway to approximately 2,300 feet at the northern boundary.

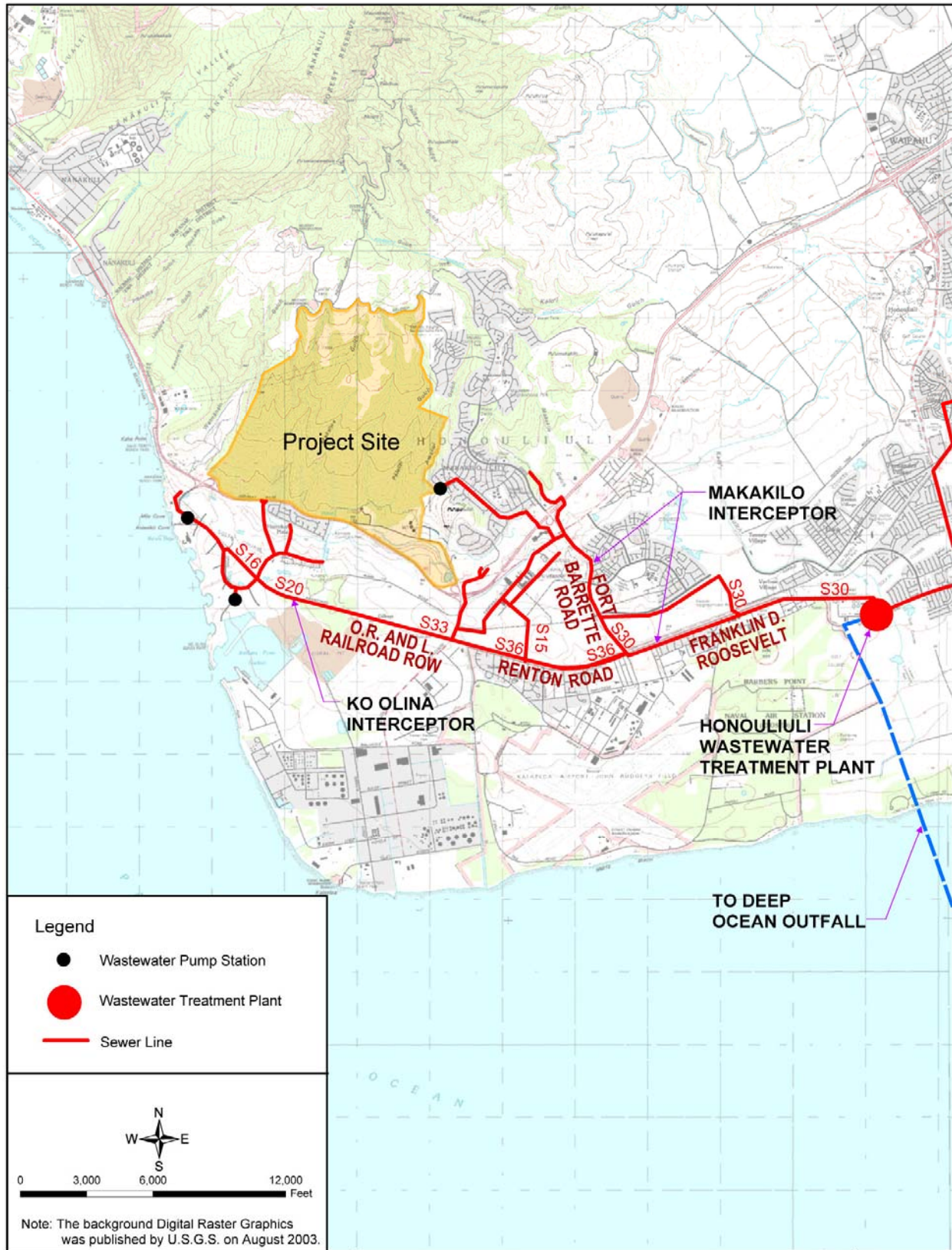
There are currently no existing drainage improvements within the project site. Areas adjacent to the project site include approximately seventeen culverts that carry storm water runoff from the site and mauka areas under Farrington Highway to makai drainage facilities at Honokai Hale, Ko 'Olina Resort, open land makai of the project area and Campbell Industrial Park (*Figure 4.16*). The culverts are located along a three mile stretch of Farrington Highway between Stations 67+75 and 198+20.

Runoff generated from the offsite areas navigates through the northern boundary of the project site, combines with onsite runoff and exits the southern boundary along Farrington Highway. The aforementioned culverts located along Farrington Highway collect and convey the runoff to the makai side of the Highway.

Existing runoff quantities were calculated for the tributary area of each culvert and can be found in *Appendix E C (Preliminary Engineering Report)*. Both peak runoff rate (in cubic feet per second) and the volume of runoff (in acre-feet) were calculated for the 10-, 50- and 100-year storms. Calculations were based on rainfall duration of one hour, and rainfall intensity of 1.9 inches for the 10-year storm and 2.4 inches for the 50-year storm. The Preliminary Engineering Report summarizes the dimensions, lengths, slope and capacity of these culverts, and compares the capacity to the estimated 10-year, 50-year and 100-year peak flows.

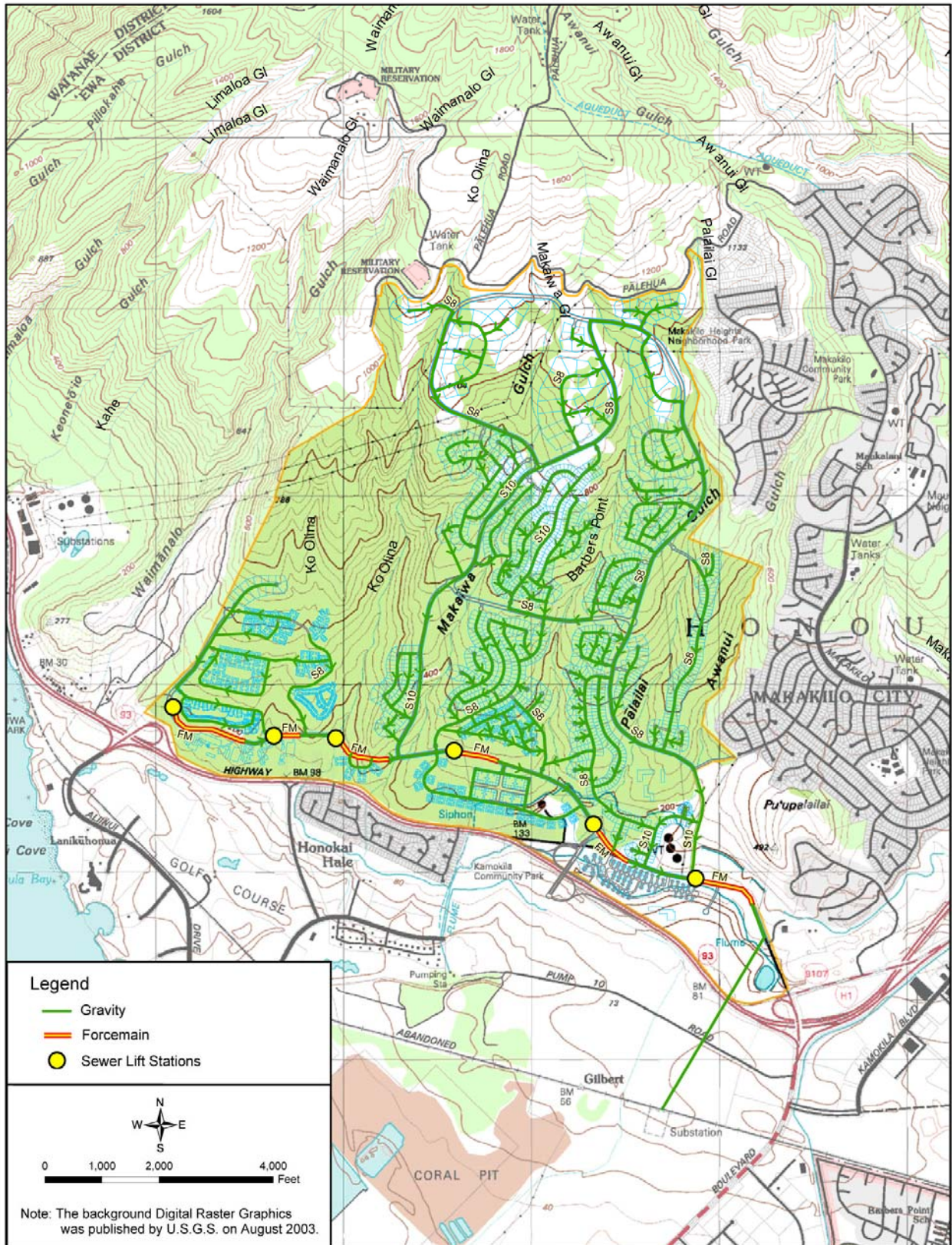


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**Figure 4.14 Existing Regional Wastewater Facilities**

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**Figure 4.15 Proposed On-Site Wastewater Collection**

The largest runoff rate predicted is that for catchment “L”, which collects both Pālailai Gulch and Awanui Gulch. Runoff from both gulches is piped across Farrington Highway, via separate culverts. Waimanalo Gulch in catchment “A” conveys the second highest peak flows. The tributary area to this gulch is located outside of the proposed development site.

#### 4.2.8.2 Probable Impacts

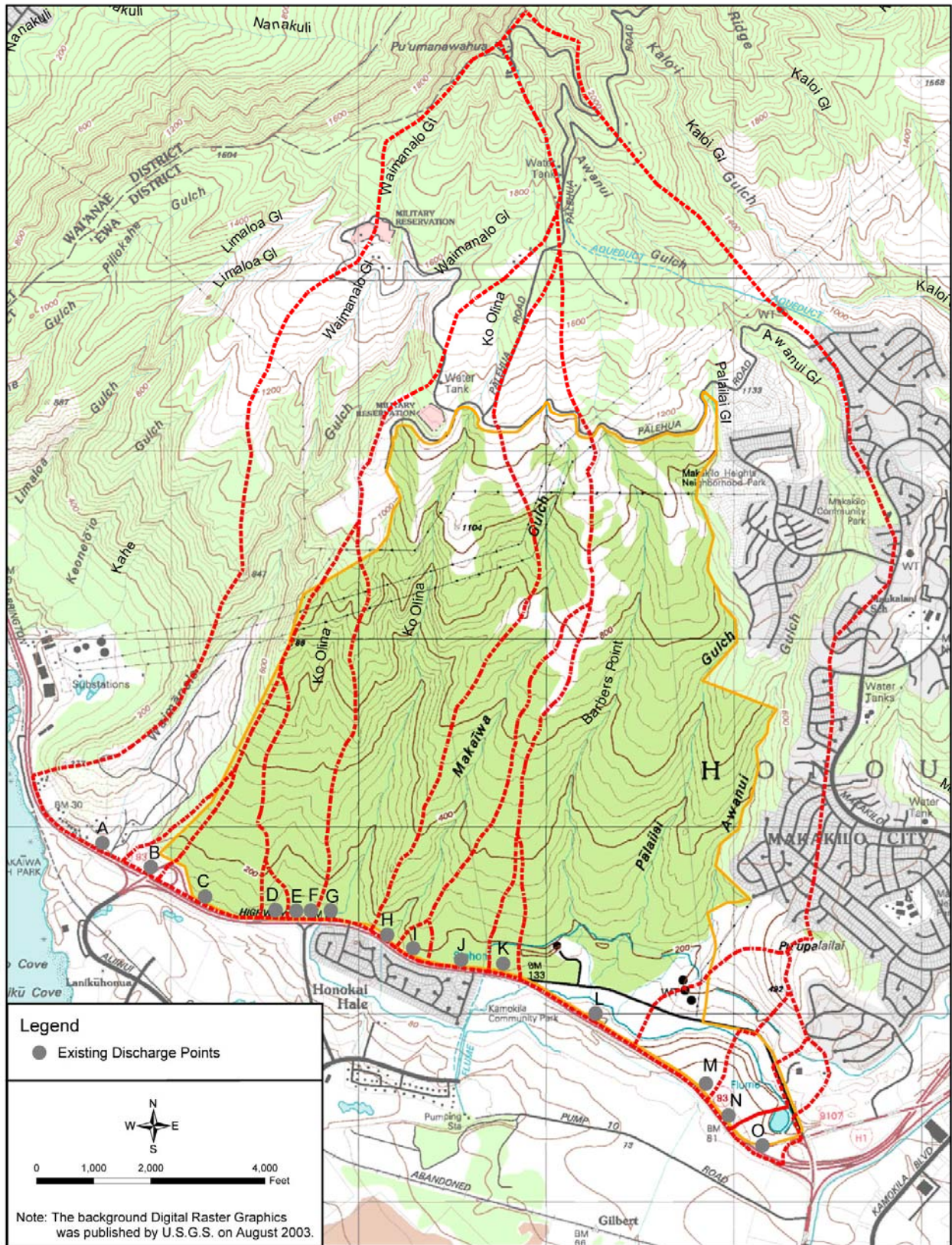
Development will impact the hydrology of the watershed as sections of undeveloped areas and rangeland will be replaced with impervious surfaces (roads, buildings, etc.) and the vegetative surface cover will be altered. The corresponding impact will result in higher runoff volumes and peak flows. Since large areas in the upper watershed (uphill of the site) will remain undeveloped, the impact on peak flows downstream of the site should not be significant. Culverts and drainage structures will be sized to accommodate peak flows in accordance with drainage standards. Off-site drainage improvements in Ko ‘Olina and Kapolei West have been designed to accommodate peak runoff from the Makaiwa Hills project per City and County of Honolulu drainage standards. Additionally, the natural slopes and vegetation of most of the on-site areas planned for preservation will be maintained.

Due to the construction of new roadways and residential neighborhoods transecting across the hillside, some of the existing drainage patterns and subcatchment areas will likely be altered. Therefore, the watershed and proposed development site was discretized into smaller subcatchments for analysis to determine peak flows at the road crossings and various locations along the hillside. In total, 36 subcatchments were delineated for the watershed (ranging from 3.1 acres to 719 acres) using the proposed road network, lot layout and topographic contour information. The Preliminary Engineering Report (*Appendix C*) provides additional detail on this matter.

Runoff from the proposed development will be conveyed across Farrington Highway through the existing culverts. The culverts under Farrington Highway and downstream through Ko ‘Olina were designed to convey peak flows from the Makaiwa Hills site. A review of the regional drainage system through the makai area is provided in the “Preliminary Engineering Report for the Proposed Kapolei Commons”, prepared by Engineering Concepts in March 2006, and “Preliminary Engineering Report for the Proposed Kapolei West Development”, prepared by Engineering Concepts in February 2005.

As described previously in *Section 4.1.4*, the long-term soil erosion potential is expected to decrease significantly after development due to reduction of erodible surfaces, reduction of length and slope of overland flow, and increase in landscaped areas. Based on the proposed residential/commercial development, the long term soil erosion potential for the site is estimated to be ~~4,700~~ 20,220 tons/year—a decrease of ~~89~~ 52 percent from current conditions.

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**Figure 4.16 Maku Watershed Drainage**

#### 4.2.8.3 Mitigative Measures

##### On-Site System

As detailed in *Appendix C*, the road network servicing the proposed development site is anticipated to have 14 major “on-site” road crossings of the gulches. Based on County standards, these crossings should be sized to convey the estimated “100-year” peak flows. At the same time, the State DOT standards require the highway culverts be sized to convey a 50-year peak flow per their design standards.

Subject to the estimated peak flows, topography, road grades and site constraints, these road crossings could be either circular culverts, box culverts or bridges. Preliminary sizes of the structures at these locations are summarized in *Appendix C*, based on concrete pipe material and a 2% gradient. In some instances, bridges may be more favorable than culvert crossings based on the topography, height of the roadway above the channel bottom, and environmental consideration.

Consideration has been given to the future development of the Makaīwa Hills site in planning of downstream drainage facilities. Impacts on developments downstream of the Makaīwa Hills site are not expected to be adverse. A drainage master plan will be prepared and submitted to the City and County Department of Planning and Permitting for review and approval.

Retention (or detention) facilities are typically constructed to retain increases in storm drainage runoff that occurs as a result of development. These facilities often include: open basins, detention ponds, underground storage tanks and engineered lakes. Drainage improvements in Ko ‘Olina and Kapolei West have been designed to accommodate peak runoff from the Makaīwa Hills project per County drainage standards. Therefore, detention facilities are not anticipated to be required for this development from a stormwater quantity perspective, but they may be required to provide water quality improvements.

##### Stormwater Quality

###### *City and County of Honolulu Standards*

The project will meet the County’s stormwater quality requirements as outlined in the Rules Relating to Storm Drainage Standards, dated January 2000. The City and County of Honolulu requires all residential developments greater than 10 acres in size meet specific sizing criteria for storm water quality facilities. These requirements are currently being revised and storm water quality for this project will need to address any new requirements when they become available.

###### *DOT Standards*

Since runoff from the project will discharge through the State’s DOT storm drainage system via the culverts across Farrington Highway, it is also anticipated that the project will need to incorporate water treatment BMPs in conformance with State DOT NPDES MS4 permit requirements. DOT is also in the process of developing stormwater quality criteria and it is anticipated this criteria will include the requirement for permanent structural BMPs to address water quality.

### *Water Quality Measures*

During the more detailed planning and design of the infrastructure to service the site, the design engineers will work with the appropriate County and State agencies to determine the necessary water quality standards and which BMP's would be most effective for this project.

The objectives of the water quality BMP's would be to mitigate the impact of pollutants that enter the drainage system from the frequent, smaller rainfall events such as a 1 in 5-year event. A common technique is using detention basins to retain runoff, thus allowing sediment and grit to settle out. Plants can be incorporated into the design to absorb particles and filter heavy metals. Detention ponds and wetlands are most effective when they: are "off-line" from a creek or gulch; have low flows/velocities; have sufficient retention time; and are in low-lying areas.

Additional water quality BMP's may include construction of bio-swales and infiltration swales alongside the roadway. These swales collect runoff, filter particles and provide infiltration to recharge the groundwater. Swales are most effective on flat slopes, over short lengths and where favorable soils exist – such as a parking lot and cul-de-sacs.

Mechanical water quality structures such as centrifugal units and filter systems are also effective in settling suspended solids and extracting floatables (i.e. garbage, litter). These mechanical structures are often installed in-line with the underground storm sewer system.

### *Off-Site System*

Capacity of the culverts across Farrington Highway will be further examined during the preliminary design stage to assess whether improvements are required to convey peak flows from Makaīwa Hills. Preliminary hydrologic calculations of storm runoff from the developed Makaīwa Hills site were performed to assess the capacity of drainage structures in Honokai Hale. Based on preliminary analysis, the drainage system for Honokai Hale appears adequate to handle the peak storm runoff expected from the portions of Makaīwa Hills that drains through the development.

Community Planning, Inc. prepared a hydrologic study for the Ko 'Olina development. The storm drain system for Ko 'Olina was designed and constructed to accommodate increases in the peak storm runoff generated from the portion of Makaīwa Hills that drains through the development.

Kapolei Property Development is currently planning the downstream developments of Kapolei West (formerly Ko 'Olina, Phase 2) and Kapolei Harborside Center. Kapolei West will include a golf course as part of the development that will also be used as a drainageway to convey runoff from a portion of the Makaīwa Hills project site through its development. The golf course/drainageway will discharge collected runoff into a major drainage swale to be developed as part of the proposed business-industrial Kapolei Harborside Center development. The cumulative drainage flows in this system will be conveyed to a lined channel and outfall located approximately 0.5 mile south of Kalaehoa Harbor. Design of the entire drainage system will accommodate peak storm runoff contributions from the relevant portion of the proposed Makaīwa Hills development.

## 4.2.9 Power and Utilities

### 4.2.9.1 Existing Conditions

Hawaiian Electric Company (HECO) has several transmission (138 kV) and subtransmission (46 kV) lines traversing the project site. Subtransmission (46 kV) lines and distribution (12 kV) lines coexist with Hawaiian Telcom (HTCOM) and Oceanic Time Warner Cable (OTWC) cables on joint wood poles along the roadways abutting the project site. Following is a description of the utility lines that impact the project site:

Two parallel 100-foot wide easements originating from the Kahe Power Plant crosses the northwest portion of the project site in a northeasterly direction. The easements contain two 138 kV lines constructed on wooden structures on each easement and one 46 kV line on wood poles on the northernmost easement. At the uppermost portion of the project site, the 46 kV line continues directly eastward on its own 25-foot wide easement, then turns to the south to the Old Farrington Highway with a tap to serve the Makakilo Substation in the Makakilo Subdivision. The 46 kV line then continues east along the Old Farrington Highway on a joint pole line with 12 kV, HTCOM, and OTWC lines to the Kalaeloa Boulevard Interchange. At the interchange, the 12 kV, HTCOM, and OTWC lines continue east on joint poles along Farrington Highway fronting the water park and the 46 kV line crosses the H-1 Freeway and continues along Kalaeloa Boulevard to the Campbell Industrial Park.

Another pair of parallel 60-foot wide easements originating from the Kahe Power Plant traverses the project site first in an easterly direction, turns south towards Farrington Highway, then continues east, paralleling Farrington Highway. At the intersection of Farrington Highway and Old Farrington Highway, the two easements split, one on each side of Old Farrington Highway. Both easements continue east along Old Farrington Highway, then turn south and terminate at the Campbell Industrial Park Substation. Only the makai-most easement contains two 138 kV lines on steel poles. The mauka-most easement does not have any 138 kV lines, but is reserved for future 138 kV lines. There are currently no immediate plans to build on this mauka-most easement.

There is an existing wood joint pole line along the mauka side of the Farrington Highway and Old Farrington Highway road right-of-way that abuts the project site. All the poles contain HECO 12 kV, HTCOM, and OTWC lines. The segment of pole line along Farrington Highway from the western-most boundary of the project site to the Honokai Hale Subdivision also contains one 46 kV line, and the segment of pole line along Old Farrington Highway from the Board of Water Supply reservoir to the Kalaeloa Boulevard Interchange contains a second 46 kV line (also described in section "A" above). HECO has plans to rebuild the segment of pole line along Old Farrington Highway from Honokai Hale to the Board of Water Supply reservoir to add a 46 kV line to the pole line.

### 4.2.9.2 Probable Impacts

It is anticipated that HECO, HTCOM, and OTWC will provide the necessary electrical, telephone, cable TV, and high-speed internet services to the project site. The total diversified electrical demand for the entire development is estimated to be ~~28.6~~ 29.1 MVA. Power is planned to be supplied initially to the site via existing substations at Kahe Power Plant, James Campbell Industrial

Park (JCIP) Substation, Makakilo Substation, or Ko 'Olina Substation. Ultimately, the project site will require its own substation.

All electrical utilities will be placed underground within the right-of-way of the proposed development roads except for the major transmission and sub-transmission lines. New easements for pad-mounted transformers, switchgears, telephone switches, and cable TV power supplies will be required at selected locations within the proposed development. Offsite work may require under-grounding of the existing wood pole line along Old Farrington Highway.

The proposed Makaiwa Hills will place additional demands on the utility systems. Continued coordination will be required among the developer, its consultants, and the utilities for timely design and construction of the utility infrastructure and delivery of the required services. A substation site will be selected early in the planning stages. Ideally, the site should be at the center of the load density, near existing 46 kV lines, clear of floodwater runoff, and on relatively flat land. Routes for the 46 kV feeders to the substation site should be coordinated with the outgoing 12 kV feeders and with the HTCOM and OTWC lines to minimize trenching, excavation, and installation of the underground infrastructure.

The existing transmission and sub-transmission lines will have a visual impact on the view planes of the residences at the lower levels. The steel poles range in height from 90 to 120 feet above ground, and the lowest conductor level is approximately 50 feet above ground. The wood poles are shorter, ranging in height from 40 to 60 feet above ground, and the lowest conductor level (HTCOM) is approximately 20 feet above ground.

#### 4.2.9.3 *Mitigative Measures*

The project will increase the use of non-renewable resources used in the production of electrical power. As mitigation, the development will consider implementation of energy efficiency design guidelines as recommended by the Energy Division of the State of Hawai'i Department of Business, Economic Development and Tourism, in an effort to minimize energy consumption. Some energy conserving measures that will be included in the guidelines, among others, are:

- Use of timer or occupant-sensing light and air conditioning controls.
- Use of high-efficiency air conditioners and appliances.
- Use of heat pumps and solar heating systems.
- Promotion of energy saving opportunities through innovative building design.
- Use of landscaping for dust control and to minimize heat gain in the area.

Please refer to *Section 2.2.2* for additional discussion of sustainable practices.

The existing transmission and sub-transmission line easements have building and electrical clearance restrictions. Homes, businesses, schools, and recreational facilities will be sited so as to not encroach within the easement areas. Roads and parking lots may be allowed within the easement areas provided there are proper clearances to the poles, anchors, and conductors. Any relocation of easements or existing poles, anchors, and conductors will be at the expense of the developer. Should HECO decide to build new 46 kV or 138 kV lines on the currently vacant 60-foot wide easement, HECO will go through its transmission line routing, permitting, and approval



process for new transmission lines. This will include a routing study, possibly preparation of an Environmental Impact Statement if required, and a public hearing and consequent approval/denial by the Public Utilities Commission.

All electrical utilities will be placed underground within the right-of-way of the proposed development roads, except for the major transmission and sub-transmission lines. New easements for pad-mounted transformers, switchgears, telephone switches, and cable TV power supplies will be required at selected locations within the proposed development. Offsite work may require undergrounding of the existing wood pole line along Farrington Highway fronting the water park and along Old Farrington Highway.

At this time, no consideration is being given to underground the transmission and sub-transmission lines due to the prohibitive cost of undergrounding high voltage lines. Portions of the wood pole line along Old Farrington Highway may be placed underground as part of the offsite and road improvement work.

HECO must be allowed 24-hour access to its poles, anchors, and conductors for construction and maintenance purposes. Construction equipment may include trucks, trailers, 4-wheel drive vehicles, and occasional use of helicopters to ferry crews to sites inaccessible by vehicles and for stringing of conductors. Upon completion of its work, HECO will restore the area to as close to its original condition as possible. HECO will also be advised of the approved archaeological preservation sites identified in the Preservation Plan prepared by Cultural Surveys Hawaii, Inc. The Preservation Plan calls for interim and long term fencing around the preservation sites with a 20-foot buffer area. As these sites will be clearly identified, HECO crews and equipment will be able to avoid these preservation sites during their construction and maintenance activities.

#### **4.2.10 Solid Waste**

##### *4.2.10.1 Existing Conditions*

Currently, the site is undeveloped and does not generate solid wastes.

##### *4.2.10.2 Probable Impacts*

The proposed project will generate solid waste during construction and after development. The construction wastes will primarily be made up of vegetation, rocks, and debris resulting from clearing the site prior to construction. Some of these wastes will be combustible, while others will need to be landfilled.

Municipal solid waste generation from the proposed development is estimated to be 54 tons/day based on an average per capita generation rate of 4.0 lb/capita/day. The solid waste composition is expected to be typical for a municipal source; no hazardous waste generation is anticipated. It is estimated that municipal refuse collection from the site will necessitate 76.9 truck trips per week. The number of truck trips is based on a manually loaded, 20 cubic yard compactor truck capable of achieving a typical compaction density of 500 pounds per cubic yard automated truck collection of approximately 950 homes per day and refuse collection two times per week. Commercial refuse will be collected by a private service.

#### 4.2.10.3 *Mitigative Measures*

The contractor will be required to remove all construction related debris from the project site to mitigate the environmental impact. Construction wastes will be managed pursuant to Federal, State and County standards.

It is anticipated that refuse generated by the proposed Makaiwa Hills residential development will be collected by the City and County refuse collection service and transported to the H-Power facility at Campbell Industrial Park. . Refuse from the proposed commercial area will be serviced by a private refuse collection company.

The County is currently operating both a landfill site and the H-POWER waste energy recovery facility in the 'Ewa area. The Waimanalo Gulch landfill is being expanded to accommodate an additional 15 years of solid waste disposal (estimated). The County is also currently exploring alternative means of handling solid waste as an ongoing city-wide concern. Other programs being implemented are recycling and reuse of green waste.

### **4.3 CULTURAL ENVIRONMENT**

As a Hawaiian family-owned company with the tradition of the Campbell Estate, the landowner places significant value on appropriate cultural stewardship. Accordingly, numerous proactive steps were undertaken to protect the cultural environment, such as initiating archaeological data recovery and preservation planning at an early stage in the planning process, undertaking substantive outreach efforts to demonstrate their commitment to the local community, and redesigning the conceptual land plan to avoid significant archaeological sites..

#### **4.3.1 Archaeological and Historic Resources**

##### *4.3.1.1 Existing Conditions*

An Archaeological Inventory Survey for Makaiwa Hills Project Site, Honouliuli, 'Ewa, O'ahu was initially prepared by Cultural Surveys Hawai'i, Inc. (1991), and was included as an appendix to the Final EIS for Makaiwa Hills dated April 1991. Thirty-four sites were located, including habitation structures, agricultural features (terraces and mounds), rock shelters, a possible rock shelter quarry, petroglyphs, ahu and various other structures associated with years of sugarcane cultivation by the 'Ewa Plantation Company. Seventeen of these recorded sites are within the current project boundary and are "likely to yield information important to prehistory and history". Five of the seventeen sites are noted as excellent examples of site types, and preservation was recommended pending results of subsurface testing.

The inventory survey was accepted by State Historic Preservation Division (SHPD) in 1991 with specifications for preparation, approval (by SHPD) and implementation of a Data Recovery Plan at the seventeen sites. Because of the time that had elapsed since the 1991 archaeological inspection of the project area, a reconnaissance was made in 2006 to relocate the 17 historic properties slated for data recovery. During this fieldwork, two additional historic properties were identified in the mauka/west corner of the project site. SHPD requested that an archaeological survey addendum

be completed to document these two historic properties. Pursuant to this addendum, these two properties were recommended for data recovery and preservation.

The Data Recovery Plan was prepared in 2006 by Cultural Surveys Hawai'i to address mitigation efforts for the seventeen sites recommended for data recovery in the 1991 Inventory Survey, and the two additional sites recommended in the 2006 addendum; this Plan is attached as *Appendix G*. The proposed treatment for all sites is map, GPS locate, photograph and excavate.

Preservation is recommended for seven significant sites, each of which is pre-historic. Cultural Surveys Hawaii prepared a Preservation Plan in 2006 (*Appendix G*) in accordance with the Hawai'i Administrative Rules (HAR) 13-277-3 to support the proposed project's historic preservation review under Chapter 6E-42, HRS and Chapter 13-284, HAR.

Preservation consists of:

- establishing a buffer zone of 20 feet from the outer boundary of each site;
- constructing a permanent fence or boundary, with lockable gate, to demarcate the buffer zone and provide access,
- periodic vegetation clearing by hand,
- stabilization, in this case is not necessary on the interior of the site but the Makaīwa Hills project will construct permanent barriers to prevent water and sediment from impacting the site, and
- signage, such as, "Preserve Hawai'i's past for the future. Please do not disturb these archaeological sites. Damage to these historic sites is punishable under 6E-11 HRS".

Future research at the sites is subject to SHPD approval. *Table 4-13* summarizes the archaeological findings. *Figure 4.17* shows how the significant archaeological sites to be preserved were avoided in the conceptual land plan.

The following discussion of history is organized by period: History and pre-history, mid to late 19th century and modern.

#### History and Prehistory

Although no specific documentation of prehistoric or early historic land use is known for the project area, various Hawaiian legends and early historical accounts indicate that the surrounding area of Honouliuli Ahupua'a was once widely inhabited by prehistoric populations, including the Hawaiian ali'i. This would be attributable, for the most part, to the plentiful marine resources available at the coast, along which several sites interpreted as permanent habitations and fishing shrines are located. Other attractive subsistence-related features of the area include the irrigated lowland suitable for wetland taro cultivation (Hammatt and Shideler, 1990), as well as perhaps the lower forest area of the mountain slopes (presumed to have covered most of the project area) to procure forest goods.

Exploitation of the forest resources along the slopes of the Wai'anae Range - as suggested by E.S. and E.G. Handy - probably acted as a viable subsistence alternative during times of famine:

*...The length or depth of the valleys and the gradual slope of the ridges made the inhabited lowlands much more distant from the 'wao, or upland jungle, than was the case on the windward coast. Yet the 'wao here was more extensive, giving greater opportunity to forage for wild foods during famine time. (Handy and Handy 1972:469-470)*

These upper valley slopes may have also been a significant locale for sporadic quarrying of basalt for the manufacturing of stone tools. This is evidenced in part by the existence of a probable quarrying location (State Inventory of Historic Places [SIHP] # 50-80-12-4322) located in the present study area at 500 ft. MSL. Many other fine-grain basalt outcrops were observed within the project area.

The Hawaiian ali'i were also attracted to the region, in which existed many places referred to in myth. An extensive summary of various legends and historical accounts of Honouliuli can be found in Sterling and Summers (1978:31-44). One historical account of particular interest refers to an ali'i residing in Ko 'Olina, an area located immediately south of the project area.

Ko 'Olina is in Waimanalo near the boundary of 'Ewa and Wai'anae. This was a vacationing place for chief Kākuhihewa and the priest Napuaikamao was the caretaker of the place. Remember reader, this Ko 'Olina is not situated in the Waimanalo on the Ko'olau side of the island but the Waimanalo in 'Ewa. It is a lovely and delightful place and the chief, Kūkuhihewa, loved this home of his (in Sterling and Summers 1978:41).

John Papa 'Ī'i describes a network of Leeward O'ahu trails which in later historic times encircled and crossed the Wai'anae Range, allowing passage from West Loch to the Honouliuli lowlands, past Pu'u Kapolei and Waimānalo Gulch to the Wai'anae coast and onward circumscribing the shoreline of O'ahu ('Ī'i, 1973:96-98). Following 'Ī'i description, a portion of this trail network would have passed along the southern boundary of the project area, roughly running along the present Farrington Highway.

Other early historical accounts of the general region typically refer to the more populated areas of the 'Ewa District, where missions and schools were established and subsistence resources were perceived to be greater. However, the presence of archaeological sites along the barren coral plains and coast of southwest Honouliuli Ahupua'a, as well as those identified within the present study area along the slopes of the Wai'anae Range, indicate that prehistoric and early historic populations also adapted to these less inviting areas, despite the environmental hardships.

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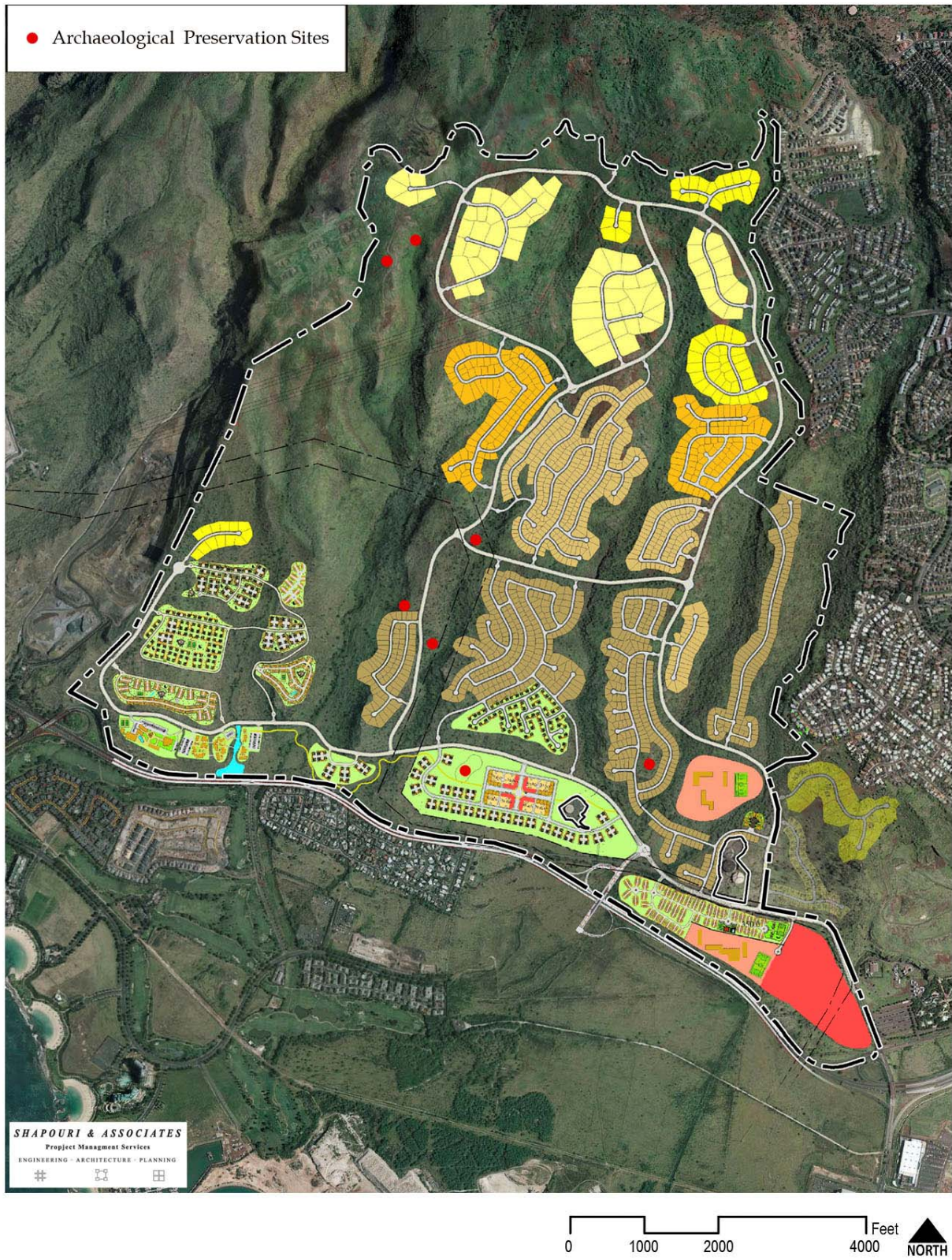


Figure 4.17 Archaeological Preservation Sites

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Table 4-13  
Historic Properties within the Makaīwa Hills Project Area

SIHP # 50-80-12-	Site Form	Site Function	Significance*	Preservation
-4312	C-Shape enclosure	Temporary habitation	D	none
-4313	Terrace	Agricultural	D	none
-4317	Circular enclosure; platform	Recurrent habitation	D	none
-4318	Circular enclosure	Temporary habitation-shelter	D	none
-4319	Rockshelter w/interior terrace	Permanent habitation	C, D	Avoid and protect
-4321	Rockshelter w/interior terrace	Habitation	C, D	Avoid and protect
-4322	Rockshelter w/interior ahu	Quarry	D	Avoid and protect
-4324	Mound; ahu	Agricultural	D	none
-4325	C-shape enclosure; ahu	Temporary Habitation	D	none
-4326	Enclosure	Temporary habitation	D	none
-4328	Rockshelter complex (3)	Permanent habitation	D	Avoid and protect
-4331	L-shape enclosure	Temporary habitation	D	none
-4332	Circular enclosure	Temporary habitation	D	none
-4334	Circular enclosure	Temporary habitation	D	none
-4336	Rectangular enclosure	Recurrent habitation	D	none
-4337	Circular enclosure	Temporary habitation	D	none
-4338	Rockshelter complex	Permanent habitation	C, D	Avoid and Protect
-6870	Terrace, springs and a rock shelter	Animal husbandry	D	Avoid and Protect
-6871	Paved Area	Indeterminate	D, E	Avoid and Protect

\* HAR § 13-198-8: The quality of significance in Hawaiian history, architecture, archaeology, and culture, which is present in districts, sites, buildings, structures, and objects of State and local importance that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and (A) That are associated with events that have made a significant contribution to broad patterns of our American or Hawaiian history; (B) That are associated with the lives of persons significant in our past; (C) That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic value, or that represent a significant and distinguishable entity whose components may lack individual distinction; (D) that have yielded, or may be likely to yield, information important in prehistory or history).

Subsequent to western contact in the area after ca. 1790, the landscape of the ‘Ewa plains and Wai‘anae slopes was adversely affected by the removal of the sandalwood forest, and the introduction of domesticated animals and new vegetation species. Domesticated animals including goats, sheep and cattle were brought to the Hawaiian Islands by Vancouver in the early 1790s, and allowed to graze freely about the land for some time after. It is unclear when the domesticated animals were brought to O‘ahu; however, L.A. Henke reports the existence of a longhorn ranch in Wai‘anae by at least 1840 (in Frierson 1972;10). During this same time, perhaps as early as 1790, exotic vegetation species were introduced to the area. These typically included vegetation best suited to a terrain disturbed by the dwindling sandalwood forest and erosional effects of animal

grazing. The following dates of specific vegetation introduced to Hawai'i are given by R. Smith and outlined by Frierson (1972:10-11):

"early", c. 1790:

*Prickly pear cactus, Opuntia tuna*  
*Haole koa, Leucaena glauca*  
*Guava, Psidium guajava*

1835-1840

*Burmuda [sic] grass, Cynodon dactylon*  
*Wire grass, Eleusine indica*  
*Lantana, Lantana camara*  
*The kiawe tree was also introduced during this period, either in 1828 or 1837 (Frierson 1972: 11).*

Intensive sandalwood harvesting, according to H. St. John (in Frierson 1972:7) occurred in the islands between 1815 and 1830. It is likely that sandalwood forests once occupied the lower, dry slopes of the Wai'anae Range, and the present study area was probably extensively impacted by the cutting and burning of these forests.

#### Mid to Late 19th Century

During the Great Mahele of 1848, 99 individual land claims in the ahupua'a of Honouliuli were registered and immediately awarded by King Kamehameha III. The present study area appears to have been included in the largest award (Royal Patent 6071, LCA 11216, Apana 8) granted in Honouliuli Ahupua'a to Miriam Ke'ahi-Kuni Kekau'onohi on January 1848 (Native Register). Kekau'onohi acquired a deed to all unclaimed land within the ahupua'a, comprising a total of 43,250 acres.

Samuel Kamaukau relates the following about Kekau'onohi as a child:

*Kamehameha's granddaughter, Ke-ahi-Kuni Kekau'onohi...was also a tabu chiefess in whose presence the other chiefesses had to prostrate and uncover themselves, and Kamehameha would lie face upward while she sat on his chest.' (in Hammatt and Shideler 1990:19-20).*

Kekau'onohi was one of Liholiho's (Kamehameha II's) wives, and after his death, she lived with her half-brother, Luanu'u Kahala'i'a, who was governor of Kaua'i (in Hammatt and Shideler 1990: 20). Subsequently, Kekau'onohi ran away with Queen Ka'ahumanu's stepson, Keli'i-ahonui, and then became the wife of Chief Levi Ha'alelea. Upon her death on June 2, 1851, all her property was passed on to her husband and his heirs. When Levi Ha'alelea died the property went to his surviving wife, who in turn leased it to James Dowsett and John Meek in 1871 for stock running and grazing.

In 1877 James Campbell purchased most of Honouliuli Ahupua'a - including the present study area - for a total of \$95,000. He then drove off 32,347 head of cattle belonging to Dowsett, Meek and James Robinson, and constructed a fence around the outer boundary of his property (Bordner

and Silva 1983:C-12). By 1881 the Campbell property of Honouliuli prospered as a cattle ranch with "abundant pasturage of various kinds" (Briggs in Haun and Kelly 1984:45).

In 1889, Campbell leased his property to Benjamin Dillingham, who subsequently formed the O'ahu Railway and Land Company in 1890. To attract business to his new railroad system, Dillingham subleased all land below 200 feet to William Castle who in turn sublet the area to the 'Ewa Plantation Company for sugar cane cultivation (Frierson 1972:15). Throughout this time and continuing into modern times, cattle ranching continued in the area, and Honouliuli Ranch, established by Dillingham, was the "fattening" area for the other ranches (Frierson 1972: 15).

'Ewa Plantation Co. grew quickly and continued in full operation up into modern times. As a means to generate soil deposition on the coral plain and increase arable land in the lowlands, the 'Ewa Plantation Co. installed ditches running from the lower slopes of the mountain range to the lowlands and then plowed the slopes vertically just before the rainy season to induce erosion (Frierson 1972:17). Two ditches, which were likely used for this procedure, are still present along the southern boundary of the project area.

#### Modern

Sometime after 1959, the United States Army purchased or exchanged land with the Campbell Estate for the construction of the Nike-Hercules anti-aircraft missile base located at the head of Waimanalo Gulch, at the outer edge of the northwest project area boundary. The presence of this facility suggests that military activities of some sort may have occurred within the project area as well. Although no clear evidence of military activity in the project area was observed during the inventory survey, a few suspiciously modern stone structures identified along the lower portions of the project area may be associated with some type of training exercise.

#### 4.3.1.2 *Probable Impacts*

Most of the archaeological sites identified will be impacted by construction, but project construction will not begin until all archaeological surveys, plans and reports are completed to SHPD's satisfaction.

Seven significant sites were identified for preservation pursuant to the SHPD-approved Preservation Plan. The project will have no adverse impact on these protected sites.

#### 4.3.1.3 *Mitigative Measures*

As a standard contracting procedure, contractors working in the project area will be advised that, should any significant cultural deposits or human skeletal remain area be encountered, work shall stop in the immediate vicinity and the State Historic Preservation Division of DLNR shall be promptly contacted to determine the appropriate course of action.

Preservation of seven sites and land planning around them is in itself a mitigation.



### 4.3.2 Cultural Resources

#### 4.3.2.1 Existing Conditions

To address the effects the proposed development activity may have on Native Hawaiian practices, culture and traditions, Cultural Surveys Hawaii, Inc. prepared a cultural assessment study in 2006 for the Makaīwa Hills project (*Appendix H*). Methodology for the cultural impact assessment consisted of:

- Examination of historical documents;
- Review of the archaeological documents; and
- Interviews with Hawaiian cultural organizations, government agencies and individuals who might have knowledge of or concerns about traditional cultural practices specifically related to the development area were consulted.

#### Cultural History

Hawaiian organizations, government agencies, community members, and cultural and lineal descendants with ties to Honouliuli were contacted to: (1) identify potentially knowledgeable individuals with cultural expertise and knowledge of the project area and its surroundings, and (2) identify cultural concerns and potential impacts within the project area. An effort was made to locate people with ties to Honouliuli and neighboring ahupua'a who live or had lived in the region or who, in the past, used the area for traditional and cultural purposes. Nettie Tiffany, Arline Eaton, Rubellite Johnson, Aggie Cope, Kamaki Kanahale and other kūpuna as well as community members such as Analu Josephides, Kāwika McKeague and Shad Kane were interviewed for this assessment.

Honouliuli is the largest ahupua'a in the moku (district) of 'Ewa. One translation of the name for this district is given as "unequal." Others translate the word as "strayed" and associate it with the legends of the gods, Kāne and Kanaloa. Honouliuli means "dark water," "dark bay," or "blue harbor" and was named for the waters of Pearl Harbor, which marks the eastern boundary of the ahupua'a. The Hawaiians called Pearl Harbor, Pu'uloa (long hill). It is likely the boundaries of the western-most ahupua'a of 'Ewa were often contested with Wai'anae people. The 'Ewa people could cite divine sanction that the dividing point was between two hills at Pili o Kahe.

Honouliuli is associated with a number of legendary accounts. Many of these concern the actions of gods or demi-gods such as Kāne, Kanaloa, Māui, Kamapua'a, the reptile deity (mo'o) Maunauna, the shark deity Ka'ahupāhau, and the demi-god hero Palila.

Based on Honouliuli settlement patterns, archaeological investigations of the ahupua'a, and poor land cultivation conditions, the project area and vicinity is unlikely to have been a permanent habitation, even in pre-contact times. The project area is situated between uplands of relatively high rainfall and makai resources. The site and vicinity may have been traversed in traditional Hawaiian times and provided temporary habitation for gatherers and fisherman traveling to the coast.

The accessibility of Honouliuli lands, including the present project area, to the Hawaiians for gathering or other cultural purposes would be radically curtailed during the second half of the

nineteenth century. By the 1870s, herds of cattle grazing across the 'Ewa Plain likely denuded the landscape of much of the native vegetation. Subsequently, during the last decade of the nineteenth century, the traditional Hawaiian landscape was further distorted by the introduction and rapid development of commercial sugar cane cultivation.

Throughout the twentieth century sugar cane cultivation occurred in small portions of the project area. Cane cultivation – and the sense that the project area was private property – restricted access inside the project area to employees of 'Ewa Plantation. Subsequent commercial and military development uses throughout the twentieth century would have eliminated much of the surface sites related to traditional Hawaiian culture that may have been extant.

#### 4.3.2.2 *Probable Impacts*

The current project area was a zone of less intensive land use between two resource rich areas both mauka and makai of the project area. The makai area is rich in marine resources, a canoe landing, a ko'a (fishing grounds) and lo'i (pondfield) that sustained a fishing village. The mauka area is considered a sacred place with its many heiau, myths and legends.

Although this area has been placed in the district of 'Ewa and the Ahupua'a of Honouliuli, some Wai'anae district community members feel a strong connection to this area as many traverse by the site every day to get in and out of Wai'anae. Participants also mentioned the many (past) natural and cultural resources of the region. Although community members contacted for this assessment did not comment on current or ongoing cultural practices in the proposed project area, it should be noted that several of the study participants emphasized the cultural importance of the area as a wahi pana (storied place), with emphasis on the significance of the huaka'i pū (procession of the night marchers).

There are Hawaiian beliefs regarding the presence of what are popularly known as "night marchers" and the huaka'i pū or the, "night procession or parade, especially the night procession of ghosts that is sometimes called 'oi'o" (*Please refer to Appendix H for further details related to cultural impacts*). According to Hawaiian tradition, the night marchers are the souls of those who have passed on.

Several of the participants in this cultural study talked about night marchers. Aunty Arline Eaton commented that there is a pathway for the night marchers that travel from the mauka area of Waimānalo 'Ili down to the special place of Lanikūhonua. She feels strongly that this pathway must be kept clear for them to continue their traditional passage. Aunty Aggie Cope and Kamaki Kanahale both mentioned that the 'Ili of Waimānalo was well known for the pathway of the night marchers and they both feel it is of great importance to keep that pathway clear of visual impact. Judith Flanders mentioned that her grandmother Kamokila Campbell spoke about the night marchers trail that came from the uplands to the ponds at Lanikūhonua. Mrs. Nettie Armitage-Lapilio related a tradition that at certain times of the year night marchers would come down from the uplands to the vicinity of Kamokila Campbell's place on the coast (Lanikūhonua, part of the Campbell Family's landholdings). The procession route indicated was on the east ridge of Waimānalo Gulch which is the west ridge of Makaīwa Gulch

There were no burials reported in the project area; the closest known burials were found in the Ko 'Olina and Lanikūhonua in caves, sand dunes and sink holes. Although the project area has been heavily altered by ranching and other activities, there is still a possibility of finding burial sites. Additionally, in the past, there has been some reinterment of iwi in the mauka portion northwest of the project area.

The Office Of Hawaiian Affairs cautions that although the area has been altered in the past, Native Hawaiian burials sites have been found just on and under the surface to depths of eight or nine feet depending upon the nature of the terrain. Furthermore, the nature of documented interments in the 'Ewa area (stone pits, sink holes, crypts, etc.) could lead to the survival of these sites despite intensive agricultural activities on the surface.

#### 4.3.2.3 *Mitigative Measures*

The project construction will not begin until archaeological studies including data recovery are complete as determined by State Historic Preservation Division. Should any significant cultural deposits or human skeletal remain area be encountered, work shall stop in the immediate vicinity and the State Historic Preservation Division of DLNR shall be contacted.

Field trips to observe and identify key preservation sites in and around the project area were made with community/cultural leaders. They will be further consulted about their concerns throughout the planning process. Specific to the concern over the night marchers, their procession is not a well-defined corridor. Alignment and buffer zone(s) of the huaka'i pū is a key concern of community participants and will be addressed in greater detail through further consultation with the community. The project's land plan provides significant amounts of open corridors and undeveloped areas to address these and other concerns.

The project will also consider incorporating the traditional place names of the surrounding area into the proposed development to sustain a connection to the past.

Addressing these cultural concerns will minimize the impact of the project on Hawaiian culture, its practices and traditions.

## **4.4 SOCIO-ECONOMIC ENVIRONMENT**

Decision Analysts Hawai'i, Inc. prepared a residential market study and a study on economic and fiscal impacts of the proposed project in 2006. These reports and others contain background information and findings that are summarized in this section's discussions on population, housing and employment. The full reports are contained in *Appendices A, B and F*.

### **4.4.1 Population**

#### 4.4.1.1 *Existing Conditions*

Kapolei is the fastest growing region in the State of Hawai'i. Kapolei's population in 1990 was 43,000; in 2000, 68,700; and in 2005, 84,100. The population for O'ahu increased 836,231 to

876,156 (4.8% increase) between 1990 and 2000, and during the same interval Kapolei experienced a 59% increase. The State Department of Business, Economic Development and Tourism projects the resident O'ahu population to reach approximately 1,029,800 in 2025; 173,170 of the total island population are projected to live in Kapolei by that year (Kapolei Development LLC, 2006).

In 2000, there was an average of 3.47 persons per household for the Neighborhood Board area (No.34) of Makakilo/Kapolei/Honokai Hale (City and County of Honolulu 2006) while the O'ahu average was 2.94. There appears to be a decreasing trend in household size over time.

The Makaīwa Hills project site is presently undeveloped and vacant.

#### *4.4.1.2 Probable Impacts*

The Makaīwa Hills project will provide housing for approximately 4,100 households. Assuming the average size of households of the development is comparable to the O'ahu 2000 average, the project would increase population to the area by approximately 12,050. The majority of this increase would be represented by families relocating from other areas of O'ahu, but there will be some in-migration associated with the upscale units. This in-migration population is likely to consist of second home buyers who spend a portion of the year in Hawai'i.

The population increase associated with the project is planned and has been incorporated into the City and County projections for future development and regional growth. The increase in population associated with Makaīwa Hills supports the long range community and government vision to transform the 'Ewa Plain from rural to urban/suburban character with the City of Kapolei being the economic center. The increases in population are viewed as a beneficial social impact, but there are potential impacts associated with increases in population that will be addressed elsewhere in this EIS, such as loss of open space, and increases in traffic and water consumption.

#### *4.4.1.3 Mitigative Measures*

As most of the population moving into the project area would be relocating from other areas of O'ahu, rather than new residents to the island, and further, as this population increase has already be incorporated into growth projections, no additional mitigation is necessary for the increased population caused by the proposed project.

### **4.4.2 Housing**

#### *4.4.2.1 Existing Conditions*

The 'Ewa Development Plan area had 20,797 housing units in 2000 and is projected to almost triple by 2030 to 60,552 units. Within the Makakilo/Makaīwa Hills/Kunia subarea, the 4,173 units in 2000 will more than double by 2030 to 10,041 units. 4,100 of the new units in this subarea will be developed at Makaīwa Hills (City and County of Honolulu 2006).

The inventory of residential units has not kept pace with the demand. In 2000, there was a pent up demand of approximately 15,700 units and 16,300 in 2005. ~~O'ahu could have a shortage of approximately 37,400 by 2050 or 56,600 by 2025~~ (SMS Research 2003).

The 'Ewa Development Plan region continues to play a significant role in meeting O'ahu's affordable housing needs. The region has offered approximately 7% to 10% more affordable housing units for sale than the island as a whole in recent years. There are also significantly more affordable housing units for sale in the region currently than in the past. Compared to 2000, 'Ewa homes sold recently represented 77% more units affordable to those in the 80% to 140% of the median income category. Given these factors, the 'Ewa region has been satisfying an increasing share of O'ahu's affordable housing needs, well in excess of its "fair share". The region is hosting approximately 22% of the island's affordable for-sale housing transactions. Considering the relative number of households, the region's "fair share" would have been about 6% in 2000 and 7% over the last year.

The Makaīwa Hills project site is presently undeveloped and vacant.

#### *4.4.2.2 Probable Impacts*

Makaīwa Hills is envisioned as a diverse community with homes for varying income levels. The development will increase O'ahu's housing inventory by 4,100 units, the majority of which will be primary residences. Makaīwa Hills will provide 1,230 (30% of total build-out) affordable housing units for low and moderate income Hawai'i residents. The location and distribution of units will be determined in coordination with the County.

The increase in housing units associated with Makaīwa Hills supports the long range community and government vision to transform the 'Ewa Plain from rural to urban/suburban character with the City of Kapolei being the economic center. The affordable housing units are a social benefit. The increases in population are viewed as a beneficial social impact, but there are potential impacts associated with increases in housing that will be addressed elsewhere in this EIS, such as loss of open space, and increases in traffic and water consumption.

#### *4.4.2.3 Mitigative Measures*

No mitigation is necessary for the additional housing developed as a result of the proposed project.

### **4.4.3 Employment**

#### *4.4.3.1 Existing Conditions*

As of 2005, over 25,000 jobs are located in the region. Campbell Industrial Park is the area's largest job center, providing approximately 4,600 jobs. By 2020, 65,000 jobs are projected to be retained within the Kapolei/'Ewa region. There are almost 800 businesses in the region, which have made over \$1 billion in commercial investments since 1995. A 2005 OmniTrack study of 'Ewa economic impacts reports that approximately 80% of 'Ewa region residents work outside the area; however, 67% of residents would prefer to work in the area.

The ornamental plant nursery presently on the project site provides 2 to 3 jobs, and the livestock company offers 3 full-time and one part-time job. If the flatland area were farmed, an estimated 12.5 jobs would be created (Decision Analysts, 2006).

#### *4.4.3.2 Probable Impacts*

Development of the site would result in either relocation or elimination of the nursery and its 2 to 3 employees. The livestock grazing area would be reduced and approximately 1 job would be eliminated, unless alternative grazing land was identified elsewhere. Any jobs that might result if the 100 acres of good land were used for diversified agriculture would not materialize. However, land does not appear to be the limiting factor for nurseries, grazing, or diversified agriculture; therefore, it is likely these jobs would relocate to or be generated in another area of O'ahu.

#### Short Term Impacts

Construction employment for the project is expected to average about 650 jobs. These jobs will include supervisors, heavy-equipment operators (grading, roads, water mains, sewer lines, etc.), cement workers to lay foundations, metal workers, carpenters, plumbers, electricians, roofers, glass and window installers, cabinet makers, carpet and tile layers, painters, equipment installers, interior decorators, landscapers, etc. Other jobs related to construction will include architects, civil engineers, draftsmen, government inspectors, etc. These jobs will range over a variety of skills, including entry-level, semi-skilled, skilled, management, and professional positions.

These development activities will also generate indirect jobs associated with supplying goods and services to construction companies and to the families of the employees of these companies. In turn, the companies supplying goods and services, and the families of the employees of these companies will purchase goods and services from other companies, and so on. Indirect jobs will include those at companies that supply building materials (cement, steel, lumber, roofing materials, plumbing equipment, electrical equipment, hardware supplies, lighting, flooring, etc.); rent construction equipment; repair equipment; provide warehousing services; provide shipping and trucking services; etc. Other indirect jobs will include those involved with supplying goods and services to employees and their families: grocery workers, store clerks, restaurant workers, service-station workers, beauty technicians, barbers, bankers, druggists, veterinarians, computer technicians, medical workers, accountants, attorneys, etc. The jobs will range over a variety of skills, including entry-level, semi-skilled, skilled, and management positions.

Based on State employment multipliers, indirect employment related to project development is expected to average nearly 980 jobs. Thus, total direct-plus-indirect employment associated with project development activities will average about 1,630 jobs. It is estimated that about 1,140 of these jobs will be in the Kapolei region. The actual job count will fluctuate over time, depending on the pace of construction.

Development activities will provide jobs to construction workers and other workers who already live on O'ahu. As other construction projects are completed on the island, O'ahu construction workers will be hired to work on the various components of the project.

Development activities are expected to generate a total payroll of about \$70.7 million per year, of which about \$32.4 million will be for construction workers and \$38.3 million for indirect

employment. These estimates are based on the average number of direct and indirect jobs that will be supported and average wages as reported to the DLIR. Wages will range from about \$25,000 annually to over \$100,000, and are expected to average about \$50,000 per year for construction jobs, and about \$38,900 for indirect jobs.

#### Long Term Impacts

At full development, on-site economic activities are expected to generate about \$130.3 million per year in revenues. This estimate includes retail sales (about \$72 million per year), rents from homes and commercial space, services provided from home offices, and home and grounds maintenance. Most of the retail sales are expected to come from the purchase of goods and services from Makaīwa Hills residents. Corresponding profits will amount to about \$13 million per year at full development of the project.

On-site operating employment is expected to total about 1,250 jobs, including retail jobs, home and grounds maintenance jobs, and home-office jobs. The new jobs will provide employment to (1) workers who already live in the Kapolei region and nearby communities but who must commute to distant jobs, and (2) workers who will be new residents of the Kapolei region and nearby communities. Corresponding payroll is estimated at about \$33.4 million per year.

The 1,250 jobs noted above includes about 155 public-school jobs attributable to Makaīwa Hills at full development, with about 100 jobs located at the two public schools within the Project Area and about 55 jobs located at nearby public schools (such as the high school where Makaīwa Hills students will attend). Approximately 100 of the jobs (65%) will be professional education staff, most of whom will receive wages exceeding \$45,000 per year.

#### 4.4.3.3 *Mitigative Measures*

No mitigation is necessary for the additional employment created as a result of the proposed project. The additional employment is part of the Ewa DP and Kapolei Area Long Range Master Plan's goals to generate employment near the urban core of the City of Kapolei to reduce the need for residents to travel outside the region on a regular basis.

### **4.4.4 State and County Fiscal Resources**

#### 4.4.4.1 *Existing Conditions*

The current approximate annual real property tax revenue paid to the County for the undeveloped site is \$26,900 though this may vary from year to year.

#### 4.4.4.2 *Probable Impacts*

#### County Fiscal Resources

#### *Short Term Impacts*

Most County revenues derived from Project development activities will come from (1) highway impact fees to support highway improvements in the Kapolei region, (2) the County's share of the excise tax on final sales that will be used to fund mass transit, (3) other connect charges and user

fees for funding infrastructure. The first two items will generate about \$16.9 million over the 12-year development period, or about \$1.4 million per year.

As with other major projects on O'ahu, the developer will provide or finance its fair shares of infrastructure and facilities to support the Project. This will include mass transit, highways, interior roads, water source development, graded and landscaped land for parks, interior water distribution, drainage systems, sewer connections, collector sewers and trunks, a wastewater treatment plant, etc.

County expenditures on highways and mass transit to support the Project are assumed to equal the corresponding highway-impact fees and excise-tax/mass transit revenues generated by Project development. County expenditures on park improvements for Project residents, including improvements within and near the Project, are estimated at about \$13.9 million. Assuming that this expenditure is financed with bonds, the debt service at full development will be about \$910,000 per year.

#### *Long Term Impacts*

At full development, the Project will generate increased revenues to the County of about \$16.9 million per year. Most of this increase will come from property taxes: an increase of about \$9.28 million per year above the \$26,900 currently collected on the property. Additional revenues will be derived from the County's share of the excise tax on final sales that will be used to fund mass transit, and from other business-related taxes and user fees that are assumed to be proportional to the number of Project residents and jobs. Other revenues include: fuel taxes; motor vehicle weight taxes; water and sewer fees; solid-waste disposal fees; other departmental earnings; public service company taxes; other licenses, permits and fees; and fines, forfeits and penalties.

Expenditures in support of operations are estimated at about \$12.2 million per year. As before, the County's expenditures on mass transit to support the Project are assumed to equal the corresponding excise-tax/mass transit revenues generated by Project operations. Most of the County expenditures will be on services, which are assumed to be proportional to the number of Project residents and jobs. These services include: police, fire, road maintenance, bus service, operations and maintenance (O&M) of water delivery, O&M of sewer systems and the wastewater treatment plant, solid waste disposal, culture and recreation, housing, etc. And as previously mentioned, there will be expenditures on debt service to cover the cost of County improvements and facilities.

At full development, net revenues to the County are expected to reach about \$4.7 million per year. Thus, the County will realize a net financial gain which can be used to fund other County projects and services. This net financial gain to the County reflects the high property values of upscale homes, no homeowner exemption for second homes and vacation homes, few services when these homes are vacant, and high property tax rates on commercial property. Such a gain to the County differs from that of many other residential communities on O'ahu, which are subsidized by tax revenues from resort, commercial, and industrial properties.



### State Fiscal Resources

#### *Short Term Impacts*

State revenues derived from Project development activities are estimated to generate about \$195.5 million over the 12-year development period, or an average of about \$16.3 million per year. Most of the revenues will be derived from (1) highway impact fees to support highway improvements in the Kapolei region, (2) school impact fees, (3) conveyance taxes, (4) excise taxes, and (5) corporate and personal income taxes.

State expenditures to support Project development activities are expected to total about \$90.5 million over the 12-year development period, or an average of about \$7.5 million per year. The major expenditures will be on highway improvements (about \$5.1 million based on the impact fee) and on schools (about \$85.4 million for K to 12). Other infrastructure and facilities to support the Project are primarily a County responsibility, with most of the fair share provided or financed by the developer or by companies that will occupy buildings at Makaiwa Hills. Construction activities will require few on-site services from the State. Furthermore, most required services will be provided by construction companies.

Unlike the County, the State derives substantial net revenues from development activity. Over the 12-year construction period, the State will net about \$105 million from development activities, or an average of about \$8.7 million per year. Net revenues are high because of the many upscale homes that will be subject to higher-rate conveyance taxes, and the amount of economic activity associated with building and selling upscale homes.

#### *Long Term Impacts*

At full development of the Project, operations will generate revenues to the State of about \$53.3 million per year. State revenues will include excise taxes, corporate and personal income taxes, and other revenues that are assumed to be proportional to the number of Project residents and jobs. Other revenues include: the public service companies tax; fuel tax; motor vehicle weight tax; charges for various licenses, permits, and services; departmental earnings; etc.

Expenditures in support of operations are estimated at \$39.7 million per year, including about \$15 million for education (K to 12) and the remainder for other services. Other services—which are assumed to be proportional to the number of Project residents and jobs—include university and adult education, health, highway maintenance, natural resources, parks and recreation, government administration, and miscellaneous expenditures.

Thus, at full development, net revenues to the State are expected to reach about \$13.7 million per year. Net revenues are high because of the high incomes of many Project occupants combined with their exposure to higher income-tax rates; high consumption expenditures; and reduced services provided to retirees and part-time residents (e.g., no children attending Hawai'i's schools so no school improvements or services and few services when the homes are vacant).

#### *4.4.4.3 Mitigative Measures*

No mitigation is necessary for the increased State and County fiscal resources.

#### **4.4.5 Social Services**

##### *4.4.5.1 Existing Conditions*

###### Police Protection

The project development area is within the Honolulu Police Department's (HPD) District 8, which encompasses the Leeward Coast and the 'Ewa Plain. There are approximately 100 field officers assigned to this district. Response time for the entire district fluctuates between five and seven minutes. To meet the Year 2000 'Ewa Plain service requirements, the County opened the Regional Kapolei District Station at 1100 Kamokila Boulevard. The HPD expects to expand its presence in the region as Kapolei develops into the Second City. Based on population growth estimates, the County's 'Ewa Development Plan noted ~~anticipates~~ the need for two additional substations to service the region by 2020. The proposed locations are 'Ewa Villages and Ko 'Olina; however, HPD is not actively planning for substations at these locations since they indicate the critical factor in policing is having officers in the field, not in a station.

###### Fire Protection

Fire protection in Kapolei and 'Ewa is provided by the Honolulu Fire Department's (HFD) 'Ewa Beach Fire Station (an engine company), Makakilo Fire Station #35 (an engine company), and Kapolei Fire Station #40 (an engine and ladder company, and the Battalion 4 Headquarters). The nearest fire station is Kapolei Fire Station in Kapolei Business Park. According to the 'Ewa Development Plan, new fire stations are planned at 'Ewa Villages, Ko 'Olina, and Makaīwa Hills to meet 2020 anticipated growth. However, in response to the EIS Preparation Notice, the Honolulu Fire Department did not indicate that a new fire station was planned for the project area.

###### Educational

There are currently no educational facilities on the undeveloped project site. All public schools that serve the City of Kapolei have opened within the last ten years, reflecting the recent growth of the 'Ewa region. According to the Department of Education, all the public schools serving the Kapolei area are over their present facility capacities, and are expected to grow further without taking into account the Makaīwa Hills development. ~~Continued discussions with the DOE have determined that a 12-15 acre middle~~ 12-acre elementary school site has been identified as part of the planned near-by Kapolei West project.

###### Medical Services

The project area is serviced by a variety of health care facilities. There are more than 25 choices of health care providers. St. Francis Medical Center – West is the nearest hospital and has 24-hour emergency service. Ambulance service is coordinated with the County and the hospital has a helipad. Other services include outpatient care, and lab and imaging services. St. Francis Medical Center – West has 79 beds available and will be expanded to 84 beds. The hospital is operating at about 80% occupancy. Emergency medical and surgical services are also provided by Pali Momi Medical Center (116 beds) in Aiea and Wahiawa General Hospital (162 beds, of which 93 are for long-term care). Non-emergency medical services are offered at the Kaiser Permanente Punawai Clinic in Waipahu, the Kapolei Medical Park, Kapolei Park Square, and Nanaikeola Clinic.

The three ambulance units closest to the propose development are located at Kapolei, the Waipahu Fire Station and in Nankuli at the Kaiser Permanente Clinic. There is a rapid response

unit at St. Francis Medical Center West in Makakilo. All County ambulances are staffed at the Advanced Life Support level with either one paramedic and one emergency medical technician or two paramedics per ambulance. Until recently, the County's ambulance service was supplemented by the U.S. Army 68th medical detachment at Wheeler Air Force Base that provides medical evacuation helicopter service; efforts to find other means of supplementing the County's service are underway while the Army's medical detachment is supporting the war efforts in Iraq..

#### Recreational

There are no existing recreational sites at the proposed project site. There are hiking trails mauka of the site in the Wai'anae Mountains. Parks in the area include the Makakilo Neighborhood Park, Kamokila Community Park and Kapolei Regional Park (73 acres). Beach and shoreline parks include: Tracks, Kahe Point, Ko 'Olina Beach Park, Ko 'Olina Lagoon Beach ROW, Camp Malakole Beach ROW, Barber's Point, One'ula, 'Ewa Beach, and West Loch. There are seven public and private golf courses in 'Ewa; the West Loch and 'Ewa Village courses are County-owned. The privately-owned Hawaiian Waters Adventure Park is in the vicinity.

Future park plans include Kalaeloa Regional Park, Pu'u Pālailai Park, and two parks at either end of Ko 'Olina.

The 'Ewa Development Plan states there is an existing deficit of 40 acres of Community Park in the development plan area. The term Community Park (associated service radius) includes mini parks (1/4 mile neighborhood parks (0.5 mile) community parks (1 mile) and district parks (2 mile).

#### 4.4.5.2 *Probable Impacts*

##### Police Protection

Existing off-site service facilities and their planned improvements should be adequate to accommodate the needs of the development project. No short-or long-term adverse impacts to police protection are anticipated. HPD will need to add resources to service the proposed development, including one or two new police beats with 6 to 12 officers along with their vehicles and other equipment. They indicate that when the development is built, they will budget for these new positions. Police services have included the proposed development in their long-term planning.

##### Fire Protection

The County Fire Department has considered the proposed development and other future developments in their long-term planning. The project will increase the demand on fire protection services, and a fire station at Makaīwa Hills is noted in the 'Ewa Development Plan, but a service date has not been determined. Existing off-site service facilities and planned improvements are expected to be adequate to accommodate the needs of the initial phases of the project. Design of the project's fire fighting water systems and the roadways will be reviewed by the Fire Department to ensure they meet necessary safety standards.

The project area is characterized by low rainfall and scrub vegetation. Development adjacent to wildlands introduces additional risk of wildfires. The Makaīwa Hills Fire Plan (*Section 4.1.7.4*) prepared for the project includes a fire safety buffer (30 feet wide) and recommendations for low-growth/low-burn plantings along the borders of the developed areas.

Educational

The project will increase demand on educational services as full build-out of the community occurs. Discussions are under with the State Department of Education to determine the extent of this additional demand, the sufficiency and to finalize issues related to the location of the proposed on-site elementary and middle school sites and other “fair share” contributions to offset the project’s impact to public school facilities. The terms of the outcome of these discussions shall be mutually agreed upon in writing prior to obtaining county zoning.

Medical Services

The project will increase demand on medical services. The development of the project and associated impacts will be phased over a fifteen year period. Hospitals are income-generating and will improve or expand services to meet the demand. The County will determine if additional emergency medical service equipment or personnel are required to meet the new demand. No short-or long-term adverse impacts to medical services are anticipated.

Recreational Resources

Pursuant to correspondence from the County’s Department of Design and Construction, the park dedication ordinance requires that subdivisions on Residential-zoned land must dedicate 350 square feet of community-based park land per residential lot, and 110 square feet per unit for Apartment-zoned land. Table 4-15 summarizes park dedication requirements for Makaīwa Hills. Overall, the acreage of parks developed as a component of the project will exceed the park dedication ordinance requirement of 19.25 acres of community-based park land. The size and location of individual parks within the project area will be determined as the conceptual land plan is finalized.

**Table 4-15  
Park Dedication Requirements**

Land Use	Planning Factor	No. of Units	Area (sq. ft. / acres)
Low Density Residential (single-family)	350 sq. ft./d.u.	1,619	566,650 sq. ft. / 13 acres
Medium Density Residential (multi-family)	110 sq. ft./d.u.	2,481	272,910 sq. ft. / 6.25 acres
<b>TOTAL</b>		<b>4,100</b>	<b>19.25 acres</b>

In addition to the total park dedication requirements, the ‘Ewa Development Plan also provides guidelines for community-based parks based on service area populations (minimum of 2 acres for every 1,000 residents). Using the anticipated Makaīwa Hills population of 11,550 residents, a total of 23.1 acres of community-based parks will be required. Overall, the acreage of parks developed as a component of the project will exceed the ‘Ewa Development Plan’s guidelines of 23.1 acres of community-based park land. The size and location of individual parks within the project area, which will include a District and Neighborhood parks, will be determined as the conceptual land plan is finalized.

The Makaīwa Hills residents are likely to utilize their own neighborhood and community parks and not impact those of other residential areas (e.g., Honokai Hale, Makakilo, Kapolei West (future). The Kapolei Regional Park was constructed in anticipation of future development

including Mākāiwa Hills and should have sufficient capacity for the new resident population. Similarly, the existing and planned beach parks in the vicinity should be able to accommodate the Mākāiwa Hills residents. The for-profit recreational resources will likely benefit from the additional residential community.

The project will also include bicycle pathways and public access to the trailhead of the mauka hiking trails. Additionally, the project will retain substantial acreage of open space throughout the development for passive enjoyment to compliment the acreage of active park lands to be developed.

The project is not expected to have adverse short- or long-term direct or indirect impacts on recreational resources of 'Ewa.

#### 4.4.5.3 Mitigative Measures

No mitigation is necessary for increased demand for police or fire protection and medical services. The project's developer will continue to coordinate with HFD if land for a fire station is needed within the project area. A 12-acre site for a public elementary school, along with an 18-acre site for a public middle school, is are included as an elements of the proposed project. Parks in excess of the 23.1 acres minimally required pursuant to the 'Ewa Development Plan will be developed as a component of the project. Continuing discussions will ensure that the location and size of the parks will satisfy the Neighborhood and District park requirements established by the County.

To the extent practical, the construction and design of the project will incorporate the use of recycled-content and encourage recycling practices and other landfill diversion practices (i.e., H-power). The commercial leasees will be encouraged to implement a recycling plan. Recyclables will be collected by private waste haulers to private recycling companies.

## 4.5 CUMULATIVE AND SECONDARY IMPACTS

Cumulative and secondary impacts are impacts that may result from other reasonably foreseeable actions or projects within the area regardless of who initiates the action. In the overall context of this cumulative impact discussion, it is important to note that Mākāiwa Hills has been included as a future "Residential Community" as designated in the City and County of Honolulu's 'Ewa Development Plan. Mākāiwa Hills is one component of future growth envisioned for The City of Kapolei and the 'Ewa Development Plan area. The land has been designated in the 'Ewa Development Plan for Residential and Commercial uses for over 15 years. Recognition of the planned use was further established with the 1993 State Land Use Commission's decision to reclassify the land to the State Urban District. This historic record of regional land use plans and specific land use approvals for this property as a residential community provides a basis for the reasonably anticipated impacts resulting from the proposed project in the context of the 'Ewa region.

### 4.5.1 Interrelationships and Cumulative Environmental Impacts

Cumulative impacts are the incremental effects of development and other actions to the natural and human environment, when evaluated in conjunction with government and private, past,

present and reasonable foreseeable future actions. This project and other planned projects in the region are likely to have long-term adverse cumulative impacts, such as increased traffic and higher demand on regional infrastructure.

Many of the past, present and future projects are consistent with County plans to develop The City of Kapolei as an urban center and will have cumulative long-term beneficial impacts, such as reducing commuter traffic to and from Honolulu, increasing the number of affordable housing units, and increasing employment opportunities. The anticipated net beneficial cumulative impact of Kapolei's economic development will provide substantial tax revenues to the State and County governments, which will enable the construction of necessary public improvements and fund necessary public services in the region.

#### *4.5.1.1 Planning Context and Known Future Projects*

The 'Ewa Region has been identified as one of two "Development Plan" areas by the County, as part of its directed growth management policy. Each of the other six regions of O'ahu are designated as "Sustainable Communities Plan" areas, which will have either slow growth or no growth conditions. A County General Plan objective is to have the 'Ewa region support 13% of the island-wide population (up from 7.8% in 2000), which would require a doubling of the 2000 population by 2025. This directed growth policy is important because it preserves the rural and urban fringe areas of the island by directing population growth to the existing primary urban center and the Secondary Urban Center of Kapolei.

As a matter of basic County policy, the 'Ewa region will experience the largest share of growth over the next 25-year period of any of the County's eight planning regions. From a social perspective, the planned growth has provided expanded opportunities for home ownership within contemporary master planned communities, and access to a range of new public schools, libraries and amenities.

The following listing identifies projects that could have a cumulative impact in association with the Makaīwa Hills project prior to the time this report was prepared.

#### *City of Kapolei – Future Projects (2007-2015)*

##### *Leihano*

A retirement village is planned for the 40-acre area along the west side of Fort Barrette Road between the future Kama'aha Avenue and Kapolei Parkway. The main entrance would be located along an extension of Manawai Street, with a secondary access located along the future extension of Kama'aha Avenue. Complete development is expected by about 2008.

##### *Island Pacific Academy*

The initial phase of a private school opened in Fall 2004 on a block on the southeast corner of Haumea and Wakea Streets. The school is planned to reach an enrollment of 760 students in 2009.

*Kamokila Blocks between Wakea and Ulu'ohia Streets*

These two blocks on the makai side of Kamokila Boulevard are expected to be developed with a mix of restaurant, retail and office uses in the next several years.

*Kapolei Power Center*

The remaining portions of the site adjacent to the Home Depot store are expected to be developed by 2010 with a mix of commercial uses.

*Kapolei Commons*

The 54-acre commercial area west of Kalaeloa Boulevard, located across the future Kapolei Parkway alignment from the Advertiser Building, is planned for development as a regional commercial center.

*Kapolei Mauka Residential Area*

A townhouse development is planned for the area just mauka of the H-1 Freeway on the west side of Makakilo Drive. The development is anticipated to have about 350 townhouses. Access would be provided to the Mauka Frontage Road or, if this road has not been constructed, to Makakilo Drive.

*Mehana at Kapolei Makai Residential Area*

Development of the full 130-acre project area is expected by 2014. The development would total about 1,150 residential units and a neighborhood commercial center.

*Kapolei Rezoning Parcel 1 (Ord. No. 04-45)*

The development within this portion of the City of Kapolei is anticipated between 2010 and 2015.

*Kapolei Rezoning Parcel 2 (Ord. No. 04-45)*

This retail development, located mauka of the Hawaiian Water Adventures Park, is expected to be completed prior to 2015.

*Kapolei Rezoning Parcel 3 (Ord. No. 04-45)*

This commercial development is located on the northeast corner of the intersection of Farrington Highway and Makakilo Drive. The development of the parcel is expected between 2008 and 2015.

*Other Planned Developments near the Project Area*

*Kapolei West*

A 500-acre master-planned residential and golf community with approximately 2,400 housing units and commercial uses. Development is expected to begin in 2008 and be completed by 2020.

*Makakilo*

Most of the Makakilo area should be developed by 2010. The new development is expected to add approximately 700 single-family homes and 250 apartments.

*Villages of Kapolei and Kapolei Knolls*

Kapolei Knolls and most of the Villages areas should be developed by 2010, with some development possibly extending beyond 2010. Both areas are expected to be developed by the end of 2014. For Kapolei Knolls, the remaining 212 single-family homes would be completed. For the Villages, approximately 490 apartments, 314 single-family homes, churches and shopping facilities would be developed.

*Kalaeloa Redevelopment Area*

Very little additional development is assumed to occur in the near term due to the availability and competition from other development areas, as well as the uncertainties regarding the potential for basing a Naval Carrier Group Airwing at the Kalaeloa airfield. It was assumed that the light industrial areas would develop at an average rate of 5 acres per year, thus yielding about 55 acres of light industrial-warehousing uses by 2014 and 85 acres by 2020. The 85 acres represent about one-half of the available development are for these uses. Because of the uncertainty regarding the potential return of Navy operations, only limited other development was assumed for the other conveyance areas by 2014. By 2014, development was assumed for a vocational school and about 150 acres of regional park facilities.

*Barbers Point Harbor*

The State plans for development of approximately 169 acres of presently undeveloped land at the Harbor.

*Ko 'Olina Resort*

Based on available information, the following levels of new development are estimated for the build-out of the Resort:

2004 to 2014

- 1,290 new hotel rooms
- 470 new timeshare units
- 60 additional single-family homes
- 390 additional townhouses
- 160 additional low density houses
- 50 additional medium density houses

2015 to 2020

- 800 additional hotel rooms (to 2,580 hotel rooms)
- 180 additional timeshare units (to projected total of 750 units)
- 360 additional medium density houses (to 1,416 housing units)

*Kapolei Business Park*

An average of 115,000 square feet of new warehouse and distribution floor area are expected to be developed during each year. The new building floor area would total about 1.3 million square feet (msf) by the end of 2014, and 1.9 msf between 2014 and 2020.

*Kapolei Harborside Center*

Development of 345 acres as an industrial/business park north of and adjacent to Campbell Industrial Park.



*West Kalaeloa Industrial*

Development of approximately 125 acres of land zoned Industrial I-2 adjacent to Kapolei Harborside Center expected to occur between 2008 and 2015.

*Ho'opili*

Proposed development of a master planned, mixed-use community with approximately 11,750 residential units on 1,704 acres of land in East Kapolei between Waipahu/West Loch (Pearl Harbor) and the City of Kapolei expected to occur in phases beginning in 2010.

*UH West O'ahu campus*

Proposed development of the UH West O'ahu campus and residential (including student housing and work force/affordable housing), commercial, mixed, and public uses on a 500-acre property makai of the H-1 Freeway, in 'Ewa, between 2009 and 2015.

*DHHL East Kapolei lands*

The proposed DHHL East Kapolei projects include various residential, commercial, public and recreational uses, DOE school sites, and the proposed Kroc Center on over of 500 acres spread across a number of separate parcels throughout the 'Ewa plain..

*4.5.1.2 Cumulative Impacts: Regional Infrastructure*

With the substantial planned growth for the region, as shown in the projects listed above, the State of Hawai'i and City and County of Honolulu agencies are planning several major public improvements to regional infrastructure. These improvements are planned to support the continued growth of the 'Ewa region and The City of Kapolei. Planned infrastructure improvements include roadways, water supply, wastewater, and drainage.

*Roadways and Traffic*

Planned roadway improvements are discussed in *Section 4.2.2* and the TIAR (*Appendix D*). The list of planned projects is derived from the O'ahu Regional Transportation Plan (ORTP) and Transportation Improvement Program and Ordinance 02-52. These roadway improvements are planned actions of others without the development of Makaīwa Hills.

- Hanua Street Extension from Malakole Street to Palailai Interchange (ORTP# 84,111)
- Palailai Interchange Ramps to accommodate Hanua Street connection to the H-1 Freeway
- Kapolei Interchange Road D between Kapolei Parkway and Farrington Highway
- Kapolei Parkway widening from Hanua Street Extension to Kamokila Boulevard
- Widen Kalaeloa Boulevard at Kapolei Parkway intersection

Widening of Farrington Highway to six lanes from Pālailai Interchange to the Waianae Coast is a long-term improvement (2016-2030) described in the regional transportation plan, however, the timing of this major improvement is uncertain.

Significant mitigation measures are planned to be implemented by Makaīwa Hills to accommodate the future transportation needs in the project area, including the following:

- Road D Junction with Farrington Highway (phased improvements)
- Farrington Highway/H-1 Freeway Auxiliary Lane
- Road D- Farrington Highway Ramps
- Road D, Road A, Road B - Traffic Signals
- Signal Modifications at Kalaeloa Boulevard-Kapolei Parkway Intersection
- Wakea Street-Kamolkila Boulevard Right Turn Lane

*Section 4.2.2* and *Appendix D* present the probable traffic impacts of Makaīwa Hills in an overall cumulative future context. At full build-out (2020), Makaīwa Hills is estimated to generate 2,561 and 3,555 vehicle trips in the weekday morning and afternoon peak hours, respectively. Project traffic volumes are estimated to increase volumes along H-1 Freeway through the City of Kapolei by 820 vehicles (+12%) in the morning peak hour, and 1,050 vehicles (+13%) in the afternoon peak hour. Key intersections in the study area will experience traffic flow delays, mostly operating at LOS C or LOS D.

Public transit and bicycle travel integrated with the plans for Makaīwa Hills and are anticipated to be included in several other new projects in the region noted above. These actions will help to offset the cumulative impacts of traffic growth. Increased bus service will serve local residents, reducing the need for personal vehicles and traffic on area roadways. Development of bike paths will provide an alternate means of circulation and help reduce vehicle traffic particularly for shorter, local trips. Internal bikeways and pedestrian paths will improve mobility, circulation, and recreation activities within the region. The County's Locally Preferred Alternative for a public transit guideway is planned to extend from central Honolulu to the Kapolei West development area. The use of public transit and local bicycle travel are expected to lower vehicle trip generation, particularly trips via the H-1 Freeway to the central Honolulu area.

The Makaīwa Hills project, along with the majority of other development in the Kapolei/'Ewa region, focuses on the introduction of new housing options to help offset the existing island-wide housing deficit. Adverse impacts relating to traffic and increased demand on regional infrastructure are likely to be expected by the cumulative development of all of the proposed regional projects. Yet, at the same time, the proposed developments involve significant improvements to regional roadways, drainage, water, and sewer facilities.

A major consideration in public policy is to redirect traffic currently flowing into Honolulu proper by providing a secondary urban center outside of the existing primary urban core. Further, the cumulative development of the region's proposed projects will provide additional tax revenue and economic benefits to State and County governments to fund necessary public services.

#### Water Supply

Water use at Makaīwa Hills in combination with the water demand from the other projects in the region will have a cumulative effect on water supply and water supply facilities in 'Ewa. There will be a growing requirement for both potable water and non-potable water. Section 4.5 and Appendix C includes a detailed discussion of water supply facilities, and the projected water demand for the project.

Combined, the known and planned future projects for the 'Ewa region over the next 10 to 20 years will require an estimated 12 to 15 MGD of potable water supply. Makaiwa Hills will require approximately 1.92 MGD at full development. There are no new potable supply sources in the vicinity of the project area. Supply for the region is being developed by the Honolulu Board of Water Supply through a variety of strategies. Well fields are being developed in Hō'ae'ae, Waipahu and Kunia. Water from these sources is transmitted to the City of Kapolei and surrounding land uses via transmission mains along H-1 Freeway and Farrington Highway. Groundwater resources in the existing and new source areas for 'Ewa are inadequate to supply the region's projected demand. Added potable water supply for the region will be generated by the BWS desalination facility, which is moving forward at James Campbell Industrial Park.

The cumulative effect of this new demand will be balanced with the pace of growth. Not all of this new potable demand for new projects in the region will be required at once. Development planning and water system improvements will occur in phases over the next 10 to 20 years. Projects will be served with potable water as it becomes available, according to the individual project's progress through the development process. Water facilities charge assessments will be used by the BWS to offset water development costs. Developers will need to coordinate closely with BWS to ensure supply needs are met. Makaiwa Hills will participate in specific off-site improvements that specifically relate to their share of the regional water system improvements.

Reclaimed water use in the region is anticipated to increase, which will help offset the demand for irrigation water for landscape, parks and golf courses in the 'Ewa region and the City of Kapolei. BWS is working to extend reclaimed water distribution lines from the City's Honouliuli Wastewater Treatment Plant (WWTP). It is ultimately projected to distribute up to 10 MGD of reclaimed water to projects in the area. Makaiwa Hills will require approximately 0.2 MGD of non-potable irrigation water at full development. The project will utilize non-potable water for irrigation of the makai lands, and a portion of this could come from on-site or nearby brackish water wells.

#### Wastewater Facilities

Wastewater generation from Makaiwa Hills in combination with the wastewater produced from the other projects in the region will have a cumulative effect on wastewater treatment facilities at the Honouliuli WWTP. *Section 4.2.7* and *Appendix C* includes a detailed discussion of wastewater management facilities.

The anticipated wastewater generation from the new regional development is estimated at 10 to 12 MGD. Makaiwa Hills will generate an estimated average daily wastewater flow of 1.50 MGD, which will be conveyed from the on-site collection system to the Honouliuli WWTP via off-site gravity sewers and force mains. Makaiwa Hills will participate in specific off-site improvements that specifically relate to their share of the regional wastewater improvements.

The cumulative effect of this new demand for wastewater collection and treatment will be balanced with the pace of growth. These projects will each coordinate with the City and County of Honolulu Department of Environmental Services to ensure their project will be served in time for occupancy. Not all of this new potable demand for new projects in the region will be required at once. Development planning and water system improvements will occur in phases over the next 10 to 20 years. Sewer facilities charge assessments will be used by the DES to offset water development costs. As the region's wastewater volumes build, there will be growing availability

of the reclaimed water from the treatment facility. Wastewater from Makaīwa Hills and the other projects in the region is anticipated to be reused for irrigation on neighboring projects, the cumulative impact from effluent disposal is minimal and has the added benefit of eliminating the need to use safe drinking water for irrigation.

#### Drainage Facilities

The Makaīwa Hills project area is a hillside area which generates runoff as part of a 3,646 acre watershed. Runoff from the project area currently passes through culverts passing under Farrington Highway, emptying into drainage routes through Kapolei West and Ko ‘Olina Resort, and Honokai Hale. *Section 4.2.8* and *Appendix C* includes a detailed discussion of drainage conditions and facilities requirements in a cumulative context.

The drainage design for Makaīwa Hills includes runoff management to detain storm water flows at or below existing runoff rates. On-site drainage improvements will be made to made runoff conditions to avoid adverse off-site effects on facilities downstream. Development of Makaīwa Hills is not expected require off-site improvements in Honokai Hale or Ko ‘Olina Resort. There are plans for improvements to the currently undeveloped Kapolei West and Kapolei Harborside Center project areas, which will include appropriate downstream stormwater routing and channels sized to accommodate runoff from future development of Makaīwa Hills, and the two other projects.

#### Electrical Power

The development of Makaīwa Hills in combination with the new growth in the City of Kapolei will create future demands that exceed HECO’s current generating capacity. At full development, Makaīwa Hills will have an electrical demand of 28.6 MVA. Electrical demand for the region is anticipated to reach 100 MVA by 2020. New power generating facilities are being developed to serve the island of O‘ahu and particularly growth in the ‘Ewa region. A new 100 MW electrical generator is being planned for development at Campbell Industrial Park, which will provide significant new capacity for the island. The new HECO facility project and other ventures are planning to develop alternative energy sources, such as wind, ocean and biofuels, to generate electricity on O‘ahu. These actions could reduce the island’s dependency on imported fuels and increase economic development and investment in the island’s agricultural industry.

#### *4.5.1.3 Cumulative Impacts: Public Services*

The State of Hawai‘i and City and County of Honolulu agencies are planning ongoing improvements to public services in support of the continued growth of the ‘Ewa region and The City of Kapolei. The development of Makaīwa Hills, in combination with the new growth in the City of Kapolei, will create future demands on regional public and community services, including police and fire protection, educational facilities, recreational facilities, medical services, and solid waste management.

#### Police and Fire Protection

Makaīwa Hills will generate the need for additional police and fire protection services to protect the project area, in combination with the demands for other planned community growth in the region. The HPD has its new Regional District Station in The City of Kapolei, and expects to expand its presence in the region as The City develops. The County anticipates the development of two additional substations to service the region, with proposed locations at ‘Ewa Villages and

Ko 'Olina. Kapolei Fire Station is the closest facility to the project area, and new fire stations are planned to serve the region.

#### Educational Facility

A new student population will be residing within the project area, with the estimated total student population to be determined by the State Department of Education. There will also be new educational services demands created by other planned community growth in the region. Makaīwa Hills will generate the need for additional educational facilities to serve the project area. Adjacent to the project area, a new middle school site has been identified as part of the planned Kapolei West project. A new 12-acre site for a public elementary school is included in the Makaīwa Hills project.

#### Recreational Facilities

In combination with other existing and planned residential communities in the Kapolei area, Makaīwa Hills will generate the need for additional recreational facilities. The project will satisfy park dedication requirements pursuant to the park dedication ordinance for Residential zoned land. Approximately 20 acres of community-based park land will be required. This will be provided in a combination of centralized community park facilities near the town center, as well smaller neighborhood level parks which will be integrated in the community. The project will include over 60% open space in the preservation and agricultural lands, and undeveloped portions of residential areas. Pedestrian pathways and pathways along the circulation roadways will also provide active recreation space.

#### Medical Services

Together with other existing and planned communities in the Kapolei area, Makaīwa Hills will generate the need for medical services. The demand in the community will dictate the need for hospitals to improve or expand services. There will be a requirement in the region for additional emergency medical service equipment and personnel.

#### Solid Waste Management

Construction waste from Makaīwa Hills, in combination with waste from other construction sites in the region, will place additional demands on construction debris disposal facilities. At full development, it is estimated that Makaīwa Hills will contribute approximately 54 tons/day of municipal solid waste. In the long term, there will be cumulative growth in municipal solid waste management requirements in the region. Future municipal solid waste disposal capacity for the island of Oahu will be increased through planned expansion of waste to energy facilities. The current Public Infrastructure Map for 'Ewa also indicates Makaīwa Hills as a potential landfill site.

### **4.5.2 Potential Secondary Effects**

New developments in general, including the proposed Makaīwa Hills development, have the potential to induce growth outside the project area. An example of such a secondary effect is the stimulation of additional development in the region as a result of the construction of public facilities, such as enhanced traffic infrastructure.

Makaīwa Hills is a planned element of both government and private master plans that aim to direct residential and commercial growth into appropriate areas, thereby allowing 'Ewa residents to live

and work without traveling long distances. Such master plans reduce adverse secondary impacts from unexpected impacts of unplanned growth.

With the acknowledged island-wide shortage of residential units, the creation of this new community will likely lead to larger pool of potential employees in the vicinity of the City of Kapolei. This would decrease the amount of commuter traffic to/from the primary urban center. Both aspects are considered positive secondary impacts consistent with the intent of the 'Ewa DP and Kapolei Area Long Range Master Plan.

#### *4.5.2.1 Sustainability Analysis*

As discussed in *Section 2.5*, Makaīwa Hills is being planned and developed following sustainable design principles and guidelines. New projects in The City of Kapolei and the broader 'Ewa region are also being encouraged by the community and government to follow a sustainable design approach.

Relationships between local, short-term uses of the environment and the maintenance and enhancement of long-term productivity are described below in the context of four specific areas of potential concern, as discussed below.

##### *Narrowing the Range of Beneficial Uses of the Environment*

Makaīwa Hills, in combination with the existing and new projects in the area, will increase the range of beneficial uses of the environment. New planned development in The City of Kapolei and 'Ewa region is providing for a higher and more productive use of the subject land than is now possible where unproductive lands are currently designated by the County as Agricultural zoning. Residential, mixed use and commercial designations land is extremely scarce on O'ahu, while sub-Prime agricultural land is very abundant. Makaīwa Hills will not adversely affect rights customarily and traditionally exercised for subsistence, cultural and religious purposes, nor will it have a significant impact on Hawaiian cultural or historic resources. Other projects in the region must apply the same respect for cultural resources.

##### *Long-Term Risks to Health and Safety*

Makaīwa Hills, in combination with the existing and new projects in the area, is not expected to pose health and safety risks to the community. By complying with Federal, State and County regulations pertaining to building codes, environmental health, natural hazard management, etc., risks to health and safety will be limited.

##### *Foreclosing of Future Options*

Makaīwa Hills, in combination with the existing and new projects in the area, is not expected to foreclose future options for The City of Kapolei and the broader 'Ewa region. For the most part, new projects will develop land that is currently in open space. Importantly, about 60% of the Makaīwa Hills project area will be remain in open space. Livestock grazing could continue in appropriate portions of the remaining open space. The project will develop approximately 100 acres of cropland currently being used for nursery; however, there will remain a large unused inventory of suitable cropland on O'ahu.

Trade-offs among short-term and long-term gains and losses

Potential short- and long-term environmental impacts would be offset by the proposed mitigative measures. The planned improvements at the site would lead to significant short- and long-term economic gains, with no expected economic loss.

#### **4.5.3 Irreversible and Irretrievable Commitments of Resources**

The construction and operation of Makaīwa Hills would result in the irreversible and irretrievable commitment of land, water, capital, materials, labor and energy. The amount of land available for grazing will be reduced and the 100 acres of suitable crop land will be developed. There is a surplus of grazing and cropland available on O‘ahu and in the State. The anticipated socio-economic benefits offset the irreversible and irretrievable commitments of resources.

The project would irretrievably alter the existing views of the site from the H-1 Freeway/mauka areas and from adjoining lands. These views are not identified as significant in the ‘Ewa Development Plan. The undeveloped hillside will be modified with new family housing units and the lower elevation flatland area will be developed for mixed use. Design guidelines for the development will impose consistency in exterior materials and colors that blend with the existing landscape.

#### **4.5.4 Adverse Environmental Effects that Cannot be Avoided**

Adverse impacts can be divided into short- and long-term effects. Short-term effects are generally associated with the construction period. Long-term effects are generally related to the operation of the project. Mitigation measures are proposed to reduce adverse environmental effects to a level of minor significance. Adverse impacts that cannot be avoided are described below.

##### *4.5.4.1 Unavoidable Adverse Short-Term Effects*

During construction, the implementation of mitigation measures will address fugitive dust from earth-moving, cement mixing and vehicular travel in construction areas. The effects include both voluntary mitigation measures and those imposed by regulation and regulated by the State Department of Health (DOH). The project construction will also create short-term noise and storm water runoff within regulated limits. Nearby communities may notice dust, noise, truck/worker traffic and views of the job site activities during the construction period, however, there will be no increased risk to human health. There will also be water use in the course of construction for dust mitigation and irrigation of temporary vegetation for ground cover.

##### *4.5.4.2 Unavoidable Adverse Long-Term Effects*

The development of open space and increased traffic are considered unavoidable long-term adverse impacts. Other impacts will be mitigated to avoid potential adverse impacts.

Even with the retention and integration of 60% open space at Makaīwa Hills, there will be an unavoidable loss of open space in the development of this planned community. Mitigation for the loss of open space includes design guidelines that ensure the development is compatible with the surrounding landscape. The gently sloping hillside topography will be retained through gradual

steps in elevation, new landscaping will be introduced, and the color palette for exterior walls and rooftops will be earth tones to blend with the surrounding hillside and open space. Makaīwa Hills is consistent with the 'Ewa Development Plan policies for respecting mauka views, particularly views of lands beyond the Urban Growth Boundary.

Traffic is an ongoing island-wide concern. The project will increase the population and resultant traffic in the 'Ewa Region. Although the project is consistent with government plans for growth and urbanization, there will be long-term unavoidable impacts on traffic. Traffic mitigation includes 1) improvements at primary access/egress points of the project to address health and safety concerns associated with project traffic merging with major arterials, and 2) on-site shopping/retail and parks to minimize the offsite traffic.

The commuter traffic to/from the primary urban center is the key concern. Ideally, the development of the City of Kapolei will generate employment for residents in the region; thereby, decreasing the traffic to/from Honolulu. In the meantime, the project will likely contribute to the downtown Honolulu commuter traffic and the adverse impact will be cumulative with other planned development projects. The O'ahu Metropolitan Planning Organization (OMPO) transportation planning process, along with the County administration and City Council, is actively addressing the traffic issues.

At full development, on-site employment at Makaīwa Hills is expected to total about 1,100 jobs, including retail jobs, home and grounds maintenance jobs, and home-office jobs. This new employment, along with the growth of employment with the City of Kapolei and surrounding region, will serve to significantly improve traffic patterns in the region. A recent Omnitrak survey found that: ***For each Kapolei job created, it essentially removes one commuter vehicle off the H-1 Freeway.***

The new jobs will provide employment to (1) workers who already live in the Kapolei region and nearby communities but who also must commute to distant jobs, and (2) workers who will be new residents of the Kapolei region and nearby communities. These jobs support contemporary State and County governmental policy of redirecting traffic currently flowing into Honolulu's Primary Urban Center by developing a Second Urban Center at the City of Kapolei.

Further, as Honolulu's recently approved multi-modal mass transit system comes on line, those Kapolei residents working outside the region can capitalize on the system for daily commuting, whether by bus, rail or ferry. Conversely, those working in Kapolei and living outside the region may also use the new mass transit system, thereby removing additional long-distance commuter vehicles from Oahu's roadway system. Makaīwa Hills is expected to be linked by bus to the nearby Kapolei Transit Center planned for Kapolei Commons, just across the H-1 Freeway. From this terminal, travel to other points in 'Ewa, Leeward and Central O'ahu, and Honolulu is expected to be greatly simplified with the recently approved mass transit system.



## **5.0 CONFORMITY OF THE PROJECT TO APPLICABLE PLANS AND POLICIES**

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5.0 CONFORMITY OF THE PROJECT TO APPLICABLE PLANS AND POLICES

This section provides an assessment of the conformity of the Makaīwa Hills project to applicable goals, objectives, and policies of the Hawai‘i State Plan, the Hawai‘i State Functional Plans, the Coastal Zone Management Program, the City and County of Honolulu General Plan and the ‘Ewa Development Plan.

S = Supportive, N/S = Not Supportive, N/A = Not Applicable

Table 5-1: Hawai‘i State Plan – HRS Ch. 226 - Part I. Overall Theme, Goals, Objectives and Policies	S	N/S	N/A
<b>Section 226-1: Findings and Purpose</b>			
<b>Section 226-2: Definitions</b>			
<b>Section 226-3: Overall Theme</b>			
<b>Section 226-4: State Goals. In order to guarantee, for the present and future generations, those elements of choice and mobility that insure that individuals and groups may approach their desired levels of self-reliance and self-determination, it shall be the goal of the State to achieve:</b>			
(1) A strong, viable economy, characterized by stability, diversity, and growth, that enables the fulfillment of the needs and expectations of Hawai‘i’s present and future generations	✓		
(2) A desired physical environment, characterized by beauty, cleanliness, quiet, stable natural systems, and uniqueness, that enhances the mental and physical well-being of the people.	✓		
(3) Physical, social and economic well-being, for individuals and families in Hawai‘i, that nourishes a sense of community responsibility, of caring, and of participation in community life.	✓		
<b>Discussion:</b> The Makaīwa Hills project is consistent with the State’s goals to provide economic vitality, stability and growth for present and future generations. The requested zoning changes from Agriculture to a variety of residential and commercial districts will further urbanize the area, thereby strengthening the Secondary Urban Center and the City of Kapolei. The proposed project provides housing and employment options for a growing population in the Kapolei/‘Ewa area. The project will help to relieve development pressures in urban Honolulu and allow more area residents to experience the master-planned Kapolei community. A major consideration in public policy is to redirect traffic currently flowing into Honolulu proper by providing alternative residences outside of the existing urban core.			
<b>Section 226-5: Objective and policies for population</b>			
(a) It shall be the objective in planning for the State’s population to guide population growth to be consistent with the achievement of physical, economic, and social objectives contained in this chapter;			
(b) To achieve the population objective, it shall be the policy of this State to:			
(1) Manage population growth statewide in a manner that provides increased opportunities for Hawai‘i’s people to pursue their physical, social and economic aspirations while recognizing the unique needs of each county.	✓		
(2) Encourage an increase in economic activities and employment opportunities on the neighbor islands consistent with community needs and desires.			✓
(3) Promote increased opportunities for Hawai‘i’s people to pursue their socioeconomic aspirations throughout the islands.	✓		
(4) Encourage research activities and public awareness programs to foster and understanding of Hawai‘i’s limited capacity to accommodate population needs and to address concerns resulting from an increase in Hawai‘i’s population.			✓
(5) Encourage federal actions and coordination among major governmental agencies to promote a more balanced distribution of immigrants among states, provided that such actions do not prevent the reunion of immediate family members.			✓
(6) Pursue an increase in federal assistance for states with a greater proportion of foreign immigrants relative to their state’s population			✓
(7) Plan the development and availability of land and water resources in a coordinated manner so as to provide for the desired levels of growth in each geographic area	✓		
<b>Discussion:</b> Makaīwa Hills is located within the ‘Ewa Development Plan Area, which includes census tracts 83 through 86.02. The area has experienced an explosive 60% increase in its population in the past 10 years to a population of 84,150. In comparison, the population for the City and County of Honolulu as a whole increased only 4.8% from 836,231 to 876,156 between 1990 and 2000.			
The City and County’s General Plan targets growth for the ‘Ewa Development Plan Area. ‘Ewa’s population is expected to grow to 96,000 by 2010 and up to 141,000 by 2025. The project provides substantial housing opportunities for the increased population of ‘Ewa and Kapolei, and supports current population distribution policies.			

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Table 5-1: Hawai'i State Plan – HRS Ch. 226 - Part I. Overall Theme, Goals, Objectives and Policies	S	N/S	N/A
<b>Section 226-6: Objectives and policies for the economy in general.</b>			
(a) Planning for the State's economy in general shall be directed toward achievement of the following objectives:			
(1) Increased and diversified employment opportunities to achieve full employment, increased income and job choice, and improved living standards for Hawai'i's people.	✓		
(2) A steadily growing and diversified economic base that is not overly dependent on a few industries, and includes the development and expansion of industries on the neighbor islands.			✓
(b) To achieve the general economic objectives, it shall be the policy of this State to:			
(1) Expand Hawai'i's national and international marketing, communication, and organizational ties, to increase the State's capacity to adjust to and capitalize upon economic changes and opportunities occurring outside the State.			✓
(2) Promote Hawai'i as an attractive market for environmentally and socially sound investment activities that benefit Hawai'i's people.			✓
(3) Seek broader outlets for new or expanded Hawai'i business investments.			✓
(4) Expand existing markets and penetrate new markets for Hawai'i's products and services.	✓		
(5) Assure that the basic economic needs of Hawai'i's people are maintained in the event of disruptions in overseas transportation.			✓
(6) Strive to achieve a level of construction activity responsive to, and consistent with, state growth objectives.	✓		
(7) Encourage the formation of cooperatives and other favorable marketing arrangements at the local or regional level to assist Hawai'i's small scale producers, manufacturers, and distributors.			✓
(8) Encourage labor-intensive activities that are economically satisfying and which offer opportunities for upward mobility.			✓
(9) Foster greater cooperation and coordination between the government and private sectors in developing Hawai'i's employment and economic growth opportunities.			✓
(10) Stimulate the development and expansion of economic activities which will benefit areas with substantial or expected employment problems.	✓		
(11) Maintain acceptable working conditions and standards for Hawai'i's workers.	✓		
(12) Provide equal employment opportunities for all segments of Hawai'i's population through affirmative action and nondiscrimination measures.	✓		
(13) Encourage businesses that have favorable financial multiplier effects within Hawai'i's economy.	✓		
(14) Promote and protect intangible resources in Hawai'i, such as scenic beauty and the Aloha spirit, which are vital to a healthy economy.		✓	
(15) Increase effective communication between the educational community and the private sector to develop relevant curricula and training programs to meet future employment needs in general, and requirements of new, potential growth industries in particular.			✓
(16) Foster a business climate in Hawai'i - including attitudes, tax and regulatory policies, and financial and technical assistance programs--that is conducive to the expansion of existing enterprises and the creation and attraction of new business and industry.			✓
<b>Discussion:</b> The development of approximately 63 acres for mixed use commercial/retail will benefit the local economy by providing business and job opportunities for the expanding communities of 'Ewa, Kapolei, Central O'ahu and the Leeward Coast. The project is largely a residential development. It will not drive the expansion of new markets; however, it will provide new venues in new neighborhoods for Hawai'i product placement and sales. The commercial/retail entities have not been identified yet. Typical businesses in residential communities include national and local chains, with established policies for acceptable working conditions and equal opportunity hiring. Retail has favorable multiplier effects within Hawai'i's economy.			
<b>Section 226-7 Objectives and policies for the economy - agriculture.</b>			
(a) Planning for the State's economy with regard to agriculture shall be directed towards achievement of the following objectives:			
(1) Viability of Hawai'i's sugar and pineapple industries.			✓
(2) Growth and development of diversified agriculture throughout the State.		✓	
(3) An agriculture industry that continues to constitute a dynamic and essential component of Hawai'i's strategic, economic, and social well-being.			✓
(b) To achieve the agriculture objectives, it shall be the policy of this State to:			
(1) Establish a clear direction for Hawai'i's agriculture through stakeholder commitment and advocacy.			✓
(2) Encourage agriculture by making best use of natural resources.			✓
(3) Provide the governor and the legislature with information and options needed for prudent decision making for the development of agriculture.			✓
(4) Establish strong relationships between the agricultural and visitor industries for mutual marketing benefits.			✓

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Table 5-1: Hawai'i State Plan – HRS Ch. 226 - Part I. Overall Theme, Goals, Objectives and Policies	S	N/S	N/A
(5) Foster increased public awareness and understanding of the contributions and benefits of agriculture as a major sector of Hawai'i's economy.			✓
(6) Seek the enactment and retention of federal and state legislation that benefits Hawai'i's agricultural industries.			✓
(7) Strengthen diversified agriculture by developing an effective promotion, marketing, and distribution system between Hawai'i's producers and consumer markets locally, on the continental United States, and internationally.			✓
(8) Support research and development activities that provide greater efficiency and economic productivity in agriculture.			✓
(9) Enhance agricultural growth by providing public incentives and encouraging private initiatives.			✓
(10) Assure the availability of agriculturally suitable lands with adequate water to accommodate present and future needs.			✓
(11) Increase the attractiveness and opportunities for an agricultural education and livelihood.			✓
(12) Expand Hawai'i's agricultural base by promoting growth and development of flowers, tropical fruits and plants, livestock, feed grains, forestry, food crops, aquaculture, and other potential enterprises.			✓
(13) Promote economically competitive activities that increase Hawai'i's agricultural self-sufficiency.			✓
(14) Promote and assist in the establishment of sound financial programs for diversified agriculture.			✓
(15) Institute and support programs and activities to assist the entry of displaced agricultural workers into alternative agricultural or other employment.	✓		
(16) Facilitate the transition of agricultural lands in economically non-feasible agricultural production to economically viable agricultural uses.			✓
<p><b>Discussion:</b> The policies were written prior to the contraction of plantation agriculture and assume that there is sufficient agricultural activity to utilize all available agricultural lands. This is a questionable assumption in the post plantation era where there is an abundant supply of land available for diversified agriculture. The agricultural policies are either not supported or not applicable to the residential and commercial development. The project is consistent with the State Land Use designation of Urban, indicating a policy determination that these lands are no longer considered appropriate for agriculture. The project areas with higher quality soils are isolated from other suitable agricultural lands, and are too small to provide significant agricultural opportunities. Policy 15 is supported indirectly by the project in that new entry-level employment opportunities would be established that may provide opportunities for displaced agricultural workers, if they choose to apply.</p>			
<p><b>Section 226-8 Objective and policies for the economy--visitor industry.</b></p>			
<p>(a) Planning for the State's economy with regard to the visitor industry shall be directed towards the achievement of the objective of a visitor industry that constitutes a major component of steady growth for Hawai'i's economy.</p>			
<p>(b) To achieve the visitor industry objective, it shall be the policy of this State to:</p>			
(1) Support and assist in the promotion of Hawai'i's visitor attractions and facilities.			✓
(2) Ensure that visitor industry activities are in keeping with the social, economic, and physical needs and aspirations of Hawai'i's people.			✓
(3) Improve the quality of existing visitor destination areas.			✓
(4) Encourage cooperation and coordination between the government and private sectors in developing and maintaining well-designed, adequately serviced visitor industry and related developments which are sensitive to neighboring communities and activities.			✓
(5) Develop the industry in a manner that will continue to provide new job opportunities and steady employment for Hawai'i's people.			✓
(6) Provide opportunities for Hawai'i's people to obtain job training and education that will allow for upward mobility within the visitor industry.			✓
(7) Foster a recognition of the contribution of the visitor industry to Hawai'i's economy and the need to perpetuate the aloha spirit.			✓
(8) Foster an understanding by visitors of the aloha spirit and of the unique and sensitive character of Hawai'i's cultures and values.			✓
<p><b>Discussion:</b> While the developer supports the State's policies related to economy and the visitor industry, they are not directly applicable to the proposed project. That said, close proximity to Ko 'Olina resort area may encourage some visitors to purchase vacation homes in the Makaīwa Hills community and thus help promote further development of the visitor industry as they become repeat visitors to O'ahu.</p>			
<p><b>Section 226-9 Objective and policies for the economy--federal expenditures.</b></p>			
<p>(a) Planning for the State's economy with regard to federal expenditures shall be directed towards achievement of the objective of a stable federal investment base as an integral component of Hawai'i's economy.</p>			
<p>(b) To achieve the federal expenditures objective, it shall be the policy of this State to:</p>			
(1) Encourage the sustained flow of federal expenditures in Hawai'i that generates long-term government civilian			✓

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Table 5-1: Hawai'i State Plan – HRS Ch. 226 - Part I. Overall Theme, Goals, Objectives and Policies	S	N/S	N/A
employment.			
(2) Promote Hawai'i's supportive role in national defense.			✓
(3) Promote the development of federally supported activities in Hawai'i that respect state-wide economic concerns, are sensitive to community needs, and minimize adverse impacts on Hawai'i's environment.			✓
(4) Increase opportunities for entry and advancement of Hawai'i's people into federal government service.			✓
(5) Promote federal use of local commodities, services, and facilities available in Hawai'i.			✓
(6) Strengthen federal-state-county communication and coordination in all federal activities that affect Hawai'i.			✓
(7) Pursue the return of federally controlled lands in Hawai'i that are not required for either the defense of the nation or for other purposes of national importance, and promote the mutually beneficial exchanges of land between federal agencies, the State, and the counties.			✓
<b>Discussion:</b> While the developer supports the State's policies related to economy and federal expenditures, they are not directly applicable to the proposed project.			
<b>Section 226-10 Objective and policies for the economy--potential growth activities.</b>			
(a) Planning for the State's economy with regard to potential growth activities shall be directed towards achievement of the objective of development and expansion of potential growth activities that serve to increase and diversify Hawai'i's economic base.			
(b) To achieve the potential growth activity objective, it shall be the policy of this State to:			
(1) Facilitate investment and employment in economic activities that have the potential for growth such as diversified agriculture, aquaculture, apparel and textile manufacturing, film and television production, and energy and marine-related industries.			✓
(2) Expand Hawai'i's capacity to attract and service international programs and activities that generate employment for Hawai'i's people.			✓
(3) Enhance and promote Hawai'i's role as a center for international relations, trade, finance, services, technology, education, culture, and the arts.			✓
(4) Accelerate research and development of new energy- related industries based on wind, solar, ocean, and underground resources and solid waste.			✓
(5) Promote Hawai'i's geographic, environmental, social, and technological advantages to attract new economic activities into the State.			✓
(6) Provide public incentives and encourage private initiative to attract new industries that best support Hawai'i's social, economic, physical, and environmental objectives.			✓
(7) Increase research and the development of ocean-related economic activities such as mining, food production, and scientific research.			✓
(8) Develop, promote, and support research and educational and training programs that will enhance Hawai'i's ability to attract and develop economic activities of benefit to Hawai'i.			✓
(9) Foster a broader public recognition and understanding of the potential benefits of new, growth-oriented industry in Hawai'i.			✓
(10) Encourage the development and implementation of joint federal and state initiatives to attract federal programs and projects that will support Hawai'i's social, economic, physical, and environmental objectives.			✓
(11) Increase research and development of businesses and services in the telecommunications and information industries.			✓
<b>Discussion:</b> While the developer supports the State's policies related to expansion into new and diversified economic markets and attracting federal expenditures, they are not directly applicable to the proposed project. Typical businesses in a residential community are not international or related to research and development.			
<b>Section 226-10.5 Objectives and policies for the economy--information industry.</b>			
(a) Planning for the State's economy with regard to the information industry shall be directed toward the achievement of the objective of positioning Hawai'i as the leading dealer in information businesses and services in the Pacific Rim.			
(b) To achieve the information industry objective, it shall be the policy of this State to:			
(1) Encourage the continued development and expansion of the telecommunications infrastructure serving Hawai'i to accommodate future growth in the information industry;			✓
(2) Facilitate the development of new business and service ventures in the information industry which will provide employment opportunities for the people of Hawai'i;			✓
(3) Encourage greater cooperation between the public and private sectors in developing and maintaining a well- designed information industry;			✓
(4) Ensure that the development of new businesses and services in the industry are in keeping with the social, economic,			✓

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Table 5-1: Hawai'i State Plan – HRS Ch. 226 - Part I. Overall Theme, Goals, Objectives and Policies	S	N/S	N/A
and physical needs and aspirations of Hawai'i's people;			
(5) Provide opportunities for Hawai'i's people to obtain job training and education that will allow for upward mobility within the information industry;			✓
(6) Foster a recognition of the contribution of the information industry to Hawai'i's economy; and			✓
(7) Assist in the promotion of Hawai'i as a broker, creator, and processor of information in the Pacific.			✓
<b>Discussion:</b> The largely residential development would not position Hawai'i as leading dealer in information businesses and services in the Pacific Rim. However, the project will incorporate the latest telecommunications infrastructure.			
<b>Section 226-11 Objectives and policies for the physical environment--land-based, shoreline, and marine resources.</b>			
(a) Planning for the State's physical environment with regard to land-based, shoreline and marine resources shall be directed towards achievement of the following objectives:			
(1) Prudent use of Hawai'i's land-based, shoreline, and marine resources.	✓		
(2) Effective protection of Hawai'i's unique and fragile environmental resources.			✓
(b) To achieve the land-based, shoreline, and marine resources objectives, it shall be the policy of this State to:			
(1) Exercise an overall conservation ethic in the use of Hawai'i's natural resources.	✓		
(2) Ensure compatibility between land-based and water-based activities and natural resources and ecological systems.	✓		
(3) Take into account the physical attributes of areas when planning and designing activities and facilities.	✓		
(4) Manage natural resources and environs to encourage their beneficial and multiple use without generating costly or irreparable environmental damage.	✓		
(5) Consider multiple uses in watershed areas, provided such uses do not detrimentally affect water quality and recharge functions.	✓		
(6) Encourage the protection of rare or endangered plant and animal species and habitats native to Hawai'i.			✓
(7) Provide public incentives that encourage private actions to protect significant natural resources from degradation or unnecessary depletion.			✓
(8) Pursue compatible relationships among activities, facilities and natural resources.	✓		
(9) Promote increased accessibility and prudent use of inland and shoreline areas for public recreational, educational and scientific purposes.			✓
<b>Discussion:</b> The project is land-based and inland, and no direct impacts on shoreline or marine resources are anticipated. No unique, fragile or sensitive habitats were identified on site. No threatened or endangered species were identified. Within the project site, no endemic, endangered, or protected flora or fauna have been recorded. The project represents a prudent use of land-based resources to achieve the social benefit of providing housing without generating costly or irreparable environmental damage. The project's design guidelines serve to incorporate the physical attribute of the area. There will be mauka-makai open space corridors to underscore the traditional importance of ahupua'a. Smooth cut slopes versus sharp slopes and terraced retaining walls versus a single retaining wall will result in a gently sloping character consistent with the natural hillside. The development will provide multiple uses without detrimental effect on water quality. There will be an increase in impervious surface that could adversely impact recharge; however, significant areas of open space will remain undeveloped, including the gulches, so the area's hydrology is not expected by significantly affected by the project. Additionally, the potential amount of soil erosion is expected to decline dramatically due to the conversion of existing bare soil to other, less erodible types of land cover. There will be a trail system connecting with the mauka natural resource area.			
<b>Section 226-12 Objective and policies for the physical environment--scenic, natural beauty, and historic resources.</b>			
(a) Planning for the State's physical environment shall be directed towards achievement of the objective of enhancement of Hawai'i's scenic assets, natural beauty, and multi-cultural/historical resources.			
(b) To achieve the scenic, natural beauty, and historic resources objective, it shall be the policy of this State to:			
(1) Promote the preservation and restoration of significant natural and historic resources.	✓		
(2) Provide incentives to maintain and enhance historic, cultural, and scenic amenities.	✓		
(3) Promote the preservation of views and vistas to enhance the visual and aesthetic enjoyment of mountains, ocean, scenic landscapes, and other natural features.	✓		
(4) Protect those special areas, structures, and elements that are an integral and functional part of Hawai'i's ethnic and cultural heritage.	✓		
(5) Encourage the design of developments and activities that complement the natural beauty of the islands.	✓		

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Table 5-1: Hawai'i State Plan – HRS Ch. 226 - Part I. Overall Theme, Goals, Objectives and Policies	S	N/S	N/A
<p><b>Discussion:</b> An archaeological inventory survey identified historic sites. Data recovery and preservation plans have been prepared and submitted to the State Historic Preservation Division for approval. Data recovery will occur prior to development, and development will adhere to rules, guidelines and boundaries for preservation area as dictated in the Preservation Plan. Any inadvertent discovery or disturbance of archaeological sites, or features or human burials will result in a halt to construction activities and prompt report to Makaīwa Hills, LLC, who will contact appropriate authorities. Design guidelines dictate that the residential units reflect the tropical island lifestyle, climate and natural beauty of the land. Structures will preserve view corridors. The design guidelines encourage varied roof heights, outdoor living areas, and extensive landscaping. Natural materials are preferred over manufactured materials. The color palette for exterior surfaces will be subtle earth tones to integrate with the surrounding landscape.</p>			
<p><b>Section 226-13 Objectives and policies for the physical environment--land, air, and water quality.</b></p>			
<p>(a) Planning for the State's physical environment with regard to land, air, and water quality shall be directed towards achievement of the following objectives:</p>			
(1) Maintenance and pursuit of improved quality in Hawai'i's land, air, and water resources.	✓		
(2) Greater public awareness and appreciation of Hawai'i's environmental resources.	✓		
<p>(b) To achieve the land, air, and water quality objectives, it shall be the policy of this State to:</p>			
(1) Foster educational activities that promote a better understanding of Hawai'i's limited environmental resources.			✓
(2) Promote the proper management of Hawai'i's land and water resources.	✓		
(3) Promote effective measures to achieve desired quality in Hawai'i's surface, ground and coastal waters.	✓		
(4) Encourage actions to maintain or improve aural and air quality levels to enhance the health and well-being of Hawai'i's people.	✓		
(5) Reduce the threat to life and property from erosion, flooding, tsunamis, hurricanes, earthquakes, volcanic eruptions, and other natural or man-induced hazards and disasters.	✓		
(6) Encourage design and construction practices that enhance the physical qualities of Hawai'i's communities.	✓		
(7) Encourage urban developments in close proximity to existing services and facilities.	✓		
(8) Foster recognition of the importance and value of the land, air, and water resources to Hawai'i's people, their cultures and visitors.			✓
<p><b>Discussion:</b> The developer will comply with applicable state, federal and county regulations relating to land, air and water resources in developing the project. The project will have no direct long-term impacts on the quality of land, air and water resources. Disturbance of the project area soils during construction has potential to increase the threat to life and property from erosion and will have minor impacts on air quality. A grading plan, including a best management practices plan, will be prepared and approved by the County prior to initiation of construction activities. The design guidelines prepared for the project will enhance the physical qualities of the development and ensure consistency across the entire development. The proposed urban development is consistent with County development plans and is in the proximity of existing services and facilities.</p>			
<p><b>Section 226-14 Objective and policies for facility systems--in general.</b></p>			
<p>(a) Planning for the State's facility systems in general shall be directed towards achievement of the objective of water, transportation, waste disposal, and energy and telecommunication systems that support statewide social, economic, and physical objectives.</p>			
<p>(b) To achieve the general facility systems objective, it shall be the policy of this State to:</p>			
(1) Accommodate the needs of Hawai'i's people through coordination of facility systems and capital improvement priorities in consonance with state and county plans.	✓		
(2) Encourage flexibility in the design and development of facility systems to promote prudent use of resources and accommodate changing public demands and priorities.	✓		
(3) Ensure that required facility systems can be supported within resource capacities and at reasonable cost to the user.	✓		
(4) Pursue alternative methods of financing programs and projects and cost-saving techniques in the planning, construction, and maintenance of facility systems.	✓		
<p><b>Discussion:</b> The project will conform to all existing state and county plans relating to facility systems coordination and capital improvement priorities.</p>			
<p><b>§226-15 Objectives and policies for facility systems--solid and liquid wastes.</b></p>			
<p>(a) Planning for the State's facility systems with regard to solid and liquid wastes shall be directed towards the achievement of the following objectives:</p>			
(1) Maintenance of basic public health and sanitation standards relating to treatment and disposal of solid and liquid wastes.	✓		
(2) Provision of adequate sewerage facilities for physical and economic activities that alleviate problems in housing, employment, mobility, and other areas.	✓		

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Table 5-1: Hawai'i State Plan – HRS Ch. 226 - Part I. Overall Theme, Goals, Objectives and Policies	S	N/S	N/A
(a) To achieve solid and liquid waste objectives, it shall be the policy of this State to:			
(1) Encourage the adequate development of sewerage facilities that complement planned growth.	✓		
(2) Promote re-use and recycling to reduce solid and liquid wastes and employ a conservation ethic.	✓		
(3) Promote research to develop more efficient and economical treatment and disposal of solid and liquid wastes.			✓
<b>Discussion:</b> The wastewater generated at the site will be typical of residential land uses and there will be no industrial discharge. The onsite sewer system and the offsite 21-inch sewer line to the existing Ko 'Olina interceptor and Ko Olina relief interceptor will be dedicated to the County for operations and maintenance. The wastewater will be conveyed to Honouliuli WWTP, which has sufficient capacity to manage the additional wastewater from the initial phases of the project; additional capacity at the WWTP will have to be added to allow full build out of the Makaiwa Hills project. Wastewater reuse is planned for irrigating some non-residential areas.			
<b>§226-16 Objective and policies for facility systems--water.</b>			
(a) Planning for the State's facility systems with regard to water shall be directed towards achievement of the objective of the provision of water to adequately accommodate domestic, agricultural, commercial, industrial, recreational, and other needs within resource capacities.			
(b) To achieve the facility systems water objective, it shall be the policy of this State to:			
(1) Coordinate development of land use activities with existing and potential water supply.	✓		
(2) Support research and development of alternative methods to meet future water requirements well in advance of anticipated needs.			✓
(3) Reclaim and encourage the productive use of runoff water and wastewater discharges.	✓		
(4) Assist in improving the quality, efficiency, service, and storage capabilities of water systems for domestic and agricultural use.	✓		
(5) Support water supply services to areas experiencing critical water problems.	✓		
(6) Promote water conservation programs and practices in government, private industry, and the general public to help ensure adequate water to meet long-term needs.	✓		
<b>Discussion:</b> Two distinct potable water distribution systems are proposed for the project due to the site topography. The eastern distribution system will require eleven reservoirs and ten booster pumping stations for the five service zones. The western distribution system will require four reservoirs and four booster pumping stations for the four service zones. The proposed onsite potable water system will be designed in accordance with the BWS Water System Standards and is intended to be dedicated to the BWS for operation and maintenance.			
The proposed project and other developments in the region will impact the existing BWS water system facilities. In an effort to reduce potable water consumption, a dual water system is proposed whereby non-potable water will be used for irrigating some non-residential areas. Water system requirements for Makaiwa Hills have been considered in regional water system planning.			
<b>§226-17 Objectives and policies for facility systems--transportation.</b>			
(a) Planning for the State's facility systems with regard to transportation shall be directed towards the achievement of the following objectives:			
(1) An integrated multi-modal transportation system that services statewide needs and promotes the efficient, economical, safe, and convenient movement of people and goods.	✓		
(2) A statewide transportation system that is consistent with and will accommodate planned growth objectives throughout the State.	✓		
(b) To achieve the transportation objectives, it shall be the policy of this State to:			
(1) Design, program, and develop a multi-modal system in conformance with desired growth and physical development as stated in this chapter;	✓		
(2) Coordinate state, county, federal, and private transportation activities and programs toward the achievement of statewide objectives;			✓
(3) Encourage a reasonable distribution of financial responsibilities for transportation among participating governmental and private parties;	✓		
(4) Provide for improved accessibility to shipping, docking, and storage facilities;			✓
(5) Promote a reasonable level and variety of mass transportation services that adequately meet statewide and community needs;	✓		
(6) Encourage transportation systems that serve to accommodate present and future development needs of communities;	✓		
(7) Encourage a variety of carriers to offer increased opportunities and advantages to inter-island movement of people and goods;			✓



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Table 5-1: Hawai'i State Plan – HRS Ch. 226 - Part I. Overall Theme, Goals, Objectives and Policies	S	N/S	N/A
(8) Increase the capacities of airport and harbor systems and support facilities to effectively accommodate transshipment and storage needs;			✓
(9) Encourage the development of transportation systems and programs which would assist statewide economic growth and diversification;	✓		
(10) Encourage the design and development of transportation systems sensitive to the needs of affected communities and the quality of Hawai'i's natural environment;	✓		
(11) Encourage safe and convenient use of low-cost, energy- efficient, non-polluting means of transportation;	✓		
(12) Coordinate intergovernmental land use and transportation planning activities to ensure the timely delivery of supporting transportation infrastructure in order to accommodate planned growth objectives; and			✓
(13) Encourage diversification of transportation modes and infrastructure to promote alternate fuels and energy efficiency.	✓		
<p><b>Discussion:</b> Planned access to the project area will be from the Pālalailai Interchange and from a new road in the vicinity of where Old Farrington Highway presently intersects with Farrington Highway. Onsite roadways will consist of backbone or collector roads serving local roadways within the individual subdivisions. Traffic impact issues and concerns are explored in great detail in the accompanying traffic impact analysis.</p> <p>Within the project area, walking/biking paths will encourage transportation modes other than energy-consuming vehicles. Furthermore, the community retail/service areas will be within the project area minimizing the trips and energy consumed to reach shopping destinations in outside areas.</p>			
<p><b>§226-18 Objectives and policies for facility systems--energy.</b></p>			
<p>(a) Planning for the State's facility systems with regard to energy shall be directed toward the achievement of the following objectives, giving due consideration to all:</p>			
(1) Dependable, efficient, and economical statewide energy systems capable of supporting the needs of the people;	✓		
(2) Increased energy self-sufficiency where the ratio of indigenous to imported energy use is increased;	✓		
(3) Greater energy security in the face of threats to Hawai'i's energy supplies and systems; and			✓
(4) Reduction, avoidance, or sequestration of greenhouse gas emissions from energy supply and use.	✓		
<p>(b) To achieve the energy objectives, it shall be the policy of this State to ensure the provision of adequate, reasonably priced, and dependable energy services to accommodate demand.</p>			
<p>(c) To further achieve the energy objectives, it shall be the policy of this State to:</p>			
(1) Support research and development as well as promote the use of renewable energy sources;			✓
(2) Ensure that the combination of energy supplies and energy-saving systems is sufficient to support the demands of growth;			✓
(3) Base decisions of least-cost supply-side and demand-side energy resource options on a comparison of their total costs and benefits when a least-cost is determined by a reasonably comprehensive, quantitative, and qualitative accounting of their long-term, direct and indirect economic, environmental, social, cultural, and public health costs and benefits;			✓
(4) Promote all cost-effective conservation of power and fuel supplies through measures including: (A) Development of cost-effective demand-side management programs; (B) Education; and (C) Adoption of energy-efficient practices and technologies;	✓		
(5) Ensure to the extent that new supply-side resources are needed, the development or expansion of energy systems utilizes the least-cost energy supply option and maximizes efficient technologies;			✓
(6) Support research, development, and demonstration of energy efficiency, load management, and other demand-side management programs, practices, and technologies;			✓
(7) Promote alternate fuels and energy efficiency by encouraging diversification of transportation modes and infrastructure;	✓		
(8) Support actions that reduce, avoid, or sequester greenhouse gases in utility, transportation, and industrial sector applications; and	✓		
(9) Support actions that reduce, avoid, or sequester Hawai'i's greenhouse gas emissions through agriculture and forestry initiatives.			✓

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<b>Table 5-1: Hawai'i State Plan – HRS Ch. 226 - Part I. Overall Theme, Goals, Objectives and Policies</b>				S	N/S	N/A
<p><b>Discussion:</b> The project supports the Hawai'i Revised Statute's Chapter 226 policies related to conservation of energy, energy efficiency and alternative energy sources to the extent possible. Energy efficiency guidelines will be developed, in consultation with DBEDT Energy Branch, to encourage energy conservation in the development of the project site. Some efficient energy measures that may be included in the guidelines include innovative architectural design of buildings, solar heating systems, high-efficiency air conditioners and appliances, and occupant-sensing environmental controls. All commercial development at the project is subject to Hawai'i Model Energy Code to ensure application of cost-effective design practices and technologies which minimize energy consumption without sacrificing the comfort or productivity of the occupants.</p> <p>Planning and preliminary design studies for Makaīwa Hills have been conducted following sustainable development principles and guidelines. The project will include select land development and building construction practices as established following guidance under both the LEED-ND Rating System and The Office of Environmental Quality Control's (OEQC) "Guidelines for Sustainable Building Design in Hawai'i: A Planner's Checklist" (OEQC 1999):</p> <p>Sustainable design principles consistent with the LEED-ND Rating System will be applied to Makaīwa Hills. This system rates proposed projects according to: Smart Location &amp; Linkage, Neighborhood Pattern &amp; Design, Green Construction &amp; Technology, and Innovation &amp; Design Process. Although Makaīwa Hills is in the early planning stages, the project will qualify for credits under each of these major categories.</p> <p>The OEQC guidance outlines considerations for applicable sustainable development techniques. The OEQC Guidelines state, "[a] sustainable building is built to minimize energy use, expense, waste and impact on the environment. It seeks to improve the region's sustainability by meeting the needs of Hawai'i's residents and visitors today without compromising the needs of future generations." Techniques from "Guidelines for Sustainable Building Design in Hawai'i: A Planner's Checklist" have been considered in the design of the Makaīwa Hills community.</p>						
<p><b>§226-18.5 Objectives and policies for facility systems--telecommunications.</b></p> <p>(a) Planning for the State's telecommunications facility systems shall be directed towards the achievement of dependable, efficient, and economical statewide telecommunications systems capable of supporting the needs of the people.</p> <p>(b) To achieve the telecommunications objective, it shall be the policy of this State to ensure the provision of adequate, reasonably priced, and dependable telecommunications services to accommodate demand.</p> <p>(c) To further achieve the telecommunications objective, it shall be the policy of this State to:</p>						
(1) Facilitate research and development of telecommunications systems and resources;						✓
(2) Encourage public and private sector efforts to develop means for adequate, ongoing telecommunications planning;						✓
(3) Promote efficient management and use of existing telecommunications systems and services; and	✓					
(4) Facilitate the development of education and training of telecommunications personnel.						✓
<p><b>Discussion:</b> While not entirely applicable, the proposed development will incorporate the latest technologies in telecommunications.</p>						
<p><b>§226-19 Objectives and policies for socio-cultural advancement--housing.</b></p> <p>(a) Planning for the State's socio- cultural advancement with regard to housing shall be directed toward the achievement of the following objectives:</p>						
(1) Greater opportunities for Hawai'i's people to secure reasonably priced, safe, sanitary, and livable homes, located in suitable environments that satisfactorily accommodate the needs and desires of families and individuals, through collaboration and cooperation between government and nonprofit and for-profit developers to ensure that more affordable housing is made available to very low-, low- and moderate-income segments of Hawai'i's population.	✓					
(2) The orderly development of residential areas sensitive to community needs and other land uses.	✓					
(3) The development and provision of affordable rental housing by the State to meet the housing needs of Hawai'i's people.	✓					
<p>(b) To achieve the housing objectives, it shall be the policy of this State to:</p>						
(1) Effectively accommodate the housing needs of Hawai'i's people.	✓					
(2) Stimulate and promote feasible approaches that increase housing choices for low-income, moderate-income, and gap-group households.	✓					
(3) Increase homeownership and rental opportunities and choices in terms of quality, location, cost, densities, style, and size of housing.	✓					
(4) Promote appropriate improvement, rehabilitation, and maintenance of existing housing units and residential areas.						✓
(5) Promote design and location of housing developments taking into account the physical setting, accessibility to public facilities and services, and other concerns of existing communities and surrounding areas.	✓					

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Table 5-1: Hawai'i State Plan – HRS Ch. 226 - Part I. Overall Theme, Goals, Objectives and Policies	S	N/S	N/A
(6) Facilitate the use of available vacant, developable, and underutilized urban lands for housing.	✓		
(7) Foster a variety of lifestyles traditional to Hawai'i through the design and maintenance of neighborhoods that reflect the culture and values of the community.	✓		
(8) Promote research and development of methods to reduce the cost of housing construction in Hawai'i.			✓
<b>Discussion:</b> The project will construct 4,100 residential units of varying product types within a full range of zoning districts including low-, medium- and high-density residential, apartment and apartment and business mixed use. Affordable housing will be included. The lot sizes and costs to own or rent will vary across the site, generally increasing with elevation. There will be an extensive network of open space that will establish defined edge conditions and intimate residential areas allowing for the development of unique neighborhoods with individual character and identity within the community. The project site is currently vacant, undeveloped and underutilized urban land.			
<b>§226-20 Objectives and policies for socio-cultural advancement--health.</b>			
(a) Planning for the State's socio- cultural advancement with regard to health shall be directed towards achievement of the following objectives:			
(1) Fulfillment of basic individual health needs of the general public.			✓
(2) Maintenance of sanitary and environmentally healthful conditions in Hawai'i's communities.	✓		
(b) To achieve the health objectives, it shall be the policy of this State to:			
(1) Provide adequate and accessible services and facilities for prevention and treatment of physical and mental health problems, including substance abuse.			✓
(2) Encourage improved cooperation among public and private sectors in the provision of health care to accommodate the total health needs of individuals throughout the State.			✓
(3) Encourage public and private efforts to develop and promote statewide and local strategies to reduce health care and related insurance costs.			✓
(4) Foster an awareness of the need for personal health maintenance and preventive health care through education and other measures.			✓
(5) Provide programs, services, and activities that ensure environmentally healthful and sanitary conditions.	✓		
(6) Improve the State's capabilities in preventing contamination by pesticides and other potentially hazardous substances through increased coordination, education, monitoring, and enforcement.	✓		
<b>Discussion:</b> The project does not directly support health programs and strategies, but will provide solid waste and wastewater services as required to maintain public health standards.			
<b>§226-21 Objective and policies for socio-cultural advancement--education.</b>			
(a) Planning for the State's socio- cultural advancement with regard to education shall be directed towards achievement of the objective of the provision of a variety of educational opportunities to enable individuals to fulfill their needs, responsibilities, and aspirations.			
(b) To achieve the education objective, it shall be the policy of this State to:			
(1) Support educational programs and activities that enhance personal development, physical fitness, recreation, and cultural pursuits of all groups.			✓
(2) Ensure the provision of adequate and accessible educational services and facilities that are designed to meet individual and community needs.	✓		
(3) Provide appropriate educational opportunities for groups with special needs.	✓		
(4) Promote educational programs which enhance understanding of Hawai'i's cultural heritage.			✓
(5) Provide higher educational opportunities that enable Hawai'i's people to adapt to changing employment demands.			✓
(6) Assist individuals, especially those experiencing critical employment problems or barriers, or undergoing employment transitions, by providing appropriate employment training programs and other related educational opportunities.			✓
(7) Promote programs and activities that facilitate the acquisition of basic skills, such as reading, writing, computing, listening, speaking, and reasoning.	✓		
(8) Emphasize quality educational programs in Hawai'i's institutions to promote academic excellence.	✓		
(9) Support research programs and activities that enhance the education programs of the State.			✓
<b>Discussion:</b> The developers will provide land for a public elementary school to meet the anticipated additional student population. Discussions have been initiated with the Department of Education to meet the school requirements generated by the development, contributing on a fair-share basis.			

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<b>§226-22 Objective and policies for socio-cultural advancement--social services.</b>			
(a) Planning for the State's socio-cultural advancement with regard to social services shall be directed towards the achievement of the objective of improved public and private social services and activities that enable individuals, families, and groups to become more self-reliant and confident to improve their well-being.			
(b) To achieve the social service objective, it shall be the policy of the State to:			
(1) Assist individuals, especially those in need of attaining a minimally adequate standard of living and those confronted by social and economic hardship conditions, through social services and activities within the State's fiscal capacities.			✓
(2) Promote coordination and integrative approaches among public and private agencies and programs to jointly address social problems that will enable individuals, families, and groups to deal effectively with social problems and to enhance their participation in society.			✓
(3) Facilitate the adjustment of new residents, especially recently arrived immigrants, into Hawai'i's communities.			✓
(4) Promote alternatives to institutional care in the provision of long-term care for elder and disabled populations.			✓
(5) Support public and private efforts to prevent domestic abuse and child molestation, and assist victims of abuse and neglect.			✓
(6) Promote programs which assist people in need of family planning services to enable them to meet their needs.			✓
<b>Discussion:</b> Pursuant to County standards, thirty percent of the approximate 4,100 residential units will be affordable.			
<b>§226-23 Objective and policies for socio-cultural advancement--leisure.</b>			
(a) Planning for the State's socio- cultural advancement with regard to leisure shall be directed towards the achievement of the objective of the adequate provision of resources to accommodate diverse cultural, artistic, and recreational needs for present and future generations.			
(b) To achieve the leisure objective, it shall be the policy of this State to:			
(1) Foster and preserve Hawai'i's multi-cultural heritage through supportive cultural, artistic, recreational, and humanities-oriented programs and activities.			✓
(2) Provide a wide range of activities and facilities to fulfill the cultural, artistic, and recreational needs of all diverse and special groups effectively and efficiently.			✓
(3) Enhance the enjoyment of recreational experiences through safety and security measures, educational opportunities, and improved facility design and maintenance.			✓
(4) Promote the recreational and educational potential of natural resources having scenic, open space, cultural, historical, geological, or biological values while ensuring that their inherent values are preserved.	✓		
(5) Ensure opportunities for everyone to use and enjoy Hawai'i's recreational resources.	✓		
(6) Assure the availability of sufficient resources to provide for future cultural, artistic, and recreational needs.	✓		
(7) Provide adequate and accessible physical fitness programs to promote the physical and mental well-being of Hawai'i's people.	✓		
(8) Increase opportunities for appreciation and participation in the creative arts, including the literary, theatrical, visual, musical, folk, and traditional art forms.			✓
(9) Encourage the development of creative expression in the artistic disciplines to enable all segments of Hawai'i's population to participate in the creative arts.			✓
(10) Assure adequate access to significant natural and cultural resources in public ownership.	✓		
<b>Discussion:</b> While the developer supports the State's policies related to socio-cultural advancement and leisure, they are not all directly applicable to the proposed project. There is extensive open space integrated into the project. There will be community parks throughout the development pursuant to the County's park dedication requirements. Hiking paths will provide access to the mauka preservation areas and promote physical and mental well-being.			
<b>§226-24 Objective and policies for socio-cultural advancement--individual rights and personal well-being.</b>			
(a) Planning for the State's socio-cultural advancement with regard to individual rights and personal well-being shall be directed towards achievement of the objective of increased opportunities and protection of individual rights to enable individuals to fulfill their socio-economic needs and aspirations.			
(b) To achieve the individual rights and personal well- being objective, it shall be the policy of this State to:			
(1) Provide effective services and activities that protect individuals from criminal acts and unfair practices and that alleviate the consequences of criminal acts in order to foster a safe and secure environment.			✓
(2) Uphold and protect the national and state constitutional rights of every individual.			✓
(3) Assure access to, and availability of, legal assistance, consumer protection, and other public services which strive to attain social justice.			✓

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Table 5-1: Hawai'i State Plan – HRS Ch. 226 - Part I. Overall Theme, Goals, Objectives and Policies	S	N/S	N/A
(4) Ensure equal opportunities for individual participation in society.			✓
<b>Discussion:</b> The developer fully supports the individual rights and personal well-being of the general public. The project does not provide services that protect individuals from unfair practices or assure access to legal assistance or consumer protection.			
<b>§226-25 Objective and policies for socio-cultural advancement--culture.</b>			
(a) Planning for the State's socio- cultural advancement with regard to culture shall be directed toward the achievement of the objective of enhancement of cultural identities, traditions, values, customs, and arts of Hawai'i's people.			
(b) To achieve the culture objective, it shall be the policy of this State to:			
(1) Foster increased knowledge and understanding of Hawai'i's ethnic and cultural heritages and the history of Hawai'i.			✓
(2) Support activities and conditions that promote cultural values, customs, and arts that enrich the lifestyles of Hawai'i's people and which are sensitive and responsive to family and community needs.			✓
(3) Encourage increased awareness of the effects of proposed public and private actions on the integrity and quality of cultural and community lifestyles in Hawai'i.			✓
(4) Encourage the essence of the aloha spirit in people's daily activities to promote harmonious relationships among Hawai'i's people and visitors.			✓
<b>Discussion:</b> Various Hawaiian legends and early historical accounts indicate that the surrounding area of Honouliuli Ahupua'a was once widely inhabited by prehistoric populations, including the Hawaiian ali'i. John Papa 'Ī'i describes a network of Leeward O'ahu trails which in later historic times encircled and crossed the Wai'anae Range, allowing passage from West Loch to the Honouliuli lowlands, past Pu'u Kapolei and Waimānalo Gulch to the Wai'anae coast and onward circumscribing the shoreline of O'ahu ('Ī'i, 1973:96-98). Following 'Ī'i's description, a portion of this trail network would have passed along the southern boundary of the project area, roughly running along the present Farrington Highway. The presence of archaeological sites identified within the present study area indicate that prehistoric and early historic populations adapted to these less inviting areas, despite the environmental hardships.			
The developer fully supports State policies regarding cultural advancement but the specific policies are not applicable to the project. The proposed project will protect significant historic sites and open space corridors throughout the development, and is not expected to have an adverse impact on Hawaiian culture, its practices and traditions.			
<b>§226-26 Objectives and policies for socio-cultural advancement--public safety.</b>			
(a) Planning for the State's socio- cultural advancement with regard to public safety shall be directed towards the achievement of the following objectives:			
(1) Assurance of public safety and adequate protection of life and property for all people.			✓
(2) Optimum organizational readiness and capability in all phases of emergency management to maintain the strength, resources, and social and economic well-being of the community in the event of civil disruptions, wars, natural disasters, and other major disturbances.			✓
(3) Promotion of a sense of community responsibility for the welfare and safety of Hawai'i's people.			✓
(b) To achieve the public safety objectives, it shall be the policy of this State to:			
(1) Ensure that public safety programs are effective and responsive to community needs.			✓
(2) Encourage increased community awareness and participation in public safety programs.			✓
(c) To further achieve public safety objectives related to criminal justice, it shall be the policy of this State to:			
(1) Support criminal justice programs aimed at preventing and curtailing criminal activities.			✓
(2) Develop a coordinated, systematic approach to criminal justice administration among all criminal justice agencies.			✓
(3) Provide a range of correctional resources which may include facilities and alternatives to traditional incarceration in order to address the varied security needs of the community and successfully reintegrate offenders into the community.			✓
(d) To further achieve public safety objectives related to emergency management, it shall be the policy of this State to:			
(1) Ensure that responsible organizations are in a proper state of readiness to respond to major war-related, natural, or technological disasters and civil disturbances at all times.			✓
(2) Enhance the coordination between emergency management programs throughout the State.			✓

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Table 5-1: Hawai'i State Plan – HRS Ch. 226 - Part I. Overall Theme, Goals, Objectives and Policies	S	N/S	N/A
<p><b>Discussion:</b> Policies related to public safety are primarily the responsibility of government agencies and are not directly applicable to the proposed project.</p>			
<p>The project development area is within the City Police Department's District 8, which encompasses the leeward Coast and the 'Ewa Plain. There are approximately 100 field officers assigned to this district. Response time for the entire district fluctuates between five and seven minutes. To meet the growing needs of the 'Ewa Plain communities, in 2000, the City and County of Honolulu opened the Regional Kapolei District Station at 1100 Kamokila Boulevard. A storefront station is located at the intersection of Fort Weaver Road and Renton Road. A substation is located in Wai'anae. The HPD expects to expand its presence in the region as Kapolei grows. Based on population estimates, the City and County of Honolulu anticipate the need for two additional substations to service the region. These are planned to be in operation by 2020 at 'Ewa Villages and Ko Olina.</p>			
<p>Fire protection in Kapolei and 'Ewa is provided by the City and County of Honolulu Fire Department (HFD) 'Ewa Beach Fire Station (an engine company), Makakilo Fire Station (an engine company), and Kapolei Fire Station (an engine and ladder company, and the Battalion 4 Headquarters). Located in Kapolei Business Park, the Kapolei Fire Station was completed in 1995 to serve the expanding development on the 'Ewa Plain. According to the 'Ewa Development Plan, to meet the projected population and economic growth in 'Ewa by 2020, three fire stations at 'Ewa Villages, Ko Olina, and Makiwa Hills are planned, but service dates have not been determined.</p>			
<p><b>§226-27 Objectives and policies for socio-cultural advancement--government.</b></p>			
<p>(a) Planning the State's socio- cultural advancement with regard to government shall be directed towards the achievement of the following objectives:</p>			
(1) Efficient, effective, and responsive government services at all levels in the State.			✓
(2) Fiscal integrity, responsibility, and efficiency in the state government and county governments.			✓
(b) To achieve the government objectives, it shall be the policy of this State to:			
(1) Provide for necessary public goods and services not assumed by the private sector.			✓
(2) Pursue an openness and responsiveness in government that permits the flow of public information, interaction, and response.			✓
(3) Minimize the size of government to that necessary to be effective.			✓
(4) Stimulate the responsibility in citizens to productively participate in government for a better Hawai'i.			✓
(5) Assure that government attitudes, actions, and services are sensitive to community needs and concerns.			✓
(6) Provide for a balanced fiscal budget.			✓
(7) Improve the fiscal budgeting and management system of the State.			✓
(8) Promote the consolidation of state and county governmental functions to increase the effective and efficient delivery of government programs and services and to eliminate duplicative services wherever feasible.			✓
<p><b>Discussion:</b> Policies related to the operation of government are primarily the responsibility of government and are not directly applicable to the proposed project.</p>			

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<b>Table 5-1: Hawai'i State Plan – HRS Ch. 226 – Part III. Priority Guideline</b>				S	N/S	N/A
<b>§226-101 Purpose. The purpose of this part is to establish overall priority guidelines to address areas of statewide concern.</b>						
<b>§226-102 Overall direction. The State shall strive to improve the quality of life for Hawai'i's present and future population through the pursuit of desirable courses of action in five major areas of statewide concern which merit priority attention: economic development, population growth and land resource management, affordable housing, crime and criminal justice, and quality education.</b>						
<b>§226-103 Economic priority guidelines.</b>						
(a) Priority guidelines to stimulate economic growth and encourage business expansion and development to provide needed jobs for Hawai'i's people and achieve a stable and diversified economy:						
(1) Seek a variety of means to increase the availability of investment capital for new and expanding enterprises.						
(A) Encourage investments which:						
(i) Reflect long term commitments to the State;						✓
(ii) Rely on economic linkages within the local economy;						✓
(iii) Diversify the economy;						✓
(iv) Reinvest in the local economy;						✓
(v) Are sensitive to community needs and priorities; and	✓					
(vi) Demonstrate a commitment to provide management opportunities to Hawai'i residents.						✓
(2) Encourage the expansion of technological research to assist industry development and support the development and commercialization of technological advancements.						✓
(3) Improve the quality, accessibility, and range of services provided by government to business, including data and reference services and assistance in complying with governmental regulations.						✓
(4) Seek to ensure that state business tax and labor laws and administrative policies are equitable, rational, and predictable.						✓
(5) Streamline the building and development permit and review process, and eliminate or consolidate other burdensome or duplicative governmental requirements imposed on business, where public health, safety and welfare would not be adversely affected.						✓
(6) Encourage the formation of cooperatives and other favorable marketing or distribution arrangements at the regional or local level to assist Hawai'i's small-scale producers, manufacturers, and distributors.						✓
(7) Continue to seek legislation to protect Hawai'i from transportation interruptions between Hawai'i and the continental United States.						✓
(8) Provide public incentives and encourage private initiative to develop and attract industries which promise long-term growth potentials and which have the following characteristics:						✓
(A) An industry that can take advantage of Hawai'i's unique location and available physical and human resources.						✓
(B) A clean industry that would have minimal adverse effects on Hawai'i's environment.						✓
(C) An industry that is willing to hire and train Hawai'i's people to meet the industry's labor needs at all levels of employment.						✓
(D) An industry that would provide reasonable income and steady employment.						✓
(9) Support and encourage, through educational and technical assistance programs and other means, expanded opportunities for employee ownership and participation in Hawai'i business.						✓
(10) Enhance the quality of Hawai'i's labor force and develop and maintain career opportunities for Hawai'i's people through the following actions:	✓					
(A) Expand vocational training in diversified agriculture, aquaculture, information industry, and other areas where growth is desired and feasible.						✓
(B) Encourage more effective career counseling and guidance in high schools and post-secondary institutions to inform students of present and future career opportunities.						✓
(C) Allocate educational resources to career areas where high employment is expected and where growth of new industries is desired.						✓
(D) Promote career opportunities in all industries for Hawai'i's people by encouraging firms doing business in the State to hire residents.						✓
(E) Promote greater public and private sector cooperation in determining industrial training needs and in developing relevant curricula and on- the-job training opportunities.						✓
(F) Provide retraining programs and other support services to assist entry of displaced workers into alternative employment.						✓

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<b>Table 5-1: Hawai'i State Plan – HRS Ch. 226 – Part III. Priority Guideline</b>				<b>S</b>	<b>N/S</b>	<b>N/A</b>
<b>(b) Priority guidelines to promote the economic health and quality of the visitor industry:</b>						
(1) Promote visitor satisfaction by fostering an environment which enhances the Aloha Spirit and minimizes inconveniences to Hawai'i's residents and visitors.						✓
(2) Encourage the development and maintenance of well- designed, adequately serviced hotels and resort destination areas which are sensitive to neighboring communities and activities and which provide for adequate shoreline setbacks and beach access.						✓
(3) Support appropriate capital improvements to enhance the quality of existing resort destination areas and provide incentives to encourage investment in upgrading, repair, and maintenance of visitor facilities.						✓
(4) Encourage visitor industry practices and activities which respect, preserve, and enhance Hawai'i's significant natural, scenic, historic, and cultural resources.						✓
(5) Develop and maintain career opportunities in the visitor industry for Hawai'i's people, with emphasis on managerial positions.						✓
(6) Support and coordinate tourism promotion abroad to enhance Hawai'i's share of existing and potential visitor markets.						✓
(7) Maintain and encourage a more favorable resort investment climate consistent with the objectives of this chapter.						✓
(8) Support law enforcement activities that provide a safer environment for both visitors and residents alike.						✓
(9) Coordinate visitor industry activities and promotions to business visitors through the state network of advanced data communication techniques.						✓
<b>(c) Priority guidelines to promote the continued viability of the sugar and pineapple industries:</b>						
(1) Provide adequate agricultural lands to support the economic viability of the sugar and pineapple industries.						✓
(2) Continue efforts to maintain federal support to provide stable sugar prices high enough to allow profitable operations in Hawai'i.						✓
(3) Support research and development, as appropriate, to improve the quality and production of sugar and pineapple crops.						✓
<b>(d) Priority guidelines to promote the growth and development of diversified agriculture and aquaculture:</b>						
(1) Identify, conserve, and protect agricultural and aquacultural lands of importance and initiate affirmative and comprehensive programs to promote economically productive agricultural and aquacultural uses of such lands.						✓
(2) Assist in providing adequate, reasonably priced water for agricultural activities.						✓
(3) Encourage public and private investment to increase water supply and to improve transmission, storage, and irrigation facilities in support of diversified agriculture and aquaculture.						✓
(4) Assist in the formation and operation of production and marketing associations and cooperatives to reduce production and marketing costs.						✓
(5) Encourage and assist with the development of a waterborne and airborne freight and cargo system capable of meeting the needs of Hawai'i's agricultural community.						✓
(6) Seek favorable freight rates for Hawai'i's agricultural products from inter-island and overseas transportation operators.						✓
(7) Encourage the development and expansion of agricultural and aquacultural activities which offer long-term economic growth potential and employment opportunities.						✓
(8) Continue the development of agricultural parks and other programs to assist small independent farmers in securing agricultural lands and loans.						✓
(9) Require agricultural uses in agricultural subdivisions and closely monitor the uses in these subdivisions.						✓
(10) Support the continuation of land currently in use for diversified agriculture.						✓
<b>(e) Priority guidelines for water use and development:</b>						
(1) Maintain and improve water conservation programs to reduce the overall water consumption rate.				✓		
(2) Encourage the improvement of irrigation technology and promote the use of non-potable water for agricultural and landscaping purposes.				✓		
(3) Increase the support for research and development of economically feasible alternative water sources.						✓
(4) Explore alternative funding sources and approaches to support future water development programs and water system improvements.						✓
<b>(f) Priority guidelines for energy use and development:</b>						
(1) Encourage the development, demonstration, and commercialization of renewable energy sources.						✓
(2) Initiate, maintain, and improve energy conservation programs aimed at reducing energy waste and increasing public awareness of the need to conserve energy.						✓
(3) Provide incentives to encourage the use of energy conserving technology in residential, industrial, and other buildings.				✓		
(4) Encourage the development and use of energy conserving and cost-efficient transportation systems.				✓		



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Table 5-1: Hawai'i State Plan – HRS Ch. 226 – Part III. Priority Guideline	S	N/S	N/A
(g) Priority guidelines to promote the development of the information industry:			
(1) Establish an information network that will serve as the catalyst for establishing a viable information industry in Hawai'i.			✓
(2) Encourage the development of services such as financial data processing, products and services exchange, foreign language translations, telemarketing, teleconferencing, a twenty-four-hour international stock exchange, international banking, and a Pacific Rim management center.			✓
(3) Encourage the development of small businesses in the information field such as software development, the development of new information systems and peripherals, data conversion and data entry services, and home or cottage services such as computer programming, secretarial, and accounting services.			✓
(4) Encourage the development or expansion of educational and training opportunities for residents in the information and telecommunications fields.			✓
(5) Encourage research activities, including legal research in the information and telecommunications fields.			✓
(6) Support promotional activities to market Hawai'i's information industry services.			✓
<b>Discussion:</b> The State economic growth policies are not directly applicable to the largely residential development. A commercial/retail component that will contribute to the State economy through tax revenue and job opportunities. The incorporation of commercial/retail within the development will minimize the amount of regional traffic; thereby, conserving energy. Non-potable water will be used for landscaping, but not in residential areas.			
<b>§226-104 Population growth and land resources priority guidelines.</b>			
(a) Priority guidelines to effect desired statewide growth and distribution:			
(1) Encourage planning and resource management to insure that population growth rates throughout the State are consistent with available and planned resource capacities and reflect the needs and desires of Hawai'i's people.	✓		
(2) Manage a growth rate for Hawai'i's economy that will parallel future employment needs for Hawai'i's people.			✓
(3) Ensure that adequate support services and facilities are provided to accommodate the desired distribution of future growth throughout the State.	✓		
(4) Encourage major state and federal investments and services to promote economic development and private investment to the neighbor islands, as appropriate.			✓
(5) Explore the possibility of making available urban land, low-interest loans, and housing subsidies to encourage the provision of housing to support selective economic and population growth on the neighbor islands.			✓
(6) Seek federal funds and other funding sources outside the State for research, program development, and training to provide future employment opportunities on the neighbor islands.			✓
(7) Support the development of high technology parks on the neighbor islands.			✓
(b) Priority guidelines for regional growth distribution and land resource utilization:			
(1) Encourage urban growth primarily to existing urban areas where adequate public facilities are already available or can be provided with reasonable public expenditures, and away from areas where other important benefits are present, such as protection of important agricultural land or preservation of lifestyles.	✓		
(2) Make available marginal or nonessential agricultural lands for appropriate urban uses while maintaining agricultural lands of importance in the agricultural district.	✓		
(3) Restrict development when drafting of water would result in exceeding the sustainable yield or in significantly diminishing the recharge capacity of any groundwater area.	✓		
(4) Encourage restriction of new urban development in areas where water is insufficient from any source for both agricultural and domestic use.			✓
(5) In order to preserve green belts, give priority to state capital-improvement funds which encourage location of urban development within existing urban areas except where compelling public interest dictates development of a noncontiguous new urban core.	✓		
(6) Seek participation from the private sector for the cost of building infrastructure and utilities, and maintaining open spaces.	✓		
(7) Pursue rehabilitation of appropriate urban areas.			✓
(8) Support the redevelopment of Kaka'ako into a viable residential, industrial, and commercial community.			✓
(9) Direct future urban development away from critical environmental areas or impose mitigating measures so that negative impacts on the environment would be minimized.	✓		
(10) Identify critical environmental areas in Hawai'i to include but not be limited to the following: watershed and recharge areas; wildlife habitats (on land and in the ocean); areas with endangered species of plants and wildlife; natural streams and water bodies; scenic and recreational shoreline resources; open space and natural areas; historic and cultural sites; areas particularly sensitive to reduction in water and air quality; and scenic resources.	✓		

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Table 5-1: Hawai'i State Plan – HRS Ch. 226 – Part III. Priority Guideline	S	N/S	N/A
(11) Identify all areas where priority should be given to preserving rural character and lifestyle.			✓
(12) Utilize Hawai'i's limited land resources wisely, providing adequate land to accommodate projected population and economic growth needs while ensuring the protection of the environment and the availability of the shoreline, conservation lands, and other limited resources for future generations.	✓		
(13) Protect and enhance Hawai'i's shoreline, open spaces, and scenic resources.	✓		
<p><b>Discussion:</b> Mākaiwa Hills is a major residential element of the Kapolei Area Long-Range Master Plan and the 'Ewa Development Plan; both of which recognize the community as part of the expansion of Kapolei into the Secondary Urban Center on O'ahu. The project area is within the State Urban District. The 'Ewa Development Plan Area has experienced a 60% increase in its population in the past 10 years to a population of 84,150. In comparison, the population for the City and County of Honolulu as a whole increased only 4.8% from 836,231 to 876,156 between 1990 and 2000. 'Ewa's population is expected to grow to 96,000 by 2010 and up to 141,000 by 2025. There is a significant deficit in available housing. The proposed Mākaiwa Hills project addresses, in part, the housing shortfall in the region and on O'ahu.</p> <p>The private developer will provide infrastructure and land for an elementary school, which will be owned and operated by the State Department of Education. The development will maintain much of the area's existing open spaces.</p> <p>Technical studies and surveys were conducted to identify critical environmental areas. Open space and archaeological site preservation is incorporated into the design.</p>			
<p><b>§226-105 Crime and criminal justice. Priority guidelines in the area of crime and criminal justice:</b></p>			
(1) Support law enforcement activities and other criminal justice efforts that are directed to provide a safer environment.	✓		
(2) Target state and local resources on efforts to reduce the incidence of violent crime and on programs relating to the apprehension and prosecution of repeat offenders.			✓
(3) Support community and neighborhood program initiatives that enable residents to assist law enforcement agencies in preventing criminal activities.	✓		
(4) Reduce overcrowding or substandard conditions in correctional facilities through a comprehensive approach among all criminal justice agencies which may include sentencing law revisions and use of alternative sanctions other than incarceration for persons who pose no danger to their community.			✓
(5) Provide a range of appropriate sanctions for juvenile offenders, including community-based programs and other alternative sanctions.			✓
(6) Increase public and private efforts to assist witnesses and victims of crimes and to minimize the costs of victimization.			✓
<p><b>Discussion:</b> While the developer supports the State's policies related to crime and criminal justice, the policies are not directly applicable to the proposed project. County Police and Fire departments have considered this and other planned residential developments in their long range planning. The developer supports community-based law-enforcement assistance programs, but those initiatives would have to be proposed by the community members to be effective.</p>			
<p><b>§226-106 Affordable housing. Priority guidelines for the provision of affordable housing:</b></p>			
(1) Seek to use marginal or nonessential agricultural land and public land to meet housing needs of low- and moderate-income and gap-group households.	✓		
(2) Encourage the use of alternative construction and development methods as a means of reducing production costs.			✓
(3) Improve information and analysis relative to land availability and suitability for housing.			✓
(4) Create incentives for development which would increase home ownership and rental opportunities for Hawai'i's low- and moderate-income households, gap-group households, and residents with special needs.	✓		
(5) Encourage continued support for government or private housing programs that provide low interest mortgages to Hawai'i's people for the purchase of initial owner- occupied housing.			✓
(6) Encourage public and private sector cooperation in the development of rental housing alternatives.	✓		
(7) Encourage improved coordination between various agencies and levels of government to deal with housing policies and regulations.	✓		
(8) Give higher priority to the provision of quality housing that is affordable for Hawai'i's residents and less priority to development of housing intended primarily for individuals outside of Hawai'i.	✓		
<p><b>Discussion:</b> The developer will comply with County requirements for providing affordable housing; it is expected that 30% of the residential units will be available to Hawai'i residents earning low to moderate incomes.</p>			
<p><b>§226-107 Quality education. Priority guidelines to promote quality education:</b></p>			
(1) Pursue effective programs which reflect the varied district, school, and student needs to strengthen basic skills achievement;			✓

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Table 5-1: Hawai'i State Plan – HRS Ch. 226 – Part III. Priority Guideline	S	N/S	N/A
(2) Continue emphasis on general education "core" requirements to provide common background to students and essential support to other university programs;			✓
(3) Initiate efforts to improve the quality of education by improving the capabilities of the education work force;			✓
(4) Promote increased opportunities for greater autonomy and flexibility of educational institutions in their decision-making responsibilities;			✓
(5) Increase and improve the use of information technology in education by the availability of telecommunications equipment for:			✓
(A) The electronic exchange of information;			✓
(B) Statewide electronic mail; and			✓
(C) Access to the Internet.			✓
<b>Discussion:</b> In addition to providing a "fair share" contribution to the DOE to offset costs of providing public education to residents of Makaīwa Hills, the developers will provide land to the DOE for both an elementary school and a middle school.			
§226-108 Encourage programs that increase the public's awareness and understanding of the impact of information technologies on our lives;			✓
(6) Pursue the establishment of Hawai'i's public and private universities and colleges as research and training centers of the Pacific;			✓
(7) Develop resources and programs for early childhood education;			✓
(8) Explore alternatives for funding and delivery of educational services to improve the overall quality of education; and			✓
(9) Strengthen and expand educational programs and services for students with special needs.			✓
<b>Discussion:</b> The project does not create incentives to encourage affordable housing and interagency cooperation, but does take advantage of the existing policies that facilitate the construction of affordable units for sale and rent. The project's expected population suggests the need for a new elementary school, which will be built on land provided by the developer. The information technology policies are not directly applicable to the project; however, there will be a new consumer market for communication technology services.			

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Table 5-2: Hawai'i State Functional Plans				S	N/S	N/A
<b>Employment Functional Plan</b>						
<b>Objective I.A:</b> Improve the qualifications of entry level workers and their transition to employment						✓
<b>Objective I.B:</b> Develop and deliver education, training and related services to ensure and maintain a quality and competitive workforce.	✓					
<b>Objective II.A:</b> Improve labor exchange						✓
<b>Objective III.A:</b> Improve quality of life for workers and families.	✓					
<b>Objective IV.A:</b> Improve planning of economic development, employment and training activities	✓					
<b>Discussion:</b> The project will provide housing, which would improve the quality of life for workers and families. Thirty percent of the housing units will be affordable, pursuant to County standards. The tenants of the commercial/ retail component of the project have not been determined. New employment opportunities upon full build-out are estimated at 1,160. Retail businesses often have established training programs for new hires.						
<b>Agriculture Functional Plan</b>						
<b>Objective A:</b> Achievement of increased agricultural production and growth through cultural and management practices.						✓
<b>Objective B:</b> Achievement of an orderly agricultural marketing system through production promotion and industry organization.						✓
<b>Objective C:</b> Achievement of increased consumption of and demand for Hawai'i's agricultural products through consumer education and product quality.						✓
<b>Objective D:</b> Achievement of optimal contribution by agriculture to the State's economy.						✓
<b>Objective E:</b> Achievement of adequate capital, and knowledge of its proper management, for agricultural development.						✓
<b>Objective F:</b> Achievement of increased agricultural production and growth through pest and disease controls.						✓
<b>Objective G:</b> Achievement of effective protection and improved quality of Hawai'i's land, water, and air.						✓
<b>Objective H:</b> Achievement of productive agricultural use of lands most suitable and needed for agriculture						✓
<b>Objective I:</b> Achievement of efficient and equitable provision of adequate water for agricultural use.						✓
<b>Objective J:</b> Achievement of maximum degree of public understanding of agriculture in Hawai'i.						✓
<b>Objective K:</b> Achievement of adequate supply of properly trained labor for agricultural needs.						✓
<b>Objective L:</b> Achievement of adequate transportation services and facilities to meet agricultural needs.						✓
<b>Objective M:</b> Achievement of adequate support services and infrastructure to meet agricultural needs.						✓
<b>Discussion:</b> The project area is entirely within the State Urban Land Use District, and is consistent with the State Department of Agriculture's policy of promoting the urbanization of the foothill areas of the 'Ewa Plain.						
<b>Energy Functional Plan</b>						
<b>Objective A:</b> Moderate the growth and energy demand through conservation and energy efficiency.	✓					
<b>Objective B:</b> Displace oil and fossil fuels consumption through the application of appropriate alternate and renewable energy resources and technologies.						✓
<b>Objective C:</b> Promote energy education and legislation.						✓
<b>Objective D:</b> Support and develop an integrated approach to energy development and management.						✓
<b>Objective E:</b> Ensure State's abilities to implement energy emergency actions immediately in event of fuel supply disruptions. Ensure essential public services are maintained and provisions are made to alleviate economic and personal hardships which may arise.						✓
<b>Discussion:</b> While the developer supports energy conservation, but the policies are intended for government agency implementation. Indirectly, the project encourages shorter trips to shopping within the development. In support of the Secondary Urban Center at Kapolei, the project provides housing and some employment that would presumably decrease the number of energy-consuming commuter trips into Honolulu. Energy efficiency guidelines will be developed, in consultation with DBEDT Energy Branch, to encourage energy conservation in the development of the project site. Some efficient energy measures that may be included in the guidelines include innovative architectural design of buildings, solar heating systems, high-efficiency air conditioners and appliances, and occupant-sensing environmental controls.						
<b>Transportation Functional Plan</b>						
<b>Objective A:</b> Expansion of the transportation system and reduction of congestion by increasing transportation capacity, modernizing transportation infrastructure, improving regional mobility, and promoting the development of public transportation systems.	✓					
<b>Objective B:</b> Reduction of travel demand through zoning and decentralization initiatives, by closing the gap between where people live and work.	✓					
<b>Objective C:</b> Management of existing transportation systems through a program of transportation systems management.						✓

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Table 5-2: Hawai'i State Functional Plans	S	N/S	N/A
<b>Objective D:</b> Identification and reservation of lands and rights-of-way required for future transportation improvements.	✓		
<b>Objective E:</b> Planning and designing State highways to enhance inter-regional mobility.	✓		
<b>Objective F:</b> Improving and enhancing transportation safety			✓
<b>Objective G:</b> Improved transportation maintenance programs.			✓
<b>Objective H:</b> Ensure that transportation facilities are accessible to people with disabilities.	✓		
<b>Objective I:</b> Development of a transportation infrastructure that supports economic development initiatives.	✓		
<b>Objective J:</b> Expansion of revenue bases for transportation improvements.	✓		
<b>Objective K:</b> Providing educational programs.			✓
<p><b>Discussion:</b> Within the project area, roadways and sidewalks will be accessible to people with handicaps. The proximity of shopping to residential areas within the development will minimize the number of trips to commercial areas outside the development. The residential properties will generate property taxes for County transportation improvements. Sales taxes from the retail component will contribute to the State general fund, a portion of which goes to State highway improvements. The project will contribute to the traffic on major roadways and the project will include improvements to facilitate safe and efficient ingress and egress.</p>			

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Table 5-3: Coastal Zone Management Program – HRS Section 205 A-2 - Objective and Policies	S	N/S	N/A
<b>OBJECTIVES</b>			
(1) <b>Recreational resources;</b> (A) Provide coastal recreational opportunities accessible to the public.	✓		
<b>Discussion:</b> While the project is not located adjacent to the shoreline, access will be provided to the hiking trails and recreational area mauka of the project site. .			
(2) <b>Historic resources;</b> (A) Protect, preserve, and, where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.	✓		
<b>Discussion:</b> The project will preserve significant archaeological sites in coordination with the State Historic Preservation Division.			
(3) <b>Scenic and open space resources;</b> (A) Protect, preserve, and, where desirable, restore or improve the quality of coastal scenic and open space resources.	✓		
<b>Discussion:</b> The project preserves a considerable amount of scenic open space.			
(4) <b>Coastal ecosystems;</b> (A) Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.			✓
<b>Discussion:</b> No valuable ecosystems are directly associated with, or will be impacted by, the project area, and best management practices will be implemented to minimize adverse impacts to all ecosystems.			
(5) <b>Economic uses;</b> (A) Provide public or private facilities and improvements important to the State's economy in suitable locations.	✓		
<b>Discussion:</b> The project is consistent with the State's goals to provide economic vitality, stability and growth for present and future generations in suitable locations.			
(6) <b>Coastal hazards;</b> (A) Reduce hazard to life and property from tsunamis, storm waves, stream flooding, erosion, subsidence, and pollution.	✓		
<b>Discussion:</b> The project will not impact the existing risk of natural hazards in coastal areas. A grading plan including best management practices, will be approved by the County and implemented during construction to reduce the potential for erosion.			
(7) <b>Managing development;</b> (A) Improve the development review process, communication, and public participation in the management of coastal resources and hazards.			✓
<b>Discussion:</b> The project will have no impact on review processes.			
(8) <b>Public participation;</b> (A) Stimulate public awareness, education, and participation in coastal management.			✓
<b>Discussion:</b> The project will have no impact on public education on coastal management.			
(9) <b>Beach protection;</b> (A) Protect beaches for public use and recreation.			✓
<b>Discussion:</b> The project site is not located adjacent to any beaches or shoreline areas.			
(10) <b>Marine resources;</b> (A) Promote the protection, use, and development of marine and coastal resources to assure their sustainability.			✓
<b>Discussion:</b> The project does not involve the use of marine and coastal resources.			
<b>POLICIES</b>			
(1) <b>Recreational resources;</b> (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;			✓

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Table 5-3: Coastal Zone Management Program – HRS Section 205 A-2 - Objective and Policies	S	N/S	N/A
(v) Ensuring public recreational uses of county, state and federally-owned or controlled shoreline lands having recreational value consistent with public safety standards and conservation of natural resources.			✓
(vi) Adopting water quality standards and regulating point and non-point sources of pollution to protect			✓
(vii) Developing new shoreline recreational opportunities			✓
(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.			✓
<b>Discussion:</b> The project will not affect shoreline areas.			
<b>(2) Historic resources;</b>			
(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.	✓		
<b>Discussion:</b> An archaeological inventory survey identified historic sites. Data recovery and preservation plans will be prepared and submitted to the State Historic Preservation Division for approval. Data recovery will occur prior to development and development will adhere to rules guidelines and boundaries for preservation area as dictated in the Preservation Plan. Any inadvertent discovery or disturbance of archaeological sites, or features or human burials will result in a halt to construction activities and prompt report to Makaiwa Hills, LLC, who will contact appropriate authorities.			
<b>(3) Scenic and open space resources;</b>			
(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.	✓		
<b>Discussion:</b> The project is not coastally dependent and is located inland. While the project will provide scenic vistas of O’ahu’s southwest shoreline, no identified scenic coastal viewplanes will be impacted by the project. Considerable open space acreage is incorporated into the development.			
<b>(4) Coastal ecosystems;</b>			
(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 non-point source water pollution control measures.	✓		
<b>Discussion:</b> The project will include non-point source water pollution control measures to minimize impacts to coastal ecosystems.			
<b>(5) Economic uses;</b>			
(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.			✓
<b>Discussion:</b> The project is not coastally dependent.			
<b>(6) Coastal hazards;</b>			
(A) Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and non-point source pollution hazards;			✓
(B) Control development in areas subject to storm wave, tsunami, flood, erosion, hurricane, wind, subsidence, and			✓

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Table 5-3: Coastal Zone Management Program – HRS Section 205 A-2 - Objective and Policies	S	N/S	N/A
point and non-point source pollution hazards;			
(C) Ensure that developments comply with requirements of the Federal Flood Insurance Program; and	✓		
(D) Prevent coastal flooding from inland projects.	✓		
<b>Discussion:</b> Engineering drainage controls will prevent coastal flooding from the inland project. The development is not subject to flood hazards and will comply with applicable provisions of the Federal Flood Insurance program.			
<b>(7) Managing development;</b>			
(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.			✓
<b>Discussion:</b> These policies are directed at governmental agencies, rather than private developers; nonetheless, the developers of Makiwa Hills will comply with all requirements relevant to these concerns.			
<b>(8) Public participation;</b>			
(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.			✓
<b>Discussion:</b> The developers have actively engaged in open communication with interested and affected members of the public.			
<b>(9) Beach protection;</b>			
(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.			✓
<b>Discussion:</b> These policies are not relevant to this development, which is located over a mile inland from the shoreline.			
<b>(10) Marine resources;</b>			
(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.			✓
<b>Discussion:</b> While the proposed development is not located adjacent to the ocean, the implementation of the mitigation measures noted elsewhere in this EIS will assure that marine resources are not adversely impacted by the project.			



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Table 5-4: City and County of Honolulu General Plan - Objectives and Policies	S	N/S	N/A																				
<b>PART I: POPULATION</b>																							
<b>Objective A: To control the growth of O’ahu’s resident and visitor populations in order to avoid social, economic, and environmental disruptions.</b>																							
<b>Policy 1:</b> Participate in State and Federal programs which seek to develop social, economic, legal, and environmental controls over population growth.			✓																				
<b>Policy 2:</b> Seek a balance between the rate of in-migration and the rate of out-migration by reducing in-migration.			✓																				
<b>Policy 3:</b> Support Federal policies providing for a more even distribution of immigrants throughout the country.			✓																				
<b>Policy 4:</b> Seek to maintain a desirable pace of physical development through City and County regulations.			✓																				
<b>Policy 5:</b> Encourage family planning.			✓																				
<b>Policy 6:</b> Publicize the desire of the City and County to limit population growth.			✓																				
<b>Objective B: To plan for future population growth.</b>																							
<b>Policy 1:</b> Allocate efficiently the money and re- sources of the City and County in order to meet the needs of O’ahu’s anticipated future population.			✓																				
<b>Policy 2:</b> Provide adequate support facilities to accommodate future growth in the number of visitors to O’ahu.			✓																				
<b>Objective C: To establish a pattern of population distribution that will allow the people of O’ahu to live and work in harmony.</b>																							
<b>Policy 1:</b> Facilitate the full development of the primary urban center.			✓																				
<b>Policy 2:</b> Encourage development within the secondary urban center at Kapolei and the ‘Ewa and Central O’ahu urban-fringe areas to relieve developmental pressures in the remaining urban-fringe and rural areas and to meet housing needs not readily provided in the primary urban center.	✓																						
<b>Policy 3:</b> Manage physical growth and development in the urban-fringe and rural areas so that: (a) An undesirable spreading of development is prevented; and (b) Their population densities are consistent with the character of development and environmental qualities desired for such areas.	✓																						
<b>Policy 4 (Amended, Resolution 02-205, CD1):</b> Direct growth according to Policies 1, 2, and 3 above by providing land development capacity and needed infrastructure to seek a 2025 distribution of O’ahu’s residential population as follows:																							
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">LOCATION</th> <th style="text-align: right;">% SHARE OF 2025 ISLANDWIDE POPULATION</th> </tr> </thead> <tbody> <tr> <td>Primary Urban Center</td> <td style="text-align: right;">46.0%</td> </tr> <tr> <td>Ewa</td> <td style="text-align: right;">13.0%</td> </tr> <tr> <td>Central Oahu</td> <td style="text-align: right;">17.0%</td> </tr> <tr> <td>East Honolulu</td> <td style="text-align: right;">5.3%</td> </tr> <tr> <td>Koolaupoko</td> <td style="text-align: right;">11.6%</td> </tr> <tr> <td>Koolauloa</td> <td style="text-align: right;">1.4%</td> </tr> <tr> <td>North Shore</td> <td style="text-align: right;">1.7%</td> </tr> <tr> <td>Waianae</td> <td style="text-align: right;">4.0%</td> </tr> <tr> <td></td> <td style="text-align: right;">100.0%</td> </tr> </tbody> </table>	LOCATION	% SHARE OF 2025 ISLANDWIDE POPULATION	Primary Urban Center	46.0%	Ewa	13.0%	Central Oahu	17.0%	East Honolulu	5.3%	Koolaupoko	11.6%	Koolauloa	1.4%	North Shore	1.7%	Waianae	4.0%		100.0%	✓		
LOCATION	% SHARE OF 2025 ISLANDWIDE POPULATION																						
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Waianae	4.0%																						
	100.0%																						
<b>Discussion:</b> The General Plan has provided for population growth in Kapolei/’Ewa by increasing the upper limits of population distribution in the area. The General Plan further encourages the development within the Secondary Urban Center at Kapolei to relieve development pressures in urban Honolulu. The project area is within the State Urban district and is consistent with the ‘Ewa Development Plan. The residential development will address the regional housing deficit and strengthen the concept of the Second City.																							
<b>PART II: ECONOMIC ACTIVITY</b>																							
<b>Objective A: To promote employment opportunities that will enable all the people of O’ahu to attain a decent standard of living.</b>																							
<b>Policy 1:</b> Encourage the growth and diversification of O’ahu’s economic base.	✓																						
<b>Policy 2:</b> Encourage the development of small businesses and larger industries, which will contribute to the economic and social well-being of O’ahu residents.	✓																						
<b>Policy 3:</b> Encourage the development in appropriate locations on O’ahu of trade, communications, and other industries of a nonpolluting nature.	✓																						
<b>Policy 4:</b> Encourage the development of local, national, and world markets for the products of O’ahu-based industries.			✓																				
<b>Policy 5:</b> Encourage the wider distribution of available employment opportunities through such methods as shortening the work-week and reducing the use of overtime.			✓																				
<b>Policy 6:</b> Encourage the continuation of a significant level of Federal employment on O’ahu.			✓																				
<b>Objective B: To maintain the viability of O’ahu’s visitor industry.</b>																							

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Table 5-4: City and County of Honolulu General Plan - Objectives and Policies	S	N/S	N/A
<b>Policy 1:</b> Provide for the long-term viability of Waikiki as O'ahu's primary resort area by giving the area priority in visitor industry related public expenditures.			✓
<b>Policy 2:</b> Provide for a high quality and safe environment for visitors and residents in Waikiki.			✓
<b>Policy 3:</b> Encourage private participation in improvements to facilities in Waikiki.			✓
<b>Policy 4:</b> Prohibit major increases in permitted development densities in Waikiki.			✓
<b>Policy 5:</b> Prohibit further growth in the permitted number of hotel and resort condominium units in Waikiki.			✓
<b>Policy 6:</b> Permit the development of secondary resort areas in West Beach, Kahuku, Makaha, and Lā'ie.			✓
<b>Policy 7:</b> Manage the development of secondary resort areas in a manner which respects existing lifestyles and the natural environment, and avoids substantial increases in the cost of providing public services in the area.			✓
<b>Policy 8:</b> Preserve the well-known and widely publicized beauty of O'ahu for visitors as well as residents.			✓
<b>Policy 9:</b> Encourage the visitor industry to provide a high level of service to visitors.			✓
<b>Objective C: To maintain the viability of agriculture on O'ahu.</b>			
<b>Policy 1:</b> Assist the agricultural industry to ensure the continuation of agriculture as an important source of income and employment.			✓
<b>Policy 2:</b> Support agricultural diversification in all agricultural areas on O'ahu.			✓
<b>Policy 3:</b> Support the development of markets for local products, particularly those with the potential for economic growth.			✓
<b>Policy 4:</b> Provide sufficient agricultural land in 'Ewa, Central O'ahu, and the North Shore to encourage the continuation of sugar and pineapple as viable industries.			✓
<b>Policy 5:</b> Maintain agricultural land along the Windward, North Shore, and Wai'anae coasts for truck fanning, flower growing, aquaculture, livestock production, and other types of diversified agriculture.			✓
<b>Policy 6:</b> Encourage the more intensive use of productive agricultural land.			✓
<b>Policy 7:</b> Encourage the use of more efficient production practices by agriculture, including the efficient use of water.			✓
<b>Policy 8:</b> Encourage the more efficient use of non-potable water for agricultural use.			✓
<b>Objective D: To make full use of the economic resources of the sea.</b>			
<b>Policy 1:</b> Assist the fishing industry to maintain its viability.			✓
<b>Policy 2:</b> Encourage the development of aquaculture, ocean research, and other ocean-related industries.			✓
<b>Policy 3:</b> Focus the development of ocean related economic activities in the Northwestern Hawaiian Islands on those, which are compatible with preserving the area's unique environmental, marine, and wildlife assets.			✓
<b>Objective E: To prevent the occurrence of large-scale unemployment.</b>			
<b>Policy 1:</b> Encourage the training and employment of present residents for currently available and future jobs.			✓
<b>Policy 2:</b> Make full use of State and Federal employment and training programs.			✓
<b>Policy 3:</b> Encourage the provision of retraining programs for workers in industries with planned reductions in their labor force.			✓
<b>Objective F: To increase the amount of Federal spending on O'ahu.</b>			
<b>Policy 1:</b> Take full advantage of Federal programs and grants which will contribute to the economic and social well-being of O'ahu's residents.			✓
<b>Policy 2:</b> Encourage the Federal government to pay for the cost of public services used by Federal agencies.			✓
<b>Policy 3:</b> Encourage the Federal government to lease new facilities rather than construct them on tax exempt public land.			✓
<b>Policy 4:</b> Encourage the military to purchase locally all needed services and supplies which are available on O'ahu.			✓
<b>Objective G: To bring about orderly economic growth on O'ahu.</b>			
<b>Policy 1:</b> Direct major economic activity and government services to the primary urban center and the secondary urban center at Kapolei.	✓		
<b>Policy 2:</b> Permit the moderate growth of business centers in the urban-fringe areas.	✓		
<b>Policy 3:</b> Maintain sufficient land in appropriately located commercial and industrial areas to help ensure a favorable business climate on O'ahu.	✓		
<b>Policy 4:</b> Encourage the continuation of a high level of military-related employment in the Hickam-Pearl Harbor, Wahiawā, Kailua-Kāne'ohe, and 'Ewa areas.			✓
<b>Discussion:</b> The proposed project provides economic benefits of job opportunities and tax revenues in an area designated for economic and residential growth. The project will not directly impact the visitor industry or military, but would provide additional retail venues for Hawai'i product placement and sales.			

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Table 5-4: City and County of Honolulu General Plan - Objectives and Policies	S	N/S	N/A
<b>PART III: NATURAL ENVIRONMENT</b>			
<b>Objective A: To protect and preserve the natural environment.</b>			
<b>Policy 1:</b> Protect O’ahu's natural environment, especially the shoreline, valleys, and ridges, from incompatible development.	✓		
<b>Policy 2:</b> Seek the restoration of environmentally damaged areas and natural resources.			✓
<b>Policy 3:</b> Retain the Island's streams as scenic, aquatic, and recreation resources.	✓		
<b>Policy 4:</b> Require development projects to give due consideration to natural features such as slope, flood and erosion hazards, water- recharge areas, distinctive land forms, and existing vegetation.	✓		
<b>Policy 5:</b> Require sufficient setbacks of improvements in unstable shoreline areas to avoid the future need for protective structures.			✓
<b>Policy 6:</b> Design surface drainage and flood-control systems in a manner, which will help preserve their natural settings.	✓		
<b>Policy 7:</b> Protect the natural environment from damaging levels of air, water, and noise pollution.	✓		
<b>Policy 8:</b> Protect plants, birds, and other animals that are unique to the State of Hawai’i and the Island of O’ahu.			✓
<b>Policy 9:</b> Protect mature trees on public and private lands and encourage their integration into new developments.			✓
<b>Policy 10:</b> Increase public awareness and appreciation of O’ahu's land, air, and water resources.			✓
<b>Policy 11:</b> Encourage the State and Federal governments to protect the unique environmental, marine, and wildlife assets of the Northwestern Hawaiian Islands.			✓
<b>Objective B: To preserve and enhance the natural monuments and scenic views of O’ahu for the benefit of both residents and visitors.</b>			
<b>Policy 1:</b> Protect the Island's well-known resources: its mountains and craters; forests and watershed areas; marshes, rivers, and streams; shoreline, fishponds, and bays; and reefs and offshore islands.	✓		
<b>Policy 2:</b> Protect O’ahu's scenic views, especially those seen from highly developed and heavily traveled areas.	✓		
<b>Policy 3:</b> Locate roads, highways, and other public facilities and utilities in areas where they will least obstruct important views of the mountains and the sea.	✓		
<b>Policy 4:</b> Provide opportunities for recreational and educational use and physical contact with O’ahu's natural environmental.	✓		
(11) Identify all areas where priority should be given to preserving rural character and lifestyle.			✓
(12) Utilize Hawai’i's limited land resources wisely, providing adequate land to accommodate projected population and economic growth needs while ensuring the protection of the environment and the availability of the shoreline, conservation lands, and other limited resources for future generations.	✓		
(13) Protect and enhance Hawai’i's shoreline, open spaces, and scenic resources.			✓
<b>Discussion:</b> The proposed project is consistent with the General Plan’s objectives and policies to protect and preserve the natural environment while providing adequate land to accommodate the projected population increases. The project will develop some of the site’s ridges, but valleys and gulches in the project area will generally be protected as open space. The requisite grading plan will address erosion control measures during construction of the project. The civil engineering analysis for the project will propose controls to manage drainage at the site so there is no increased risk of flood hazard makai of the site. Within the project site, no endemic, endangered, or protected flora or fauna have been recorded. Construction will result in minor temporary impacts on air quality and ambient noise levels, but there are few receptors in the area and no health risks are anticipated. The grading plan will propose measures to minimize the airborne soil. No well-known natural resources or valued viewplanes will be adversely affected by the project. Access will be provided to the mauka hiking trails.			
<b>PART IV: HOUSING</b>			
<b>Objective A: To provide decent housing for all the people of O’ahu at prices they can afford.</b>			
<b>Policy 1:</b> Develop programs and controls, which will provide decent homes at the least possible cost.			✓
<b>Policy 2:</b> Streamline approval and permit procedures for housing and other development projects.			✓
<b>Policy 3:</b> Encourage innovative residential development, which will result in lower costs, added convenience and privacy, and the more efficient use of streets and utilities.	✓		
<b>Policy 4:</b> Establish public, and encourage private, programs to maintain and improve the condition of existing housing.			✓
<b>Policy 5:</b> Make full use of State and Federal programs that provide financial assistance for low- and moderate-income homebuyers.			✓
<b>Policy 6:</b> Expand local funding mechanisms available to pay for government housing programs.			✓
<b>Policy 7:</b> Provide financial and other incentives to encourage the private sector to build homes for low and moderate-income residents.	✓		
<b>Policy 8:</b> Encourage and participate in joint public- private development of low- and moderate- income housing.			✓

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Table 5-4: City and County of Honolulu General Plan - Objectives and Policies	S	N/S	N/A
<b>Policy 9:</b> Encourage the preservation of existing housing which is affordable to low- and moderate-income persons.			✓
<b>Policy 10:</b> Promote the construction of affordable dwellings, which take advantage of O’ahu’s year-round moderate climate.	✓		
<b>Policy 11:</b> Encourage the construction of affordable homes within established low-density communities by such means as “ohana” units, duplex dwellings, and cluster development.	✓		
<b>Policy 12:</b> Encourage the production and maintenance of affordable rental housing.	✓		
<b>Policy 13:</b> Encourage the provision of affordable housing designed for the elderly and the handicapped.	✓		
<b>Policy 14:</b> Encourage equitable relationships between landowners and leaseholders, between landlords and tenants, and between condominium developers and owners.			✓
<b>Objective B: To reduce speculation in land and housing.</b>			
<b>Policy 1:</b> Encourage the State government to coordinate its urban-area designations with the developmental policies of the City and County.			✓
<b>Policy 2:</b> Discourage private developers from acquiring and assembling land outside of areas planned for urban use.			✓
<b>Policy 3:</b> Seek public benefits from increases in the value of land owing to City and State developmental policies and decisions.			✓
<b>Policy 4:</b> Require government-subsidized housing to be delivered to appropriate purchasers and renters.			✓
<b>Policy 5:</b> Prohibit the selling or renting of government-subsidized housing for large profits.			✓
<b>Objective C: To provide the people of O’ahu with a choice of living environments which are reasonably close to employment, recreation, and commercial centers and which are adequately served by public utilities.</b>			
<b>Policy 1:</b> Encourage residential developments that offer a variety of homes to people of different income levels and to families of various sizes.	✓		
<b>Policy 2:</b> Encourage the fair distribution of low- and moderate-income housing throughout the Island.	✓		
<b>Policy 3:</b> Encourage residential development near employment centers.	✓		
<b>Policy 4:</b> Encourage residential development in areas where existing roads, utilities, and other community facilities are not being used to capacity.	✓		
<b>Policy 5:</b> Discourage residential development where roads, utilities, and community facilities cannot be provided at a reasonable cost.			✓
<b>Policy 6:</b> Preserve older communities through self-help, housing-rehabilitation, improvement districts, and other governmental programs.			✓
<b>Discussion:</b> The developer supports all objectives and policies regarding housing; however, some policies are related to government action and programs and not directly related to the project. The project will provide a full range of housing types for a range of income levels, including 30% affordable housing units pursuant to County requirements. The project is intended to provide housing for workers within the Secondary Urban Center of Kapolei, which is progressing toward the goal of being a major employment center. The project is within the State Urban land use district and is consistent with the ‘Ewa Development Plan for residential growth. Roads, utilities and community facilities in the project area will be scaled to meet the project requirements.			
<b>PART V: TRANSPORTATION AND UTILITIES</b>			
<b>Objective A: To create a transportation system which will enable people and goods to move safely, efficiently, and at a reasonable cost; serve all people, including the poor, the elderly, and the physically handicapped; and offer a variety of attractive and convenient modes of travel.</b>			
<b>Policy 1:</b> Develop and maintain an integrated ground-transportation system consisting of the following elements and their primary purposes:	✓		
a) Public transportation-for travel to and from work, and travel within Central Honolulu;			✓
b) Roads and highways-for commercial traffic and travel in non-urban areas			✓
c) Bikeways-for recreational activities and trips to work, schools, shopping centers, and community facilities; and	✓		
d) Pedestrian walkways-for getting around Downtown and Waikiki, and for trips to schools, parks, and shopping centers.	✓		
<b>Policy 2:</b> Provide transportation services to people living within the ‘Ewa, Central O’ahu, and Pearl City-Hawai’i Kai corridors primarily through a mass transit system including exclusive right-of-way rapid transit and feeder-bus components as well as through the existing highway system with limited improvements as may be appropriate.			✓
<b>Policy 3:</b> Provide transportation services outside the ‘Ewa, Central O’ahu, and Pearl City-Hawai’i Kai corridors primarily through a system of express- and feeder-buses as well as through the highway system with limited to moderate improvements sufficient to meet the needs of the communities being served.			✓

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Table 5-4: City and County of Honolulu General Plan - Objectives and Policies	S	N/S	N/A
<b>Policy 4:</b> Improve transportation facilities and services in the ʻEwa corridor and in the trans-Koʻolau corridors to meet the needs of ʻEwa and Windward communities.	✓		
<b>Policy 5:</b> Improve roads in existing communities to reduce congestion and eliminate unsafe conditions.			✓
<b>Policy 6:</b> Consider both environmental impact as well as construction and operating costs as important factors in planning alternative nodes of transportation.	✓		
<b>Policy 7:</b> Promote the use of public transportation as a means of moving people quickly and efficiently, of conserving energy, and of guiding urban development.	✓		
<b>Policy 8:</b> Make available transportation services to people with limited mobility: the young, the elderly, the handicapped, and the poor.			✓
<b>Policy 9:</b> Promote programs to reduce dependence on the use of automobiles.			✓
<b>Policy 10:</b> Discourage the inefficient use of the private automobile, especially in congested corridors and during peak-hours.	✓		
<b>Policy 11:</b> Make public, and encourage private, improvements to major walkway systems.	✓		
<b>Policy 12:</b> Encourage the provision of separate aviation facilities for small civilian aircraft.			✓
<b>Policy 13:</b> Facilitate the development of a second deep-water harbor to relieve congestion in Honolulu Harbor.			✓
<b>Objective B: To meet the needs of the people of Oʻahu for an adequate supply of water and for environmentally sound systems of waste disposal.</b>			
<b>Policy 1:</b> Develop and maintain an adequate supply of water for both residents and visitors.			✓
<b>Policy 2:</b> Develop and maintain an adequate supply of water for agricultural and industrial needs.			✓
<b>Policy 3:</b> Encourage the development of new technology, which will reduce the cost of providing water and the cost of waste disposal.			✓
<b>Policy 4:</b> Encourage a lowering of the per-capita consumption of water and the per-capita production of waste.	✓		
<b>Policy 5:</b> Provide safe, efficient, and environmentally sensitive waste-collection and waste-disposal services.	✓		
<b>Policy 6:</b> Support programs to recover resources from solid-waste and recycle wastewater.	✓		
<b>Policy 7:</b> Require the safe disposal of hazardous waste.			✓
<b>Objective C: To maintain a high level of service for all utilities.</b>			
<b>Policy 1:</b> Maintain existing utility systems in order to avoid major breakdowns.			✓
<b>Policy 2:</b> Provide improvements to utilities in existing neighborhoods to reduce substandard conditions.			✓
<b>Policy 3:</b> Plan for the timely and orderly expansion of utility systems.			✓
<b>Policy 4:</b> Increase the efficiency of public utilities by encouraging a mixture of uses with peak periods of demand occurring at different times of the day.			✓
<b>Objective D: To maintain transportation and utility systems which will help Oʻahu continue to be a desirable place to live and visit.</b>			
<b>Policy 1:</b> Give primary emphasis in the capital-improvement program to the maintenance and improvement of existing roads and utilities.			✓
<b>Policy 2:</b> Use the transportation and utility systems as a means of guiding growth and the pattern of land use on Oʻahu.			✓
<b>Policy 3:</b> Encourage the study and use of telecommunications as an alternative to conventional transportation facilities.			✓
<b>Policy 4:</b> Evaluate the social, economic, and environmental impact of additions to the transportation and utility systems before they are constructed.	✓		
<b>Policy 5:</b> Require the installation of underground utility lines wherever feasible.	✓		
<b>Policy 6:</b> Seek improved taxing powers for the City and County in order to provide a more equitable means of financing transportation and utility services.			✓
<p><b>Discussion:</b> Many of the objectives and policies are directed at government agencies. The project is readily accessible by existing major thoroughfares. New interior roadways would be constructed to service the development. To the extent practicable, the project will encourage alternative transportation modes with the construction of multi-use pathways and sidewalks. There will be a centralized community amenity and shopping area to encourage walkability. A retail center within the project will minimize the number of trips on major thoroughfares between the project area and other commercial centers. The project does not include the operation of transportation programs or systems, although a regional transit center is being proposed for lands immediately makai of the H-1 freeway.</p> <p>The Board of Water Supply will determine if there is sufficient potable water capacity to serve the new development. The infrastructure would be extended to the project area. Non-potable water will be use for landscape irrigation, in some non-residential areas. The wastewater will be conveyed to Honouliuli WWTP, which has sufficient capacity to manage the additional wastewater from the initial phases of the project; additional capacity at the WWTP will have to be added to allow full build out of the Makaīwa Hills project. The</p>			

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Table 5-4: City and County of Honolulu General Plan - Objectives and Policies	S	N/S	N/A
<p>developer will champion the use of water conservation fixtures to reduce per capita consumption. Solid waste will be converted to energy at the County's H-power facility. The County has implemented a green waste recycling program that will likely be extended to the development. There are recycling centers throughout the island, generally provided by schools and churches as a community service.</p>			
<p>Utilities will be placed underground. The social, economic and environmental impacts of the project are described in this EIS.</p>			
<b>PART VI: ENERGY</b>			
<b>Objective A: To maintain an adequate, dependable, and economical supply of energy for O'ahu residents.</b>			
<b>Policy 1:</b> Develop and maintain a comprehensive plan to guide and coordinate energy conservation and alternative energy development and utilization programs on O'ahu.			✓
<b>Policy 2:</b> Establish economic incentives and regulatory measures which will reduce O'ahu's dependence on petroleum as its primary source of energy.			✓
<b>Policy 3:</b> Support programs and projects which contribute to the attainment of energy self-sufficiency on O'ahu.			✓
<b>Policy 4:</b> Promote and assist efforts to establish adequate petroleum reserves within Hawai'i's boundaries.			✓
<b>Policy 5:</b> Give adequate consideration to environmental, public health, and safety concerns, to resource limitations, and to relative costs when making decisions concerning alternatives for conserving energy and developing natural energy resources.	✓		
<b>Policy 6:</b> Work closely with the State and Federal governments in the formulation and implementation of all City and County energy-related programs.			✓
<b>Objective B: To conserve energy through the more efficient management of its use.</b>			
<b>Policy 1:</b> Ensure that the efficient use of energy is a primary factor in the preparation and administration of land use plans and regulations.			✓
<b>Policy 2:</b> Provide incentives and, where appropriate, mandatory controls to achieve energy-efficient siting and design of new developments.	✓		
<b>Policy 3:</b> Carry out public, and promote private, programs to more efficiently use energy in existing buildings and outdoor facilities.			✓
<b>Policy 4:</b> Promote the development of an energy-efficient transportation system.	✓		
<b>Objective C: To fully utilize proven alternative sources of energy.</b>			
<b>Policy 1:</b> Encourage the use of commercially available solar energy systems in public facilities, institutions, residences, and business developments.	✓		
<b>Policy 2:</b> Support the increased use of operational solid waste energy recovery and other biomass energy conversion systems.			✓
<b>Objective D: To develop and apply new, locally available energy resources.</b>			
<b>Policy 1:</b> Support and participate in research, development, demonstration, and commercialization programs aimed at producing new, economical, and environmentally sound energy supplies from:			✓
a. solar insulation;	✓		
b. biomass energy conversion;			✓
c. wind energy conversion;			✓
d. geothermal energy; and			✓
e. ocean thermal energy conversion.			✓
<b>Policy 2:</b> Secure State and Federal support of City and County efforts to develop new sources of energy.			✓
<b>Objective E: To establish a continuing energy information program.</b>			
<b>Policy 1:</b> Supply citizens with the information they need to fully understand the potential supply, cost, and other problems associated with O'ahu's dependence on imported petroleum.			✓
<b>Policy 2:</b> Foster the development of an energy conservation ethic among O'ahu residents.			✓
<b>Policy 3:</b> Keep consumers informed about available alternative energy sources and their costs and benefits.			✓
<b>Policy 4:</b> Provide information concerning the impact of public and private decisions on future energy use.			✓

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Table 5-4: City and County of Honolulu General Plan - Objectives and Policies	S	N/S	N/A
<p><b>Discussion:</b> The project supports the Hawai'i Revised Statute's Chapter 226 policies related to conservation of energy, energy efficiency and alternative energy sources to the extent possible. Energy efficiency guidelines will be developed, in consultation with DBEDT Energy Branch, to encourage energy conservation in the development of the project site. Some efficient energy measures that may be included in the guidelines include innovative architectural design of buildings, solar heating systems, high-efficiency air conditioners and appliances, and occupant-sensing environmental controls. All commercial development at the project is subject to Hawai'i Model Energy Code to ensure application of cost-effective design practices and technologies that minimize energy consumption without sacrificing the comfort or productivity of the occupants.</p>			
<p><b>PART VII: PHYSICAL DEVELOPMENT AND URBAN DESIGN</b></p>			
<p><b>Objective A: To coordinate changes in the physical environment of O'ahu to ensure that all new developments are timely, well-designed, and appropriate for the areas in which they will be located.</b></p>			
<p><b>Policy 1:</b> Plan for the construction of new public facilities and utilities in the various parts of the Island according to the following order of priority: first, in the primary urban center; second, in the secondary urban center at Kapolei; and third, in the urban- fringe and rural areas.</p>	✓		
<p><b>Policy 2:</b> Coordinate the location and timing of new development with the availability of adequate water supply, sewage treatment, drainage, transportation, and public safety facilities.</p>	✓		
<p><b>Policy 3:</b> Phase the construction of new developments so that they do not require more regional supporting services than are available.</p>	✓		
<p><b>Policy 4:</b> Require new developments to provide or pay the cost of all essential community services, including roads, utilities, schools, parks, and emergency facilities that are intended to directly serve the development.</p>	✓		
<p><b>Policy 5:</b> Provide for more compact development and intensive use of urban lands where compatible with the physical and social character of existing communities.</p>			✓
<p><b>Policy 6:</b> Encourage the clustering of developments to reduce the cost of providing utilities and other public services.</p>	✓		
<p><b>Policy 7:</b> Locate new industries and new commercial areas so that they will be well related to their markets and suppliers, and to residential areas and transportation facilities.</p>	✓		
<p><b>Policy 8:</b> Locate community facilities on sites that will be convenient to the people they are intended to serve.</p>			✓
<p><b>Policy 9:</b> Exclude from residential areas, uses which are major sources of noise and air pollution.</p>	✓		
<p><b>Policy 10:</b> Establish danger zones to exclude incompatible uses from hazardous areas surrounding airfields, electromagnetic- radiation sources, and storage places for fuel and explosives.</p>			✓
<p><b>Policy 11:</b> Prohibit new airfields, electromagnetic-radiation sources, and storage places for fuel and explosives from locating on sites where they will endanger or disrupt nearby communities.</p>			✓
<p><b>Objective B: To develop Honolulu (Wai'alaie-Kahala to Halawā), 'Aiea, and Pearl City as the Island's primary urban center.</b></p>			
<p><b>Policy 1:</b> Stimulate development in the primary urban center by means of the City and County's capital improvement program and State and Federal grant and loan programs.</p>			✓
<p><b>Policy 2:</b> Provide for the expanded development of low-rise multi-unit housing.</p>	✓		
<p><b>Policy 3:</b> Encourage the establishment of mixed-use districts with appropriate design and development controls to insure an attractive living environment and compatibility with surrounding land uses.</p>	✓		
<p><b>Policy 4:</b> Provide downtown Honolulu and other major business centers with a well-balanced mixture of uses.</p>			✓
<p><b>Policy 5:</b> Encourage the development of attractive residential communities in downtown and other business centers.</p>	✓		
<p><b>Policy 6:</b> Maintain and improve downtown as the financial and office center of the Island, and as a major retail center.</p>			✓
<p><b>Policy 7:</b> Provide for the continued viability of the Hawai'i Capital District as a center of government activities and as an attractive park-like setting in the heart of the City.</p>			✓
<p><b>Policy 8:</b> Foster the development of Honolulu's waterfront as the State's major port and maritime center, as a people-oriented mixed-use area, and as a major recreation area.</p>			✓
<p><b>Policy 9:</b> Facilitate the redevelopment of Kaka'ako as a major residential, as well as commercial and light industrial area.</p>			✓
<p><b>Objective C: To develop a secondary urban center in 'Ewa with its nucleus in the Kapolei area.</b></p>			
<p><b>Policy 1:</b> Allocate funds from the City and County's capital-improvement program for public projects that are needed to facilitate development of the secondary urban center at Kapolei.</p>			✓
<p><b>Policy 2:</b> Encourage the development of a major residential, commercial, and employment center within the secondary urban center at Kapolei.</p>	✓		
<p><b>Policy 3:</b> Encourage the continuing development of Barbers Point as a major industrial center.</p>			✓
<p><b>Policy 4:</b> Coordinate plans for the development of the secondary urban center at Kapolei with the State and Federal governments and with the sugar industry.</p>	✓		
<p><b>Policy 5:</b> Cooperate with the State and Federal governments in the development of a deep water harbor at Barbers Point.</p>			✓

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Table 5-4: City and County of Honolulu General Plan - Objectives and Policies	S	N/S	N/A
<b>Policy 6:</b> Encourage the development of the 'Ewa Marina Community as a major residential and recreation area emphasizing recreational boating activities through the provision of a major marina and a related maritime commercial center containing light-industrial, commercial, and visitor accommodation uses.			✓
<b>Objective D: To maintain those development characteristics in the urban-fringe and rural areas which make them desirable places to live.</b>			
<b>Policy 1:</b> Develop and maintain urban-fringe areas as predominantly residential areas characterized by generally low rise, low density development which may include significant levels of retail and service commercial uses as well as satellite institutional and public uses geared to serving the needs of households.	✓		
<b>Policy 2:</b> Coordinate plans for developments within the 'Ewa and Central O'ahu urban-fringe areas with the State and Federal governments and with the sugar, pineapple, and other emerging agricultural industries.			✓
<b>Policy 3:</b> Establish a green belt in the 'Ewa and Central O'ahu areas of O'ahu in the Development Plans.	✓		
<b>Policy 4:</b> Maintain rural areas as areas which are intended to provide environments supportive of lifestyle choices which are dependent on the availability of land suitable for small to moderate size agricultural pursuits, a relatively open and scenic setting, and/or a small town, country atmosphere consisting of communities which are small in size, very low density and low rise in character, and may contain a mixture of uses.			✓
<b>Objective E: To create and maintain attractive, meaningful, and stimulating environments throughout O'ahu.</b>			
<b>Policy 1:</b> Prepare and maintain a comprehensive urban-design plan for the Island of O'ahu.			✓
<b>Policy 2:</b> Integrate the City and County's urban-design plan into all levels of physical planning and developmental controls.			✓
<b>Policy 3:</b> Encourage distinctive community identities for both new and existing districts and neighborhoods.	✓		
<b>Policy 4:</b> Require the consideration of urban-design principles in all development projects.			✓
<b>Policy 5:</b> Require new developments in stable, established communities and rural areas to be compatible with the existing communities and areas.	✓		
<b>Policy 6:</b> Provide special design standards and controls that will allow more compact development and intensive use of lands in the primary urban center.			✓
<b>Policy 7:</b> Promote public and private programs to beautify the urban and rural environments.			✓
<b>Policy 8:</b> Preserve and maintain beneficial open space in urbanized areas.	✓		
<b>Policy 9:</b> Design public structures to meet high aesthetic and functional standards and to complement the physical character of the communities they will serve.	✓		
<b>Policy 10:</b> Establish a review process to evaluate the design of major development projects.			✓
<b>Objective F: To promote and enhance the social and physical character of O'ahu's older towns and neighborhoods.</b>			
<b>Policy 1:</b> Encourage new construction to complement the ethnic qualities of the older communities of O'ahu.	✓		
<b>Policy 2:</b> Encourage, wherever desirable, the rehabilitation of existing substandard structures.			✓
<b>Policy 3:</b> Provide and maintain roads, public facilities, and utilities without damaging the character of older communities.			✓
<b>Policy 4:</b> Seek the satisfactory relocation of residents before permitting their displacement by new development, redevelopment, or neighborhood rehabilitation.			✓
<b>Discussion:</b> The proposed project is within the State Urban land use district and is consistent with the 'Ewa Development Plan. It directly supports the County goals for a second city at Kapolei. Utilities, infrastructure and public services that are not available or at capacity will be improved and expanded to meet the requirements of the project. Cluster development and mixed use areas are included in the project design. A town center is planned within the development to increase walkability and decrease the number and length of motorized vehicle trips required to shop, or enjoy community amenities. There will be considerable open space incorporated in the site plan that will contribute to the greenbelt. The design standards will reflect the tropical island lifestyle and contemporary or traditional designs will be encouraged.			
<b>PART VIII: PUBLIC SAFETY</b>			
<b>Objective A: To prevent and control crime and maintain public order.</b>			
<b>Policy 1:</b> Provide a safe environment for residents and visitors on O'ahu.	✓		
<b>Policy 2:</b> Provide adequate criminal justice facilities and staffing for City and County law- enforcement agencies.			✓
<b>Policy 3:</b> Emphasize improvements to police and prosecution operations which will result in a higher proportion of wrongdoers who are arrested, convicted, and punished for their crimes.			✓
<b>Policy 4:</b> Keep the public informed of the nature and extent of criminal activity on O'ahu.			✓
<b>Policy 5:</b> Establish and maintain programs to encourage public cooperation in the prevention and solution of crimes.			✓



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Table 5-4: City and County of Honolulu General Plan - Objectives and Policies	S	N/S	N/A
<b>Policy 6:</b> Seek the help of State and Federal law- enforcement agencies to curtail the activities of organized crime syndicates on O’ahu.			✓
<b>Policy 7:</b> Conduct periodic reviews of criminal laws to ensure their relevance to the community's needs and values.			✓
<b>Policy 8:</b> Cooperate with other law-enforcement agencies to develop new methods of fighting crime.			✓
<b>Policy 9:</b> Encourage the improvement of rehabilitation programs and facilities for criminals and juvenile offenders.			✓
<b>Objective B: To protect the people of O’ahu and their property against natural disasters and other emergencies, traffic and fire hazards, and unsafe conditions.</b>			
<b>Policy 1:</b> Keep up-to-date and enforce all City and County safety regulations.			✓
<b>Policy 2:</b> Require all developments in areas subject to floods and tsunamis to be located and constructed in a manner that will not create any health or safety hazard.	✓		
<b>Policy 3:</b> Participate with State and Federal agencies in the funding and construction of flood- control projects.			✓
<b>Policy 4:</b> Cooperate with State and Federal agencies to provide tsunami warning and protection for O’ahu.			✓
<b>Policy 5:</b> Cooperate with State and Federal agencies to provide protection from war, civil disruptions, and other major disturbances.			✓
<b>Policy 6:</b> Reduce hazardous traffic conditions.	✓		
<b>Policy 7:</b> Provide adequate fire protection and effective fire prevention programs.	✓		
<b>Policy 8:</b> Provide adequate search and rescue and disaster response services.			✓
<b>Policy 9:</b> Design safe and secure public buildings.			✓
<b>Policy 10:</b> Provide adequate staff to supervise activities at public facilities.			✓
<b>Policy 11:</b> Develop civil defense plans and programs to protect and promote public health, safety and welfare of the people.			✓
<b>Policy 12:</b> Provide educational materials on civil defense preparedness, fire protection, traffic hazards and other unsafe conditions.			✓
<p><b>Discussion:</b> The public buildings will be constructed in compliance with all applicable building codes to ensure that public health and safety are protected, especially during times of natural disasters. County Police and Fire Departments have included the project in their long range planning. New stations and expanded services will be phased in as residential developments are constructed. Fire hydrants will be included in accordance with building codes. Initiatives for neighborhood security watch will likely come from the residents of the development. The project will not introduce hazardous traffic conditions.</p> <p>The HPD expects to expand its presence in the region as Kapolei continues developing as O’ahu’s Secondary Urban Center. Based on population estimates, the City and County of Honolulu anticipate the need for two additional substations to service the region. These are planned to be in operation by 2020 at ‘Ewa Villages and Ko Olina.</p> <p>Fire protection in Kapolei and ‘Ewa is provided by the City and County of Honolulu Fire Department (HFD) ‘Ewa Beach Fire Station (an engine company), Makakilo Fire Station (an engine company), and Kapolei Fire Station (an engine and ladder company, and the Battalion 4 Headquarters). Located in Kapolei Business Park, the Kapolei Fire Station was completed in 1995 to serve the expanding development on the ‘Ewa Plain. According to the ‘Ewa Development Plan, to meet the projected population and economic growth in ‘Ewa by 2020, three fire stations at ‘Ewa Villages, Ko Olina, and Makaiwa Hills are planned, but service dates have not been determined. A wildland/urban interface buffer will be established as mitigation for potential wildfire hazards.</p>			
<b>PART IX: HEALTH AND EDUCATION</b>			
<b>Objective A: To protect the health of the people of O’ahu.</b>			
<b>Policy 1:</b> Encourage the provision of health-care facilities that are accessible to both employment and residential centers.			✓
<b>Policy 2:</b> Encourage prompt and adequate ambulance and first-aid services in all areas of O’ahu.			✓
<b>Policy 3:</b> Coordinate City and County health codes and other regulations with State and Federal health codes to facilitate the enforcement of air-, water-, and noise-pollution controls.			✓
<b>Objective B: To provide a wide range of educational opportunities for the people of O’ahu.</b>			
<b>Policy 1:</b> Support education programs that encourage the development of employable skills.			✓
<b>Policy 2:</b> Encourage the provision of informal educational programs for people of all age groups.			✓
<b>Policy 3:</b> Encourage the after-hours use of school buildings, grounds, and facilities.			✓
<b>Policy 4:</b> Encourage the construction of school facilities that are designed for flexibility and high levels of use.			✓
<b>Policy 5:</b> Facilitate the appropriate location of learning institutions from the preschool through the university levels.	✓		
<b>Objective C: To make Honolulu the center of higher education in the Pacific.</b>			
<b>Policy 1:</b> Encourage continuing improvement in the quality of higher education in Hawai’i.			✓

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Table 5-4: City and County of Honolulu General Plan - Objectives and Policies	S	N/S	N/A
<b>Policy 2:</b> Encourage the development of diverse opportunities in higher education.			✓
<b>Policy 3:</b> Encourage research institutions to establish branches on O’ahu.			✓
<b>Discussion:</b> While the General Plan’s policies for health and education are directly related to public and private agencies and not directly applicable to the proposed project, the developer acknowledges the importance and need to support such policies. The project area is readily assessable to a variety of health care facilities. There are more than 25 choices of health care providers. St. Francis Medical Center – West is the nearest hospital to the project area. Existing facilities and their planned improvements are expected to be adequate in accommodating the needs of the development project.			
<b>PART X: CULTURE AND RECREATION</b>			
<b>Objective A: To foster the multiethnic culture of Hawai’i.</b>			
<b>Policy 1:</b> Encourage the preservation and enhancement of Hawai’i’s diverse cultures.			✓
<b>Policy 2:</b> Encourage greater public awareness, understanding, and appreciation of cultural heritage and contributions to Hawai’i made by the City’s various ethnic groups.			✓
<b>Policy 3:</b> Encourage opportunities for better interaction among people with different ethnic, social, and cultural backgrounds.			✓
<b>Policy 4:</b> Encourage the protection of the ethnic identities of the older communities of O’ahu.			✓
<b>Objective B: To protect O’ahu’s cultural, historic, architectural, and archaeological resources.</b>			
<b>Policy 1:</b> Encourage the restoration and preservation of early Hawaiian structures, artifacts, and landmarks.	✓		
<b>Policy 2:</b> Identify, and to the extent possible, pre serve and restore buildings, sites, and areas of social, cultural, historic, architectural, and archaeological significance.	✓		
<b>Policy 3:</b> Cooperate with the State and Federal governments in developing and implementing a comprehensive preservation program for social, cultural, historic, architectural, and archaeological resources.	✓		
<b>Policy 4:</b> Promote the interpretive and educational use of cultural, historic, architectural, and archaeological sites, buildings, and artifacts.	✓		
<b>Policy 5:</b> Seek public and private funds, and public participation and support, to protect social, cultural, historic, architectural, and archaeological resources.			✓
<b>Policy 6:</b> Provide incentives for the restoration, preservation, and maintenance of social, cultural, historic, architectural, and archaeological resources.			✓
<b>Objective C: To foster the visual and performing arts.</b>			
<b>Policy 1:</b> Encourage and support programs and activities for the visual and performing arts.			✓
<b>Policy 2:</b> Encourage creative expression and access to the arts by all segments of the population.			✓
<b>Policy 3:</b> Provide permanent art in appropriate City public buildings and places.			✓
<b>Objective D: To provide a wide range of recreational facilities and services that are readily available to all residents of O’ahu.</b>			
<b>Policy 1:</b> Develop and maintain community-based parks to meet the needs of the different communities on O’ahu.	✓		
<b>Policy 2:</b> Develop and maintain a system of regional parks and specialized recreation facilities.			✓
<b>Policy 3:</b> Develop and maintain urban parks, squares, and beautification areas in high-density urban places.	✓		
<b>Policy 4:</b> Encourage public and private botanic and zoological parks on O’ahu to foster an awareness and appreciation of the natural environment.			✓
<b>Policy 5:</b> Encourage the State to develop and maintain a system of natural resource-based parks, such as beach, shoreline, and mountain parks.			✓
<b>Policy 6:</b> Provide convenient access to all beaches and inland recreation areas.	✓		
<b>Policy 7:</b> Provide for recreation programs which serve a broad spectrum of the population.	✓		
<b>Policy 8:</b> Encourage ocean and water-oriented recreation activities that do not adversely impact on the natural environment.			✓
<b>Policy 9:</b> Require all new developments to provide their residents with adequate recreation space.	✓		
<b>Policy 10:</b> Encourage the private provision of recreation and leisure-time facilities and services.	✓		
<b>Policy 11:</b> Encourage the after-hours, weekend, and summertime use of public schools facilities for recreation.			✓
<b>Policy 12:</b> Provide for safe and secure use of public parks, beaches, and recreation facilities.	✓		
<b>Policy 13:</b> Encourage the safe use of O’ahu’s ocean environments.			✓
<b>Policy 14:</b> Encourage the State and Federal governments to transfer excess and underutilized land to the City and County for public recreation use.			✓

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Table 5-4: City and County of Honolulu General Plan - Objectives and Policies	S	N/S	N/A
<p><b>Discussion:</b> While the developer supports the General Plan’s policies related to culture and recreation, most are not directly applicable to the proposed project. An archaeological inventory survey and a cultural assessment were conducted for the project. Historic sites identified will be preserved and protected as dictated in the State-approved Preservation Plan. Open space and recreational areas are included in the conceptual design. Access will be provided to the forested area mauka of the site.</p>			
<p><b>PART XI: GOVERNMENT OPERATIONS AND FISCAL MANAGEMENT</b></p>			
<p><b>Objective A: To promote increased efficiency, effectiveness, and responsiveness in the provision of government services by the City and County of Honolulu.</b></p>			
<p><b>Policy 1:</b> Maintain City and County government services at the level necessary to be effective.</p>			✓
<p><b>Policy 2:</b> Promote consolidation of State and City and County functions whenever more efficient and effective delivery of government programs and services can be achieved.</p>			✓
<p><b>Policy 3:</b> Ensure that government attitudes, actions, and services are sensitive to community needs and concerns.</p>			✓
<p><b>Policy 4:</b> Prepare, maintain, and publicize policies and plans which are adequate to guide and coordinate City programs and regulatory responsibilities.</p>			✓
<p><b>Objective B: To ensure fiscal integrity, responsibility, and efficiency by the City and County government in carrying out its responsibilities.</b></p>			
<p><b>Policy 1:</b> Provide for a balanced budget.</p>			✓
<p><b>Policy 2:</b> Allocate fiscal resources of the City and County to efficiently implement the policies of the General Plan and Development Plans.</p>			✓
<p><b>Discussion:</b> While the developer supports the General Plan’s policies related to government operations and management, they are not directly applicable to the proposed project.</p>			

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Table 5-5: 'Ewa Development Plan - Objectives and Policies - City and County of Honolulu	S	N/S	N/A
<b>Chapter 1: 'EWA'S ROLE IN O'AHU'S DEVELOPMENT PATTERN</b>			
In support of the General Plan policies, the 'Ewa Development Plan:			
Provides a secondary employment center with its nucleus in the City of Kapolei to supplement the Primary Urban Center (PUC) and to divert commuter traffic from the PUC;	✓		
Concentrates primary employment activities at industrial and resort areas and at government service and higher education centers around the City of Kapolei so that secondary markets are created for office and retail activities;	✓		
Provides for significant residential development throughout 'Ewa, consistent with the General Plan to meet the needs of O'ahu's citizens;	✓		
Provides for a variety of housing types from affordable units and starter homes to mid-size multi-family and single family units;	✓		
Promotes diversified agriculture on prime agricultural lands along Kunia Road and surrounding the West Loch Naval Magazine in accordance with the General Plan policy to support agricultural diversification in all agricultural areas on O'ahu;			✓
Provides a secondary resort area at West Beach (Ko Olina);			✓
Helps relieve urban development pressures on rural and urban fringe Development Plan Areas (Waianae, North Shore, Ko'olau Loa, and Ko'olau Poko) so as to preserve the "country" lifestyle of these areas; and	✓		
Provides, along with the PUC, a focus for directed and concentrated public and private infrastructure investment for growth.	✓		
<p><b>Discussion:</b> The development of 4,100 new residential units at Makaīwa Hills is consistent with the 'Ewa Development Plan and supports the goal of growing Kapolei into the Secondary Urban Center. The 'Ewa Development Plan has provided for population growth in Kapolei/'Ewa by increasing the upper limits of population distribution in the area, and further encourages residential development here to relieve housing pressures in urban Honolulu. There will be a range of housing types, sizes and land use densities available. Pursuant to County standards, 30% of the units will be affordable.</p>			
<b>Chapter 2: THE VISION FOR 'EWA'S FUTURE</b>			
<p>This vision for 'Ewa has two horizons. The first is a 25-year horizon, extending from the present (1995) to the year 2020. This is the horizon that was used to project likely socioeconomic change in 'Ewa and to assess the infrastructure and public facility needs that will have to be met over that period.</p>			
<p><b>The Vision to 2020.</b> By 2020, the 'Ewa Development Plan Area will have experienced tremendous growth, and will have made significant progress toward providing a Secondary Urban Center for O'ahu. Population will have grown from 43,000 people in 1990 to almost 125,000. Nearly 28,000 new housing units will have been built in a series of master planned communities.</p>			
<p>Job growth will be equally impressive, rising from 17,000 jobs to over 64,000 in 2020. O'ahu residents and visitors will be attracted to 'Ewa by a new university campus, the Ko Olina resort, ocean and waterfront activities at 'Ewa Marina, a major super regional park, and a thriving City of Kapolei which has retail and commercial establishments and private and government offices.</p>			
<p><b>Beyond 2020.</b> In the course of the Development Plan revision, it became clear that there was value in looking beyond 2020 to identify what 'Ewa should look like when "fully" developed.</p>			
<p>Such a perspective helped identify where open space should be preserved within the urbanized area, where the rapid transit corridor should be located, and where to set the limits to development in 'Ewa for the foreseeable future. As such, this second horizon might be called the "built-out" horizon and is probably 40 or 50 years in the future.</p>			
<p><b>Discussion:</b> The project is consistent with the 'Ewa Development Plan's vision for 'Ewa's growth to 2020 and beyond. The project will provide housing and job opportunities at the retail center. Open space is an integral part of the design.</p>			
<b>Chapter 3: LAND USE POLICIES, PRINCIPLES, AND GUIDELINES</b>			
<b>3.1 OPEN SPACE PRESERVATION AND DEVELOPMENT – General Policies</b>			
Open space will be used to:			
a) Provide long range protection for diversified agriculture on lands outside the Urban Growth Boundary,			✓
b) Protect scenic views and provide recreation,	✓		
c) Define the boundaries of communities,	✓		
d) Provide a fire safety buffer where developed areas border "wildlands" either in preservation areas within the Urban Growth Boundary or in the State Conservation District, and	✓		

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Table 5-5: 'Ewa Development Plan - Objectives and Policies - City and County of Honolulu	S	N/S	N/A
e) Create linkages between communities through a network of Greenways along transportation and utility corridors and drainageways.	✓		
<p><b>Discussion:</b> The proposed project is consistent with the 'Ewa Development Plan's objectives and policies to protect and preserve open space and provide recreation. No noted scenic viewplanes will be adversely affected by the project. The individual communities within the development will have boundaries defined by landscaping, open space and topography. While site topography may limit the linkages between communities, a significant network of greenways and open space will help create linkages amongst the site various residential areas. A wildland/urban interface fire safety buffer will be established as mitigation for potential spread of wildfires into or from preservation areas.</p>			
<p><b>Chapter 3.2. REGIONAL PARKS AND RECREATION COMPLEXES – General Policies</b></p>			
Regional parks and recreation complexes include the Kalaeloa Regional Park and Recreation Complex proposed for Barbers Point Naval Air Station, Kapolei Regional Park, Pu'u Pālailai Park, various beach and shoreline parks, and public and private golf courses. To sustain economic, development, the City is encouraged to look towards public-private partnerships to build, and maintain new park and recreation complexes.			✓
The new Kalaeloa Regional Park at the present Barbers Point Naval Air Station will feature a large shoreline park with beach recreation and support facilities; a wide range of activity areas including athletic fields in the mauka lands; and preserves for wildlife habitats, wetlands and endangered plant colonies. The Park will encompass mostly undeveloped lands, bordered by the shoreline on the south, the airfield and developed portions of the facility to the north and west, and the existing military golf course and future 'Ewa Marina golf course to the east.			✓
Kapolei Regional Park is a 73-acre park which includes the Pu'u o Kapolei. The Park will serve as a defining limit for the northeastern edge of the City of Kapolei and as a visual gateway to the City. The park will provide diverse active and passive recreation within easy walking distance of both the City Center and the Villages of Kapolei.			✓
Pu'u Pālailai Park will be located below Makakilo, and is to be a nature park. It will offer hikers excellent views of the 'Ewa Plain and distant views of Honolulu and Diamond Head.			✓
Two future beach parks are planned at both ends of Ko Olina. The larger park at the northern end of the resort will provide for picnicking and other passive recreation. A park at the southern end will provide direct access to one of the four swimming lagoons. A boat launching ramp, which will be available for public use, will be located adjacent to the southern park, and will provide access to the marina channel.			✓
Golf courses can provide protection for open space, and help reduce flooding and non-point pollution by helping retain storm waters. Golf course development should be approved only after determination that the course meets social, growth, economic, and environmental guidelines and approval of a community integration program.			✓
Sports and recreation complexes designed to attract visitors from throughout the region and the rest of O'ahu have been proposed for a number of areas in 'Ewa. Proposals for a Kalaeloa Center on surplus lands at Barbers Point Naval Air Station call for creation of an "Olympic Village" type international training center, a baseball training facility, a rowing water course, a motorsports center, and a water theme park. Such complexes should be designed to be compatible with surrounding land uses and environmental features.			✓
<p><b>Discussion:</b> The developer supports the 'Ewa Development Plan's policies related to regional parks and recreation complexes, but they are not directly applicable to the project. Residents of the project will utilize the regional parks.</p>			
<p><b>3.3 COMMUNITY-BASED PARKS – General Policies</b></p>			
Adequate parks to meet residents' recreational needs should be provided.	✓		
New residential development should strive to provide land for open space and recreation purposes at a minimum of two acres of park per 1,000 residents. Community-based parks (and associated service radius) include mini-parks (1/4 mile), neighborhood parks (1/2 mile), community parks (one mile), and district parks (two miles).	✓		
Access to recreational resources in the mountains, at the shoreline, and in the ocean should be protected and expanded. New development projects are an opportunity to provide public access to trail heads from the streets extending toward the mountain slopes or approaching the edges of the gulches.	✓		
<p><b>Discussion:</b> Over 50% of the project will consist of open space; the County's park dedication requirements will be met and exceeded. The project will provide access to the mauka preservation area hiking trails.</p>			
<p><b>3.4 HISTORIC AND CULTURAL RESOURCES - GENERAL POLICIES</b></p>			
Physical references to 'Ewa's history and cultural roots should be emphasized to help define 'Ewa's unique sense of place.	✓		
Existing visual landmarks should be protected, and creation of new culturally appropriate landmarks should be supported.	✓		
Significant historic features from the plantation era and earlier periods should be preserved.	✓		
Whenever possible, significant vistas should be retained.	✓		

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Table 5-5: 'Ewa Development Plan - Objectives and Policies - City and County of Honolulu		S	N/S	N/A				
<table border="1"> <thead> <tr> <th>TABLE 3.1: SIGNIFICANT EWA HISTORIC AND CULTURAL RESOURCES</th> </tr> </thead> <tbody> <tr> <td> <b>HISTORIC FEATURES</b>                      Lanikuhonua                      OR&amp;L Historic Railway                      Ewa Villages                      Pearl Harbor National Historic Landmark                 </td> </tr> <tr> <td> <b>NATIVE HAWAIIAN CULTURAL AND ARCHAEOLOGICAL SITES</b>                      Barbers Point Archaeological District                      Oneula Archaeological District                 </td> </tr> <tr> <td> <b>SIGNIFICANT VIEWS AND VISTAS</b>                      † Distant vistas of the shoreline from the H-1 Freeway above the Ewa Plain;                      † Views of the ocean from Farrington Highway between Kahe Point and the boundary of the Waianae Development Plan Area;                      † Views of the Waianae Range from H-1 Freeway between Kunia Road and Kaloi Gulch and from Kunia Road;                      † Views of na pu'u at Kapolei, Palalal, and Makakilo;                      † Mauka and makai views; and                      † Views of central Honolulu and Diamond Head.                 </td> </tr> </tbody> </table>		TABLE 3.1: SIGNIFICANT EWA HISTORIC AND CULTURAL RESOURCES	<b>HISTORIC FEATURES</b> Lanikuhonua OR&L Historic Railway Ewa Villages Pearl Harbor National Historic Landmark	<b>NATIVE HAWAIIAN CULTURAL AND ARCHAEOLOGICAL SITES</b> Barbers Point Archaeological District Oneula Archaeological District	<b>SIGNIFICANT VIEWS AND VISTAS</b> † Distant vistas of the shoreline from the H-1 Freeway above the Ewa Plain; † Views of the ocean from Farrington Highway between Kahe Point and the boundary of the Waianae Development Plan Area; † Views of the Waianae Range from H-1 Freeway between Kunia Road and Kaloi Gulch and from Kunia Road; † Views of na pu'u at Kapolei, Palalal, and Makakilo; † Mauka and makai views; and † Views of central Honolulu and Diamond Head.			
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<p><b>Discussion:</b> An archaeological inventory survey identified historic sites. Data recovery and preservation plans have been prepared and submitted to the State Historic Preservation Division for approval. Data recovery will occur prior to development and development will adhere to rules guidelines and boundaries for preservation area as dictated in the Preservation Plan. Any inadvertent discovery or disturbance of archaeological sites, or features or human burials will result in a halt to construction activities and prompt report to Makaīwa Hills, LLC, who will contact appropriate authorities. Design guidelines will mandate that the residential units reflect the tropical island lifestyle, climate and natural beauty of the land, and preserve view corridors. The design guidelines incorporate varied roof heights, outdoor living areas, and extensive landscaping. Natural materials are preferred over manufactured materials. The color palette for exterior surfaces will be subtle earth tones to integrate with the surrounding landscape. There will be no impact on coastal views. The design guidelines will mitigate impact on mauka views.</p>								
<p><b>Chapter 3.5: CITY OF KAPOLEI - GENERAL POLICIES</b></p>								
The City of Kapolei should serve as the urban core, or the "downtown" for the Secondary Urban Center.		✓						
The City of Kapolei should accommodate a major share of the new employment in the Secondary Urban Center.		✓						
The City of Kapolei should have a balanced mix of business and residential areas, complemented by the recreational, social and cultural activities of a city. Mixed use should be permitted and encouraged throughout most of the City area, in order to achieve the diversity and intensity of uses that characterize a city.		✓						
The City of Kapolei is envisioned to be a true city, encompassing a full range of urban land uses, and laid out in small blocks connected by a grid system of public streets.		✓						
The City should be composed of six different districts which should accommodate the full array of business, commercial, residential, cultural and public uses that characterize a city center.		✓						
<p><b>Discussion:</b> The project directly supports the 'Ewa Development Plan's vision to develop the Secondary Urban Center by providing housing and employment opportunities.</p>								
<p><b>Chapter 3.6: RESIDENTIAL DEVELOPMENT – General Policies</b></p>								
The following general policies may be applied to the expansion or renovation of existing residential communities, as well as to new communities.								
<b>Overall Density.</b> To achieve the desired compactness and character of development in planned residential communities, the housing density of the aggregate area zoned for residential use (including the streets) should be in the range of 10 to 15 units per acre. (This average does not include areas zoned for commercial or industrial use.)		✓						
<b>Higher Density Housing Along the Transit Corridor.</b> To promote use of mass transit, higher-density residential use should be developed along a major rapid transit corridor linking Kapolei with Waipahu and Primary Urban Center communities to the east. High-Density Residential and Commercial uses should be developed at six transit nodes, which would cover a one-quarter-mile radius around major transit stops. Areas along the rapid transit corridor should have housing densities of 25 units per acre, and greater densities are expected within the transit nodes.		✓						
<b>Physical Definition of Neighborhoods.</b> The boundaries of neighborhoods should be made evident through the use of street patterns, landscape or natural features, and building form and siting. The focus of neighborhood activity should be on the local street or a common pedestrian right-of-way or recreation area.		✓						

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Table 5-5: 'Ewa Development Plan - Objectives and Policies - City and County of Honolulu	S	N/S	N/A
<b>Compatible Mix of Building Forms.</b> There should be a variety of housing types and densities to avoid visual monotony and accommodate a variety of housing needs, but without sharp contrasts between the exterior appearances of adjacent housing areas.	✓		
<b>Transit-Oriented Streets.</b> Street patterns and rights-of-way should be designed to accommodate mass transit service and make it convenient to access for as many households as possible.	✓		
<b>Pedestrian and Bicycle Travel.</b> Pedestrian and bicycle travel should be encouraged, particularly to reach neighborhood destinations such as schools, parks and convenience stores.	✓		
<b>Integration of Linear Corridors.</b> Physical and visual connections between communities should be encouraged through the creative design of transportation and utility corridors and drainage systems.	✓		
<b>Provision of Community Facilities.</b> Land should be provided for community facilities including churches, community centers, and elderly and child care centers.	✓		
<b>Discussion:</b> The project will construct 4,100 residential units of varying product types within a full range of zoning districts including low- and medium-density residential, apartment and apartment and business mixed use. The higher density units will be closer to the primary transit corridor. Affordable housing will be included, pursuant to County requirements. The lot sizes and costs to own or rent will vary across the site, generally increasing with elevation. There will be an extensive network of open space that will establish defined edge conditions and intimate residential areas allowing for the development of unique neighborhoods with individual character and identity within the community. Given the constraints of the topography, visual and physical corridors will connect the various communities comprising the development. Community parks and the retail area will function as a gathering place for the community. Community facilities such as churches and child care centers may be included, but have not yet been sited.			
<b>3.7 NON-RESIDENTIAL DEVELOPMENT</b>			
This section provides general policies, non-residential development, including planned commercial retail centers, Ko Olina Resort, industrial centers, Kalaeloa (Barbers Point Naval Air Station), Pearl Harbor Naval Base (West Loch), and the University of Hawai'i West O'ahu.			
Planned commercial centers, outside of the City of Kapolei, should provide retail shopping and services for the 'Ewa residential communities in which they are located. These centers differ from commercial areas within towns such as Waipahu or the City of Kapolei because they are typically managed as a unit with shared parking and center management.	✓		
Commercial centers outside of the City of Kapolei should concentrate commercial uses in central locations instead of in continuous commercial strips along arterial roads. Pedestrian and transit access to and within the centers should be emphasized.	✓		
Ko Olina Resort is designated in the General Plan as one of four "secondary" resort destinations which are part of an overall strategy to relieve growth pressure on Waikiki.			✓
Ko Olina Resort should be an integral part of the Secondary Urban Center.			✓
Ko Olina Resort should be a water-oriented residential and resort community with about 4,000 visitor units in hotels and resort condominiums and 8,700 residential units in Phase I and II.			✓
Ko Olina should provide substantial waterfront areas for public use. The entire shoreline should be natural open space, softened by landscaping, and should focus on the beach and swimming lagoons.			✓
<b>3.7.3 INDUSTRIAL CENTERS - General Policies</b>			
<b>Barbers Point Industrial Area</b>			
Industrial centers in 'Ewa include the Barbers Point Industrial Area and Honouliuli Industrial Area. Industrial activity should also be permitted at other dispersed industrial areas, as noted below.			✓
As an alternative to industrial uses, a commercial, cultural or recreational entertainment attraction may be permitted in the area fronting the OR&L Historic Railway, provided that the use is designed to enhance the viability of the operation of the railway for historic theme rides, strengthen the linkage between the Ko Olina Resort and the City of Kapolei and proceed with a strong community based planning process.			✓
Barbers Point Industrial Area includes Campbell Industrial Park, Barbers Point Deep Draft Harbor, Kenai Industrial Park, and Kapolei Business Park. It should continue to grow as one of O'ahu and the State's most important industrial areas. It is the site of the State's largest heavy industrial area (Campbell Industrial Park) and an important industrial harbor and fuel transfer point.			✓
The northern parts of Kapolei Business Park and any BPNAS lands designated for industrial use should provide for light industrial uses as a transition between heavy industry at Campbell Industrial Park and the City of Kapolei.			✓
An additional electrical power generating plant could be constructed at the Barbers Point Industrial Area, possibly taking advantage of cogeneration opportunities with other industrial activities. The 138 kilovolt transmission corridor running from the Barbers Point Industrial Area to Waiau could accommodate additional load on the existing poles.			✓

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Table 5-5: 'Ewa Development Plan - Objectives and Policies - City and County of Honolulu	S	N/S	N/A
<b>Honouliuli Industrial Area</b>			
Honouliuli should remain a smaller industrial area, used primarily for wastewater treatment. It includes 13 acres of land in the 'Ewa by Gentry project which is designated for light industrial use. A power generation facility may be included if it is dependent on wastewater treatment operations and can be designed so that it is generally not visible from nearby major public rights-of-way, residential areas, and commercial areas.			✓
The Honouliuli Wastewater Treatment Plant should be expanded to accommodate additional growth in the region as well as to provide additional facilities for higher levels of wastewater treatment. The City should acquire an additional 60 acres to accomplish this.			✓
<b>Other Industrial Areas</b>			
<b>Service-oriented industrial uses</b> should be allowed throughout the region as noted below. Uses requiring larger lots should be located in Campbell Industrial Park. Small-lot uses, including automobile repair shops, contractor's yards, and businesses serving residential and commercial areas, should be allowed to locate near the City of Kapolei in the Kapolei Business Park and on any industrial lands which may be designated within Barbers Point Naval Air Station.			✓
The <b>Hawaiian Electric Company generating plant</b> in Kahe Valley should remain the largest source of electrical power on O'ahu. The plant could be expanded which would take advantage of available land area, cooling system capacity, and power transmission lines.			✓
The <b>industrial area planned for the western edge of 'Ewa Marina</b> should accommodate marine haul-out facilities, repair shops, and related small boat industrial uses.			✓
<b>Coastal Environment</b> - There should be a minimum building setback of 60 feet and 150 feet where possible. A lateral public access easement should be provided along the entire shoreline from the Barbers Point Deep Draft Harbor to Barbers Point Naval Air Station.			✓
Small industrial lots (10,000 square feet or less) for repair services and "incubator" businesses should be located near the commercial core of the City of Kapolei, but not on the principal commercial streets.			✓
Warehousing and other industrial uses requiring larger lots should be located in industrial parks.			✓
<b>Discussion:</b> The policies related to industrial development are not applicable to the project. The planned retail shopping and service center for the development will primarily serve the residents of the development. Larger-scale commercial services are located nearby in the city of Kapolei. The site plan provides a pedestrian-friendly town center with easy access to all services and retail entities.			
<b>3.7.4 KALAELOA (BARBERS POINT NAVAL AIR STATION)</b>			
Development of a major new regional public park, and provision of continuous lateral public access along the shoreline are priority reuse options for the BPNAS Local Reuse Plan.			✓
A continuous pedestrian route along the entire 'Ewa coast should be created. The entire shoreline of the BPNAS should be reserved for public access and recreation after military use of BPNAS ceases.			✓
Building setbacks from the shoreline should be required, a lateral public access easement along the Campbell Industrial Park shoreline should be acquired, and public shoreline pathways should be established at Ko Olina and 'Ewa Marina.			✓
The road network should be integrated with the regional circulation system.			✓
There should be ample lands devoted to uses that will create long term jobs for 'Ewa's residents.			✓
<b>3.7.5 PEARL HARBOR NAVAL BASE (WEST LOCH)</b>			
The City should request expansion of limited public access to the shoreline waters of West Loch beyond the West Loch Shoreline Park and should support retaining and enhancing wetland areas along the Pearl Harbor shoreline.			✓
<b>3.7.6 UNIVERSITY OF HAWAI'I WEST O'AHU</b>			
The campus should evoke a unique sense of place that distinguishes it as an important civic and cultural institution in 'Ewa.			✓
The campus should be oriented to support pedestrian access to and transit usage from a major transit node located on the North-South Road. The development of the University of Hawai'i West O'ahu campus should include plans to provide shuttle bus service to the transit node at the corner of Farrington Highway and the proposed North-South Road.			✓
The campus should be designed so that open space areas can be used for flood detention and retention as part of the Kalo'i Gulch watershed master plan.			✓
<b>Discussion:</b> These policies are not directly applicable to the proposed project. The project may house students or faculty of University West O'ahu.			



## **6.0 ALTERNATIVES**

## 6.0 ALTERNATIVES

This section describes the following range of alternatives to the proposed action that were considered during the planning process:

- No action
- Intensive residential
- Low-density agricultural subdivision with no change of zoning
- Development of new sanitary landfill

The two residential alternatives were deemed viable for meeting the following minimum alternative criteria: 1) compatible with existing and planned land uses in the vicinity, 2) addresses market demand, and 3) profitable to the landowner. A landfill alternative is also included because the project site has been identified by the County as a possible alternate location to the proposed expansion of the Waimanalo Gulch Sanitary Landfill.

The alternatives analysis describes the alternative, identifies the potential environmental impacts of the alternative and compares them with the potential impacts of the proposed action

### 6.1 NO-ACTION ALTERNATIVE

The no-action alternative would result in no development of the subject property in the foreseeable future. Limited existing agricultural activities would occur on the land, including the nursery use and agricultural grazing leases. These leases run on a month-to-month basis. .

The subject property is classified as State Land Use Urban District (since 1993) and Agricultural zoning district at the County level. The property is also designated for a Residential Community pursuant to the County's 'Ewa Development Plan. Given the State and County designations, and the growing demands for new residential development in the region, there would continue to be development pressure focused on the project area.

A portion of the project area has been identified on the 'Ewa DP Public Infrastructure Map as an alternate site for the County's Waimānalo Gulch Sanitary Landfill. Other areas in the region, including much more productive agricultural lands compared to the project area, would need to be identified for residential development to meet the housing shortage.

#### 6.1.1 Potential Impacts Compared to the Proposed Action

Unlike the proposed action, the No-Action Alternative does not meet the three minimum criteria for project viability. It: 1) is inconsistent with the State Land Use Urban District and the 'Ewa Development Plan Residential Community designation; 2) would not address the market demand for housing in the City of Kapolei area; and 3) would not provide sufficient economic benefits to the landowner.

The No-Action Alternative would have no anticipated adverse short- or long-term, direct or indirect impacts on the resources described in Section 4. The No-Action Alternative would also create no beneficial impacts such as: new residences, commercial uses, parks, school site, archaeological site protection, runoff and erosion control, employment or other economic benefits. With the minor existing activities remaining on the property, there would be very limited vegetation management against seasonal wild fires. Wind erosion and soil runoff would also remain uncontrolled over this land

In comparison, the proposed action would have some potential impacts on land use, County zoning, topography, wildfire risk, archaeology, agricultural use, visual resources, traffic, air quality, ambient noise, erosion, drainage and solid waste and wastewater management, water and power supplies, public services, and population. The proposed action will have beneficial impacts on housing, employment and economics that will not be realized under the No Action Alternative. There would continue to be a shortage of housing for all markets including affordable housing units. In addition, the No-Action Alternative would not further the State and County goal of making Kapolei the nucleus of O'ahu's Secondary Urban Center.

## **6.2 INTENSIVE RESIDENTIAL**

Intensive development of the 1,781-acre Makaīwa Hills site is quite feasible given the extensive land area and relatively high buildable area given the site's topography. The broad ridge areas and extensive lowland fronting Farrington Highway could be utilized to a much higher development potential than considered with the proposed action. Development may also extend into some of the low lying gulch areas that the proposed action leaves pristine. This alternative considers a viable option for greater development yield and the resulting considerations with respect to the environment, community and economy.

This alternative assumes that roughly half of the subject property (891 acres) would be developed at an average density of 6.75 units per acre. This density would result in a total of approximately 6,000 dwelling units, which is roughly 50% more residential product than the proposed project. Up to 50% more commercial development (floor area) would also be proposed to support the larger community needs, with a 20 to 30% added commercial zoned land area requirement in the Intensive Development Alternative.

Single-family residential parcels would only be established at the higher elevations of the project site. The residential density of the housing units would increase significantly at the lower elevations. Affordable housing would constitute approximately 1,800 units, or 30% of the total dwelling units, and may be developed on- or off-site or paid in lieu. This alternative would include up to 100 acres for public facilities/amenities and the commercial zoned area.

### **6.2.1 Potential Impacts Compared to the Proposed Action**

#### **Land Use/Regulation**

This alternative would exceed the 4,100 residential unit maximum established by the State LUC in 1993 for the development area. The LUC would have to approve the increased density prior to

implementing the High-density Alternative. No further LUC approval is required for the proposed action.

There would be changes to County zoning under this alternative, but there would be more area zoned for development, or more intensive development, or both, under the Intensive Development residential alternative. This alternative would result in less open space than the proposed action.

**Housing**

This alternative would better address O’ahu’s lack of available market and affordable housing. It would increase residential densities in an area that planned for growth.

**Topography/Geology**

Compared to the proposed action, there would be substantially greater impacts on topography under the Intensive Development Alternative due to increased need for grading and the resultant surface area disturbance. The mitigation proposed under the proposed action would be more challenging to implement with the increased density.

**Natural Hazards**

There would be increased risks due to wildfire under both the Intensive Development alternative and proposed action. The population and personal property that could be impacted would be greater under the high density alternative. The mitigation proposed for proposed action would be applicable to this alternative.

**Biology**

No significant impacts are anticipated under either alternative.

**Traffic**

Both alternatives would have adverse impacts on regional traffic. The Intensive Development alternative would result in approximately 50% more traffic than the proposed action. The range of mitigative options would be similar for both alternatives, although the Intensive Development alternative would require implementation of additional costly options.

**Infrastructure: drainage, water, wastewater, power and utilities**

New infrastructure would be provided at the project area under both alternatives. Relative to the proposed action, the Intensive Development alternative would have an increased demand on potable water, wastewater treatment, utilities, and possibly drainage infrastructure. The increased demand for potable water is an issue under both alternatives, but more of an issue under the Intensive Development Alternative. There would likely be adequate wastewater treatment capacity at existing facilities to accommodate either alternative once upgrades have been implemented.

**Archaeology**

The potential impacts and mitigation would largely be the same under the alternative and the proposed action. Avoiding the identified preservation sites may be more challenging in the Intensive Development alternative, since more land would need to be developed.

**Cultural Resources**

The potential impacts and mitigation would be the same under both alternatives, although the mitigation may be more challenging for the intensive residential alternative due to less open space corridors available.

**Visual**

Both alternatives would have visual impacts, but the Intensive Development Alternative would have a greater adverse impact than the proposed action. The impact would primarily result from a decrease in open space, and possibly some taller structures.

**Air Quality**

Increased traffic associated with the Intensive Development Alternative would generate more vehicle emissions than under the proposed action. The potential adverse impacts on regional air quality would likely be mitigated by the prevalent tradewinds.

**Noise**

Neither this alternative nor the proposed action would be expected result in adverse long-term noise impacts. Short-term impacts would not be significant for either alternative.

**Socio-economics**

The Intensive Development Alternative would provide more housing at greater densities, which would likely result in greater inventory for medium to low income groups than the proposed action. Both alternatives provide 30% affordable housing, which would result in greater number of affordable units under the Intensive Alternative. Both projects would increase population in the region, which is consistent with the 'Ewa DP. Both alternatives would generate construction-related employment opportunities. After construction, there would be more commercial space under the Intensive Alternative than the proposed action and more employment opportunities. Both alternatives are expected to have a net beneficial impact on State and County revenues after subtracting the cost for additional community services.

**Social Services**

County Fire, Police and Park Departments, public schools, and solid waste collection programs would expand services as necessary to meet the increased demand under Intensive Development scenario. As compared to the proposed action, the demand for these services would be greater under the alternative. Under this alternative, there would be larger park dedication requirement and less undeveloped land to allocate towards open space.

### **6.3 LOW-DENSITY AGRICULTURAL SUBDIVISION (no change of zoning)**

A Low-Density Agricultural Subdivision alternative was considered to address a possible less-intensive development scenario. This alternative would involve the development of large agricultural lots across the project area. To effectively utilize the overall property, a roadway network similar to the proposed action would be required to fully access usable areas of the property.

Under the Low-Density alternative, approximately 861 agricultural residential units would be developed. This alternative would use the existing zoning regime that provides minimum lot sizes of 2 acres in the AG-2 area and 5 acres in the AG-1 district. Accordingly, up to 842 dwellings could potentially be built on the 1,685 acres of AG-2 land, and up to 19 dwellings on the 96 acres of AG-1 land.

The agricultural subdivision would result in significant agricultural open space over much of the project area. The project would not be required to meet the State Land Use Law regarding “farm dwellings” since the use would be consistent with the land designation as State Urban District. The project would also not require approval by the City Council because the existing zoning would not be changed, with no resultant Unilateral Agreement conditions.

A majority of the units would necessarily target the upscale housing market to recoup the significant development costs. Also, since no change in zoning would be required, there would be no trigger to mandate the provision of any affordable housing.

No commercial uses and limited public facilities and amenities would be included. Some undetermined agricultural program would likely be developed to provide an agricultural component to help offset the costs of developing this type of subdivision.

#### **6.3.1 Potential Impacts Compared to the Proposed Action**

##### **Land Use/Regulation**

The Low-density subdivision alternative is not consistent with the State Urban land use designation, nor does it conform to the County’s ‘Ewa Development Plan, both of which promote more intensive residential development in this area. However, this alternative could move forward without any change in existing zoning. An Agricultural Plan would be developed to include agricultural uses for income generation.

##### **Housing**

This alternative would not sufficiently address O’ahu’s lack of available market and affordable housing. It would provide lower than planned residential densities in an area that planned for growth and likely push housing demand to areas with prime agricultural land.

##### **Topography/Geology**

As with the proposed action, there would be impacts on topography, but the impacts would presumably be less under the Low-density alternative due to decreased surface area disturbance, although this depends upon the nature of the agricultural program. The mitigation proposed under the proposed action would be applicable to the Low-density alternative.

**Natural Hazards**

There would be increased risks due to wildfire under both the low density alternative and the proposed action. The population and residences that would be impacted by wildfire would be less than the proposed action. The mitigation proposed for proposed action would be applicable to this alternative and the increased distance between homes may also mitigate the potential for fire spread.

**Biology**

No significant impacts are anticipated under either the proposed action or the Low-density subdivision alternative.

**Traffic**

Both the proposed action and the alternatives would have adverse impacts on regional traffic. The Low-density alternative would result in approximately 66% less traffic than the proposed action. The mitigation would be the same for both the proposed action and the Low-density subdivision alternative.

**Infrastructure: drainage, water, and wastewater**

New infrastructure would be provided at the project area under both the proposed action and the Low-density subdivision alternative. In comparison to the proposed action, there would be decreased demand on domestic potable water and wastewater treatment. The agricultural uses contemplated for the site will dictate the quantity of irrigation water required for the Low-density subdivision alternative. Wastewater treatment facility upgrades may not be necessary to accommodate the low density alternative.

**Power/Communications**

Both alternatives would increase the demand on electric power and communications. The proposed action would have a greater demand on these services than the Low-density Alternative. The providers of these services will increase capacity as necessary to meet the demand.

**Archaeology**

The impacts and mitigation could be similar under both the proposed action and the Low-density subdivision alternative. Expanded agricultural use would require caution to avoid disturbance of sensitive archaeological sites.

**Cultural Resources**

No impacts are anticipated under this alternative due to the more expansive open space corridors that would remain undeveloped.

**Visual**

Both alternatives would have visual impacts, but the proposed action would have a greater adverse impact than the Low-density Alternative. The impact would primarily result from an increase in open space.

**Air Quality**

Increased traffic associated with both the proposed action and the Low-density subdivision alternative would generate vehicle emissions, but the emissions would be greater under the

proposed action. Mechanized agricultural land uses are not contemplated in the Alternative. The adverse impacts on regional air quality would be mitigated by the prevalent tradewinds.

**Noise**

Neither the proposed action nor this alternative would result in adverse long-term noise impacts. Mechanized agricultural land uses are not contemplated in the Alternative. Short-term impacts would not be significant for either alternative.

**Socio-economics**

The Low-density Alternative would provide less housing at lower densities, which would result in reduced housing inventory for all income groups than the proposed action. The proposed action would provide a broader range of housing types and address a greater proportion of the housing demand. Alternate areas for residential development in the 'Ewa region would have to be identified to meet the projected housing demand under the Low-density Alternative. The trigger to mandate 30% affordable housing would not exist under the agricultural subdivision, since no change in zoning would be required, thus, fewer if any affordable units may be built compared to the proposed action. Both the proposed action and this alternative would increase population in the region, which is consistent with the 'Ewa Development Plan; likewise both would generate construction-related employment opportunities. However, the proposed action would support more population growth and more employment opportunities than the low density alternative. After construction, there would be no employment opportunities, except for property management, under the Low-density Alternative. Both the proposed action and this alternative would have a net beneficial impact on State and County revenues after subtracting the cost for additional community services.

**Social Services**

County Fire, Police and Park Departments, public schools, and solid waste collection programs would expand services as necessary to meet the increased demand under both alternatives. The demand for these services would be less under the Low-density Alternative than the proposed action. Under the Low density alternative, the need for viable agricultural operations may result in less available unused land to allocate towards exceeding the park dedication requirement. However, the generally poor soil conditions throughout the Project Area would present a serious problem in identifying a feasible agricultural program.

**6.4 DEVELOPMENT OF A MAKAĪWA GULCH SANITARY LANDFILL**

This alternative contemplates the implementation of the currently proposed alternative site for the Makaīwa Gulch Municipal Landfill. The development of a new sanitary landfill is proposed as an alternative to the proposed project because the current Waimanalo Gulch landfill is nearing capacity. The County has designated a portion of the site (Makaīwa Gulch) on the 'Ewa Public Infrastructure Map as a potential site for a municipal solid waste landfill to serve O'ahu for the next decade. An EIS is being completed by the County for the expansion of the existing facility through 2015, which provides further details about this potential landfill development.

A new County landfill facility at this location would accept municipal solid waste which is not processed at H-POWER, as well as the ash residue from H-POWER. The development of the



landfill would include land preparation, a clay liner and liner system, groundwater monitoring wells, a drainage system, and a closure plan to go into effect upon the closing of this landfill. Several hundred acres would be involved for this facility.

The Landfill Alternative would not further the State and County goal of making Kapolei the nucleus of O'ahu's Secondary Urban Center. Placement of a new municipal landfill at Makaīwa Gulch would jeopardize the other future uses of the project area, as well as pose direct affects and other risks to existing neighbors at Ko 'Olina and Honokai Hale/Nanikai Gardens.

The Estate of James Campbell, as predecessor in title to the current landowner, has held numerous discussions and correspondence with the County to address the concept of siting a landfill at Makaīwa Gulch. A common understanding is that when the County designated Kapolei as Oahu's secondary urban center, it was for the express purpose of creating a new job center to allow people to work where they live, reduce the traffic congestion into Honolulu, and stimulate the economy by attracting new businesses to Hawaii. Designating or locating a landfill in Kapolei at Makaīwa Gulch would have a material, negative impact on the burgeoning City of Kapolei is contrary to this purpose.

The landowners of Makaīwa Hills have made substantial investments in the planning and entitlement of this property, would vigorously oppose any condemnation action on this property and would seek, in addition to the value of the land, direct and indirect damages caused by the adverse impact that such a facility would have on the value of marketability of the surrounding land. The final price tag for Makaīwa Gulch would make it a far less economical and much more risky choice for the County.

At the City Council's request, an economic analysis was commissioned, and in 2004, Decision Analysts Hawai'i, Inc. reviewed documents relevant to the proposed siting of a solid waste landfill at Makaīwa Gulch, analyzed those documents, and set forth the economic impacts of such an action. To summarize the report, the cost to the community and the County of a landfill at Makaīwa Gulch is expected to be substantial as indicated in the following impacts related to the Makaīwa Hills project and the adjacent Kapolei West project:

- The present value of unrealized future economic benefits to the community (payroll, profits, and tax revenues) is estimated at about \$7 billion.
- Unrealized permanent employment is expected to exceed 5,400 jobs.
- The damage to the landowner would be approximately \$108 million.
- In addition to the cost of site acquisition for the landfill, the cost to the County to compensate for damages (i.e., reduced property values) is expected to exceed \$90 million.
- The present value of unrealized net revenues to the County is expected to exceed \$80 million.
- Because of the estimated cost of damages and unrealized net revenues, the annualized cost to the County of the landfill is expected to reach about \$13.6 million per year.

Obviously, the economic consequences noted above strongly suggest that siting a landfill at Makaīwa Gulch would be inappropriate and would impose a substantial financial burden on the County.

A brief assessment of potential impacts under this alternative is presented below, along with comparative analysis with the proposed action.

#### **6.4.1 Potential Impacts Compared to the Proposed Action**

##### **Land Use/Regulation**

The landfill alternative is consistent with the State Urban land use designation and would be in conformance with the County's 'Ewa Development Plan Public Infrastructure Map. This alternative, however, would not promote residential development in the project area, as desired by the State Land Use Commission and the County's 'Ewa Development Plan.

##### **Housing**

This alternative would not address O'ahu's lack of available market and affordable housing. The presence of a second sanitary landfill in the area would likely preclude much of the site from residential development.

##### **Topography/Geology**

The topography within the landfill site would be significantly altered in preparation for utilizing Makaīwa Gulch for maximum fill with municipal solid waste. Detailed geologic studies have yet to be conducted to determine the suitability of this site for a landfill, however, a similar landfill has been operating in the neighboring Waimānalo Gulch, where substantial natural earth and rock removal has been conducted. Grading for Makaīwa Hills would also affect the landscape, but will primarily limit disturbance to the ridge plateau areas.

##### **Natural Hazards**

The overall project area's propensity for wildfires would remain unaffected by this alternative.

##### **Biology**

Native plant and animal species are more likely to exist in the riparian gulch environment proposed for use as a landfill, so the landfill alternative would have greater comparative adverse impacts than the proposed action, which largely protects the gulch areas.

##### **Traffic**

The landfill alternative would not add the 4,100 residences and commercial uses, and their accompanying traffic to the region's roadways. The proposed action would have limited solid waste truck traffic, only that required for construction debris and regular collection.

##### **Infrastructure: drainage, water, and wastewater**

Minimal new infrastructure would need to be developed on-site to service the needs of a new landfill. Water system improvements would not be minimal for this alternative, as an on-site septic system would likely suffice.

##### **Power/Communications**

Minimal new infrastructure would need to be brought to the site to service the needs of a new landfill.

##### **Archaeology**

Less of the project area would be developed under the proposed landfill alternative, thereby affecting fewer archaeological sites than the proposed alternative. The Makaīwa Gulch area would experience 100% removal of several existing archaeological sites.

**Cultural Resources**

No impacts are anticipated under this alternative due to the more expansive open space corridors that would remain undeveloped.

**Visual**

Assuming no other future use of the project area, significant open space areas would remain intact under the landfill alternative. The industrial nature of a landfill, however, would blight the landscape, while the proposed design guidelines for Makaīwa Hills intends to soften the visual impact of the development.

**Air Quality**

While increased traffic associated with the proposed action would generate increased vehicle emissions, the landfill operation would potentially generate more dust and operating equipment diesel emissions. The potential adverse effect to regional air quality is anticipated to be mitigated by the prevalent tradewinds.

**Noise**

The landfill alternative would possibly result in adverse long-term noise impacts. Short-term construction-related noise impacts would result under either alternative.

**Socio-economics**

The Landfill Alternative would provide no housing, while the proposed action would provide a broad range of housing types and address a substantial proportion of the housing demand, including affordable units. Alternate residential development locations would need to be identified to meet the projected regional housing demand. The Landfill Alternative would generate fewer construction-related employment opportunities than the proposed action, and after construction, there would be very limited new employment opportunities. The landfill alternative would have a net negative impact on State and County revenues, while the proposed action would have a substantial net positive impact.

**Social Services**

There would be no additional demand for social services under the landfill alternative. While more open space would be maintained under the Landfill Alternative, recreational access to most of the project site would be unlikely given the industrial-like use.

**6.5 SUMMARY ANALYSIS**

Given the comparative analysis of the various alternative uses of the project area, the proposed action for Makaīwa Hills would provide a balanced approach to the future use of this land. The proposed action is preferred because it provides an appropriate level of residential and commercial development, in satisfaction of policies of the ‘Ewa Development Plan, while maximizing the amount of open space and other amenities accessible to residents and the community. *Table 6-1* summary provided for comparison of the Makaīwa Hills proposed action with the alternatives.

**Table 6-1  
Proposed Action and Alternatives Comparison**

<b>Land Use Alternative</b>	<b>Developed vs. Open Space (ac &amp; %)</b>	<b>Residential Total/Afford (units)</b>	<b>Commercial Use (sf)</b>	<b>Traffic (peak trips)</b>	<b>Economic Benefits (estimated)</b>
<b>Makaīwa Hills</b>	712 ac. built 1,069 ac. open space (40% built)	4,100 total 1,230 affordable	250,000	3,106	1,100 Jobs, \$9.40 M/yr Real Prop. Tax Net Positive Revenues
<b>No-Action</b>	0 ac. built 1,781 ac. open space (0% built)	0 total 0 affordable	0	0	Few Farm and Nursery jobs \$26,900/yr Real Prop. Tax
<b>Intensive Development</b>	890 ac. built 891 ac. open space (50% built)	6,000 total 1,800 affordable	300,000	4,500	1,392 Jobs, \$14.1 M/yr Real Prop. Tax Net Positive Revenues
<b>Low-Density Development</b>	495 ac. built 1,286 ac. open space (28% built)	861 total 0 affordable	0	655	Few Farm and Nursery jobs \$1.9 M/yr Real Prop. Tax Net Negative Revenues
<b>Makaīwa Gulch Landfill</b>	300 ac. built 1,481 ac. open space (17% built)	0	0	solid waste trucks	City DES Jobs, \$22,400/yr Real Prop. Tax Net Negative Revenues

## **7.0 UNRESOLVED ISSUES**

## 7.0 UNRESOLVED ISSUES

At the time of publication of this document, there are several unresolved issues for this project. Makaīwa Hills, LLC continues to strive to resolve these pending issues with relevant agencies. A discussion of the current unresolved issues is presented below.

### 7.1 AFFORDABLE HOUSING PROGRAM

An affordable housing program, which will be developed with the County as a part of the anticipated unilateral agreement for the change in zoning and then in a more detailed affordable housing agreement that will be reached prior to development of the project area, has not yet been finalized. The project anticipates meeting the County's general standard of providing 30% of total residential units to be developed at Makaīwa Hills as affordable homes or equivalent credits with approximately 10% of the affordable total available to households under 80% of the local median income. There is the potential for the affordable housing requirement to be satisfied entirely on-site, or a portion of this requirement may be built at an off-site location, or provided via an in-lieu fee contribution. However, planning for the residential areas of Makaīwa Hills has centered around developing a diverse community available to local residents with a wide variety of incomes, including a substantial provision of affordable housing.

### 7.2 PROJECT DESIGN GUIDELINES

Detailed project design information, such as the specific architectural and landscape design for the residential and commercial elements of the project, has not been completed. For the change of zone process, conceptual images of the project have been prepared to depict project character at various locations. More detailed site planning and preliminary architecture and landscape design will be conducted in the next phase of project development. The project will have broad development guidelines which will apply to the establishment of residential and commercial areas of the project. Specific design guidelines will be prepared for the individual development areas to provide unique themes within a consistent quality and character across Makaīwa Hills.

### 7.3 COMMUNITY FACILITIES DISTRICT FINANCING

Construction of roads, commercial sites and house pads, along with support infrastructure and utilities would be phased over a multi-year period. Full build-out for the Makaīwa Hills project is intended to be implemented by 2020, dependant upon parcel sales and absorption. Discussions have been initiated with County authorities regarding alternative financial techniques to facilitate the development of necessary yet costly public infrastructure that will serve the greater region. A potential option is the establishment of one or more Community Facilities Districts to authorize the issuance of bonds to fund infrastructure improvements, such as major roadways, within a defined area that will benefit from the financing, and from which special taxes will be collected for the bonds repayment.

As described in the County's enabling ordinance, Chapter 34 of the Revised Ordinances of Honolulu, annual assessment and special tax amounts for these Districts are billed and collected on the property tax bills issued by the County. A district may be established to finance the acquisition, planning, design, construction, installation, improvement, or rehabilitation of any real property or structure with a useful life estimated by the council to be five years or longer.

Establishment of CFD as described above could potentially occur once the property has been re-zoned and the necessary design, costing and analysis have been conducted. The CFD is subject to establishing the District and authorizing the issuance of bonds through the review and approval by City Council, no projects have completed this process in Honolulu to this date. The CFD requires an accurate prediction of the infrastructure costs tied to specific improvements. The facilities would need to be built and dedicated prior to recapturing the funds.

## **7.4 REGIONAL TRANSPORTATION**

### **7.4.1 Highways**

An unresolved issue is the potential for a difference in the completion schedule for State highway improvements and the pace of completion for private developments. There are numerous development and infrastructure projects in the region with uncertain timetables for funding and government approvals. Infrastructure improvements need to be in step with the approval of new development projects in order to serve the project areas and fund the improvements. Coordination between governmental agencies and private development is needed to ensure the implementation of the necessary infrastructure to serve regional and project area demands.

Makaīwa Hills, LLC will continue to work closely with the State DOT on the proposed improvements related to the projects access points along the H-1 Freeway and Farrington Highway. To date, the Campbell Companies have worked closely with providing the local soft match to obtain federal funding for important regional transportation projects such as the Kapolei Interchange Complex. In addition, the project will continue to be closely coordinated with the County DPP and DTS as it relates to County standard roadways internal to the project as well as the existing County roadways offsite that will be affected by the project.

### **7.4.2 Mass Transit**

There are numerous details pertaining to the County's proposed mass transit system. Ordinance 07-001 into law defining the Locally Preferred Alternative (LPA) for Honolulu's High-Capacity Transit Corridor Project as a fixed guideway system running from Kapolei to the University of Hawai'i at Mānoa and Waikīkī. The ordinance tasks the administration with determining the Minimum Operable Segment or MOS or first project. This is only the first segment in what the community expects will be a larger system that connects the University of Hawai'i - Mānoa to West Kapolei.

The City Department of Transportation Services will prepare an EIS and preparation of an application to the FTA for permission to begin preliminary engineering on the alignment. The EIS

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will evaluate the alignment within the context of the overall LPA. The direct effects of construction and operation of the alignment, along with mitigation requirements, will be investigated in the EIS. System-wide effects of the LPA will also be evaluated, to ensure that implementation of the MOS is compatible with future projects - extending the transit system to west Kapolei, Salt Lake, the University of Hawai'i at Mānoa, and/or Waikīkī. Timing for the extension is unresolved at this point.



## **8.0 REFERENCES**

## 8.0 REFERENCES

- Aina Nui Corporation and the Estate of James Campbell (2005). *Final Environmental Impact Statement: Kapolei West Expansion Area*. Prepared by Helber Hastert and Fee, Planners.
- B.D. Neal & Associates (December 2006). *Air Quality Study for the Proposed Makaīwa Hills Project*.
- City and County of Honolulu. Research and Statistical Information.  
<http://www.honoluludpp.org/Planning/ResearchStats.asp>. Accessed August 2006.
- Colliers Hawaii Consulting (August 2005). *Makaīwa Hills Commercial Development Market Assessment and Feasibility Study*. Prepared for Makaīwa Hills LLC.
- Cultural Surveys Hawaii, Inc. (April 1991). *Archaeological Inventory Survey for Makaīwa Hills Project Site, Honouliuli, 'Ewa, O'ahu*.
- Cultural Surveys Hawaii, Inc. (November 2006). *Cultural Impact Assessment for Makaīwa Hills Project, Honouliuli Ahupua'a, 'Ewa District, O'ahu. TMK: (1)9-1-015: Por. 005 & 17; 9-2-003: Por. 002, 005 & 084*.
- Cultural Surveys Hawai'i, Inc. (December 2006). *Data Recovery Plan for the Makaīwa Hills Project, Honouliuli Ahupua'a, 'Ewa District, O'ahu. TMK: (1)9-1-015: 005 por. & 17; 9-2-003: 002 por., 005 por. and 084 por.*
- Cultural Surveys Hawai'i, Inc. (December 2006). *Preservation Plan for SIHP#s 50-80-12-4319,-4321, -4322, -4328 &-4388, -6870 & -6871 at the Makaīwa Hills Project, Honouliuli Ahupua'a, 'Ewa District, Oahu. TMK: (1)9-1-015: 005 por. & 17; 9-2-003: 002 por., 005 por. & 084 por.*
- D.L. Adams Associates, Ltd. (March 2007). *Environmental Noise Assessment Report Makaīwa Hills*.
- Decisions Analysts Hawaii, Inc. (March ~~October~~ 2007). *Makaīwa Hills: Economic and Fiscal Impacts*.
- Decisions Analysts Hawaii, Inc. (March 2007). *Makaīwa Hills: Impact on Agriculture*.
- Decisions Analysts Hawaii, Inc. (March ~~October~~ 2007). *Makaīwa Hills: Residential Market Study*.
- Engineering Concepts Inc. (March 2005). Preliminary Engineering Report for the Proposed Makaīwa Hills Development 'Ewa, O'ahu, Hawai'i. Prepared for Makaīwa Hills LLC.
- Kapolei Development LLC . *Hawai'i Fastest Growing Region*  
[http://www.kapolei.com/press/kapmag\\_05/05Kap\\_fastestgrowth.pdf](http://www.kapolei.com/press/kapmag_05/05Kap_fastestgrowth.pdf). Accessed August 2006.

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Mikiko Corporation (September 2005). *'Ewa and O'ahu's Affordable For-Sale Housing: Summary of Recent Market Conditions.*

OmniTrak Group Inc. (2006). *Jobs and Traffic Benchmark Study.*

Rana Productions, Ltd. (January 2006). *A Survey of Botanical, Avian, and Mammalian Resources, on the Makaīwa Hills Project Site, 'Ewa District, O'ahu, Hawai'i.*

Robert Charles Lesser & Co., LLC (May 2005). *Residential Market Feasibility Analysis and Segmentation Strategy Recommendations for Makaīwa Hills in Kapolei, Hawai'i.* Prepared for Makaīwa Hills LLC.

SMS Research (2003). *Hawai'i Housing Policy Study.*

SSFM International (~~March~~ **October** 2007). ~~Draft~~ **Final** *Preliminary Engineering Report for Makaīwa Hills.*

Wilbur Smith Associates (February 2007). *Makaīwa Hills Traffic Impact Assessment Report.*

## **9.0 AGENCIES AND PARTIES CONSULTED**

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### 9.0 AGENCIES AND PARTIES CONSULTED

Table 9-1 lists the agencies, organizations, and individuals who were contacted during the planning process, the preparation of the Environmental Impact Statement Preparation Notice (EISPN) or this Draft Environmental Impact Statement (DEIS) for the proposed Makaīwa Hills project. Copies of the written comment letters and responses are included in this section.

**Table 9-1  
Consulted Parties**

Respondents and Distribution	Consulted in Project Planning/Community Outreach	Received EISPN	Submitted Comments on EISPN	Received DEIS	Submitted Comments on DEIS	Received FEIS
<b>A. Federal Agencies</b>						
U.S. Army Corps of Engineers – Pacific Ocean Division		x				
U.S. Department of the Interior – Fish and Wildlife Service		x		x		
U.S. Department of the Interior – Geological Survey		x				
U.S. EPA, Region 9 – Pacific Islands Contact Office		x				
U.S. Department of Agriculture, Natural Resources Conservation Service		x				
Federal Highway Administration	x	x				
<b>B. State Agencies</b>						
BUF – Department of Budget and Finance		x				
DAGS – Department of Accounting & General Services				x	x	x
DBEDT - Office of Planning	x	x		x		
DBEDT - Department of Business, Economic Development & Tourism		x		x	x	x
DBEDT – Energy, Resources, & Technology Division		x		x		
DBEDT – Housing Finance & Development Corporation	x					
DHHL - Department of Hawaiian Home Lands	x	x		x		
DLIR – Department of Labor and Industrial Relations		x				
DLNR – Department of Land and Natural Resources	x	x		x (5)	x	x
DLNR – Historic Preservation Division	x	x		x	x	x
DOA – Department of Agriculture		x		x		
DOD – Department of Defense		x		x		
DOE – Department of Education	x	x	x	x	x	x
DOH – Department of Health	x	x			x	x
DOH – Environmental Planning Office		x	x	x (3)		
DOH – Environmental Management Division, Clean Water Branch		x				

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Respondents and Distribution	Consulted in Project Planning/Community Outreach	Received EISPN	Submitted Comments on EISPN	Received DEIS	Submitted Comments on DIES	Received FEIS
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### B. State Agencies (cont.)

DOT – Department of Transportation	x	x	x	x	x	x
HHFDC – Hawai‘i Housing Finance and Development Corporation	x					
HPHA – Hawai‘i Public Housing Authority						
OEQC – Office of Environmental Quality Control	x	x	x	x (5)	x	x
OHA – Office of Hawaiian Affairs	x	x	x	x		
OMPO – O‘ahu Metropolitan Planning Organization		x				
Public Utilities Commission		x				
University of Hawai‘i – Environmental Center		x		x (4)	x	x
University of Hawai‘i – Water Resources Research Center		x		x		

### C. City and County of Honolulu

Board of Water Supply	x	x	x	x	x	x
Department of Community Services		x	x	x	x	x
Department of Design and Construction		x	x	x	x	x
Department of Environmental Services	x	x		x	x	x
Department of Facility Maintenance	x	x		x	x	x
Department of Parks and Recreation		x	x	x	x	x
Department of Planning and Permitting	x	x	x	x (5)	x	x
Department of Transportation Services	x	x	x	x		
Honolulu Fire Department		x	x	x	x	x
Honolulu Police Department		x	x	x	x	x
Department of Emergency Management					x	x
O‘ahu Civil Defense Agency		*	*	*		
Office of the Mayor, Muffi Hanneman	x	x				

### D. Elected Officials

Daniel Akaka, U.S. Senator, State of Hawai‘i	x					
Daniel Inouye, U.S. Senator, State of Hawai‘i	x					
Neil Abercrombie, U.S. Representative District 1	x					
Mazie Hirono, U.S. Representative, District 2	x					
Mike Gabbard, State Senator, District 19	x	x				
Colleen Hanabusa, State Senator, District 21	x					
Karen Leinani Awana, State Representative, District 44	x	x				
Sharon Har, State Representative, District 40	x	x				
Todd Apo, Honolulu City Councilmember, District 1	x	x		x		x
Romy Cachola, Honolulu City Councilmember, District 7	x					
Donovan Dela Cruz, Honolulu City Councilmember, District 2	x					

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Respondents and Distribution	Consulted in Project Planning/Community Outreach	Received EISPN	Submitted Comments on EISPN	Received DEIS	Submitted Comments on DIES	Received FEIS
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### D. Elected Officials (cont)

Charles Djou, Honolulu City Councilmember, District 4	x					
Nester Garcia, Honolulu City Councilmember, District 9	x	x		x		x
Ann Kobayashi, Honolulu City Councilmember, District 5	x					
Gary Okino, Honolulu City Councilmember, District 8	x					
Rod Tam, Honolulu City Councilmember, District 6	x					

### E. Media

Honolulu Advertiser		x		x		x
Honolulu Star Bulletin		x		x		x

### F. Public Libraries

City and County Department of Customer Services Library				x		x
DBEDT Library				x		x
Hawai'i State Library				x (2)		x (2)
Legislative Reference Bureau				x		x
Kapolei Library		x		x		x
Hilo Regional Library				x		x
Kāne'ohe Regional Library				x		x
Kahului Regional Library				x		x
Kaimuki Regional Library				x		x
Lihue Regional Library				x		x
Pearl City Regional Library				x		x
UH Hamilton Library				x		x

### G. Community Organizations, Non-Profit Special Interest Organizations & Individuals

Aipolalani, Merri	x					
Association of Hawaiian Civic Clubs		x				
Buckley, Brent	x					
Carpenter's Union	x					
Eaton, Arline	x					
'Ewa Neighborhood Board No. 23		x				
Flanders, Judith	x					
Freitas, Mike	x					
Fuata, Ginger	x					
Galariada-Rosa, Eva	x					
Gershun, Lorraine	x					
Grace Pacific Corporation	x					
Hawai'i Audubon Society		x				
Hawai'i Building and Construction Trade Council		x				

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Respondents and Distribution	Consulted in Project Planning/ Community Outreach	Received EISPN	Submitted Comments on EISPN	Received DEIS	Submitted Comments on DIES	Received FEIS
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### G. Community Organizations, Non-Profit Special Interest Organizations & Individuals

Hawai'i Farm Bureau Foundation		x				
Hawai'i Thousand Friends		x				
Hawaiian Electric Company	x					
Honokai Hale/Nanakai Gardens Community Association						
Cabunoc, Henry	x					
Cabunoc, Makanani	x					
Chardon, Pat	x					
Clamor, Erlinda	x					
Clamor, Victorino	x					
Gaboya, Barbara	x					
Gaboya, David	x					
Gabriel, Isidoro	x					
Jolonino, Kuulei	x					
Kesner, Jr., Denver	x					
Makaiwi, Martha	x					
Martinez, Lorraine	x					
Pahia, Stacie	x					
Ross, Jane	x					
Hui Mālama I Na Kupuna – William Ailā	x					
Johnson, Rubellite	x					
Jolonino, Kuulei	x					
Ka'ala Farm – Eric Enos	x					
Kalaeloa – Tesha Malama	x					
Kamaile Elementary School – Glenn Kila, Principal	x					
Kamehameha Schools		x				
Kapolei Hawaiian Civic Club						
Amaral, Annelle	x					
Holden, Kala	x					
Lyman, Dan	x					
Lyman, Melissa	x					
Kane, Shad	x	x				
Kane, Valerie	x					
Kapolei High School						
Madelo, Daryl	x					
Takeda, Lolita	x					
Kapolei Rotary Club		x				
Kapolei School Complex Principals						
Miyamura, Mike	x					
Nishikawa, Annette	x					
Piliialoha, Darin	x					
Keliikoa, Denice	x					



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Respondents and Distribution	Consulted in Project Planning/ Community Outreach	Received EISPN	Submitted Comments on EISPN	Received DEIS	Submitted Comments on DIES	Received FEIS
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### G. Community Organizations, Non-Profit Special Interest Organizations & Individuals

Ko 'Olina Beach Club Vacation Owners Association Jensen, Chad	x					
Ko 'Olina Coconut Plantation Homeowners Association Popov, Robert	x					
Snelgrove, John	x					
Ko 'Olina Community Association Apo, Todd	x					
Williams, Ken	x					
Ko 'Olina Fairways Bloom, Harriet	x				x	x
Denis, Jerry	x					
Doane, Russell "RD"	x					
Elson, Pete	x					
Harris, Ralph	x					
Mortensen, Jim	x					
Rees, Rick	x					
Sheehan, John	x					
Spillane, Tim	x				x	x
Ko 'Olina Golf Club Nichols, Greg	x					
Ko 'Olina Kai Chicoine, Paul	x					
Monces, Romeo	x					
Ko 'Olina Kai Lani Coleman, Bernie	x					
Munson, Lee	x					
Okihiro, Dr. Glenn	x					
Seiler, Mike	x					
Ko 'Olina Resort and Marina Blaisdell, Bill	x		x	x	x	x
Fujiki, Randy	x					
Stone, Jeff	x					
Land Use Research Foundation of Hawai'i	x	x				
Lanikuhonua Cultural Institute – Nettie Tiffany	x					
League of Women Voters Leonardi, Attilio	x	x				
Leeward O'ahu Transportation Management Association		x				
Leeward AYSO – Obed Donlin	x					

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Respondents and Distribution	Consulted in Project Planning/ Community Outreach	Received EISPN	Submitted Comments on EISPN	Received DEIS	Submitted Comments on DIES	Received FEIS
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### G. Community Organizations, Non-Profit Special Interest Organizations & Individuals

Life of the Land		x				
Makakilo Kapolei Lions Club		x				
Makakilo/Kapolei/Honokai Hale Neighborhood Board No. 34	x	x		x		x
Timson, Maeda	x			x		
Buckley, Brent	x					
Dudley, Kioni	x					
Golojuch, Carolyn	x					
Golojuch, Michael	x	x				x
Kane, Shad	x					x
Kane, Valerie	x					
Kanno, Brian	x					
Makaiwi, Martha	x					
Ross, Jane	x					
Timson, Keith	x					
Yamamoto, George	x					
Young, Linda	x					
Nanakuli Hawaiian Homestead						
Cope, Agnes	x					
Kanahele, Kamaki	x					
O'ahu Island Burial Council						
Greenwood, Alice (Wai'anae District)	x					
Josephides, Analu (Wai'anae District)	x					
McKeague, Kāwika ('Ewa District)	x					
Tiffany, Nettie ('Ewa District)	x					
Outdoor Circle		x				
Pālehua Community Association						
Golojuch, Michael	x					
Timson, Maeda	x					
Zahn, Charlie	x					
Zahn, Jackie	x					
Philpotts, McD	x					
Sierra Club, Hawai'i Chapter		x	x	x		
Stone, Tom	x					
The Nature Conservancy	x	x				
Wai'anae Coast Archaeological Preservation Representative – Frenchy Desoto	x					

# MAKAĪWA HILLS

## Final Environmental Impact Statement

Respondents and Distribution	Consulted in Project Planning/ Community Outreach	Received EISPN	Submitted Comments on EISPN	Received DEIS	Submitted Comments on DIES	Received FEIS
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### G. Community Organizations, Non-Profit Special Interest Organizations & Individuals

Wai'anae Coast Neighborhood Board No. 24		x				
Aipoalani, Hanalei	x					
Awana, Karen	x					
Awo, Alvin	x					
Brown, David	x					
Endo, Calvin	x					
Ho'ohuli, Josiah "Black"	x					
Jordan, Jo	x					
Kelii, Kemo	x					
Kila, Glenn	x					
Len, Denise Hew	x					
Rezentes, Cynthia	x				x	x
Saylors, Denise	x					
Slocum, Frank	x					
Teruya, Patty	x					
Waiamau-Nunuha, Neddie	x					
Wai'anae Culture and Arts						
Cope, Agnes	x					
Kanahele, Kamaki	x					
Wai'anae High School – Candy Suiso	x					
West O'ahu Economic Development Association	x	x				

## **EISPN Comment Letters and Responses**



STATE OF HAWAII  
DEPARTMENT OF EDUCATION  
P.O. BOX 2360  
HONOLULU, HAWAII 96804

OFFICE OF THE SUPERINTENDENT

November 20, 2006

Mr. Steve Kelly  
Makaiwa Hills, LLC  
1001 Kamokila Boulevard, Suite 250  
Kapolei, Hawaii 96707

Dear Mr. Kelly:

**SUBJECT:** Environmental Impact Statement Preparation Notice for Makaiwa Hills  
Ewa, Oahu, TMK: 9-1-15; por. 5 & 17, 9-2-03; portions of 2, 5, & 84

The Department of Education (DOE) will have a great deal of difficulty estimating the impact of the proposed Makaiwa Hills planned community on area public schools unless we are supplied with more details on the types of residential housing being planned.

The DOE requests data on how many units are expected to be multi-family housing and how many units will be single-family housing, as well as an estimate of the size of the units or lot sizes. We also need to know how many units are designed to be affordable housing and how many units would be geared to middle income and upper income groups.

We acknowledge the provision of a 12-acre site for an elementary school within the project; but without more detail on the types of residential units planned, we cannot determine if this one school site would be sufficient.

All of the present schools serving the Kapolei area are over their present facility capacities and are expected to grow further without taking into account the units planned for Makaiwa Hills.

The DOE looks forward to receiving additional information so that we can comment in greater detail. If you have any questions, please call Heidi Meeker of the Facilities Development Branch at 733-4862.

Very truly yours,

Patricia Hamamoto  
Superintendent

PH:jmb

cc: Randolph Moore, Acting Assistant Superintendent, OBS  
Duane Kashiwai, Public Works Manager, FDB  
Mamo Carreira, CAS, Campbell/Kapolei/Waianae Complex Areas  
Eugene Takahashi, DPP, City and County of Honolulu  
Genevieve Salmonson, OEQC  
Jeffrey Overton, Group 70 International

AN AFFIRMATIVE ACTION AND EQUAL OPPORTUNITY EMPLOYER



GROUP 70  
INTERNATIONAL

Francis S. Oda,  
Arch. D., F.A.A., AICP  
Norman G. Y. Hong, AIA  
Sheryl B. Staman, AIA, ASD  
Heidi Hida, AIA  
Roy H. Nhef, AIA, CSI  
James I. Nishimoto, AIA  
Stephen H. Yuen, AIA  
Linda C. Miki, AIA

George I. Aita, AICP  
Charles Y. Kaneshiro, AIA, LEED  
Jeffrey H. Overton, AICP  
Christine Mendes Rucibis, AICP  
James L. Stone, AIA, LEED

Paul P. Chorney, AIA  
Philip T. Cocca, CSI, CDT  
Kimberly Evans  
Pete C. Galvez, AIA  
Sabrin Halim  
Roy A. Inouye, AIA, CSI  
Carm Klester  
Katherine M. MacNeil, AIA  
Frank B. McCue  
Kawika McKeague  
Kathryn A. Nam  
Hiren C. Pigo

Doreen D. Remington  
Kimberly Polkithom, AIA, LEED  
Scott Tangonan  
Tom Young, AIA

Ralph E. Robinson, AICP  
OT Counsel

April 5, 2007

Ms. Patricia Hamamoto  
Superintendent  
State of Hawai'i  
Department of Education  
P.O. Box 2360  
Honolulu, HI 96804

**SUBJECT: Makaiwa Hills – Responses to Comments on the Environmental Impact Statement Preparation Notice**

Dear Ms. Hamamoto,

Thank you for your comment letter to Steve Kelly of Makaiwa Hills, LLC concerning the Makaiwa Hills Environmental Impact Statement Preparation Notice. The following statements are offered in response to your comments.

**1. Types of Planned Residential Housing**

The residential component of the Makaiwa Hills development includes a combined total count of 4,100 residential units, consisting of a mix of low- and medium-density dwellings. Of the 4,100 units, 1,619, or approximately 40%, will be single-family residences, while the remaining 2,481, or about 60%, will be a variety of multi-family configurations. The residential lots will increase in minimum size from 5,000 square feet at the lower elevations, to 20,000 square feet estate lots in the furthest mauka areas.

**2. Affordable Housing**

Makaiwa Hills will establish an affordable housing component in the makai residential areas that will serve to meet the needs of households earning below 140% of the median income. Thirty percent of the total residential units, or approximately 1,230 units, will be available as affordable housing units for low and moderate income Hawai'i residents. The exact location and distribution of units will be determined in after discussions with the County.

**3. Market-priced and Upscale Housing**

Makaiwa Hills will develop a range of market-priced and upscale housing types. Twenty-four percent of the total residential units, or 979 homes, will be priced at market prices. Forty-six percent of the total residential units, or 1,891 homes, will be upscale homes.

**4. Educational Demand**

The Applicant recognizes that the project will increase demand on educational services as full build-out of the Makaiwa Hills community occurs. All of the public schools that serve the City of Kapolei have opened within the last ten years, reflecting the recent growth of the Ewa region. According to your Department, all of the

Ms. Patricia Hamamoto  
April 5, 2007  
Page 2 of 2

schools serving the Kapolei area are over their present facility capacities, and are expected to grow further without taking into account the Makaiwa Hills development.

We would like to acknowledge that a number of new schools have been identified as part of other development projects in addition to the elementary school at Makaiwa Hills. Two new elementary schools are proposed in the region at the following development projects: University of Hawai'i West O'ahu and DHHL East Kapolei II. Two middle schools sites have been identified as part of the planned Kapolei West and DHHL East Kapolei II projects. And a new high school location has been identified for land mauka of the future UH West O'ahu. Additionally, D.R. Horton is planning a number of schools sites at its Ho'opili development in East Kapolei.

The Applicant intends to continue discussions with your office to determine the extent of the additional educational demand, the sufficiency of the proposed on-site elementary school site, and other "fair share" contributions to offset the project's impact to public school facilities. The terms of the outcome of these discussions shall be mutually agreed upon in writing prior to obtaining county zoning.

Your comment letter and this response will be included in the Draft Environmental Impact Statement. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.



Jeffrey H. Overton, AICP  
Principal, Chief Environmental Planner

LINDA LINGLE  
GOVERNOR OF HAWAII



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

STATE OF HAWAII  
DEPARTMENT OF HEALTH  
P.O. Box 3376  
HONOLULU, HAWAII 96814-3376

In reply, please refer to:  
EPO-06-187

December 7, 2006

Mr. Steve Kelly  
Makaiwa Hills, LLC  
1001 Kamokila Boulevard, Suite 250  
Kapolei, Hawaii 96707

Dear Mr. Kelly:

**SUBJECT** Environmental Impact Statement Preparation Notice (EISPN) for the Proposed Makaiwa Hills Project, Ewa District, Oahu, Hawaii  
TMK: (1) 9-1-015: 005 (portion), 017  
(1) 9-2-003: 002 (portion), 084 (portion)

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, Safe Drinking Water Branch, Clean Water Branch and Clean Air Branch comments.

Wastewater Branch

We have reviewed the subject preparation notice. The project proposes to rezone agricultural areas to residential and commercial designations in order to develop the Makaiwa Hills Project.

The subject project is located in the Critical Wastewater Disposal Area (CWDA) as determined by the Oahu Wastewater Advisory Committee where no new cesspools will be allowed. The subject properties are also in the No Pass Zone where subdivisions are usually not allowed unless connection to the County sewer service system is possible.

As the project will be connected to the City's sewer system, we have no objections to the development. We encourage the developer to work with the Honolulu Board of Water Supply and utilize recycled water for irrigation and other non-potable water purposes such as open spaces and/or landscaping areas

All wastewater plans must conform to applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater System." We 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 (808) 586-4294.

Safe Drinking Water Branch (SDWB)

We have examined the EISP and have the following comments to offer:

1. Hawaii Administrative Rules, Title 11, Chapter 20, Rules Relating to Potable Water Systems, requires that new or substantially modified distribution systems for public water systems be approved by the Director. However, if the water system is under the jurisdiction of the City and County of Honolulu, the Board of Water Supply will be responsible for the review and approval of the plans.
2. The EISP indicates that the proposed development will have a dual water system. The potable and non-potable water systems must be carefully designed and operated to prevent cross-connections and backflow conditions. The two systems must be clearly labeled and physically separated by air gaps or reduced pressure principle backflow preventers to avoid contaminating the potable water supply. In addition, all non-potable spigots and irrigated areas should be clearly labeled with warning signs to prevent the inadvertent consumption of non-potable water.

If you should have any questions concerning drinking water, please contact Stuart Yamada of the SDWB at 586-4258.

Clean Water Branch

The Department of Health (DOH), Clean Water Branch (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/ndiv-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. 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.

Clean Air Branch

#### **Control of Fugitive Dust**

A significant potential for fugitive dust emissions exists during all phases of construction and operations. Proposed activities that occur in proximity to existing residences, businesses, public areas or thoroughfares, exacerbate potential dust problems. It is recommended that a dust control management plan be developed which identifies and addresses all activities that have a potential to generate fugitive dust. The plan, which does not require the Department of Health (DOH) approval, would help with recognizing and minimizing the dust problems from the proposed project.

Activities must comply with the provisions of Hawaii Administrative Rules, §11-60.1-33 on Fugitive Dust. In addition, for cases involving mixed land use, we strongly recommend that buffer zones be established, wherever possible, in order to alleviate potential nuisance problems.

The contractor should provide adequate measures to control the fugitive dust from the road areas and during the various phases of construction. Examples of measures that can be implemented to control dust include, but are not limited to, the following:

- a) Planning the different phases of construction, focusing on minimizing the amount of dust-generating materials and activities, centralizing on-site vehicular traffic routes, and locating potential dust-generating equipment in areas of the least impact;
  - b) Providing an adequate water resource at the site prior to start-up of construction activities;
  - c) Landscaping and providing rapid covering of bare areas, including slopes, starting from the initial grading phase;
  - d) Minimizing dust from shoulders and access roads;
  - e) Providing adequate dust control measures during weekends, after hours, and prior to daily start-up of construction activities; and
  - f) Controlling dust from debris being hauled away from the project site.
- If you have any questions, please contact the Clean Air Branch at 586-4200

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](http://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 Jiakai Liu with the Environmental Planning Office at 586-4346.

Sincerely,



KELVIN H. SUNADA, MANAGER  
Environmental Planning Office

C: EPO  
WWB  
SDWB  
CWB  
CAB

Mr. Jeffrey Overton, Group 70 International, Inc.





Mr. Kelvin H. Sunada  
 April 5, 2007  
 Page 2 of 2

April 5, 2007

Mr. Kelvin H. Sunada  
 Manager

State of Hawai'i  
 Department of Health  
 Environmental Planning Office  
 P.O. Box 3378  
 Honolulu, HI 96801-3378

**SUBJECT: Makaiwa Hills – Responses to Comments on the Environmental Impact Statement Preparation Notice**

Dear Mr. Sunada,

Thank you for your comment letter to Steve Kelly of Makaiwa Hills, LLC concerning the Makaiwa Hills Environmental Impact Statement Preparation Notice. The following statements are offered in response to your comments.

**1. Wastewater Branch.**

We acknowledge that the Wastewater Branch has no objections to the Makaiwa Hills project. The Applicant will work with the County to facilitate use of recycled water for irrigation and other non-potable water purposes. Detailed wastewater plans will be provided to DOH for review and input as the development progresses to future phases.

**2. Safe Drinking Water Branch.**

As development plans progress more detailed information will become available on the planned dual-water system. In all instances, however, the two systems will be carefully designed and clearly labeled to prevent cross-connections, backflow conditions and contamination of drinking water supply. Detailed water plans will be provided to DOH and the Board of Water Supply for review and input as the development progresses to future phases.

**3. Clean Water Branch.**

The Army Corps of Engineers has received copies of the Makaiwa Hills Environmental Impact Statement Preparation Notice and the Draft Environmental Impact Statement and have provided no comments on the project. The project will comply with the requirements of the Clean Water Act, including the rules under HAK, Sections 11-54, 11-55-04, 11-55-34.05, 11-55-38 for submission of application for general permit coverage authorized under the National Pollutant Discharge Elimination System (NPDES). The Applicant will comply with applicable discharge requirements.

**4. Clean Air Branch.**

Development activities will comply with the provisions of HAR 11-60.1-33 on Fugitive Dust. We appreciate your recommendations that can be implemented to control dust and will take them into consideration as development plans progress.

- Francis S. Odeh, Arch. D., FAIA, AICP
- Norman G.Y. Hong, AIA
- Sheryl B. Swaman, AIA, ASID
- Hiroshi Hida, AIA
- Roy H. Nishi, AIA, CSI
- James I. Nishimoto, AIA
- Stephan H. Yuan, AIA
- Linda C. Niki, AIA
- George I. Alta, AICP
- Charles Y. Kaneshiro, AIA, LEED
- Jeffrey H. Overton, AICP
- Christine Mendes-Ruotola, AICP
- James L. Stone, AIA, LEED
- Paul P. Chorney, AIA
- Philip T. Cucchi, CSI, CDT
- Kimberly Evans
- Pete C. Galvez, AIA
- Stobin Hallin
- Roy A. Inouye, AIA, CSI
- Cami Koster
- Katherine M. MacNeil, AIA
- Frank B. McCue
- Kawika Mokuogoa
- Kathryn A. Nam
- Hiram C. Pajo
- Donna D. Pennington
- Kimberly Polkholm, AIA, LEED
- Scott Tangonan
- Tom Young, AIA
- Ralph E. Furlow, AICP  
Of Counsel

Your comment letter and this response will be included in the Draft Environmental Impact Statement. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP  
 Principal, Chief Environmental Planner



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

RODNEY K. HARAGA  
DIRECTOR

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

IN REPLY REFER TO:

STP 8.2331

Mr. Steve Kelly  
Page 2  
November 22, 2006  
STP 8.2331

The street and roadway network and connections for the project that would be provided in the project's plans should be reflected in the new TIAR.

November 22, 2006

Mr. Steve Kelly  
Makaiwa Hills, LLC  
1001 Kamokila Boulevard, Suite 250  
Kapolei, Hawaii 96707

Dear Mr. Kelly:

Subject: Makaiwa Hills  
Environmental Impact Statement Preparation Notice

We have the following comments on your proposed Makaiwa Hills planned community project:

1. All three of our operating transportation systems – Airports, Harbors and Highways - are affected by the project.
2. A portion of the watershed basin area making up the lands in the project has drainage flowing towards Kalaeloa Barbers Point Harbor. The drainage from the project should not impact the harbor. Storm and surface water discharge and any accompanying pollution flowing at and towards the harbor should be mitigated. The drainage plans for the project should be submitted for our prior review and approval.
3. Kalaeloa Barbers Point Harbor and its industrial operations is within the view planes from the project. We recommend that consideration be given for a disclosure to prospective occupants and residents of the project on the potential or perceived effects or nuisances associated with harbor facilities and industrial activity, such as but not limited to facility and security lights.
4. An updated traffic impact analysis report (TIAR) should be prepared and submitted for our review and approval. The previous TIAR dated July 14, 1992 is outdated.

The new TIAR should cover project impacts and mitigation measures, the project's contribution to the cumulative traffic impacts in the area, the project's position in and relationship to the regional transportation plans for the area, the access connections at the interchanges with the H-1 Freeway, lateral connectivity with adjoining developments and, the project's participation and contribution to the Ewa Impact Fee.

5. Traffic volumes have generally increased since the earlier (1992 Environmental Assessment) noise study. The earlier study indicated that mitigation measures would be needed along the project areas closest to Farrington Highway. Traffic noise impacts should be reviewed and updated and mitigation measures implemented as required.
6. Aircraft operations, types and operating characteristics have also changed since the earlier 1992 noise study report was done for the project. The project is now not within the aircraft flight paths or noise contours from the standard civilian aircraft operations of Kalaeloa Airport and Honolulu International Airport that would require mitigation measures, however, with the project's elevations, certain military aircraft operations and certain weather or atmospheric conditions may cause aircraft single-noise events to reach the project area. We recommend the conditions stipulated by the Land Use Commission for the project in 1993 on aircraft noise be reviewed, including consideration for a disclosure to prospective occupants and residents on possible single-event noise.

7. As an interested party for the project, we request that we receive at least five (5) copies of the draft environmental impact statement for the project when it is completed.

We appreciate the opportunity to provide our initial comments on the project.

Very truly yours,

RODNEY K. HARAGA  
Director of Transportation

c: Genevieve Salmonson, Office of Environmental Quality Control  
Eugene Takahashi, Department of Planning and Permitting  
Jeffrey Overton, Group 70 International, Inc.  
Laura Theilen, Office of Planning, DBEDT





April 5, 2007

Mr. Barry Fukunaga  
Director of Transportation  
State of Hawai'i  
Department of Transportation  
869 Punchbowl Street  
Honolulu, HI 96813-5097

**SUBJECT: Makaiwa Hills – Responses to Comments on the Environmental Impact Statement Preparation Notice**

Dear Mr. Fukunaga,

Thank you for your comment letter to Steve Kelly of Makaiwa Hills, LLC concerning the Makaiwa Hills Environmental Impact Statement Preparation Notice. The following statements are offered in response to your comments.

**1. Drainage**

Consideration has been given to the future development of the Makaiwa Hills site in planning of downstream drainage facilities. Impacts on developments downstream of the Makaiwa Hills site are not expected to be adverse and runoff will not be directed toward Kalaeha Barbers Point Harbor. A drainage master plan will be prepared and submitted to the Department of Transportation and the City and County Department of Planning and Permitting.

Preliminary hydrologic calculations of storm runoff from the developed Makaiwa Hills site were performed to assess the capacity of drainage structures in Honokai Hale and Ko 'Olina. Based on preliminary analysis these drainage systems appear adequate to handle the peak storm runoff expected from the future Makaiwa Hills development.

Planning and initial design for offsite regional drainage improvements have begun. Prior to implementation of the major downstream drainage components, interim use of detention basins for the initial phases of development will probably be required to dampen flows to existing conditions. Use of temporary detention basins would allow use of the existing culverts crossing the freeway without the need for additional improvements. Location of detention basins will depend on the area of initial development. Detention basins sizing will be dependent on developed area and the amount of increase in flow over existing conditions.

**2. Viewplains**

Prospective occupants and residents of Makaiwa Hills will be made aware of potential or perceived visual effects or nuisances associated with harbor and industrial facilities.

**3. Traffic Impact Analysis Report**

Wilbur Smith Associates have prepared a new Traffic Impact Assessment Report for Makaiwa Hills, which is included as an appendix and summarized in the text of the

Mr. Barry Fukunaga  
April 5, 2007  
Page 2 of 2

Draft Environmental Impact Statement (DEIS). The report addresses existing conditions as well as two future scenarios, namely Year 2015 with and without the proposed project and Year 2020 with and without the proposed project. The report and DEIS describes potential cumulative impacts on the regional traffic and recommendations for mitigative measures. The project will participate in and contribute its "fair share" to the development of State transportation facility improvements.

**4. Noise**

A new Environmental Noise Assessment Report has been prepared by D.L. Adams Associates, LTD and it is included as an appendix and summarized in the text of the Draft Environmental Impact Statement (DEIS). The report and the DEIS address traffic noise impacts and recommendations for mitigative measures.

**5. Aircraft Overflights**

We acknowledge that the project is not within aircraft flight paths or noise contours from standard civil aviation, although single-noise events may still possibly impact residents and occupants of the project. Prospective occupants and residents of Makaiwa Hills will be made aware of potential for single-noise events.

Your comment letter and this response will be included in the Draft Environmental Impact Statement. We appreciate your participation in the environmental review process. Five copies will be delivered to your department when they are published.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP  
Principal, Chief Environmental Planner



STATE OF HAWAII  
OFFICE OF HAWAIIAN AFFAIRS  
711 KAPOLANI BOULEVARD, SUITE 500  
HONOLULU, HAWAII 96813

November 21, 2006

HRD06/2269B

Steve Kelly  
Maka'iwa Hills, LLC  
1001 Kamokila Blvd., Ste. 250  
Kapolei, Hawaii 'i 96707

RE: Environmental Impact Statement (EIS) Pre-Consultation Notice for Maka'iwa Hills;  
'Ewa, O'ahu; TMK 9-1-15:por. 5, 17, and 9-2-03:por. 2, 5, 84

Dear Mr. Kelly,

The Office of Hawaiian Affairs (OHA) is in receipt of your October 23, 2006 request for review and comments regarding the EIS pre-consultation notice for Maka'iwa Hills. The applicant proposes a City and County of Honolulu (CCH) zone change, from agricultural to residential and commercial, on a 1,780 acre parcel in West O'ahu. In 1993, the applicant sought and received a State Land Use District Boundary Amendment for the parcel, and the land was classified as Urban. Now the applicant seeks a matching zoning change from CCH.

We appreciate that the applicant has recognized that this development has the potential to significantly impact the natural and cultural resources of the area, and is voluntarily preparing a new EIS due to the increased scope of the development. We offer the following comments as you prepare the new EIS:

On page 3-2, it is stated that water use will be evaluated in the draft EIS. We request that this section include not only a complete analysis of the projected quantity requirements, but also the potential and probable sources, and the potential effects of taking water from each alternative source. We also request an analysis of using recycled water for non-potable needs.

On page 3-3, it is noted that there are at least 34 cultural sites on the property, and of those, 17 will be preserved and protected. We request that these inventories and plans be updated and expanded on in the new draft EIS.

We appreciate that a cultural impact assessment will be conducted by the applicant, as required by Act 50, Session Laws of Hawaii, 2000, to study the potential effects on Native Hawaiian people and culture. On March 7, 2006, we submitted information to the applicant's consultant

Steve Kelly, Maka'iwa Hills, LLC  
November 21, 2006  
Page 2

Cultural Surveys Hawai'i regarding the high potential for burials within the project site. We also provided community contacts that can help in gathering information.

Thank you for the opportunity to comment. We look forward to reviewing the draft EIS. Please forward all future correspondence on this and other issues to me at the address listed in the above letterhead. If you have any further questions or concerns please contact Koa Kaulukukui at (808) 594-0244 or [koalamik@oha.org](mailto:koalamik@oha.org).

Sincerely,

Clyde W. Nāmu'o  
Administrator

c: Henry Eng, FAICP, Director  
City and County of Honolulu  
Department of Planning and Permitting  
650 South King Street, 7<sup>th</sup> Floor  
Honolulu, HI 97813

v Jeffrey Overton  
Group 70 International, Inc.  
925 Bethel Street, 5<sup>th</sup> Floor  
Honolulu, Hawaii 'i 96813





April 5, 2007

Mr. Clyde W. Nāmu'o  
Administrator

State of Hawai'i  
Office of Hawaiian Affairs  
711 Kapiolani Blvd., Suite 500  
Honolulu, HI 96813

Francis S. Oda,  
Arch. D., FAIA, AICP  
Norman G.Y. Hong, AIA  
Sheryl B. Samaan, AA, ASID  
Hibah Hida, AIA

Roy H. Niki, AIA, CSI  
James I. Nishimoto, AIA  
Stephen H. Yuen, AIA  
Linda C. Niki, AIA

George I. Aita, AICP  
Charles Y. Kaneshiro, AIA, LEED  
Jeffrey H. Overton, AICP  
Christine Mendez-Ruotola, AICP  
James L. Stone, AIA, LEED

Paul P. Chorney, AIA  
Philip T. Cucchi, CSI, CDT  
Kimberly Evans  
Pete C. Galvez, AIA  
Sabrin Hillm  
Roy A. Inouye, AIA, CSI  
Cami Koster  
Katherine M. MacNeil, AIA

Frank B. McCue  
Kawika Mokuogua  
Kathryn A. Nam  
Hiram C. Pajo  
Donna D. Pennington  
Kimberly Polk-Horn, AIA, LEED  
Scott Tangonan  
Tom Young, AIA

Ralph E. Furlow, AICP  
Of Counsel

Mr. Clyde W. Nāmu'o  
April 5, 2007  
Page 2 of 2

In an effort to reduce the drinking water requirements of the project, a dual water system is proposed. Non-potable water is planned for irrigation use in the proposed commercial areas, school, and parks. The County and the BWS have developed the R1 recycled effluent system that currently serves some of the developments in the 'Ewa/Kapolei region with non-potable water. A water reuse plan will be developed to include additional information about the irrigation, management, public education, and other required information per the Recycled Water Guidelines. Further discussion of water resources, impacts and mitigative measures can be found in the Draft EIS.

**2. Cultural Analysis.**

A Cultural Impact Assessment has been completed by Cultural Surveys Hawai'i for the project site. In addition to inventorying the cultural sites on the property, CSH conducted data recovery and have developed a Preservation Plan for sites that will be preserved and protected. This report has been included as Appendix H in the Draft EIS.

We would like to thank you for your assistance in providing information and contacts for the Cultural Impact Assessment. Your comment letter and this response will be included in the Draft Environmental Impact Statement. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP  
Principal, Chief Environmental Planner

**SUBJECT: Makaiwa Hills – Responses to Comments on the Environmental Impact Statement Preparation Notice**

Dear Mr. Nāmu'o,

Thank you for your comment letter to Steve Kelly of Makaiwa Hills, LLC concerning the Makaiwa Hills Environmental Impact Statement Preparation Notice. The following statements are offered in response to your comments.

**1. Water Use.**

The Board of Water Supply (BWS) system provides drinking water service to the 'Ewa/Kapolei region. Wells located in Waipahu, in the vicinity of the Kunia Interchange, are the water source for the system. These wells include the Ho'ae'ae Wells, Kunia Wells I, and Waipahu Wells.

Water system requirements for Makaiwa Hills have been considered in regional water system planning. Makaiwa Hills is one of several proposed developments in the 'Ewa/Kapolei area that will impact the existing regional water system by increasing the demand for drinking water. Drinking water demands will include service to the proposed residential developments, and non-irrigation water service only to the areas proposed for commercial development. Water demand estimates for the project are based on BWS Water System Design Criteria for the various land uses and are shown below.

Drinking Water Demand

Land Use	No. of Units	gpd/unit	Average Daily Demand (gpd)
Residential	1,851 homes	500	925,500
Low Density Apt	2,249 units	400	899,600
Comm Ctr/School	20.7 acres	4000	82,800
Town Ctr	115,000 sf	0.12	13,800
Shopping Ctr	150,000 sf	0.10	15,000
		TOTAL (MDG)	1,940,000

Initial development of the site will require the construction of at least one reservoir and pump station. Most of the project site is located above the service zone for the existing 215' reservoirs. The BWS has indicated that there should be sufficient interim capacity in the existing reservoirs to accommodate initial development.

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU  
630 SOUTH BERETANIA STREET  
HONOLULU, HI 96843

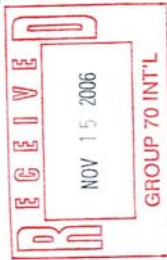


November 13, 2006

MUJI HANEMANN, Mayor  
RANDALL Y. S. CHUNG, Chairman  
HERBERT S. X. KAOPUA, SR.  
SAJUEL T. HATA  
ROBERT K. CUNDIFF

RODNEY K. HARAGA, Ex-Officio  
LAVENE L. HIGA, Ex-Officio

CLIFFORD P. LUM  
Manager and Chief Engineer



Mr. Steve Kelly  
Makaiwa Hills, LLC  
1001 Kamokila Boulevard, Suite 250  
Kapolei, Hawaii 96707

Dear Mr. Kelly:

**Subject:** Your Letter Dated October 23, 2006 Regarding Makaiwa Hills Environmental Impact Statement Preparation Notice; Ewa, Oahu TMK (1) 9-1-15: 5 (por), 17; 9-2-03: portions of 2, 5 & 84

Thank you for the opportunity to comment on the proposed project.

A regional water master plan for the Ewa area, in addition to a water master plan for the proposed development should be submitted for approval. The master plan should include the water requirements and proposed water facilities. The master plan should show that the facilities are able to provide water service and fire protection in accordance with our Water System Standards.

Large landscape areas should be irrigated with a non-potable water source.

The maximum water pressure is 125 pound per square inch.

If you have any questions, please contact Robert Chun at 748-5440.

Very truly yours,

*K. Shida*  
KEITH S. SHIDA  
Principal Executive  
Customer Care Division

cc: Mr. Eugene Takahashi, OEQC  
Mr. Jeffrey Overton, Group 70 International, Inc.



**GROUP 70**  
INTERNATIONAL

Francis S. Oda,  
Arch. D., F.AIA, AICP  
Norman G.Y. Hong, AIA  
Sheryl B. Samaan, AIA, ASD  
Heidi Hida, AIA  
Roy H. Nhei, AIA, CSI  
James I. Nishimori, AIA  
Stephen H. Yuen, AIA  
Linda C. Miki, AIA  
George I. Alta, AICP

Charles Y. Kaneshiro, AIA, LEED  
Jeffrey H. Overton, AICP  
Christine Mendes Rucobis, AICP  
James L. Stone, AIA, LEED

Paul P. Cherny, AIA  
Philip T. Cocchi, CSI, CDT  
Kimberly Evans  
Pete C. Galvez, AIA  
Sabrin Halim

Roy A. Inouye, AIA, CSI  
Carm Klester  
Katherine M. MacNeil, AIA  
Frank B. McCue  
Kawaka McKelague  
Kathryn A. Nam  
Hiram C. Pigo  
Dorina D. Remington  
Kimberly Polkithom, AIA, LEED  
Scott Tangonan  
Tom Young, AIA

Ralph E. Robinson, AICP  
OT Counsel

April 8, 2007

Mr. Keith S. Shida  
Principal Executive  
Customer Care Division  
City and County of Honolulu  
Board of Water Supply  
630 South Beretania Street  
Honolulu, HI 96813

**SUBJECT: Makaiwa Hills – Responses to Comments on the Environmental Impact Statement Preparation Notice**

Dear Mr. Shida,

Thank you for your comment letter to Steve Kelly of Makaiwa Hills, LLC concerning the Makaiwa Hills Environmental Impact Statement Preparation Notice. On February 8, 2007, we attended a very informative meeting with Barry Usagawa and several BWS staff members to discuss water resource issues relating to this project. The following statements are offered in response to your comments.

**1. Water Master Plan.**

The Estate of James Campbell and/or its affiliates have participated in implementing improvements to the regional water system with the goal of providing for the needs of the proposed developments in the area. Its successors will continue to assist in developing water system improvements as they relate to individual development projects. A water master plan will be developed for Makaiwa Hills as development plans progress further.

**2. Water Use Details.**

Water system requirements for Makaiwa Hills have been considered in regional water system planning. Makaiwa Hills is one of several proposed developments in the Ewa/Kapolei area that will impact the existing regional water system by increasing the demand for drinking water. Drinking water demands will include service to the proposed residential developments, and non-irrigation water service only to the areas proposed for commercial development. Water demand estimates for the project are based on BWS Water System Design Criteria for the various land uses shown below.

Drinking Water Demand

Land Use	No. of Units	gpd/unit	Average Daily Demand (gpd)
Residential	1,851 homes	500	925,500
Low Density Apt	2,249 units	400	899,600
Comm Ctr/School	20.7 acres	4000	82,800
Town Ctr	115,000 sf	0.12	13,800
Shopping Ctr	150,000 sf	0.10	15,000
		<b>TOTAL (MDG)</b>	<b>1,940,000</b>

Mr. Keith S. Shida  
April 5, 2007  
Page 2 of 2

Initial development of the site will require the construction of at least one reservoir and pump station. Most of the project site is located above the service zone for the existing 215' reservoirs. At a minimum, a 440' system reservoir will need to be constructed, along with a pump station connecting to the 215' reservoirs. The BWS has indicated that there should be sufficient interim capacity in the existing reservoirs to accommodate initial development.

In an effort to reduce the drinking water requirements of the project, a dual water system is proposed. Non-potable water is planned for irrigation use in the proposed commercial areas, school, and parks. The County and the BWS have developed the RI recycled effluent system that currently serves some of the developments in the Ewa/Kapolei region with non-potable water. A water reuse plan will be developed to include additional information about the irrigation, management, public education, and other required information per the Recycled Water Guidelines. Further discussion of water resources, impacts and mitigative measures can be found in the Draft EIS.

Your comment letter and this response will be included in the Draft Environmental Impact Statement. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.



Jeffrey H. Overton, AICP  
Principal, Chief Environmental Planner

cc: Barry Usagawa, BWS

DEPARTMENT OF COMMUNITY SERVICES  
CITY AND COUNTY OF HONOLULU

715 SOUTH KING STREET, SUITE 311 • HONOLULU, HAWAII 96813 • AREA CODE 808 • PHONE: 527-5311 • FAX: 527-5488



MUFTI HANNEMANN  
MAYOR

DEBORAH KIM MORIKAWA  
DIRECTOR

MARK K. OTO  
SENIOR ADVISOR

November 20, 2006

Mr. Steve Kelly  
Makaia Hills, LLC  
1001 Kamokila Boulevard, Suite 250  
Kapolei, Hawaii 96707



Dear Mr. Kelly:

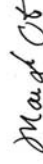
Subject: Environmental Impact Statement Preparation Notice  
Makaia Hills

Thank you for providing us with the opportunity to review and comment on the Makaia Hills Environmental Impact Statement (EIS) Preparation Notice.

The draft EIS should provide more detailed information on the types of affordable housing that will be developed in terms of unit size, types and pricing. Given the severe shortage of affordable rental housing our community currently faces, it is our preference that the unit mix include an affordable rental housing component that could be developed by a nonprofit developer or nonprofit/for profit partnership using existing affordable housing programs such as the low housing tax credit program. We would also ask that consideration be given to set aside a few house lots for the development of group homes for persons with special needs. As a matter of policy, the City & County of Honolulu promotes the dispersal of housing for persons with special needs throughout the community, including new housing developments.

We appreciate your consideration of these comments, and we look forward to reviewing the draft EIS when it becomes available. Questions regarding this matter may be directed to Mr. Keith Ishida at 768-7750.

Sincerely,



Deborah Kim Morikawa  
Director

DKM:gk  
cc: Office of Environmental Quality Control  
Department of Planning and Permitting  
Group 70 International, Inc.



GROUP 70 INTERNATIONAL

Francis S. Odeh, Arch. D., FAIA, AICP
Norman G.Y. Hong, AIA
Sheryl B. Swaman, AIA, ASID
Hiyoshi Hida, AIA
Roy H. Nkei, AIA, CSI
James I. Nishimoto, AIA
Stephan H. Yuan, AIA
Linda C. Miki, AIA
George I. Alta, AICP
Charles Y. Kaneshiro, AIA, LEED
Jeffrey H. Overton, AICP
Christine Mendez-Ruotola, AICP
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Hiram C. Paipo
Dorena D. Pennington
Kimberly Polkshorn, AIA, LEED
Scott Tangonan
Tom Young, AIA
Ralph E. Fathoms, AICP
Of Counsel

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 523-4564 • Fax: (808) 523-4567
Web site: www.honolulu.gov



MUFI HANNEMANN
MAYOR

EUGENE C. LEE, P.E.
DIRECTOR
CRAIG J. NISHIMURA, P.E.
DEPUTY DIRECTOR

April 5, 2007

Ms. Deborah Kim Morikawa
Director
City and County of Honolulu
Department of Community Services
715 South King Street, Suite 311
Honolulu, HI 96813

SUBJECT: Makaiwa Hills - Responses to Comments on the Environmental Impact Statement Preparation Notice

Dear Ms. Morikawa,

Thank you for your comment letter to Steve Kelly of Makaiwa Hills, LLC concerning the Makaiwa Hills Environmental Impact Statement Preparation Notice. The following statements are offered in response to your comments.

1. Affordable Housing.

Makaiwa Hills will establish an affordable housing component that will serve to meet the needs of households earning below 140% of the median income. Thirty percent of the total residential units, or approximately 1,230 units, will be available as affordable housing units for low and moderate income Hawai'i residents. The exact location and distribution of units will be determined in after discussions with the County. Further details on unit sizes, types, pricing, and development partnerships will be established as the project progresses further in development phases.

2. Homes for People with Special Needs.

The residential component of the Makaiwa Hills development includes a combined total count of 4,100 residential units, consisting of a mix of low- and medium-density dwellings. A number of development options are being considered for specific housing configurations, however it is not feasible at this time to determine specific development criteria.

Your comment letter and this response will be included in the Draft Environmental Impact Statement. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

[Signature]

Jeffrey H. Overton, AICP
Principal, Chief Environmental Planner

November 20, 2006

Mr. Steve Kelly
Makaiwa Hills, LLC
1001 Kamokila Blvd., Suite 250
Kapolei, Hawaii 96707

Dear Mr. Kelly:

Subject: Environmental Impact Statement Preparation Notice
Makaiwa Hills, Ewa, Island of Oahu
TMK: 9-1-15-5 (por) & 17; 9-2-03; portions of 2.5 & 84

Thank you for giving us the opportunity to comment on the above Environmental Impact Statement Preparation Notice (EISPN).

The Department of Design and Construction's (DDC) has the following comments:

- DDC recommends that the EISPN address possible rockfall or landslide issues, if any, that may affect the proposed development.
We urge representatives of the developer to meet with the City's Department of Parks and Recreation (DPR) and Department of Design and Construction, Facilities Division (DDC/FD), at their earliest convenience to discuss how they propose to meet park dedication obligations to the City. The park dedication ordinance requires that subdivisions on Residential-zoned land must dedicate 350 square feet of community-based park land per residential lot, and 110 square feet per unit for Apartment-zoned land. We prefer to come to a preliminary agreement concerning how public or private parks will be provided to serve the area before the developer has finalized plans for development and published its draft environmental assessment.
We request that the Environmental Impact Statement (EIS) address the issue of soil stability for residential development on the subject building sites. Also, please disclose in the draft EIS the development's design features that could provide the ability of the proposed development's





Mr. Steve Kelly  
Page 2  
November 20, 2006

future residents to use a proposed mass transit system presently being considered connecting Kapolei with the Honolulu central business district, and possibly to the University of Hawaii and/or Waikiki, as well as the availability of transportation alternatives to motor vehicle operation, such as foot travel and cycling.

Very truly yours,



Eugene C. Lee, P.E.  
Director

ECL:lt (178926)

c: Office of Environmental Quality Control  
Department of Planning and Permitting  
Group 70 International, Inc.



**GROUP 70**  
INTERNATIONAL

Francis Oda,  
Arch. D., F.AIA, AICP  
Norman G.Y. Hong, AIA  
Sheryl B. Samaan, AIA, ASD  
Heidi Hida, AIA

Roy H. Nhei, AIA, CSI  
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Jeffrey H. Overton, AICP  
Christine Mendes Rucobias, AICP  
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Roy A. Inouye, AIA, CSI  
Carr Klaster  
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Kawika McKeague

Kathryn A. Nam  
Hiren C. Pigo  
Donna D. Remington  
Kimberly Polkithorn, AIA, LEED  
Scott Tangonan

Tom Young, AIA  
Ralph E. Rushmore, AICP  
OT Counsel

April 5, 2007

Mr. Eugene C. Lee, P.E.

Director

City and County of Honolulu  
Department of Design and Construction  
650 South King Street, 11<sup>th</sup> Floor  
Honolulu, HI 96813

**SUBJECT: Makaiwa Hills – Responses to Comments on the Environmental Impact Statement Preparation Notice**

Dear Mr. Lee,

Thank you for your comment letter to Steve Kelly of Makaiwa Hills, LLC concerning the Makaiwa Hills Environmental Impact Statement Preparation Notice. The following statements are offered in response to your comments.

**1. Geological Conditions and Potential Hazards**

The project is not expected to create the potential for rockfall or landslide hazards for the new residents or the surrounding community. The conceptual master plan for Makaiwa Hills has taken care to place residential areas along the elevated ridges. No homes are planned to be developed at locations within the rocky gulch hillsides. The planning for roadway construction will take care to avoid routing roadways near steep banks with rockfall potential.

**2. Park Dedication**

The Applicant will meet with the Department of Design and Construction to discuss park dedication requirements. The park dedication ordinance requires that subdivisions on Residential-zoned land must dedicate 350 square feet of community-based park land per residential lot, and 110 square feet per unit for Apartment-zoned land. According to these standards, the 1,619 single-family residential lots would generate 566,650 square feet, or approximately 13 acres, of community-based park land, and the 2,481 multi-family units on Apartment and Apartment-Mixed Use zoned land would engender 272,910 square feet, or approximately 6.25 acres. Overall, the acreage of parks developed as a component of the project will exceed this requirement of roughly 20 acres of community-based park land.

The Makaiwa Hills residents are likely to utilize their own neighborhood and community parks and not impact those of other residential areas (e.g., Honokai Hale, Makakilo, Kapolei West (future)). The Kapolei Regional Park was constructed in anticipation of future development including Makaiwa Hills and should have sufficient capacity for the new resident population. Similarly, the existing and planned beach parks in the vicinity should be able to accommodate the Makaiwa Hills residents. The for-profit recreational resources will likely benefit from the additional residential community. The project will also include public access to the trailhead of the mauka hiking trails and bicycle pathways.

Mr. Eugene C. Lee, P.E.  
April 5, 2007  
Page 2 of 2

**3. Soil Stability.**

It is anticipated that grading within the project site will be limited to the ridges and plateau areas where slopes are less steep. The grading concept for the future residential lots will be to provide a level pad area for the home rather than leveling the entire lot to retain stability. More detailed soils analyses will be performed as planning of the project proceeds. Mitigative measures, if required, will be recommended by the project's soils engineers as building types and locations are further defined.

**4. Mass Transit and Transportation Alternatives.**

The concept plan for the Makaiwa Hills development provides a generally continuous network of major collector roadways for circulation within the community and access to the various development parcels. The street network would provide a framework for bus routes and bicycle travel although the increasing elevation mauka through the project site and the resultant relatively steep grades along the mauka-makai roadways would affect both bus and bicycle travel on these roadways.

The County is planning to construct a public transit guideway that could extend from the central Honolulu area as far west as Kapolei West development area. The presence of a guideway transit station and park-and-ride facility near the Kapolei Parkway-Hanua Street intersection would likely increase public transit usage by Makaiwa Hills residents and workers, which could result in lower vehicle trip generation, particularly for trips via the H-1 Freeway to the central Honolulu area.

The concept plan includes a bicycle path paralleling Farrington Highway to encourage use of bicycles for transportation purposes as well as for recreation. The bicycle path would begin within the commercial area at the west end of the Project area and extend eastward as a separate facility to the Village Center. Bicycle lanes would be provided through the Village Center and the separate bicycle path would resume east of the Village Center to extend to Road D/Road A where it ends in the preliminary concept plan. This planned facility would provide access to the elementary school and the community center. Sidewalks would be provided along the major collector roadways and local streets in conformance with County guidelines and standards.

Your comment letter and this response will be included in the Draft Environmental Impact Statement. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.



Jeffrey H. Overton, AICP  
Principal, Chief Environmental Planner



November 9, 2006

Mr. Steve Kelly  
Makaiwa Hills, LLC  
1001 Kamokila Blvd., Suite 250  
Kapolei, Hawaii 96707

Dear Mr. Kelly:

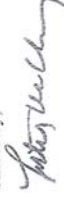
Subject: Makaiwa Hills Environmental Impact Statement Preparation Notice

Thank you for the opportunity to review and comment on the Makaiwa Hills Environmental Impact Statement Preparation Notice.

The Department of Parks and Recreation has no comment on the proposed development at this time but looks forward to participating in the balance of the EIS process.

Should you have any questions, please contact Mr. John Reid, Planner, at 692-5454.

Sincerely,



LESTER K. C. CHANG  
Director

LKCC:mk  
(179214)

cc: State Office of Environmental Quality Control  
Mr. Eugene Takahashi, Department of Planning and Permitting  
Mr. Jeffrey Overton, Group 70 International



**GROUP 70**  
INTERNATIONAL

- Francis S. Odeh, Arch. D., FAIA, AICP
- Norman G.Y. Hong, AIA
- Sheryl B. Soaman, AA, ASD
- Hibachi Hida, AIA
- Roy H. Nishi, AIA, CSI
- James I. Nishimoto, AIA
- Stephen H. Yuan, AIA
- Linda C. Miki, AIA
- George I. Alta, AICP
- Charles Y. Kaneshiro, AIA, LEED
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- Hiram C. Paigo
- Donna D. Pennington
- Kimberly Polkenhorn, AIA, LEED
- Scott Tangonan
- Tom Young, AIA
- Ralph E. Furlow, AICP  
Of Counsel

DEPARTMENT OF PLANNING AND PERMITTING  
**CITY AND COUNTY OF HONOLULU**  
650 SOUTH KING STREET, 7<sup>TH</sup> FLOOR • HONOLULU, HAWAII 96813  
TELEPHONE: (808) 523-4432 • FAX: (808) 527-6743  
DEPT. INTERNET: www.honolulu.gov • INTERNET: www.honolulu.gov



MUFI HANNEMANN  
MAYOR

HENRY ENG, FAICP  
DIRECTOR  
DAVID K. TAROUÉ  
DEPUTY DIRECTOR

2006/ELOG-2456(et)



November 24, 2006

April 5, 2007  
Mr. Lester K. C. Chang  
Director

City and County of Honolulu  
Department of Parks and Recreation  
1000 Uluohia Street, Suite 309  
Kapolei, HI 96707

**SUBJECT: Makaiwa Hills – Responses to Comments on the Environmental Impact Statement Preparation Notice**

Dear Mr. Chang,

Thank you for your comment letter to Steve Kelly of Makaiwa Hills, LLC concerning the Makaiwa Hills Environmental Impact Statement Preparation Notice. The following statements are offered in response to your comments.

We acknowledge that the Department of Parks and Recreation has no comment at this time.

Your comment letter and this response will be included in the Draft Environmental Impact Statement. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP  
Principal, Chief Environmental Planner

Mr. Steve Kelly  
Makaiwa Hills, LLC  
1001 Kamokila Blvd., Suite 250  
Kapolei, Hawaii 96707

Dear Mr. Kelly:

**Subject: Environmental Impact Statement Preparation Notice for Makaiwa Hills**  
Ewa, Oahu, Hawaii, TMKS: 9-1-015:005(por.); 9-2-003:002 (por), 005 (por), and 084 (por)

This is in response to your request dated October 23, 2006, asking for comments on the proposed Makaiwa Hills planned community development consisting of approximately 4,100 units on approximately 1,100 acres. We have reviewed the Environmental Impact Statement Preparation Notice (EISP/N) and offer the following comments:

- A sewer master plan is required for the onsite sewer system and off site sewer system. There is inadequate sewer line capacity to transmit the sewage from Makaiwa Hills to the Honouliuli Wastewater Treatment Plant (WWTP). There is also inadequate capacity at the Honouliuli WWTP to accommodate Makaiwa Hills. This should be addressed in the Draft Environmental Impact Statement (DEIS).
- Page 2-3: The Drainage Master Plan should be submitted to the Department of Planning and Permitting, not the Board of Water Supply.
- The DEIS should discuss whether there are any potential rockfall hazards, unstable areas, and/or any other geological conditions that may be harmful or dangerous to the health, safety, or welfare of future residents of the proposed subdivision or of the surrounding neighborhood or community. If these hazardous conditions exist, potential mitigation measures should be described.
- The DEIS should describe how the project will satisfy Section II (Storm Water Quality) of the Rules Relating to Storm Drainage Standards.

Mr. Steve Kelly  
Makaiwa Hills, LLC  
November, 2006  
Page 2

- Page 4-4, Item #11: The response statement is contradictory. The first sentence states that the proposed project site is not located in a hazard prone area. However, the second sentence states that natural hazards will be addressed in the DEIS.
  - The DEIS should discuss how the proposed land uses within the western portion of your project will be affected by the abutting Waimanalo Gulch Landfill operation.
  - The DEIS should discuss how the proposed Makaiwa Hills development will implement the vision that master planned developments in Ewa will be livable, walkable communities with distinct neighborhood centers, town centers or Main Street areas. Specifically, where will the community center for Makaiwa Hills be and how will proposed commercial areas support establishment of the center?
- The Ewa Development Plan, Section 3.7.1.1 (p. 3-59) states as a general policy, that "commercial uses should be concentrated in central locations instead of in continuous commercial strips along arterial streets, and that pedestrian and transit access to and within the centers should be emphasized."
- One of the major findings of the Five Year Review of the Ewa Development Plan is that the importance of developing town centers and Main Street areas in master planned communities needs to be stressed through the addition of additional policy language in the Plan and through zoning and subdivision requirements.
- The location of the two proposed BMX-3 commercial areas shown in Figure 1-5 Project Master Plan (Preliminary Zoning Districts) does not appear to support creation of a town center for the Makaiwa Hills development, and instead appear to be oriented towards creating two typical freeway shopping centers.
- Relation to Adjacent Land Uses. The DEIS should disclose that portions of TMK: 9-2-003:005 and 9-1-015:005 which are already zoned R-5 Residential and which about the area for which a zone change is sought will be developed as part of the Makaiwa Hills project.
- The TMK for the two areas should be provided on Figure 1-2 (Tax Map Key) and the land use and connections for the two areas should be shown on Figure 1-5 (Project Master Plan).

Mr. Steve Kelly  
Makaiwa Hills, LLC  
November, 2006  
Page 3

- The DEIS should also discuss how these areas and adjacent portions of the Makakilo development will relate to the rest of the Makaiwa Hills project.
  - Commercial Development Scale. The Ewa Development Plan indicates that commercial development for the Makaiwa Hills development should be a single Community Commercial Center described on p. 3-59 of the Plan as a shopping center of 10 to 30 acres. However, the EISPN shows the proposed zone change is for two centers with a combined acreage of 66 acres.
- The DEIS should provide an explanation of why two centers (the equivalent in size of a regional shopping center) are needed for this community, given that the Ewa Development Plan vision is that the City of Kapolei is to be the regional commercial and office center for Ewa.
- The Ewa Development Plan was adopted on August 22, 1997 as Ordinance 97-47. You may call the Council Assistance Office at 523-4480 for a copy of the ordinance. It is also available on line from our website, [www.honolulu.gov](http://www.honolulu.gov).

Please call Eugene Takahashi of my staff at 527-6022 if you have any questions.

Very truly yours,



Henry Eng, FAICP, Director  
Department of Planning and Permitting

HE:rns

cc: ✓ Mr. Jeffrey H. Overton, AICP, Group 70 International  
Office of Environmental Quality Control

498081



Francis S. Odeh, Arch. D., FAIA, AICP  
 Norman G.Y. Hong, AIA  
 Sheryl B. Swannan, AIA, ASID  
 Hitoshi Hida, AIA  
 Roy H. Niki, AIA, CSI  
 James I. Nishimoto, AIA  
 Stephen H. Yuan, AIA  
 Linda C. Niki, AIA  
 George I. Alta, AICP  
 Charles Y. Kaneshiro, AIA, LEED  
 Jeffrey H. Overton, AICP  
 Christine Mendez-Ruizola, AICP  
 James L. Stone, AIA, LEED  
 Paul P. Chorney, AIA  
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 Patsy C. Galvez, AIA  
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 Hiram C. Paigo  
 Donna D. Pennington  
 Kimberly Polkshorn, AIA, LEED  
 Scott Tangonan  
 Tom Young, AIA  
 Ralph E. Erdmore, AICP  
 Of Counsel

April 5, 2007

Mr. Henry Eng, FAICP, Director  
 City and County of Honolulu  
 Department of Planning and Permitting  
 650 South King Street, 7<sup>th</sup> Floor  
 Honolulu, HI 96813  
 Attention: Eugene Takahashi, Senior Planner

**SUBJECT: Makaiwa Hills – Responses to Comments on the Environmental Impact Statement Preparation Notice**

Dear Mr. Eng,

Thank you for your comment letter to Steve Kelly of Makaiwa Hills, LLC concerning the Makaiwa Hills Environmental Impact Statement Preparation Notice. The following statements are offered in response to your comments.

**1. Wastewater Management**

The applicant will prepare Wastewater Master Plan for the project to address the on-site and off-site requirements to serve this new community. Makaiwa Hills will generate an average wastewater flow of 1.55 MGD at full build-out and occupancy. Current inadequacies in sewer line capacity and treatment capacity at Honolulu Wastewater Treatment Plant are being addressed. One planned improvement is the relief sewer to be constructed parallel to Ko Olina Interceptor Sewer, between Kalaeloa Boulevard and Fort Barrette Road. This sewer will be designed to convey wastewater from Makaiwa Hills and Kapolei Harborside Center to the Makakilo and Kapolei interceptor sewers at Fort Barrette Road. A new relief sewer will parallel the Makakilo and Kapolei interceptors between Fort Barrette Road and the Honolulu WWTP. The WWTP has a capacity of 38 MGD and presently operates at 28 MGD. The site has the potential to expand to 51 MGD.

**2. Drainage Master Plan**

Thank you for providing the correct agency. The Drainage Master Plan will be submitted to the Department of Planning and Permitting.

**3. Geological Conditions and Potential Hazards**

The project is not expected to create the potential for rockfall hazards for the new residents or the surrounding community. The conceptual master plan for Makaiwa Hills has taken care to place residential areas along the elevated ridges. No homes are planned to be developed at locations within the rocky gulch hillsides. The planning for roadway construction will take care to avoid routing roadways near steep banks with rockfall potential.

**4. Storm Water Quality**

The project will comply with the City's Rules Relating to Storm Drainage Standards, Section II Storm Water Quality, by designing and implementing Best Management Practices consistent with the NPDES Permit Requirements. A full listing of proposed

Mr. Henry Eng  
 April 5, 2007  
 Page 2 of 4

erosion control measures that will lessen construction impacts is included in Appendix C. These measures include, but are not limited to: (1) minimizing the time of construction, (2) retaining existing ground cover until the latest date before construction, (3) early construction of drainage control features, (4) use of temporary area sprinklers in non-active construction areas, (5) use of water trucks for sprinkling in active construction zones, (6) use of temporary berms and cut-off ditches, (7) end of day watering of graded areas, and (8) planting of cut and fill slopes immediately after grading.

**5. Natural Hazards**

We appreciate this opportunity to clarify the discussion of natural hazards. The proposed project is not located in a hazard prone area; however, we are obligated to address potential natural hazards as part of the EIS analysis. This includes the potential for seismic activity, flooding, etc. which is addressed for this site which has low potential for experiencing such hazards. Wildfires occur each year in this region, and a Fire Plan has been developed for Makaiwa Hills. The Fire Plan includes vegetation management buffers around the perimeter of residential areas, consideration of non-combustible building materials, and designated access routes for fire suppression activities.

**6. Waimanalo Gulch Landfill**

The presence of the Waimanalo Gulch Landfill is recognized and respected in the conceptual land plan for Makaiwa Hills. The new expansion increment of the landfill extends to the property line at this location. New roadways and residential development will be setback from the property boundary, with the closest residential structure located several hundred feet away. The timing for closure of the landfill by 2010, versus planned development of the western portion of the project by 2015 or beyond, indicates that there will be no direct landfill operations effects on the new residents. The planned finish elevation of the closed landfill will not have a significant effect on views from this new residential area. The owners will follow the progress of the landfill and coordinate with the Department of Environmental Services as the closure plan is developed in the years ahead.

**7. Town Center Concept**

Makaiwa Hills will implement the vision for livable, walkable communities in Ewa, with a distinct Town Center or Main Street area. A Town Center/Main Street concept is planned that would provide shopping and service amenities at a centralized location that is in close proximity to the majority of residents at Makaiwa Hills. The presence of integrated commercial and retail offerings in a mixed use concept is an important component of the overall plan. The Makaiwa Hills Town Center is intended as a unique social environment where residents and neighbors can gather and feel they are a part of the community. Buildings will be two to three stories tall with design guidelines that establish a village scale. Commercial retail uses are planned for ground floor spaces, with apartment residential uses in the second and third floors. Vehicle parking will be served in lots positioned behind buildings fronting the main street area. Residents living in the community will be able to easily transit this area using sidewalks, and extensive pedestrian and bicycle paths. The Town Center will

connect with the project areas to the east and west via roadways and pathways, with ample landscaping, park areas and open space.

#### **8. West Palilalai Residential Area**

An adjacent 69.2-acre parcel on the eastern boundary of the project site is an undeveloped increment of the Makakilo development area with existing Residential zoning (R-5). This property is now known as the West Palilalai residential project, and is owned by Makaiwa Hills, LLC. This property is separate from the Makaiwa Hills project, and is not part of the proposed action as described in this EIS. It is addressed as an adjoining project, as West Palilalai will have shared infrastructure, and is anticipated to precede Makaiwa Hills. TMK map, land use and roadway connections will be shown in the Draft EIS.

#### **9. Commercial Development Scale and Identity**

Commercial and residential uses will be mixed in the land plan concept for Makaiwa Hills, which was modified since the publication of the Notice of Preparation of Draft EIS. In general, the entire makai corridor will combine residential and business components, serving the Town Center/Main Street area and the adjoining neighborhoods with the numerous benefits of mixed-use land development policies. Approximately 33 acres in the southeast corner of the proposed Makaiwa Hills development will be established as a Business Mixed Use district that will include a shopping center containing commercial and office components.

Innovative "smart growth policies" recommend integrating mixed land uses into neighborhoods to create vibrant, livable communities. By locating different, yet compatible land uses in close proximity to one another, alternatives to driving such as walking or biking become more practical. Streets, public spaces and pedestrian-oriented retail become places where people meet, where pedestrians are attracted back onto promenades and where community life is revitalized.

Mixed land uses also provide a more diverse and sizable population and commercial base for supporting viable public transit. Such smart growth policies can enhance the vitality and perceived security of an area by increasing the number and attitude of people out in the public.

Mixed land uses can convey substantial fiscal and economic benefits. Commercial uses in close proximity to residential areas are often reflected in higher property values, and therefore help raise local tax receipts. Businesses recognize the benefits associated with areas able to attract more people, as there is increased economic activity when there are more people in an area to shop. In a service economy, when communities mix land uses, their neighborhoods can be more attractive to workers who increasingly balance "quality of life" criteria with salary to determine where they will settle.

A Town Center/Main Street concept is planned that would provide small-scale shopping and service amenities at a centralized location that is in close proximity to the majority of residents at Makaiwa Hills. This concept is intended as a unique social

environment where residents and neighbors can gather and feel they are a part of the community. Buildings may be three to four stories tall, with design guidelines that establish a village scale. Structures will be compatible in scale, mass, and form with adjacent structures in the pattern of the surrounding area.

Commercial retail uses are planned for some ground floor spaces, with apartment residential uses comprising the rest of the buildings. Vehicle parking will be served in lots positioned behind buildings fronting the Main Street area. Residents living in the community will be able to easily transit this area using sidewalks, and extensive pedestrian and bicycle paths. The Town Center will connect with the project areas to the east and west via roadways and pathways, with ample landscaping, park areas and open space.

A neighborhood retail shopping center is proposed in the southeast corner of the project. This shopping center is planned to include full service grocery and drug stores, and a complete assemblage of retail services. The area is conveniently positioned along the main project collector roadway, near the connection with the H-1 Freeway. At this location, residents of Makaiwa Hills will have convenient access to the neighborhood commercial services. In addition, residents of the Makakilo community will also have convenient access to the new shopping center services without having to cross the H-1 Freeway to reach the Kapolei Shopping Center. Colliers Hawaii Consulting prepared a Market Assessment and Feasibility Study (2005) to determine highest and best use of the commercial property. In addition to drug store and grocery store anchors, a medical/wellness facility and mixed-use retail and office building are proposed. The specific tenants have not been identified. The proposed zoning is BMX-3, with approximately 150,000 square feet of floor area.

Your comment letter and this response will be included in the Draft Environmental Impact Statement. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.



Jeffrey H. Overton, AICP  
Principal, Chief Environmental Planner

DEPARTMENT OF TRANSPORTATION SERVICES  
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 3RD FLOOR  
HONOLULU, HAWAII 96813  
Phone: (808) 768-8305 • Fax: (808) 523-4730 • Internet: www.honolulu.gov



MUJI HANNEMANN  
MAYOR

MELVIN N. KAKU  
DIRECTOR  
RICHARD F. TORRES  
DEPUTY DIRECTOR

December 7, 2006

TP10/06-179061R



Mr. Steve Kelly, Manager  
Makaiwa Hills, LLC  
1001 Kamokila Boulevard, Suite 250  
Kapolei, Hawaii 96707

Dear Mr. Kelly:

Subject: Makaiwa Hills

Thank you for the October 23, 2006 letter from Group 70 International, Inc., requesting our review of and comments on the Environmental Impact Statement (EIS) Preparation Notice for the subject project.

According to the information provided, the proposed project will provide approximately 4,100 residential units. As you proceed to the next phase of the project development, we request that you initiate close coordination with the Public Transit Division (PTD). This will ensure that appropriate facilities, such as transit centers and bus stops, are included in the design of the development. Also, the coordination will identify the impact of the project on the overall public transit system, which should be described in the EIS, and would allow the PTD to plan for the provision of service in a timely manner.

We look forward to reviewing the EIS. Should you have any questions regarding these comments, please contact Ms. Faith Miyamoto at 768-8350.

Sincerely,

MELVIN N. KAKU  
Director

cc: Mr. Eugene Takahashi  
Department of Planning and Permitting  
✓ Mr. Jeffrey Overton, AICP, Vice President  
Group 70, International, Inc.



April 5, 2007

Mr. Melvin N. Kaku  
Director

City and County of Honolulu  
Department of Transportation Services  
650 South King Street, 3<sup>rd</sup> Floor  
Honolulu, HI 96813

Francis S. Oda,  
Arch. D., F.AIA, AICP  
Norman G. Y. Hong, AIA  
Sheryl B. Saaman, AIA, ASD  
Heath Hida, AIA

**SUBJECT: Makaiwa Hills – Responses to Comments on the Environmental Impact Statement Preparation Notice**

Dear Mr. Kaku,

Thank you for your comment letter to Steve Kelly of Makaiwa Hills, LLC concerning the Makaiwa Hills Environmental Impact Statement Preparation Notice. The following statements are offered in response to your comments.

As development plans progress for Makaiwa Hills, the Applicant will initiate close coordination with the Public Transit Division to ensure development of appropriate transit facilities. The existing public transit system, as well as the potential future transit options, is discussed in more detail in the Draft EIS.

Your comment letter and this response will be included in the Draft Environmental Impact Statement. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP  
Principal, Chief Environmental Planner

HONOLULU FIRE DEPARTMENT  
**CITY AND COUNTY OF HONOLULU**

636 SOUTH STREET • HONOLULU, HAWAII 96813  
TELEPHONE: (808) 723-7139 • FAX: (808) 723-7111 • INTERNET: www.honolulu.gov

MUFU HANNEMANN  
MAYOR



KENNETH G. SILVA  
FIRE CHIEF

ALVIN K. TOMATA  
DEPUTY FIRE CHIEF

Mr. Steve Kelly, Manager  
Page 2  
November 9, 2006

3. Submit civil drawings to the HFD for review and approval.

Should you have any questions, please call Battalion Chief Lloyd Rogers of our Fire Prevention Bureau at 723-7151.

Mr. Steve Kelly, Manager  
Makaiwa Hills, LLC  
1001 Kamokila Boulevard, Suite 250  
Kapolei, Hawaii 96707


Dear Mr. Kelly:

Subject: Environmental Impact Statement Preparation Notice  
Makaiwa Hills  
Ewa, Oahu, Hawaii  
Tax Map Keys: 9-1-015: 005 (portion) and 017  
9-2-003: Portions of 002, 005, and 084

In response to a letter dated October 23, 2006, from Jeffrey H. Overton of Group 70 International, Inc. regarding the above-mentioned subject, the Honolulu Fire Department (HFD) reviewed the material provided and requires that the following be complied with:

1. Provide a fire apparatus access road for every facility, building, or portion of a building hereafter constructed or moved into or within the jurisdiction when any portion of the facility or any portion of an exterior wall of the first story of the building is located more than 150 feet (45 720 mm) from a fire apparatus access road as measured by an approved route around the exterior of the building or facility. (1997 Uniform Fire Code, Section 902.2.1.)
2. Provide a water supply, approved by the county, capable of supplying the required fire flow for fire protection to all premises upon which facilities or buildings, or portions thereof, are hereafter constructed or moved into or within the county.

On-site fire hydrants and mains capable of supplying the required fire flow shall be provided when any portion of the facility or building is in excess of 150 feet (45 720 mm) from a water supply on a fire apparatus access road, as measured by an approved route around the exterior of the facility or building. (1997 Uniform Fire Code, Section 903.2, as amended.)

Sincerely,  
  
KENNETH G. SILVA  
Fire Chief

KGS/SK:jl

cc: Office of Environmental Quality Control  
Eugene Takahashi, Department of Planning and Permitting  
Jeffrey H. Overton, Group 70 International, Inc. ✓





GROUP 70 INTERNATIONAL

- Francis S. Odeh, Arch. D., FAIA, AICP
- Norman G.Y. Hong, AIA
- Sheryl B. Soaman, AIA, ASID
- Hiroshi Hida, AIA
- Roy H. Nishi, AIA, CSI
- James I. Nishimoto, AIA
- Stephan H. Yuan, AIA
- Linda C. Miki, AIA
- George I. Alta, AICP
- Charles Y. Kaneshiro, AIA, LEED
- Jeffrey H. Overton, AICP
- Christine Mendes Rutledge, AICP
- James L. Stone, AIA, LEED
- Paul P. Chorney, AIA
- Philip T. Cucchi, CSI, CDT
- Kimberly Evans
- Pete C. Galvez, AIA
- Stobin Hallin
- Roy A. Inouye, AIA, CSI
- Camie Koster
- Katherine M. MacNeil, AIA
- Frank B. McCue
- Kawika Mokuogawa
- Kathryn A. Nam
- Hiram C. Paipo
- Donna D. Pennington
- Kimberly Polkshorn, AIA, LEED
- Scott Tangonan
- Tom Young, AIA
- Ralph E. Furlow, AICP
- Of Counsel

April 5, 2007

Mr. Kenneth G. Silva

Fire Chief

City and County of Honolulu

Honolulu Fire Department

636 South Street

Honolulu, HI 96813

**SUBJECT: Makaiwa Hills – Responses to Comments on the Environmental Impact Statement Preparation Notice**

Dear Chief Silva,

Thank you for your comment letter to Steve Kelly of Makaiwa Hills, LLC concerning the Makaiwa Hills Environmental Impact Statement Preparation Notice. The following statements are offered in response to your comments.

The following are offered in response to your comments:

1. An acceptable fire apparatus access road will be constructed, pursuant to the referenced requirements of the 1997 Uniform Fire Code, Section 902.2.1.
2. A county-approved water supply (including on-site fire hydrants and mains, as required) capable of supplying the required fire flow for fire protection will be provided, pursuant to the requirements of the 1997 Uniform Fire Code, Section 903.2 as amended.
3. Relevant civil and construction drawings will be submitted to the Honolulu Fire Department for review and approval.

Your comment letter and this response will be included in the Draft Environmental Impact Statement. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP  
Principal, Chief Environmental Planner

POLICE DEPARTMENT  
**CITY AND COUNTY OF HONOLULU**

801 SOUTH BERETANIA STREET  
HONOLULU, HAWAII 96813 • AREA CODE (808) 529-3111  
http://www.honolulu.gov  
www.honolulu.gov



MUFU HANREWMANN  
MAYOR

BOISSE P. CORREA  
CHIEF

GLEN R. KAJIYAMA  
PAUL D. PITZULU  
DEPUTY CHIEFS

OUR REFERENCE BS-KP

October 31, 2006

Mr. Steve Kelly  
Makaiwa Hills, LLC  
1001 Kamokila Boulevard, Suite 250  
Kapolei, Hawaii 96707

Dear Mr. Kelly:

Thank you for the opportunity to review and comment on the Environmental Impact Statement Preparation Notice for the Makaiwa Hills in Ewa.

This project should have no significant impact on the facilities or operations of the Honolulu Police Department.

If there are any questions, please call Major Michael Moses of District 8 at 692-4253 or Mr. Brandon Stone of the Executive Bureau at 529-3644.

Sincerely,

BOISSE P. CORREA  
Chief of Police

JOHN KERR  
Assistant Chief of Police  
Support Services Bureau

cc: Ms. Genevieve Salmonson  
OEQC  
Mr. Eugene Takahashi  
DPP  
Mr. Jeffery Overton  
Group 70 International, Inc.



GROUP 70 INTERNATIONAL

- Francis S. Odeh, Arch. D., FAIA, AICP
- Norman G.Y. Hong, AIA
- Sheryl B. Swaman, AA, ASID
- Hiroshi Hida, AIA
- Roy H. Nishi, AIA, CSI
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- Charles Y. Kaneshiro, AIA, LEED
- Jeffrey H. Overton, AICP
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- Cami Kessler
- Katherine M. MacNeil, AIA
- Frank B. McCue
- Kawaka McKelague
- Kathryn A. Nam
- Hiram C. Paigo
- Donna D. Pennington
- Kimberly Polkenhorn, AIA, LEED
- Scott Tangonan
- Tom Young, AIA
- Ralph E. Farnham, AICP
- Of Counsel

OAHU CIVIL DEFENSE AGENCY  
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET  
HONOLULU, HAWAII 96813



MUFI HANNEMANN  
MAYOR

WILLIAM D. BALFOUR, JR.  
ACTING ADMINISTRATOR



October 31, 2006

**SUBJECT: Makaiwa Hills – Responses to Comments on the Environmental Impact Statement Preparation Notice**

Dear Chief Correa,

Thank you for your comment letter to Steve Kelly of Makaiwa Hills, LLC concerning the Makaiwa Hills Environmental Impact Statement Preparation Notice. The following statements are offered in response to your comments.

We acknowledge that the project should have no significant impact on the facilities or operations of the Honolulu Police Department.

Your comment letter and this response will be included in the Draft Environmental Impact Statement. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP  
Principal, Chief Environmental Planner

Mr. Steve Kelly  
MAKAIWA HILLS, LLC  
1001 Kamokila Blvd, Suite 250  
Kapolei, Hawaii 96707

Dear Mr. Kelly,

In response to the Environmental Impact Statement Preparation Notice, we have a concern for coverage of the Civil Defense Early Warning Siren System.

Considering the area this project will cover and the terrain, along with the homes and trees that will be in the area, to provide adequate coverage there would be a need for the developer/contractors to include a minimum of five warning sirens for this development.

Please call Mr. Harold Buckle, Communications Officer, at 523-4121 if you have any questions. Thank you the opportunity to review and comment on this EISP.

Sincerely,

WILLIAM D. BALFOUR, JR.  
Acting Administrator

Cc: Eugene Takahashi, DPP  
Jeffrey Overton, AICP,  
Vice President,  
Group 70, International



**GROUP 70**  
INTERNATIONAL

- Francis S. Olin, Arch. D., FAIA, AICP
- Norman G.Y. Hong, AIA
- Sheryl B. Swaman, AA, ASID
- Hiroshi Hida, AIA
- Roy H. Nishi, AIA, CSI
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- Frank B. McCue
- Kawasa Mokuogua
- Kathryn A. Nam
- Hiram C. Paipo
- Donna D. Pennington
- Kimberly Polkhorst, AIA, LEED
- Scott Tangonan
- Tom Young, AIA
- Ralph E. Furlow, AICP  
Of Counsel

April 5, 2007

Mr. William Balfour, Jr.  
Acting Administrator  
City and County of Honolulu  
Oahu Civil Defense Agency  
6550 S. King Street  
Honolulu, HI 96813

**SUBJECT: Makaiwa Hills – Responses to Comments on the Environmental Impact Statement Preparation Notice**

Dear Mr. Balfour,

Thank you for your comment letter to Steve Kelly of Makaiwa Hills, LLC concerning the Makaiwa Hills Environmental Impact Statement Preparation Notice. The following statements are offered in response to your comments.

The Applicant acknowledges the need for adequate coverage of warning sirens in the Makaiwa Hills development. As the development plans are finalized, specifications for locating the five requested Early Warning Sirens will be coordinated with your office.

Your comment letter and this response will be included in the Draft Environmental Impact Statement. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP  
Principal, Chief Environmental Planner

*Ko Olina*  
RESORT & MARINA  
HONOLULU

November 22, 2006

Mr. Brad Myers  
President  
Kapolei Property Development, LLC  
1001 Kamokila Blvd., 2<sup>nd</sup> Floor  
Kapolei, HI 96707

Dear Mr. Myers:

Thank you again for the presentation on your Kapolei development projects to our Ko Olina residential community. I know people feel more informed, but also remain apprehensive about the future development and the issues brought up at that meeting. As we both know, having the communication lines open as development moves forward will help with these concerns.

As part of the EIS scoping process for the Makaiwa hillside project, we trust that the comments provided at the meeting will be forwarded to your consultants for incorporation into the EIS process.

Brad, thanks again to you and your team for your time and efforts. We look forward to continuing to work with you as these surrounding projects move forward.

Very truly yours,

Ken Williams  
General Manager  
Ko Olina Community Association

cc: [Group 70 International, Inc.](#)





Mr. Ken Williams  
April 5, 2007  
Page 2 of 3

April 5, 2006

Mr. Ken Williams, General Manager  
Ko'olina Resort & Marina  
92-1480 Alinui Drive  
Honolulu, HI 96707

**SUBJECT: Makaiwa Hills – Responses to Comments on the Environmental Impact Statement Preparation Notice**

Dear Mr. Williams,

Thank you for your comment letter to Mr. Brad Myers, President of Kapolei Property Development, concerning the Makaiwa Hills Environmental Impact Statement Preparation Notice. The following statements are offered in response to your comments.

It is our understanding that the meeting with Ko'olina residents held on October 26, 2007 addressed a wide range of issues for the future of The City of Kapolei. We would like to limit the responses provided to those questions and comments which are directly applicable to Makaiwa Hills.

**1. Landfill Siting**

Runoff controls that will be established at Makaiwa Hills will not adversely affect the landfill operations or the lower elevation areas at Ko'olina.

**2. Mass Transit**

Makaiwa Hills, LLC is supporting the full 28-mile mass transit route, which has its terminus near the southeastern corner of Makaiwa Hills. The Estate of James Campbell has provided for the proposed alignment and potential locations for transit stops in the City of Kapolei.

**3. West Makaiwa Hills Commercial**

The major interior collector roadway for Makaiwa Hills runs parallel to Farrington Highway, and connects the project development areas with the two highway access points. Two new access points with Farrington Highway are planned by the State to be established at the Kapolei Interchange and Road D (Kapolei West).

**4. Infrastructure**

The project will participate in the construction of its share of infrastructure improvements for water, sewer, drainage and roadways. It is recognized that the provision of infrastructure needs to keep pace with the development pace in Kapolei. The Estate of James Campbell has made substantial contributions to the development of infrastructure for The City of Kapolei over several decades.

**5. Employment Transport**  
Employees that live in the Kapolei area will have numerous options available for transport to and from work. There will be north-south roadway links to Makaiwa Hills and Kapolei Harborside Center through the regional improvements of Kapolei Parkway, Hanua Street and Kalaeloa Boulevard. Within Makaiwa Hills, employees that reside at the project will be able to walk or ride a bicycle on the internal pathway system.

**6. Regional Traffic**  
In the development of the City of Kapolei and industrial lands, there will be 40,000 additional jobs created in the next 20 years. Makaiwa Hills supports the development of mass transit extending to the City of Kapolei. The location of new jobs at Kapolei will reverse some of the traffic flow to Honolulu job centers. This project continues the implementation of public policy to grow the second city at Kapolei.

**7. Roadway Development**  
James Campbell Company, and its affiliates, will continue to have responsibility for improving roads, such as Kapolei Parkway, roads serving the urban core of Kapolei. Many of the major roadway projects in the Kapolei area are logical candidates for State or Federal funding, such as the Kapolei Interchange complex. The County's Bill 52 was specifically established to create a structure for impact fees as fair share contributions to roadway improvements.

**8. General Infrastructure**  
We agree that planning for adequate infrastructure, should anticipate will keep pace with development at both the project and at regional levels. Makaiwa Hills intends to satisfy its project-related infrastructure requirements, and will provide land for a new Elementary School.

**9. AMX Units**  
Based on the current market analysis, the anticipated pricing for affordable homes in the AMX-1 area will be between \$267,000 and \$362,000. The anticipated pricing for market priced homes in this area is projected between \$374,000 and \$506,000.

**10. Mass Transit**  
The AA/DEIS indicates a projected timeline for development of the Honolulu mass transit system. Current projections are for operation of the initial phase by 2015 (verify).

**11. 1991 EIS Landfill**  
The 1991 EIS for Makaiwa Hills included the Waimanalo Gulch landfill which opened in 1989. The 1991 EIS did not include landfill use as an alternative use. The current EIS will include the landfill discussion, particularly since the County passed 2004 Public Infrastructure Map symbol for a landfill at Makaiwa Hills. We include this map as a figure in the Alternatives section. Action to remove the PIM symbol in part of the rezoning process, largely to Apartment and Residential categories, which will eliminate this potential use as a landfill site.

Mr. Ken Williams  
April 5, 2007  
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**12. AMX vs A-1 Zoning and Units**

There will be approximately 1,250 units in the AMX-2 Apartment Mixed-Use zoned areas, and about 1,137 units in A-1 Apartment zoning category.

**13. Heights**

Building heights will be three to four stories maximum in the Town Center area, except two stories in the other areas of the project.

**14. Development Sales**

It is projected that Makaiwa Hills will begin to sell fee simple residential units sometime in 2009/2010, continuing through 2020.

Your comment letter and this response will be included in the Draft Environmental Impact Statement. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.



Jeffrey H. Overton, AICP  
Principal, Chief Environmental Planner



**SIERRA CLUB**

O'ahu Group  
P.O. Box 2577, Honolulu, HI 96803  
808.537-9019 / hawaii.chapter@sierraclub.org



November 22, 2006

Steve Cole  
Makaiwa Hills, LLC  
1001 Kamokila Boulevard, Suite 250  
Kapolei, HI 96707

Jerry Overton  
Group 70 International, Inc.  
925 Bethel St., 5th Floor.  
Honolulu, HI 96813

Eugene Takhashi  
City and County of Honolulu  
Department of Planning and Permitting  
650 South King Street, 7th Floor  
Honolulu, HI 96813

Genevieve Salmonson  
OEQC  
235 S. Beretania St. No. 702  
Honolulu, HI 96813

**RE: COMMENTS ON EISPN FOR MAKAIWA HILLS EISPN**

The Sierra Club desires to be a consulted party pursuant to HRS chapter 343.

**GENERAL COMMENTS**

The Sierra Club recognizes that the Makaiwa area is an undeveloped, very fragile area of disturbed scrub and lowland dry forest surrounded by unsightly urban sprawl on the east, an almost full sanitary landfill to the west, an area of planned very heavy development to the south and an area of almost pristine natural upland forest to the north in the Hono'uli'uli natural reserve managed by The Nature Conservancy.

Given the damage already done and/or planned for this area our general comments include the issues of:

A. **SPRAWL:** 4100 homes on 1781 acres is not rational land use on a small island and constitutes dangerous sprawl. For instance, we would suggest high or medium



Jeff Mikulina, Director

density structures (stepped) that would occupy only a 80 or so acres, including the 60 acres of "mixed-use area, a community commercial center, and retail in a Town Center.

**B. CONSERVATION:** the remaining 1700 acres (rather than the "over 50% of the project area" should be "planned for open space and recreational use" and for conservation and restoration projects that must include effective measures to prevent erosion, land slides, flash floods, and damage to any native flora and fauna (endemic plants, land snails, birds), and mandate **restoration** of the native upland dry forest, watershed protection, etc, and

**C. URBAN PLANNING:** structures for the commercial, educational, and supporting services should utilize the tenants of "smart" and sustainable development. All be clustered close to the residential area to avoid the need to use vehicles as much as possible, and there must be an analysis of how this additional urban volume will affect the existing communities on the Wai'anae coast beyond the planned Kapolei city. Any and all structures should be constructed incorporating the highest standards for the conservation of energy, water and land use, including the use of native, xerophytic landscaping and renewable energy resources such as solar and wind.

In the *EM* abstract it is stated that: the zoning changes required are "consistent with the 'Ewa Development Plan (EDP)," and "The property was urbanized at the Land Use Commission in 1993 for development of up to 4100 residential units". The Sierra Club believes that a 13 year old development plan must not be exempted from rational re-consideration given the current status of this area. The EDP does not specify that low density single family residence sprawl should take precedence over high rise-high density building.

**D. TRAFFIC:** congestion mitigation measures must include: planning for fixed right of way access to (rail) and into (bus) the project from downtown Honolulu; continuation of the H1 (at least 3 lanes in each direction) westward to at least Ali'i Inui Drive at Ko'Olina; at least new 2 points of access/egress tying into existing (enlarged) thruways in upper and lower Makakilo and 2 new entrances/exits to Farrington Highway-H1 complex at least one of which should provide access to both west and east bound lanes; addition of a dedicated exit/on ramp lane and 1 additional lane in each direction between Ko'Olina resort and Fort Barrette Road.

**E. JOBS/COMMUTING:** It is stated that "the project is an important component of the Kapolei Area Long range Master Plan and will create approximately 1,100 jobs." Where will the approximately 8000 other working age residents find employment? How many of them will be required to join the wasteful commute to town instead of in the greater West and Central O'ahu areas? There needs to be at least as many jobs, potential jobs, and employment generating structures integrated into this project as there are working residents. . . or all of our congestion and waste of time, money and peaceful enjoyment will be squandered.

More specifically in order to fully inform decision makers regarding the impacts of this project we will expect to see the following matters addressed in detail in the DEIS and FEIS:

#### CUMULATIVE IMPACTS

Hawaii Administration Rules 11-200-2 defines cumulative impact as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions." HAR 11-200-17 requires that an EIS discuss "significant beneficial and adverse impacts (including cumulative impacts and secondary impacts)."

The existing Makakilo residential subdivision development has had significant and negative impacts on land, water, air and traffic conditions in the area adjacent to the eastern edge of the proposed Makaiwa Hills project. The DEIS should fully analyze and discuss these impacts. For instance: the degree to which runoff from the existing golf courses, roadways, building slabs and roofs has affected the water quality of nearby aquatic resources and the stability of soils, and the extent to which this proposed development will further affect these parameters; and the degree to which existing and predicted vehicular traffic volume has affected congestion and air and water quality, and quality of life in the area, and the extent to which this proposed development will further affect these parameters

The existing Waimanalo landfill has had significant and negative impacts on land, water, air, quality of life and traffic conditions in the area immediately adjacent to the western boundary of the proposed Makaiwa Hills project. The DEIS should fully analyze and discuss these impacts. For instance, the degree to which the present and future volume of truck traffic, the levels of odor, gas emissions, fugitive dust and debris, and runoff from the existing land fill has affected the water, air and life quality of nearby residential and commercial properties, and the extent to which this proposed development, and proposed expansion of the landfill itself, will further affect these parameters.

The existing Kapolei, Kapolei West, Honokai Hale and Ko'Olina residential, recreational and commercial developments have each had significant and negative impacts on land, water, air, shoreline, ocean, and traffic conditions in the area mauka the proposed Makaiwa Hills project. The DEIS should fully analyze and discuss these impacts. For instance, the degree to which runoff from the existing golf courses, roadways, building slabs and roofs has affected the water quality of nearby aquatic resources, beaches and near shore waters and the stability of soils, and the extent to which this proposed development will further affect these parameters.

The relatively undisturbed forested Palehua and Hono'uili'uli areas immediately mauka of the proposed Makaiwa Hills development project are home to a number of rare and endangered plants, mollusks and birds. Sections of these land areas are recognized as critical habitat for what is may be the last remaining population of the

O'ahu *elepai* 'o. It is probable that the upper areas of the proposed project could also be a part of the habitat utilized by this bird species.

Thorough studies must be undertaken to determine the presence of any native and endemic animals and plants, both listed and non-listed, within the boundaries of the project and in areas immediately adjacent to it, particularly those *mauka* of the project that are contiguous with the Palehua and Hono'uli'uli land areas. Continuity between these land areas must be maintained to promote the survival and recovery of those native endemic biota. A plan for restoration of the native forest cover should be developed, particularly for the *mauka* areas of the project, and should extend into the adjacent parcels to join with the existing "natural" forest cover in the Hono'uli'uli forest reserve area.

#### THE SHORELINE AREA

The existing Barber's Point Harbor, Campbell Industrial Park, Ihilani Resort, and Ko'olina Harbor, Ko'olina Golf Club, and Ko'olina Resort residential, recreational and commercial developments have each had significant and negative impacts on shoreline and near shore waters, and on land, water, air, and traffic conditions in the area *mauka* the proposed Makaiwa Hills project. As runoff and sewage from the proposed project will be directed into storm drains, sanitary sewer line and sewage treatment plants in these areas, DEIS should fully analyze and discuss these impacts. For instance, the degree to which runoff from the existing golf courses, roadways, building slabs and roofs has affected the water quality of nearby aquatic resources, beaches and near shore waters and the local aquifers, and the extent to which this proposed development will further affect these parameters.

#### WATER QUALITY

The DEIS should include sufficient baseline data for meaningful analysis of the adverse impact of runoff and other anthropogenic inputs related to existing golf course, resort and residential development in areas *mauka* and *makai* of the proposed project. For instance, what are the current levels of inorganic nutrients and pesticides that enter the soils, ephemeral water sources, and subterranean aquifers from those existing developments; both *mauka* and *makai* of the proposed Makaiwa Hills project, and how will the multiple golf courses and more than 4000 landscaped lots planned for Makaiwa Hills add to this chemical pollutant load?

The EIS should include a report by a hydrologist discussing how water flows through the project area into local aquifers, ephemeral water sources and weather or not it could impact nearshore ocean waters.

Any water quality plan should spell out in detail any mitigation plan rather than leaving the term ambiguous.

The EIS should include an edaphic study that fully discusses the highly permeable and fragile nature of the soils and lack of dense groundcover in the project area.

The EIS should include any calculations or models used to support any conclusion regarding runoff and drainage into local aquifers and erosion of soils from the project and onto adjacent parcels.

A complete EIS will reveal the cumulative impact of all runoff and leaching on local aquifers, adjacent lands and coastal waters. This includes pesticides/biocides (including the impact of the alternative biocides that are lower in toxicity), fertilizers, sedimentation, heavy metals, grease, other urban runoff, and the increase in sewage effluent. To understand the full cumulative impact, the EIS should examine the impact of runoff traditionally associated with residential, commercial and golf course development, including sediment runoff during construction, waste oil and other rubbish associated with urban uses. It should study the amount of nonpoint source water pollution associated with similar developments and discuss the degradation of aquifers, soils, air quality, and landscapes caused by similar projects. A complete EIS would not glibly assume that mitigation measures would take care of all nonpoint source water pollution problems.

How much contaminated water (by nutrients, pesticides, or other contaminants) can be expected to leach through soil and make its way into local aquifers waters (i.e., not surface runoff, but percolation)? What specific studies of similar areas in West O'ahu does the EIS rely on to support its conclusions?

The EIS must consider the impact of termite treatment on local aquifers.

Houses in Hawai'i receive frequent termite treatments and that the impacts on surface and subsurface water bodies are well documented. It is imperative that the EIS fully disclose the impacts of pesticide runoff from frequent termite treatments.

Similarly, the EIS should consider the issue of household hazardous waste. Will it be disposed of, as it is currently throughout the state: down the drain, off the driveway, on the lawn? Or is the developer planning to include a guaranteed program that will collect all household hazardous waste?

Please discuss how the developers will follow both the letter and the spirit of HRS 343 and fully engage and consult with the public, not just county engineers. Will there be a real opportunity to comment on any residential density and supporting service design and layout plans, on the traffic mitigation plan and erosion mitigation plan before they are approved?

Where will swimming pools be drained? How do we know that they will not simply be drained on the ground, to percolate into the ground water aquifer?

What kind of wastewater treatment facility will service this large community? To what extent will the sewage be treated -- primary, secondary or tertiary? Where will it be discharged? If the applicant proposes to discharge it through an underground injection well,

please disclose how long it takes such effluent to reach any freshwater aquifer or the coastal waters and the level of contamination.

### SCENIC IMPACT

The EIS should use both of the two most useful methodologies of Visual Impact Analysis:

- 1) Given a structure at point x, where will it be seen from; and
- 2) From point y, what can you see of the development?

Where will lights be seen from? What will be the impact of these lights on native birds? (Please note that simply saying that the project will comply with all laws does not answer these questions.)

### MITIGATION MEASURES

Please fully discuss how the public can be assured that any proposed mitigation measures will be performed and will be effective. Please describe the county and state government's monitoring and enforcement programs so that we can be assured that promises made will be kept. How much staff do the State Health Department's OEQC, the County Public Works Department and County Planning and Permitting Department have to ensure that promises are kept? How often can they be expected to visit the site? Please do not argue that it is beyond your ability to answer these questions. Please ask the departments themselves. Please report how short-handed they report that they are.

The applicant should identify all proposed mitigation measures in a consolidated list. These measures should be written in plain language that is easily enforceable when incorporated into a permit. It is unacceptable, for example, to list as a mitigation measure that "apply pesticides only when and where necessary" since such language is open to far too much interpretation and completely unenforceable.

### HAWAII STATE PLAN

The EIS should mention and fully discuss many key provisions in the Hawaii State Plan:

§226-6(b) To achieve the general economic objectives, it shall be the policy of this State to: (14) Promote and protect intangible resources in Hawaii, such as scenic beauty and the aloha spirit, which are vital to a healthy economy.

226-11 (b) To achieve the land-based, shoreline, and marine resources objectives, it shall be the policy of this State to:

- (1) Exercise an overall conservation ethic in the use of Hawaii's natural resources.
- (2) Ensure compatibility between land-based and water-based activities and natural resources and ecological systems.

226-12 (b) To achieve the scenic, natural beauty, and historic resources objective, it shall be the policy of this State to:

- (1) Promote the preservation and restoration of significant natural and historic resources.
- (3) Promote the preservation of views and vistas to enhance the visual and aesthetic enjoyment of mountains, ocean, scenic landscapes, and other natural features.
- (4) Protect those special areas, structures, and elements that are an integral and functional part of Hawaii's ethnic and cultural heritage.

226-104 (b) Priority guidelines for regional growth distribution and land resource utilization: (13) Protect and enhance Hawaii's shoreline, open spaces, and scenic resources.

**Fresh Water.** The EIS should fully disclose where the potable water to support this development would come from.

**Affordable Housing.** The DEIS should fully disclose how much affordable housing is proposed within this development – and not merely declare that affordable housing requirements will be met. Such a statement hardly constitutes full disclosure allowing decision makers to weigh the merits of the project.

**Single family homes.** To whom are the houses going to be marketed? What will the price range of the houses be?

**Benefits.** Other than satisfying "market demand" (from wealthy off-island interests), in this full-employment construction economy, what public benefits does this project present?

**Power.** Please explain in detail the electricity and power requirements of the development and the sources – and impacts – of energy to meet those demands.

**Disclosure.** The DEIS and FEIS should use color photos and maps rather than poorly copied black and white maps. It should include maps that clearly disclose which parcels are slated to be rezoned; where the SMA line is; where the certified shoreline is; and where the wastewater treatment plant is.

Sincerely,

*Randy Cling (for Michael Kliks)*

Michael M. Kliks, PhD  
Chair, Conservation and Land Use Committee  
3081G Paly Drive  
Honolulu, Hawai'i, 96822  
Telephone: 808-988-7202  
eMail: mmkliks@hawaii.rr.com





Mr. Michael Kliks, Ph.D.  
April 5, 2007  
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April 5, 2007

Michael Kliks, Ph.D., Chair  
Conservation and Land Use Committee  
Sierra Club, O'ahu Group  
3081G Paly Drive  
Honolulu, HI 96822

**SUBJECT: Makaiwa Hills – Responses to Comments on the Environmental Impact Statement Preparation Notice**

Dear Dr. Kliks,

Thank you for your Committee's comment letter concerning the Makaiwa Hills Environmental Impact Statement Preparation Notice. Please note that the letter was incorrectly addressed to Steve Cole and Jerry Overton. The following statements are offered in response to your comments.

**1. Consulted Party**

We will provide you with a copy of the Draft EIS, and we are glad to consult with you to discuss the findings of the study. Please call us if you wish to meet to discuss your comments.

**2. General Comments**

We acknowledge your comments regarding the undeveloped nature of this property, which is largely degraded by nearly two centuries of cattle grazing, plantation agriculture and related soil loss due to erosion and runoff. The natural resources studies made of this land over the past 20 years do not indicate fragile qualities, rather these investigations have documented a disturbed landscape occupied with mostly exotic and invasive plant species, which has been burned frequently by wild fires in recent years. Far mauka of this property are located the more sensitive forested lands in the Conservation District. With the cooperation of the Estate of James Campbell, these lands were set aside for natural resources protection purposes many years ago to create the Honouliuli Preserve.

Public plans for Makaiwa Hills have called for Urban-style use of this property for over 25 years. The property is located in the 'Ewa District of O'ahu, and involves lands which are classified as State Urban District by the State Land Use Commission since 1993. The subject property has also been designated under the 'Ewa Development Plan for a Residential Community since the early 1990's. These decisions were made as part of a directed growth policy for the island of O'ahu, to create the second urban center at The City of Kapolei. For over 25 years, Makaiwa Hills has been planned as a residential community near the busy urban center at Kapolei.

Kapolei is growing according to the regional development plans, and there continues to be strong demand for housing in this region. Over the years, we have recognized the statements of the Sierra Club O'ahu Group Director Jeff Mikulina in support of the island's directed growth policy for Kapolei versus other locales, such as Central

O'ahu. Of note, Makaiwa Hills represents the final major residential increment of the Master Plan for The City of Kapolei.

**3. Development Pattern**

The conceptual plan for Makaiwa Hills is far from urban sprawl. The plan represents a careful placement of a range of residential housing areas to protect open space, archaeological features and sensitive gulch areas. Nearly 60% of the project area, approximately 1,050 acres, will remain in open space. We agree that higher density residential uses should be clustered in the makai portion of the property, as depicted in the conceptual land plan and proposed zoning map. The 'Ewa Development Plan is consistent, calling for an appropriate mix of residential densities on this property. No residential towers are contemplated, with three or four stories in the most concentrated areas.

**4. Transportation**

We acknowledge the various roadway and mass transit alternatives you are proposing in your comments. Traffic and transportation are major issues in the region, and the project will introduce several new roadway features that will accommodate project-related traffic. There will be a new connection to Makakilo at Nohona Street, however, a second mauka connection is not proposed since it would violate the large gulch open space areas. Two connections are planned for H-1 Freeway and Farrington Highway, including the future Palalailai Interchange and another across from Road D of Kapolei West. The implementation of a mass transit rail solution is anticipated and fully supported to serve existing and future commuters that live in Kapolei.

**5. Employment**

Kapolei is becoming a tremendous jobs center for both government and industry. Current estimates indicate that 65,000 jobs created in Kapolei by 2030. Residents of Makaiwa Hills will have the option of local employment opportunities, or more distant employment choices, at locations accessed via the future mass transit route.

**6. Cumulative Impacts**

The combined effects of the proposed operation of Makaiwa Hills, along with the Kapolei area's existing residential communities, commercial areas, landfill operations are considered in the Draft EIS. Traffic and other infrastructure demands are important concerns for the region, for which the project will address through specific mitigative actions. Drainage and runoff management are also important concerns that have the potential to affect coastal waters. Air quality is another environmental factor studied from a cumulative perspective. A new EIS for the landfill expansion is currently in preparation, which we will carefully review. One alternative site for the new landfill is Makaiwa Hills, using the gulch directly across from Nanikai Gardens and Ko'Oliua.

The Draft EIS addresses the cumulative effects of the project on land, water, air and traffic. The most quantifiable effects are aspects such as increased traffic and wastewater generation, for which mitigative measures are planned to minimize the potential cumulative effects. Unavoidable cumulative effects will result from limited use of the site area for the creation of this new residential community, consistent with State and County plans for the area.

- Francis S. Osh, Arch. D., FAIA, AICP
- Norman G.Y. Hong, AIA
- Sheryl B. Swaman, AIA, ASID
- Hiroshi Hida, AIA
- Roy H. Nishi, AIA, CSI
- James I. Nishimoto, AIA
- Stephan H. Yuan, AIA
- Linda C. Miki, AIA
- George I. Alta, AICP
- Charles Y. Kaneshiro, AIA, LEED
- Jeffrey H. Overton, AICP
- Christine Mendez-Ruizola, AICP
- James L. Stone, AIA, LEED
- Paul P. Chorney, AIA
- Philip T. Cucchi, CSI, CDT
- Kimberly Evans
- Pete C. Galvez, AIA
- Suzann Hillm
- Roy A. Inouye, AIA, CSI
- Cami Kistler
- Katherine M. MacNeil, AIA
- Frank B. McCue
- Kawika Mokuogua
- Kathryn A. Nam
- Hiram C. Pajo
- Doreen D. Pennington
- Kimberly Polkhorst, AIA, LEED
- Scott Tangonan
- Tom Young, AIA
- Ralph E. Fathoms, AICP
- Of Counsel

#### **7. Resident Species**

There is no habitat present at the project site for endangered Hawaiian birds. The critical habitat you mention is located far mauka in the preserve area created years ago by the Estate of James Campbell in association with The Nature Conservancy. The Honouliuli Preserve Area is located about 2.5 miles mauka of the project area, and will not be adversely affected by the project. With the project's careful plans for a clustered approach to the residential enclaves, the large contiguous open space areas will continue to support habitat for primarily exotic species of flora and fauna. An thorough survey of the site conducted by Dr. Steve Montgomery also indicated common assemblages of insect species.

#### **8. Shoreline Area**

There will be no sewage from the project entering storm drains. Wastewater will be managed in a collection system, and transmitted off-site to the regional wastewater facility. Reclaimed water returned from the treatment facility will be used in the irrigation of the landscaped areas to conserve precious potable water resources. Runoff from the property will be managed in the on-site drainage system which will meet strict City, State and Federal permit criteria for storm water management. Activities at Makaiwa Hills will not adversely affect coastal waters due to the stringent controls required for site construction management of soils, erosion and storm water. As you may be aware, there is no longer a proposal for a golf course on this property. Over the long term, the landscaped grounds at Makaiwa Hills will actually reduce silt runoff by 89%, as compared to the current unmanaged land cover, erosion and runoff conditions across the 1,781 acres.

#### **9. Water Quality**

Makaiwa Hills will not have 4,100 landscaped lots, rather it is planned for approximately 1,600 single family homes and 2,500 multi-family homes. This approach to the land plan will have significant beneficial effects in terms of reduced individual lot landscape area which is outside the common maintenance area. Of note, there is no potable source groundwater aquifer underlying the project site. Drinking water for the project will continue to be derived from BWS sources elsewhere in the region, such as wells in Kūniā. The project is committed, however, to protecting the underlying soils and non-potable groundwater resources. As noted previously, the use of landscape maintenance chemicals will be strictly managed. A program for managing the disposal of household hazardous materials will also be instituted to avoid inappropriate disposal on residential lots. Wastewater from the project will be treated at the Honouliuli WWTP to produce R-1 reclaimed water for landscape irrigation in the region.

#### **10. Views**

We conducted a thorough view study of Makaiwa Hills for the Draft EIS. The hillside location for the project is a prominent feature in the area and, therefore, the community will be developed following strict design guidelines and sensitivity to both internal and off-site views. Segments of the new community will be visible from certain off-site locations such as Farrington Highway, Ko 'Ōlīna, Kapolei and Makakilo. New buildings are planned to utilize a palette of natural colors and materials which blend with the surroundings.

Night lighting will also be designed to be sensitive to minimize off-site glare effects. The only native bird known to use the site as transient habitat is the Pueo. There are large areas retained in the project as preservation and agriculture zones which will continue to serve as foraging habitat for this bird.

#### **11. Mitigation**

The measures proposed in the Draft EIS to mitigate potential adverse effects of the project are enforceable as conditions of the future zone change for Makaiwa Hills. The OEQC is not mandated to inspect built projects and enforce EIS mitigation statements. The City Department of Planning and Permitting has an Enforcement Division which is tasked with addressing land use violations and zoning complaints. Specific terms of the future Zone Change Unilateral Agreement are recorded with the State Bureau of Conveyances, and represent part of the Ordinance approving the new zoning. The legal terms and conditions of the UA are enforceable by the City's Corporation Counsel, and progress on a project's UA conditions are reviewed annually by the DPP. As for the status of current staffing in these divisions, senior officials note that their workload is high and the performance of their staff is exceptionally good, despite the heavy workload demands.

#### **12. Hawai'i State Plan**

Section 5 of the Draft EIS has a full assessment of the project's consistency and compliance with government plans and policies for the region. Key provisions in the Hawaii State Plan are supported by the project, including conservation, scenic resources, and the preservation of natural and historic, visual and cultural resources. Makaiwa Hills has prepared a Data Recovery and Preservation Plan for the protection of cultural resources on the property, which has been reviewed by the State Historic Preservation Division. As stated before, over 60% of the property will remain in open space, and sensitive design guidelines will be applied to address public views of the new community.

#### **13. Drinking Water**

Makaiwa Hills will obtain drinking water from BWS sources in the region at Kūniā. The project will participate in the facilities charges required by BWS for source development, transmission and storage.

#### **14. Single-Family Homes**

New single-family homes at Makaiwa Hills will be marketed primarily to the local residents of the 'Ewa region and O'ahu. Approximately 10 to 20% of buyers are anticipated to be off-island residents. The anticipated marketing approach will always be subject to changes in market forces.

#### **15. Project Benefits**

Makaiwa Hills will provide 30% of its residential units as affordable homes, which are critical need in the residential market in this region and island-wide. The project will provide new employment for over 1,000 positions, which are likely to be filled by people living in the 'Ewa, Waianae and Central O'ahu regions. Net revenues will result for both the State and the County from taxes. A new site for an Elementary School will be provided. Uncontrolled erosion from this large area will be stemmed by landscape management. Important cultural sites on this land will be preserved in

Mr. Michael Kliks, Ph.D.  
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perpetuity. Mauka access will be provided for traditional practices and recreation. The potential for wild fires in this area will be greatly diminished by land management practices. The list of expected project benefits from Makaiwa Hills is significant.

**16. Electrical Power**

The project will require an estimated total diversified demand of 16.8 MVA. Power is planned to be supplied to the site via existing substations at Kahe Point and Makakilo, and the future Kapolei B Substation. The new HECO 100 MW generating facility at James Campbell Industrial Park is planned to be operating using biofuels , such as biodiesel or ethanol.

**17. EIS Graphics**

We are hopeful that our GIS-generated color graphics included in the Draft EIS are readable. The locations of the shoreline, the SMA line and the regional wastewater facility at Honouliuli are noted in the report graphics.

Your comment letter and this response will be included in the Draft Environmental Impact Statement. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.



Jeffrey H. Overton, AICP  
Principal, Chief Environmental Planner

**cc:**

Mr. Jeff Mikulina, Director  
Sierra Club, Oahu Group  
P.O. Box 2577  
Honolulu, HI 96803

## **DEIS Comment Letters and Responses**

LINDA LINGLE  
GOVERNOR



RUSS K. SAITO  
COMPTROLLER

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

(P)1077.7



APR 16 2007

Mr. Steven Kelly  
Makaiawa Hills, LLC  
1001 Kamokila Blvd., Suite 250  
Kapolei, Hawaii 96707

Dear Mr. Kelly:

Subject: Makaiawa Hills Draft Environmental Impact Statement (DEIS)  
TMK 9-1-15:05 (portion), and 17: 9-2-03: portions of 02, 05, and 84

Thank you for the opportunity to provide comments to the subject project's Draft Environmental Impact Statement. This project does not directly impact any of the Department of Accounting and General Services' projects or existing facilities, and we have no comments to offer at this time.

If you have any questions, please have your staff call Mr. Bruce Bennett of the Planning Branch at 586-0491.

Sincerely,

ERNEST Y. LAU  
Public Works Administrator

BB:mo  
c: Mr. Eugene Takahashi, City and County of Hawaii, DPP  
/Mr. Jeffrey Overton, Group 70 International, Inc.  
Ms. Genevieve Salmonson, DOH-OEQC



GROUP 70  
INTERNATIONAL

- Francis S. Oda, Arch. D., FAIA, AICP
- Norman G.Y. Hong, AIA
- Sheryl B. Swaman, AIA, ASID
- Hiroshi Hida, AIA
- Roy H. Niles, AIA, CSI
- James I. Nishimori, AIA
- Stephen H. Yuen, AIA
- Linda C. Miki, AIA
- George L. Atis, AICP
- Charles Y. Kaneshiro, AIA, LEED
- Jeffrey H. Overton, AICP
- Christine Mendes Rutotola, AICP
- James L. Stone, AIA, LEED
- Paul P. O'Grady, AIA
- Philip T. Cucchi, CSI, CDT
- Kimberly Evans
- Pete C. Galvez, AIA
- Sutobin Halim
- Roy A. Inouye, AIA, CSI
- Camel Klotzer, AICP
- Katherine M. Mackell, AIA
- Frank B. McCue
- Kawana McLaughlin
- Kathryn A. Nam
- Hiram C. Paio
- Donna D. Pennington
- Kimberly Polkenhom, AIA, LEED
- Scott Tangonan
- Tom Young, AIA
- Ralph E. Rufener, AICP
- Ol Counsell

November 8, 2007  
Mr. Ernest Y. Lau  
Public Works Administrator  
State of Hawai'i  
Department of Accounting and  
General Services  
P.O. Box 119  
Honolulu, HI 96810

**SUBJECT: Makaiawa Hills – Responses to Comments on the Draft Environmental Impact Statement**

Dear Mr. Lau,

Thank you for your comment letter concerning the Makaiawa Hills Draft Environmental Impact Statement. The following statements are offered in response to your comments.

We acknowledge that the project does not directly impact any of your Department's projects or existing facilities, and that you have no comments to offer at this time.

Your comment letter and this response will be included in the Final Environmental Impact Statement. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP  
Principal, Chief Environmental Planner



**DEPARTMENT OF BUSINESS,  
ECONOMIC DEVELOPMENT & TOURISM**

STRATEGIC INDUSTRIES DIVISION  
1001 Kamokila Blvd., Suite 250  
Kapolei, Hawaii 96707

LINDA LINGLE  
GOVERNOR  
THEODORE E. CLU  
MARK K. ANDERSON  
DEPUTY DIRECTOR

(808) 587-3807  
(808) 596-2538  
www.hawaii.gov/dbedt

Makaiwa Hills, LLC  
April 18, 2007  
Page 2

April 18, 2007

Makaiwa Hills, LLC  
1001 Kamokila Blvd., Suite 250  
Kapolei, Hawaii 96707

Attn: Mr. Steve Kelly, AICP

Re: Draft Environmental Impact Statement (DEIS)  
Makaiwa Hills, Ewa, Oahu  
Tax Map Key: 9-1-15:5 (poor) & 17; 9-2-03, portions of 2, 5, & 84

In response to your April 8, 2007, notice, thank you for the opportunity to provide comments on the DEIS for the Makaiwa Hills development. The proposed 1,704-acre project would be a new 4,100 unit residential development, including a community commercial center, neighborhood retail center, elementary school, and associated infrastructure.

We would like to call your attention to: (1) State energy conservation goals; and, (2) energy and resource efficiency and renewable energy and resource development.

**1. State energy conservation goals.** Project buildings, activities, and site grounds should be designed and/or retrofitted with energy saving considerations. The mandate for such consideration is found in Chapter 344, HRS ("State Environmental Policy") and Chapter 226 ("Hawaii State Planning Act"). In particular, we would like to call to your attention HRS 226 18(c) (4) which includes a State objective of promoting all cost-effective energy conservation through adoption of energy-efficient practices and technologies.

We note that you will be consulting the City and County of Honolulu Energy Code early in your project. Hawaiian Electric Company, Inc. may also have suggestions for customized demand-side management programs that offer rebates for installation of energy efficient measures and technologies.

**2. Energy and resource efficiency and renewable energy and resource development.** We note that the planning and preliminary design for the project have been conducted following sustainable development principles and guidelines under the pilot LEED-ND (Neighborhood Development) rating system and OEQC 1999 Planner's Checklist. We also note that paragraphs 2.2.2.2 and 2.2.2.3 include specifics on Green Building Practices and Sustainable Design Techniques considered.

We further note that you support the State's energy conservation goals and will develop energy efficiency design guidelines as part of the Conditions, Covenants and Restrictions that will apply to the project area. We encourage the parties involved with this development to make a further commitment to energy and resource efficiency and include requirements in the Conditions, Covenants, and Restrictions for a development that meet the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) Certification. This would include, but not be limited to, new commercial construction, commercial interiors, core and shell development projects, homes, schools, and retail. Zero-Net Energy Green Homes should also be considered.

Our website (<http://www.hawaii.gov/dbedt/info/energy/efficiency/>) provides detailed information on guidelines, directives and statutes, as well as studies and reports on aspects of energy efficiency. Please also do not hesitate to contact Carlyn Shon, Energy Efficiency Branch Manager, at telephone number 587-3810, for additional information on LEED, energy efficiency, and renewable energy resources.

Sincerely,

Maurice H. Kaya  
Chief Technology Officer

c: OEQC  
Dept. of Planning and Permitting,  
City & County of Honolulu  
Group 70 International



Francis S. Ode,  
Arch. D. FAIA, AICP  
Norman G.Y. Hong, AIA  
Sheryl B. Samaan, AIA, ASID  
Hiyoshi Hida, AIA  
Roy H. Nishi, AIA, CSI  
James I. Nishimoto, AIA  
Stephan H. Yuan, AIA  
Linda C. Niki, AIA  
George I. Alta, AICP  
Charles Y. Kaneshiro, AIA, LEED  
Jeffrey H. Overton, AICP  
Christine Mendis Ruotola, AICP  
James L. Stone, AIA, LEED

Paul P. Chorney, AIA  
Philip T. Cucchi, CSI, CDT  
Kimberly Evans  
Pete C. Galvez, AIA  
Suzbin Hallin  
Roy A. Inouye, AIA, CSI  
Cami Kessler  
Katherine M. MacNeil, AIA  
Frank B. McCue  
Kawika Mokuogua  
Kathryn A. Nam  
Hiram C. Paipo  
Doreen D. Pennington  
Kimberly Polkholm, AIA, LEED  
Scott Tangonan  
Tom Young, AIA

Ralph E. Furlow, AICP  
Of Counsel

November 8, 2007

Mr. Maurice H. Kaya  
Chief Technology Officer  
Department of Business, Economic Development & Tourism  
P.O. Box 2359  
Honolulu, HI 96804

**SUBJECT: Makaiwa Hills – Responses to Comments on the Draft Environmental Impact Statement**

Dear Mr. Kaya,

Thank you for your comment letter concerning the Makaiwa Hills Draft Environmental Impact Statement (EIS). The following statements are offered in response to your comments.

Your letter correctly notes that the project will support the State's energy conservation goals and will develop energy efficiency design guidelines as part of the Conditions, Covenants and Restrictions that will apply to the project area. In addition, the project developer is exploring the opportunities and challenges of meeting Leadership in Energy and Environmental Design (LEED) certification. We appreciate your references to the State's energy conservation goals and other related energy efficiency resources; these will be utilized by the project developer in the aforementioned consideration of possible LEED certification.

Your comment letter and this response will be included in the Final Environmental Impact Statement. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP  
Principal, Chief Environmental Planner

Group 70 International, Inc. • Architects • Planners • Interior Design • Building Design • Adaptive Architecture • Asset Management • Environmental Services  
925 Beech Street, 9th Floor • Honolulu, Hawaii 96813-4307 • Ph: (808) 525-5888 • Fax: (808) 525-5874 • www.group70inc.com • email: info@group70inc.com

LINDA LINGLE  
GOVERNOR



STATE OF HAWAII  
DEPARTMENT OF EDUCATION  
P.O. BOX 2380  
HONOLULU, HAWAII 96840

OFFICE OF THE SUPERINTENDENT

May 24, 2007

Mr. Steve Kelly  
Makaiwa Hills, LLC  
1001 Kamokila Boulevard, Suite 250  
Kapolei, Hawaii 96707

Dear Mr. Kelly:

**SUBJECT: Draft Environmental Impact Statement for Makaiwa Hills Ewa, Oahu, TMK: 9-1-15: por. 5 & 17, 9-2-03: portions of 2, 5, & 84**

The Department of Education (DOE) has reviewed the Draft Environmental Impact Statement (DEIS) for the proposed Makaiwa Hills community in Ewa, Oahu. The DOE also had a series of meetings with you concerning the enrollment impact of the project and the form of your school fair-share contribution for public schools serving Makaiwa Hills.

Based on the marketing and other data on the types of residential units being planned for Makaiwa Hills, the DOE estimates that approximately 1,380 students would reside in the project when it is built out and its populations have stabilized. We estimate that 745 of those students will attend elementary schools. It is clear that there is insufficient capacity at existing elementary schools to accommodate that number of new students.

The DOE has reviewed the location of the elementary school proposed in the DEIS and has no major concerns with the site. In future meetings, the DOE would like to discuss in greater depth how vehicles and pedestrians would access the site. We would also like to know if the site requires any setbacks that might reduce the space available for building within the 12-acre school site.

The proposed elementary site would house approximately 550 students. In our discussions, we have already raised the issue of the need for a second elementary school since we project 745 elementary students in Makaiwa Hills. We also estimate that 200 elementary students will reside in the Kapolei West project. The DOE appreciates your responsiveness to the need for a second school. We are confident that a satisfactory second elementary school site can be located within the Makaiwa Hills project.

The DOE believes that the middle school site proposed in the Kapolei West project will have sufficient capacity for the middle school students expected to live in Makaiwa Hills. Additional high schools in the Ewa area will relieve the enrollment pressures on Kapolei High School and should provide sufficient capacity for the high school students in Makaiwa Hills.

AN AFFIRMATIVE ACTION AND EQUAL OPPORTUNITY EMPLOYER

PATRICIA HANAMOTO  
SUPERINTENDENT



Mr. Steve Kelly  
Page 2  
May 24, 2007

We will continue to work towards a completed Educational Contribution Agreement for Makaiwa Hills in the next few months. If you have any questions, please call Heidi Meeker of the Facilities Development Branch at 733-4862.

Very truly yours,

Patricia Hamamoto  
Superintendent

PH:jmb

- c: Randolph Moore, Assistant Superintendent, OBS
- Duane Kashiwai, Public Works Administrator, FDB
- Mamo Carrera, CAS, Campbell/Kapolei/Waianae Complex Areas
- Eugene Takahashi, City and County of Honolulu
- Jeffrey Overton, Group 70 International, Inc.



November 8, 2007

Ms. Patricia Hamamoto  
Superintendent  
State of Hawaii  
Department of Education  
P.O. Box 2360  
Honolulu, HI 96804

**SUBJECT: Makaiwa Hills – Responses to Comments on the Draft Environmental Impact Statement**

Dear Ms. Hamamoto,

Thank you for your comment letter concerning the Makaiwa Hills Draft Environmental Impact Statement (EIS). The following statements are offered in response to your comments.

We appreciate your acknowledgement of the series of meetings held concerning the enrollment impact of the proposed project and the form of the fair-share contributions for public schools serving the Makaiwa Hills development. We look forward to completing the Educational Contribution Agreement in the near future.

Also, as you may know, continued discussions with your planning staff have resulted in the decision that the project developer will provide both an elementary school site and a middle school site. Accordingly, we have revised the project's land plan and EIS to include sites for a 12-acre elementary school and an 18-acre middle school. Detailed siting issues, such as vehicle and pedestrian access to the schools and possible Highway setback distances, will be addressed in further discussions.

Finally, we understand that high school students from Makaiwa Hills will be accommodated at other planned or proposed schools within the Kapolei area.

Your comment letter and this response will be included in the Final Environmental Impact Statement. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP  
Principal, Chief Environmental Planner



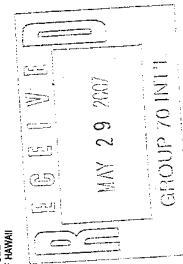
LINDA SINGLE  
GOVERNOR OF HAWAII



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

CHUCKIE L. ESKIND, M.D.  
DIRECTOR OF HEALTH

In reply, please refer to:  
EPO-07-078



May 21, 2007

Mr. Steve Kelly  
Makaiwa Hills, LLC  
1001 Kamokila Boulevard, Suite 250  
Kapolei, Hawaii 96707

Dear Mr. Kelly:

**SUBJECT:** Draft Environmental Impact Statement for the Makaiwa Hills

Ewa, Oahu, Hawaii

TMK: (1) 9-1-015: 005 (portion) and 017

(1) 9-2-003, 002 (portion), 005 (portion) and 084 (portion)

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

Wastewater Branch

As the project will be served by the City's Honouliuli Wastewater Treatment Facility, we have no objections to the development. We encourage the developer to work with the Honolulu Board of Water Supply and utilize recycled water for irrigation and other non-potable water purposes such as parks, golf courses and other open spaces or landscaping areas.

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

Safe Drinking Water Branch (SDWB)

**Public Water Systems**

- Federal and state regulations define a public water system as a system that serves 25 or more individuals at least 60 days per year or has at least 1.5 service connection. All public water system owners and operators are required to comply with Hawaii Administrative Rules, Title 11, Chapter 20, titled Rules Relating to Potable Water Systems. By connecting to the existing

Mr. Kelly  
May 21, 2007  
Page 2

Honolulu Board of Water Supply's water system, the proposed subdivision's improvements will become a part of PWS #335 Waipahu-Ewa-Waianae.

- All projects which propose the use of dual water system or the use of a non-potable water system in proximity to an existing potable water system to meet irrigation or other needs must carefully design and operate these systems to prevent the cross-connection of these systems and prevent the possibility of backflow of water from the non-potable water system to the potable water system. The two systems must be clearly labeled and physically separated by air gaps or reduced pressure principle backflow prevention devices to avoid contaminating the potable water supply. In addition backflow devices must be tested periodically to assure their proper operation. Further, all non-potable spigots, valve boxes, manholes, above ground backflow prevention devices and irrigated areas should be clearly labeled with warning signs and/or be painted purple to prevent the inadvertent access to, and consumption of, the non-potable water. Compliance with Hawaii Administrative Rules, Title 11, Chapter 11-21 titled, Cross-Connection and Backflow Control is also required.

- For further information concerning the application of regulated public water system programs, please contact the SDWB at 586-4258

General

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](http://www.state.hi.us/health/environmental/env-planning/landuse/landuse.html). Any comments specifically applicable to this plan should be adhered to.

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

Sincerely,

KELVIN H. SUNADA, MANAGER  
Environmental Planning Office

- c: EPO  
WWB  
SDWB  
City and County of Honolulu, Mr. Eugene Takahashi  
Group 70 International, Inc, Mr. Jeffrey Overton

PIPER T. YOUNG  
 CHAIRPERSON  
 COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MARSH  
 DEPUTY DIRECTOR - LAND

ADAM C. DEWOLF  
 DIRECTOR OF WATER RESOURCES  
 BUREAU OF WATER RESOURCES  
 DEPARTMENT OF LAND AND NATURAL RESOURCES

WALTER H. HONG  
 CHAIRMAN  
 CONSERVATION AND CANTAL LANDS  
 DEPARTMENT OF LAND AND NATURAL RESOURCES

BARBARA B. HANSEN  
 HONORARY MEMBER  
 HONORARY MEMBER  
 HONORARY MEMBER  
 HONORARY MEMBER  
 HONORARY MEMBER

HONORABLE PRESIDENT  
 LAND  
 LAND  
 LAND  
 LAND  
 LAND  
 STATE FAIR



**STATE OF HAWAII**  
**DEPARTMENT OF LAND AND NATURAL RESOURCES**

STATE HISTORIC PRESERVATION DIVISION  
 601 KAMOKILA BOULEVARD, ROOM 355  
 KAPOLEE, HAWAII 96707



LOG NO: 2007.1300  
 DOC NO: 0704amj39  
 Archaeology

LINDALENCE  
 GOVERNOR OF HAWAII



May 4, 2007

Mr. Jeffrey H. Overton, AICP  
 Group 70 International, Inc.  
 925 Bethel Street, 5<sup>th</sup> Floor  
 Honolulu, Hawaii 96813-4307

Dear Mr. Overton:

**SUBJECT: Chapter 6E-42 Historic Preservation Review –  
 Draft EIS Makaiwa Hills  
 Hono‘uli‘uli, Ahupua‘a, ‘Ewa District, Island of O‘ahu  
 TMK: (1) 9-1-015:005 (portion) & 017; 9-2-003; (portions of) 002, 005 & 084**

Thank you for the opportunity to review the aforementioned document, which we received on April 17, 2007. The proposed project consists of a new 4,100 unit residential community, including all associated infrastructure and utilities. The entire project area comprises approximately 1780 acres.

Your document states (p. 4-98): “The project construction will not begin until archaeological studies including data recovery are complete as determined by State Historic Preservation Division.”

The following reflects our current understanding of the status of the relevant archaeological studies for this project:

- (1) We have reviewed the archaeological survey addendum report, and requested changes to the significance assessments of two sites (6870 and 6871). To our knowledge, these revisions have not been made, and the archaeological inventory addendum has not been accepted by our office.
- (2) We have not yet received a preservation plan, in accordance with §13-277, HAR for the seven (7) preservation sites. Prior to any ground disturbance, the preservation buffers, as defined and memorialized in the preservation plan, must be physically established on the ground.
- (3) We do not know if the data recovery field work has been completed, and we have not received a data recovery report documenting and memorializing this work.

November 8, 2007

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

**SUBJECT: Makaiwa Hills – Responses to Comments on the Draft Environmental  
 Impact Statement**

Dear Mr. Sunada,

Thank you for your comment letter concerning the Makaiwa Hills Draft Environmental Impact Statement. The following statements are offered in response to your comments.

We acknowledge that your Wastewater Branch has no objections to the project, and further that you reserve the right to review the detailed wastewater plans, which will be designed in conformance with HAR 11-62 “Wastewater Systems.” The developer will continue to work with the Board of Water Supply (BWS) to coordinate the use of recycled or non-potable water in appropriate areas of the project.

We also acknowledge that by connecting to the existing BWS public water system, the project’s drinking water improvements will become a part of PWS #335 Waipahu-‘Ewa-Waianae, and further that the improvements will be subject to HAR 11-20 “Rules Related to Public Water Systems.”

Any dual water system or use of non-potable water at Makaiwa Hills will be carefully designed and operated to prevent the cross-connection or backflow of the potable and non-potable systems. The development will comply with HAR 11-21 “Cross-Connection and Backflow Control.”

We will review the recommended Standard Comments on your website, and implement applicable comments as appropriate.

Your comment letter and this response will be included in the Final Environmental Impact Statement. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP  
 Principal, Chief Environmental Planner



Francis B. Oda  
 Asst. Dir. FWA, AICP  
 Norman G.Y. Hong, AIA  
 Cheryl B. Swanick, AA, ASID  
 Hoohey Hills, AIA  
 Roy H. Miki, AIA, CSI  
 James I. Nakimoko, AIA  
 Stephen H. Yarn, AIA  
 Linda C. Mak, AIA  
 George J. Aba, AICP  
 Charles Y. Karamiro, AIA, LEED  
 Jeffrey H. Overton, AICP  
 Christine Mendis Ruzoka, AICP  
 James L. Stone, AIA, LEED

Paul P. Dinwiddie, AIA  
 Philip T. Guion, CSI, CDT  
 Kimberly Evans  
 Pale C. Galvez, AIA  
 Sabah Hattin  
 Roy A. Hoyle, AIA, CSI  
 Carmen Keeler, AICP  
 Katherine M. Marshall, AIA  
 Frank B. McCre  
 Kawoa McElroy  
 Kathryn A. Nam  
 Heron C. Pajo  
 Donna D. Pennington  
 Kimberly Polakoff, AA, LEED  
 Scott Tangman  
 Tom Young, AIA

Ralph E. Pivrowski, AICP  
 JD CONSULT

We look forward to continuing to work with you and the archaeological consultant to resolve these outstanding issues.

Please contact SHPD at (808) 692-8015 if you have any questions about this letter.

Aloha,



Melanie Chinen, Administrator  
State Historic Preservation Division

amj

- c: Mr. Steve Kelly, Makaiwa Hills, LLC  
Ms. Genevieve Salmonson, Office of Environmental Quality Control  
Mr. Eugene Takahashi, Department of Planning and Permitting, City and County of Honolulu



November 8, 2007

Ms. Melanie Chinen  
Administrator

State of Hawai'i  
Department of Land and Natural Resources  
State Historic Preservation Division  
601 Kamokila Blvd., Room 555  
Kapolei, HI 96707

Francis S. Oda,  
Arch. D., FPA, AICP  
Norman G. Y. Hong, AIA  
Sheryl B. Swannan, AIA, ASD  
Heidi Hida, AIA  
Roy H. Nhei, AIA, CSI  
James I. Nishimura, AIA  
Stephen H. Yuen, AIA  
Linda C. Miki, AIA  
George I. Alta, AICP

**SUBJECT: Makaiwa Hills – Responses to Comments on the Draft Environmental Impact Statement**

Charles Y. Kaneshiro, AIA, LEED  
Jeffrey H. Overton, AICP  
Christine Mendes Rucobias, AICP  
James L. Stone, AIA, LEED

Dear Ms. Chinen,

Thank you for your comment letter concerning the Makaiwa Hills Draft Environmental Impact Statement. The following statements are offered in response to your comments.

Paul P. Chorney, AIA  
Philip T. Cucchi, CSI, CDT  
Kimberly Evans  
Pete C. Galvez, AIA  
Suzann Hallin

Roy A. Itooye, AIA, CSI  
Carm Klester  
Katherine M. MacNeil, AIA  
Frank B. McCue

Kawika Mokuogoe  
Kathryn A. Nam  
Hiren C. Pigo  
Dorina D. Remington  
Kimberly Puklihoon, AIA, LEED  
Scott Tangonan  
Tom Young, AIA

We appreciate your status update on the relevant archaeological studies for the project. In June 2007, the contract archaeologist for the project, Cultural Surveys Hawai'i Inc., submitted the archaeological inventory survey addendum, the preservation plan, and the data recovery report to your office for review and acceptance. On August 10, 2007, your office provided a letter noting the survey addendum had been accepted. Presently, we are awaiting your office's review and approval of the preservation plan and data recovery report. No project construction will take place prior to your acceptance/approval of the remaining documents.

Your comment letter and this response will be included in the Final Environmental Impact Statement. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.



Jeffrey H. Overton, AICP  
Principal, Chief Environmental Planner

LINDA LINGLE  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

PETER T. YOUNG  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCES MANAGEMENT  
STATE PARKS



Makaiwa Hills, LLC  
1001 Kamokila Blvd Suite 250  
Kapolei, Hawaii 96707  
Attention: Steve Kelly

Department of Planning and Permitting  
City & County of Honolulu  
650 South King Street 7th Floor  
Honolulu, Hawaii 96813  
Attention: Eugene Takahashi

April 27, 2007

Gentlemen:

Subject: Draft Environmental Impact Statement for Makaiwa Hills, Ewa, Oahu, Tax  
Map Key: (1) 9-1-15:por 5, 17; 9-2-3:por 2, 5, 84

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

Other than the comments from Engineering Division, Division of State Parks, Division of Forestry & Wildlife, Division of Water Resource Management, Land Division - Oahu District, the Department of Land and Natural Resources has no other comments to offer on the subject matter. Should you have any questions, please feel free to call our office at 587-0433. Thank you.

Sincerely,

Russell Y. Tsuji  
Administrator

RECEIVED  
'07 MAY -1 P2:47  
CITY & COUNTY OF HONOLULU

LINDA LINGLE  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809



PETER T. YOUNG  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCES MANAGEMENT  
STATE PARKS

April 9, 2007

MEMORANDUM

TO: DLNR Agencies:  
— Div. of Aquatic Resources  
— Div. of Boating & Ocean Recreation  
 Engineering Division  
 Div. of Forestry & Wildlife  
— Div. of State Parks  
 Div. of Water Resource Management  
 Office of Conservation & Coastal Lands  
 Land Division - Oahu District

FROM: Russell Y. Tsuji

SUBJECT: Draft Environmental Impact Statement for Makaiwa Hills  
LOCATION: Ewa, Oahu, TMK: (1) 9-1-15:portion 5, 17 and 9-2-3:portion 2, 5, 84  
APPLICANT: Group 70 on behalf of Makaiwa Hills, LLC

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by April 24, 2007.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

- ( ) We have no objections.
- ( ) We have no comments.
- (X) Comments are attached.

Signed:   
Date: 4/13/07

RECEIVED  
LAND DIVISION  
2007 APR 13 A 9 58  
DEPT. OF LAND & NATURAL RESOURCES  
STATE OF HAWAII

-> NDM A.

PETER T. YOUNG  
CHAIRMAN  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSIONER ON WATER RESOURCES MANAGEMENT  
ROBERT K. MASUDA  
DEPUTY CHAIRMAN  
BOBATHA WILSON  
COMMISSIONER ON WATER RESOURCES MANAGEMENT  
CONSERVATION AND RECREATION  
FORESTRY AND WILDLIFE  
KAPUHAWE RESOURCES COMMISSION  
STATE PARKS

APR 09 2007

LINDA LINGLE  
GOVERNOR OF HAWAII



RECEIVED  
LAND DIVISION



STATE OF HAWAII  
LAND DIVISION  
POST OFFICE BOX 601  
HONOLULU, HAWAII 96809

DEPARTMENT OF LAND AND NATURAL RESOURCES  
ENGINEERING DIVISION

LM/RYT  
REF.: DEISMakaiwaHills  
OAHU:550

COMMENTS

- We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Zone D. The National Flood Insurance Program (NFIP) does not have any regulations for developments within Zone D.
- Please take note that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Zone \_\_\_\_\_.
- Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is \_\_\_\_\_.
- Please note that the project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Beam, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.
- Please be advised that 44CFR indicates the minimum standards set forth by the NFIP. Your Community's local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:
  - Mr. Robert Sumimoto at (808) 523-4254 or Mr. Mario Siu Li at (808) 523-4247 of the City and County of Honolulu, Department of Planning and Permitting.
  - Mr. Kelly Gomes at (808) 961-8327 (Hilo) or Mr. Kiran Enler at (808) 327-3530 (Kona) of the County of Hawaii, Department of Public Works.
  - Mr. Francis Cerizo at (808) 270-7771 of the County of Maui, Department of Planning.
  - Mr. Mario Antonio at (808) 241-6620 of the County of Kauai, Department of Public Works.

The applicant should include project water demands and infrastructure required to meet water demands. Please note that the implementation of any State-sponsored projects requiring water service from the Honolulu Board of Water Supply system must first obtain water allocation credits from the Engineering Division before it can receive a building permit and/or water meter.

The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.

Additional comments: \_\_\_\_\_

Other: \_\_\_\_\_

Should you have any questions, please call Ms. Alyson Yim of the Planning Branch at 587-0259.

Signed: *Eric T. Hirano*  
ERIC T. HIRANO, CHIEF ENGINEER

Date: 4/13/07

April 9, 2007

MEMORANDUM

TO: DLNR Agencies:  
 Div. of Aquatic Resources  
 Div. of Boating & Ocean Recreation  
 Engineering Division  
 Div. of Forestry & Wildlife  
 Div. of State Parks  
 Div. of Water Resource Management  
 Office of Conservation & Coastal Lands  
 Land Division - Oahu District

FROM: Russell Y. Tsuji  
 SUBJECT: Draft Environmental Impact Statement for Makaiwa Hills  
 LOCATION: Ewa, Oahu, TMK: (1) 9-145 portion 5, 17 and 9-2-3; portion 2, 5, 84  
 APPLICANT: Group 70 on behalf of Makaiwa Hills, LLC

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by April 24, 2007.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

We have no objections.  
 We have no comments.  
 Comments are attached.

Signed: *Paul J. Conry*  
Date:

PAUL J. CONRY, ADMINISTRATOR  
DIVISION OF FORESTRY AND WILDLIFE  
APR 11 2007



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
**COMMISSION ON WATER RESOURCE MANAGEMENT**  
HONOLULU, HAWAII 96809

April 25, 2007

PETER T. YOUNG  
Commissioner  
MEREDITH J. CHING  
Commissioner  
NEAL S. FUJIWARA  
Commissioner  
CHYOMELI FUKINO, M.D.  
Commissioner  
LAWRENCE A. HANAUSS, J.D.  
Commissioner  
STEPHANIE A. WHALEN  
Commissioner

REF: Makaiwa Hills EIS.dr

TO: Russell Tsuji, Administrator  
Land Division

FROM: W. Roy Hardy, Hydrologic Program Manager  
Commission on Water Resource Management

SUBJECT: Draft Environmental Impact Statement for Makaiwa Hills, Ewa, Oahu, TMK: (1)9-1-15:por 5, 17 and 9-2-3:por 2, 5, 84

FILE NO.:

Thank you for the opportunity to review the subject document. The Commission on Water Resource Management (CWRM) is the agency responsible for administering the State Water Code (Code). Under the Code, all waters of the State are held in trust for the benefit of the citizens of the State, therefore, all water use is subject to legally protected water rights. CWRM strongly promotes the efficient use of Hawaii's water resources through conservation measures and appropriate resource management. For more information, please refer to the State Water Code, Chapter 174C, Hawaii Revised Statutes, and Hawaii Administrative Rules, Chapters 13-167 to 13-171. These documents are available via the Internet at <http://www.hawaii.gov/dlnr/cwrm>.

Our comments related to water resources are checked off below.

- 1. We recommend coordination with the county to incorporate this project into the county's Water Use and Development Plan. Please contact the respective Planning Department and/or Department of Water Supply for further information.
- 2. We recommend coordination with the Engineering Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.
- 3. There may be the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.

Permits required by CWRM: Additional information and forms are available at [www.hawaii.gov/dlnr/cwrm/forms.htm](http://www.hawaii.gov/dlnr/cwrm/forms.htm).

- 4. The proposed water supply source for the project is located in a designated ground-water management area, and a Water Use Permit is required prior to use of ground water.
- 5. A Well Construction Permit(s) is (are) required before the commencement of any well construction work.
- 6. A Pump Installation Permit(s) is (are) required before ground water is developed as a source of supply for the project.

Russell Tsuji, Administrator  
Page 2  
April 25, 2007

- 7. There is (are) well(s) located on or adjacent to this project. If wells are not planned to be used and will be affected by any new construction, they must be properly abandoned and sealed. A permit for well abandonment must be obtained.
- 8. Ground-water withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.
- 9. A Stream Channel Alteration Permit(s) is (are) required before any alteration can be made to the bed and/or banks of a stream channel.
- 10. A Stream Diversion Works Permit(s) is (are) required before any stream diversion works is constructed or altered.
- 11. A Petition to Amend the Interim Instream Flow Standard is required for any new or expanded diversion(s) of surface water.
- 12. The planned source of water for this project has not been identified in this report. Therefore, we cannot determine what permits or petitions are required from our office, or whether there are potential impacts to water resources.
- 13. We recommend that the report identify feasible alternative non-potable water resources, including reclaimed wastewater.
- OTHER:  
Our records indicate that there is an unused observation well at TMK 9-2-3.2 (Well No. 2006-16). This well should be properly abandoned and sealed if there are no future plans for use. If the well is to be used as an observation well, monthly water data reports should be filed with the Commission.  
Section 4.2.6.1 discusses the possible use of EP 10 as a source of brackish irrigation water. EP 10 (Well Nos. 2006-01 to 10) is covered by Water Use Permit No. 670. This permit allows up to 0.957 million gallons per day to be used for diversified agriculture. Prior to any change in use or allocation amount, a water use permit modification application must first be made and approved by the Commission.

If there are any questions, please contact Lenore Nakama at 597-0218.

LN:ss

LINDA LINGLE  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

April 9, 2007

MEMORANDUM

TO:

- \_\_\_ Div. of Aquatic Resources
- \_\_\_ Div. of Boating & Ocean Recreation
- Div. of Engineering Division
- Div. of Forestry & Wildlife
- \_\_\_ Div. of State Parks
- Div. of Water Resource Management
- Office of Conservation & Coastal Lands
- Land Division - Oahu District

FROM: Russell Y. Tsuji

SUBJECT: Draft Environmental Impact Statement for Makaiwa Hills

LOCATION: Ewa, Oahu, TMK: (1) 9-1-15; portion 5, 17 and 9-2-3; portion 2, 5, 84

APPLICANT: Group 70 on behalf of Makaiwa Hills, LLC

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by April 24, 2007.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

- We have no objections.
- We have no comments.
- Comments are attached.

Signed: *Russell Y. Tsuji*  
Date: 4/11/07



- Francis S. Oda, AIA, LEED
- Ach. D. FAMA, ACP
- Norman G. Y. Hong, AIA
- Sheryl B. Seaman, AIA, ASID
- Hiroshi Hida, AIA
- Roy H. Nishi, AIA, CSI
- James I. Nakimoto, AIA
- Stephan H. Yarn, AIA
- Uma C. Mui, AIA
- Georgi J. Aho, ACP
- Charles Y. Karantinos, AIA, LEED
- Jeffrey H. Overton, ACP
- Christina Mendler Ruedala, ACP
- James L. Stone, AIA, LEED
- Paul P. Doherty, AIA
- Philip T. Coates, CSI, CDT
- Kimberly Evans
- Phyllis C. Ganez, AIA
- Subish Halim
- Roy A. Hooye, AIA, CSI
- Carm Kleiser, ACP
- Katherine M. MacBee, AIA
- Frank B. McCue
- Kamela McKelgan
- Kathryn A. Nam
- Hsein C. Pajo
- Doris D. Pennington
- Kimberly Polkinton, AIA, LEED
- Scott Tringman
- Tom Young, AIA
- Ralph E. Portmore, ACP
- G. G. Goussard

November 8, 2007

Mr. Russell Y. Tsuji  
Administrator  
State of Hawai'i  
Department of Land and Natural Resources  
Land Division  
P.O. Box 621  
Honolulu, HI 96809

**SUBJECT: Makaiwa Hills - Responses to Comments on the Draft Environmental Impact Statement**

Dear Mr. Tsuji,

Thank you for your comment letter concerning the Makaiwa Hills Draft Environmental Impact Statement. The following statements are offered in response to your comments.

We appreciate your Engineering Branch's confirmation that the project site is located in FIRM zone D, for which there are no National Flood Insurance Program regulations.

We acknowledge the DLNR's Division of Forestry and Wildlife has no objections to the project, and that the Land Division has no specific comments.

Pursuant to the Commission on Water Resources Management's recommendation, we will continue on-going efforts of coordination with the County's Board of Water Supply to integrate the project into their water use and development plans.

Additionally, we were not aware that there may be an unused observation well at TMK 9-2-003: 002. Should the Commission know of the specific location on the 850-acre parcel where this well is supposed to exist, we would appreciate this information. If we find that the well still exists, it will be sealed if the determination is made that there is no future use for this well (Well No. 2006-16). If the well will be used, then monthly water data reports will be filed with the Commission.

Regarding Well Nos. 2006-01 to 10 (EP 10), we acknowledge that Water Use Permit No. 670 allows up to 0.957 MGD of brackish water from this source to be used for diversified agriculture. We will coordinate with the Commission on a water use permit modification if water from this source is to be used for irrigation.

LINDA LINGLE  
GOVERNOR



BARRY FUKUNAGA  
DIRECTOR

Deputy Directors  
FRANCIS PAUL KEENO  
BRENNON T. MORIOKA  
BRIAN H. BERGLUCHI

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

IN REPLY REFER TO:

STP 8.2496

May 23, 2007

Mr. Steve Kelly, AICP  
Makaiwa Hills, LLC  
1001 Kamokila Boulevard, Suite 250  
Kapolei, Hawaii 96707

Dear Mr. Kelly:

Subject: Makaiwa Hills  
Draft Environmental Impact Statement (DEIS)  
TMK: 9-1-15: 5 (por) & 17; 9-2-03; portions of 2, 5 & 84, Oahu, Hawaii

We have the following comments on the subject planned community project as presented in the Draft EIS:

1. All three of our operating transportation systems - Airports, Harbors and Highways - are affected by the project. The information provided in the Draft EIS, in your follow up to our earlier concerns provided in our comments (letter STP 8.2331 dated 11/22/06) to your EIS Preparation Notice and the reply on your behalf from Group 70 International (letter dated 4/5/07), reflected an effort to address our concerns.
2. On the matter of occasional aircraft flight being heard, we request that a copy of any notice or statement you provide to prospective residents and occupants be submitted to our Airports Division, ATTN: Airports Planning Section, for the staff's information and files.
3. On the matter of the Kalaheo Barbers Point Harbor facilities being in view of prospective residents and occupants, we request that a copy of the notification you will provide to the residents and occupants be submitted to our Harbors Division, ATTN: Harbors Planning Section, for review and reference.
4. The need to coordinate and provide drainage improvements from the subject project and around Kalaheo Barbers Point Harbor, with each developer downstream and in the area of the affected drainage basin(s), in advance of land development and/or in appropriate construction phases, to ensure that any storm and surface water discharge and accompanying pollution does not affect the harbor is still a concern. It is our understanding that your engineering consultants are also aware of and will design your

Your comment letter and this response will be included in the Final Environmental Impact Statement. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP  
Principal, Chief Environmental Planner



Mr. Steve Kelly  
Page 3  
May 23, 2007

STP 8.2496

Mr. Steve Kelly  
Page 2  
May 23, 2007

project drainage facilities so as not to have any drainage and storm water impact on our highways. Drainage design and construction plans should be submitted to us for review and examination so that any concerns or questions on items that may affect our facilities can be addressed.

As you proceed to finalize your drainage improvements, an update on the status of the drainage plans of the other developers downstream of your project will need to be incorporated. We would like to be apprised of your progress and we also look forward to receiving the drainage master plan for the area that you are preparing for State and County agencies for our review and approval. You may arrange progress and informational meetings with our Harbors Division, ATTN: Harbors Planning Section, and also notify and include our Highways Division, ATTN: Highways Planning Branch, because of discussions of drainage crossing and around the State highways. At least five (5) copies of the drainage master plan should be provided to us in order that both of our affected transportation divisions can have sufficient copies for staff.

5. The traffic impact from the Makaiwa Hills project and the project's contribution to the cumulative impact on the State highways is significant and should not be underestimated. Also, the anticipated timely and actual completion of various planned connecting roads and highway intersection/interchange improvements by each of the different parties involved with supplying the traffic and roadway improvements for the Kapolei/Makakilo/Ewa area should not be presumptive. The timetables for your project and sequence of roadway/highway improvements surrounding the project, and the influence and impact with the timing of other adjacent land development projects is another consideration. Residential areas of the project planned along our highways will need to be adequately designed or protected from traffic noise. Our Highways Division is still reviewing the project's TLAR and portions of the Draft EIS with these factors in mind.

We acknowledge your commitment to provide both project impact mitigation measures and to participate in and contribute to regional transportation improvements.

For further discussion on the subject project's traffic impact and mitigation you may arrange a meeting with our Highways Division, through our Highways Planning Branch.

6. We welcome your response to our Draft EIS comments before you proceed to work on a Final EIS.

We appreciate the opportunity to provide our comments.

Very truly yours,



BARRY FUKUNAGA  
Director of Transportation

c: Eugene Takahashi, Department of Planning and Permitting  
Jeffrey Overton, Group 70 International, Inc.  
Genevieve Salomonson, Office of Environmental Quality Control  
Laura Thielen, Office of Planning, DBEDT



Francis S. Oda, AIA, D. FMA, AICP  
 Norman G. Y. Hong, AIA  
 Cheryl B. Soranin, AIA, ASID  
 Hiroshi Hida, AIA  
 Roy H. Nishi, AIA, CSI  
 James I. Nishimoto, AIA  
 Stephen H. Yarn, AIA  
 Linda C. Mai, AIA  
 George J. Aiba, ACP  
 Charles Y. Karaninos, AIA, LEED  
 Jeffrey H. Overton, AICP  
 Christina Mendez Rueda, ACP  
 James L. Stone, AIA, LEED

Peter P. O'Driscoll, AIA  
 Philip T. Cozella, CSI, CDT  
 Kimberly Evans  
 Peter C. Garvez, AIA  
 Subbin Halim  
 Roy A. Hoyle, AIA, CSI  
 Cam Kleiser  
 Katherine M. Macbeth, AIA  
 Frank B. McCuan  
 Karelka McElreath  
 Kathryn A. Naim  
 Hean C. Paip  
 Donna D. Pennington  
 Kimberly Polkinton, AIA, LEED  
 Scott Tangman  
 Tom Young, AIA

Ralph E. Reimann, AICP  
 G. Douglas

November 8, 2007

Mr. Barry Fukunaga  
 Director of Transportation  
 State of Hawai'i  
 Department of Transportation  
 869 Punchbowl Street  
 Honolulu, HI 96813-5097

**SUBJECT: Makaiwa Hills – Responses to Comments on the Draft Environmental Impact Statement**

Dear Mr. Fukunaga,

Thank you for your comment letter concerning the Makaiwa Hills Draft Environmental Impact Statement. The following statements are offered in response to your comments.

We appreciate your acknowledgement of our on-going efforts to address your agency's concerns. As requested, we will provide your staff with copies of information prepared to inform prospective residents and occupants of Makaiwa Hills about potential impacts from occasional aircraft overflights and visible harbor facilities.

Our project engineers are aware of your concerns about the potential for storm and surface water drainage impacts to your harbor and highway facilities. Consideration has been given to the future development of the Makaiwa Hills site in the planning and construction of downstream drainage facilities. Drainage improvements in downstream developments (Iko 'Olina and Kapolei West) have been designed and constructed to accommodate peak runoff from the Makaiwa Hills project as required by County drainage standards. Accordingly, these and future drainage facilities downstream of Kapolei West are expected to reduce potential downstream flooding impacts. Therefore, impacts on facilities and developments downstream of the Makaiwa Hills site are not expected to be adverse since the drainage systems have been sized accordingly. All Master plans and design and construction plans related to drainage from the project area will be submitted for your staff's review as these documents are prepared.

We are aware of the potential traffic impact from the project, and look forward to further discussions about the project's traffic impact and mitigation measures with your staff as they complete their review of the project's Traffic Impact Analysis Report. As you note, the sequencing of constructing various roadway/highway improvements in the Kapolei/ Makakilo/Ewa area by a number of different participants is a key consideration to the ultimate enhancement of transportation in this region. We appreciate your acknowledgement of our commitment to providing mitigation

Mr. Barry Fukunaga  
 DATE  
 Page 2 of 2

measures for project-related traffic impacts and to participating and contributing to regional transportation improvements.

Your comment letter and this response will be included in the Final Environmental Impact Statement. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP  
 Principal, Chief Environmental Planner

LINDA LINGLE  
GOVERNOR OF HAWAII



STATE OF HAWAII  
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

235 SOUTH BERETANIA STREET  
HONOLULU, HAWAII 96813  
TELEPHONE (808) 586-4186  
E-mail: eoqc@hawaii.gov

GENEVIEVE SALMONSON  
DIRECTOR

November 21, 2006

Mr. Henry Eng, Director  
Department of Planning and Permitting  
City and County of Honolulu  
650 South King Street  
Honolulu, Hawaii 96813

Dear Mr. Eng:

Subject: EISPN for Makaanwa Hills

Thank you for the opportunity to comment. Here are our comments.

1. Please address how the adjacent Waiananalo Gulch Landfill expansion and extension of closure will affect this project and its future residents.
2. We recommend that the homes be built with solar water heaters.
3. Recent reports indicate that home sales have declined and other developers in Kapolei have laid off workers. What is the projected number of homes that will be built on a yearly basis until full buildout in 2020?

Sincerely,

*Genevieve Salmonson*  
Genevieve Salmonson  
Director

C: Group 70  
Makaanwa Hills



Francis S. Oda,  
Arch. D., F.A.A., AICP  
Norman G.Y. Hong, AIA  
Sheryl B. Samaan, AIA, ASD  
Huihui Hida, AIA  
Roy H. Nhele, AIA, CSI  
James I. Nishimoto, AIA  
Stephen H. Yuen, AIA  
Linda C. Miki, AIA  
George I. Aka, AICP  
Charles Y. Kaneshiro, AIA, LEED  
Jeffrey H. Overton, AICP  
Christine Mendes Rucobias, AICP  
James L. Stone, AIA, LEED

Paul P. Chorney, AIA  
Philip T. Cocca, CSI, CDT  
Kimberly Evans  
Pete C. Galvez, AIA  
Sabrin Halim  
Roy A. Inouye, AIA, CSI  
Cari Klester  
Katherine M. MacNeil, AIA  
Frank B. McCue  
Kawika Mokuagau  
Kathryn A. Nam  
Hiren C. Pigo  
Dorena D. Remington  
Kimberly Polkithom, AIA, LEED  
Scott Tangonan  
Tom Young, AIA  
Ralph E. Whitmore, AICP  
OT Counsel

November 8, 2007

Mr. Laurence K. Lau  
Interim Director  
State of Hawaii  
Office of Environmental Quality Control  
235 South Beretania Street, Suite 702  
Honolulu, HI 96813

**SUBJECT: Makaanwa Hills – Responses to Comments on the Environmental Impact Statement Preparation Notice**

Dear Mr. Lau,

Thank you for your agency's November 21, 2006 comment letter concerning the Makaanwa Hills Environmental Impact Statement Preparation Notice (Prep Notice); unfortunately, we did not receive that letter, and only learned of its existence as a result of a reference in your May 23, 2007 comment letter on the project's Draft Environmental Impact Statement (EIS). Accordingly, the following statements are offered in response to your Prep Notice comments.

Waiananalo Gulch Landfill Impact. The presently utilized area of the Waiananalo Gulch landfill site is planned for capping and re-naturalization by 2008, well before the planned 2018 completion of residences closest to this area.

Our current understanding is that the City is considering utilizing the entire Waiananalo Gulch property for landfill operations, which, based on current landfilling rates, could provide for continued landfill operations until year 2024. Should the rate of landfilling be lessened due to recycling and other diversion programs, the landfill could be operated beyond 2024.

Should the landfill be expanded in the future to mauka expansion cells, distance, topography, vegetation and direction will all work to mitigate impacts to residences from landfill operations.

Solar Water Heaters. The project is addressing energy conservation in the development and operation of new homes and commercial spaces. The potential for including solar water heating and photovoltaic energy applications is being studied as part of the upcoming project design. Specific design standards will be established for new buildings with consideration of the guidelines of the Hawaii Model Energy Code.

Projected Number of Homes. Based on the Residential Market study conducted for the project in March 2007, approximately 195 affordable and market-priced homes and 156 upscale homes will be sold per year. At these rates, the 2,209 affordable and

Mr Laurence K. Lau  
November 8, 2007  
Page 2 of 2

LINDA LINGLE  
GOVERNOR OF HAWAII



GENEVIEVE SALMONSON  
DIRECTOR

STATE OF HAWAII  
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

235 SOUTH BEREYFANA STREET  
HONOLULU, HAWAII 96813  
TELEPHONE: (808) 586-1185  
FACSIMILE: (808) 586-1186  
E-mail: [oeqc@hawaii.gov](mailto:oeqc@hawaii.gov)

market-priced homes could be absorbed in about 11 years, and the 1,891 upscale homes will be absorbed in about 12 years.

Your Prep Notice comment letter and this response will be included in the Final EIS, along with a separate treatment of your agency's comments on the Draft EIS. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Handwritten signature of Jeffrey H. Overton in black ink.

Jeffrey H. Overton, AICP  
Principal, Chief Environmental Planner

May 22, 2007



Mr. Henry Eng, FAICP, Director  
Department of Planning and Permitting  
City and County of Honolulu  
650 South King Street, 7<sup>th</sup> Floor  
Honolulu, Hawaii 96813  
Attention: Mr. Eugene Takahashi

Dear Mr. Eng:

Subject: Draft Environmental Impact Statement (DEIS), Makaiwa Hills, Ewa, Oahu

Our office has reviewed the DEA for the project noted above. We have the following comments:

Page 1-12, Section 1.5 Reasons for Preparing the EIS, paragraph 3, lines 2-3: The record of filings are found in Section 9, not Section 10 as stated.

Page 1-14, Section 1.6 Summary of Anticipated Impacts, 1.6.1 Potential Beneficial Impacts, Roadways and Traffic: The proposed project may generate up to 8,200 additional commuters while providing approximately 1,100 jobs. Please include a discussion of the relationship between the income levels of the jobs projected, for the Makaiwa Hills and Kapolei areas, and the minimum family income required to qualify for homes planned in Makaiwa Hills.

Page 1-16, Section 1.6.2 Potential Adverse Impacts, Solid Waste: Please expand this statement to address the issues of cumulative impacts to solid waste facilities and the potential use of a portion of the Makaiwa Hills as a landfill site (see page 1-19, Development of the Makaiwa Gulch Sanitary Landfill and page 4-115, Solid Waste Management).

Page 2-4, Section 2.0 Project Description, 2.1.3 Land Use History and Cultural Setting, Modern Land Use, paragraph 1, lines 3-5: Please mention that artifacts were found within the boundaries of the site that may be related to military activities.

Page 2-11, Section 2.1.6 Community Outreach and Involvement, paragraph 2: Please clarify that the extensive community collaboration conducted in the early 1990's was for a project of 2,130 residential units, not 4,100 units.

Page 2-17, Section 2.2.2.3 Site Preparation and Design, paragraph 1 on page 2-17, lines 3-4: Please note the protective measures that are being proposed for these archaeological sites.

Page 2-22, Section 2.2.4 Residential Areas, paragraph 3 on page 2-22: Please delineate the percentage of open space that sits within the residential areas (buffers) and the amount of open space that is set aside for active and passive public parks. This will clarify the percentage of the site that will be left in its natural state.

Page 2-23, Section 2.2.4 Residential Areas, paragraph 2 on page 2-23, lines 6-14: Please clarify that the residences of this project may be impacted by odors and loose particulate matter from the Waimanalo Gulch Landfill between the months of October and April when there are occasional Kona winds blowing from the southwest. Please provide a timetable for the capping of the presently utilized portion of the landfill. Please clarify the timeframe for the closing of the planned expansion cells at Waimanalo Gulch and the construction timetable for Makaiwa Hills residences which are sited closest to the landfill.

Page 2-28, Section 2.2.6 Preservation Areas, paragraph 2, lines 6-7: Please refer to our comment above for Page 2-22, 2.2.4, Residential Areas.

Page 2-30 to 31, Section 2.2.8 Infrastructure, Water Supply, paragraph 2: Please include a discussion pertaining to potential impacts to overall water capacity in the Ewa district and the island of Oahu.

Page 2-31, Section 2.2.8 Wastewater: Please discuss issues related to overall capacity of the Honouliuli Wastewater Treatment Plant.

Page 3-3, Market Analysis, Section 3.2.1 Residential Market, Anticipated Buyers and Uses of Project Homes: Please refer to our comment above for Page 1-14, Section 1.6, Summary of Anticipated Impacts, 1.6.1 Potential Beneficial Impacts, Roadways and Traffic: If most of the upscale residences in Makaiwa Hills are marketed primarily to upper management personnel as opposed to wealthy retirees, this may seriously impact the already critical traffic situation. Such employment is currently centralized in downtown Honolulu and efforts to generate such employment in Kapolei are at an initial stage.

Page 3-9, Section 3.3 Economic Analysis, 3.3.1 Economic, Development Activities, Employment, paragraph 1 on page 3-9, lines 1-3: Please reference the source for your estimate that 1,140 of the 1,630 project development related jobs will be in the Kapolei region.

Page 3-16, Section 3.5 Redirection Regional Traffic, 3.5.1 City of Kapolei Urban Core Expansion, paragraph 2: Please refer to our comment above for Page 1-14, Section 1.6, Summary of Anticipated Impacts, 1.6.1 Potential Beneficial Impacts, Roadways and Traffic.

Page 3-16, Section 3.5.2 Mass Transit, paragraph 1: Despite the improvements planned for the arterial roads and Farrington Highway in the Kapolei area, the planned mass transit system is the key component of traffic solutions planned for the Ewa area. Please discuss potential traffic impacts to H-1 if the mass-transit system does not evolve.

Page 4-4, Section 4.1.3 Hydrology, 4.1.3.2 Probable Impacts, heading: The numbers in this heading are transposed. It reads 4.3.1.2, when it should read 4.1.3.2.

Page 4-4, Section 4.1.3.2 Probable Impacts, paragraph 1: Please state the sources for your conclusions that the application of fertilizers and pesticides to Makaiwa Hills properties will not leach into the water table.

Page 4-4, Section 4.1.3.2 Probable Impacts, paragraph 3, lines 3-8: Please reference the sources that were consulted relating to potential groundwater contamination.

Page 4-10, Section 4.1.7 Natural Hazards, 4.1.7.1 Existing Conditions, paragraph 2: The discussion relates solely to the ridge areas. Please discuss any potential flooding impacts to the flatlands adjacent to Farrington Highway or note where such a discussion can be found in the DEIS.

Page 4-11, Section 4.1.7.2 Probable Impacts, paragraph 1, line 1: It is stated in the DEIS that grading at the higher elevations of Makaiwa Hills will be kept at a minimum to mitigate visual impacts. Homes constructed on a varied terrain have a much higher potential for earthquake damage than those in graded areas. Please address the potential health risks to prospective residents occupying homes within a previously uninhabited seismically sensitive area.

Page 4-12, Section 4.1.7.4 Makaiwa Hills Fire Plan: The text ends abruptly on this page. This text relates directly to the discussion on page 4-14. The readability of the document would be improved if this gap in the text was removed.

Page 4-19, Section 4.1.9 Flora, 4.1.9.2 Probable Impacts: The "Survey of Botanical, Avian and Mammalian Resources" (Appendix J) states on page 18, Botanical Resources, paragraph 2, lines 2-7 that "many of the steep rocky areas most likely to harbor natives are located just below the less steep top surfaces of the interfluvies, and are generally in areas that will be developed. Current development plans incorporate substantial open areas, including gulch bottoms and broad swaths flowing the energy corridors that crisscross much of the property." Please address the potential that native species may be extant in these areas of the project site, not solely on the steep slopes of the gulches.

Page 4-31, Section 4.2 Built Environment, 4.2.1 Current Land Uses and Regulation, 4.2.1.1 Existing Conditions, Adjacent Land Use, paragraph 1 (top of page 4-31), lines 2-5: Please provide a timetable for the capping and grassing-over of the presently utilized portion of the landfill. It is stated on page 4-88 of this DEIS that there is a potential for the landfill to continue in use until 2020 and beyond. Please address this discrepancy.

Page 4-32, Section 4.2.1.2 Probable Impacts, Adjacent Land Uses, paragraph 1: Please address the nature of the built environment which is situated adjacent to the mauka-Ewa (NW) corner of the project site. Please also address any possible hazardous waste impacts from these probable military sites.

Page 4-32, Section 4.2.1.2 Probable Impacts, Adjacent Land Uses, paragraph 2, lines 1-3: Please refer to our first comment above for Page 2-23, Section 2.2.4, paragraph 2, lines 6-14 related to odors emanating from Waimanalo Gulch Landfill.

Page 4-33, Section 4.2.1.3 Mitigative Measures, paragraph 2, lines 1-4: It is stated on page 4-88 of this DEIS that there is a potential for the landfill to continue in use until 2020 and beyond. Please address this discrepancy.

Page 4-40, Section 4.2.2 Traffic, 4.2.2.1 Existing Conditions, Existing Public Transportation, Route C Country Express, lines 1-5: Please address how the addition of 4,100 residences will possibly necessitate increasing the frequency of busses on this route and how this increase will impact the current traffic conditions on the H-1 at the AM and PM peak periods. Please also address potential increased delays to the express bus service if traffic congestion on the H-1 worsens.

Page 4-57, Section 4.2.3 Air Quality, 4.2.3.2 Probable Impacts, Long Term Impacts, paragraph 3, lines 1-2: It is stated on page 4-88 of this DEIS that there is a potential for the landfill to continue in use until 2020 and beyond. Please address this discrepancy.

Page 4-57, Section 4.2.3 Air Quality, 4.2.3.2 Probable Impacts, Long Term Impacts, paragraph 3, lines 5-6: Please clarify that the residences of this project may be impacted by odors and loose particulate matter from the Waimanalo Gulch Landfill between the months of October and April when there are occasional Kona winds blowing from the southwest.

Page 4-61, Section 4.2.4 Noise, 4.2.4.2 Probable Impacts, Long Term Impacts, paragraph 4; Explain why the project was designed to include residences within 300 feet of Farrington Highway.

Page 4-62, Section 4.2.4 Noise, 4.2.4.3 Mitigative Measures, Long Term Impacts, paragraph 3, lines 1-2; Please explain why a comprehensive traffic noise and barrier analysis using roadway coordinates and the FHWA Traffic Noise Model Software was not performed.

Page 4-62, Section 4.2.4 Noise, 4.2.4.3, Mitigative Measures, Long Term Impacts, paragraph 3, bullet #1; Please discuss how the construction of barrier walls and/or earth berms along roadways to mitigate noise impacts will impact viewsheds.

Page 4-62, Section 4.2.4 Noise, 4.2.4.3, Mitigative Measures, Long Term Impacts, paragraph 3, bullet #2; Please discuss how the constant use of air-conditioners in the residences constructed within 300 feet of Farrington Highway will impact energy conservation endeavors.

Page 4-72, Table 4-13, under Average Daily Demand (gpd) heading for Park: "82,824" (decimal) should be replaced by "82,824" (comma).

Page 4-77, Section 4.2.7 Wastewater, 4.2.7.1 Existing Conditions, paragraph 3, lines 5-6; Please include discussion of any plans that the project proponent has to collaborate with the City and County of Honolulu Department of Environmental Services concerning a timetable for the expansion of the overall capacity of the Honolulu Wastewater Treatment Plant.

Page 4-83, Section 4.2.8 Drainage, 4.2.8.2 Probable Impacts, lines 5-6; Table 5 on Page 6 of Appendix B, Draft Preliminary Engineering Report shows that culverts E, G, H, L (Palalaili) and L (Awanui) under Farrington Highway are not currently adequate for 100-year flows. Please address the adequacy of these culverts regarding the increases of storm water volumes that this project will cause.

Page 4-85, Section 4.2.8 Drainage, 4.2.8.3 Off-Site System, paragraph 3, line 1; "Development" is misspelled.

Lines 6-8; Please address cumulative impacts to ocean resources, e.g. increased turbidity and potential mitigation measures such as detention basins.

Page 4-87, Section 4.2.9 Power and Utilities, 4.2.9.2 Probable Impacts, paragraph 1 (page 4-87); Please address visual impacts to the upscale residences that are planned in close proximity to these transmission lines as you have for visual impacts to the view planes of the residences at the lower levels. Photo simulations of the current and post-construction views from various locations should be included in the FEIS.

Page 4-87, Section 4.2.9 Power and Utilities, 4.2.9.3, Mitigative Measures, paragraph 5, lines 1-2; Please include an estimate of the cost of undergrounding the transmission lines through the project site.

Page 4-88, Section 4.2.10 Solid Waste, 4.2.10.3 Mitigative Measures, paragraph 2, lines 3-4; Please address the disposal location of the refuse to be removed from the commercial area by a private refuse collection company.

Page 4-88, 4.2.10 Solid Waste, 4.2.10.3 Mitigative Measures, paragraph 3, lines 2-3; It is stated here that the Waimanalo Gulch landfill will be expanded to accommodate an additional 15 years of solid waste disposal (2007 to 2022). This statement is in contradiction to statements in other parts of this DEIS, e.g. (page 4-32, Section 4.2.1.2, Probable Impacts, Adjacent Land Uses, paragraph 2; and Page 4-57, Air Quality, 4.2.3.2, Probable Impacts, Long Term Impacts, paragraph 3 that operations at the landfill will not proceed beyond 2015).

Page 4-89, Section 4.3 Cultural Environment, 4.3.1 Archaeological and Historic Resources, 4.3.1.1 Existing Conditions, paragraph 1; It is stated that 34 sites were located in the Archaeological Inventory Survey (1991) for the Makaiwa Hills Project, but that only 17 sites are within the current project boundaries. Please discuss this discrepancy and/or changes that have been made to the project boundaries.

Page 4-89, Section 4.3 Cultural Environment, 4.3.1 Archaeological and Historic Resources, 4.3.1.1 Existing Conditions, paragraph 3; Please include the 1991 Archaeological Report in the Appendices.

Page 4-93, Section 4.3 Cultural Environment, 4.3.1 Archaeological and Historic Resources, 4.3.1.1 Existing Conditions, Table on page 4-93; The table is mislabeled as "Table 4-13."

Page 4-95, Section 4.3 Cultural Environment, 4.3.1 Archaeological and Historic Resources, 4.3.1.1 Existing Conditions, Modern, lines 5-7; The nature of these stone structures could be determined through a minimal amount of research. Please provide the results of basic archival research about these structures.

Page 4-99, Section 4.4 Socio-Economic Environment, 4.4.1 Population, 4.4.1.3 Mitigative Measures, lines 1-2; Please note the data source of the statement that most of the population moving into the project area would be relocating from Oahu.

Lines 3-5; Please address the negative socio-economic impacts to economically mixed neighborhoods in the greater Ewa area and the Waianae Coast (Waipahu to Makaha) after this project attracts affluent residents away. The loss of affluent residents could have an impact upon these communities.

Page 4-99, Section 4.4.2 Housing, 4.4.2.1 Existing Conditions, paragraph 2, lines 3-4; Please confirm these numbers and their corresponding dates. Will the demand be less in 2050 than in 2025?

Page 4-102, Section 4.4.3 Employment, 4.4.3.1 Existing Conditions, Long Term Impacts, paragraph 2, lines 1-2; Please provide a breakdown of the jobs created and the criteria that were used to generate these numbers.

Page 4-105, Section 4.4.5 Social Services, 4.4.5.1 Existing Conditions, Fire Protection, lines 4-7; Please address the possibility of having the project proponent dedicate a parcel of land within the project boundaries and in-kind funds for a fire station, as the Honolulu Fire Department does not currently have a fire station budgeted for the project area.

Page 4-105, Section 4.4.5 Social Services, 4.4.5.1 Existing Conditions, Educational; A detailed analysis of the impacts to educational facilities should be completed. In view of the number of residences to be added in Makaiwa Hills, the dedication of school sites for a middle school and/or a high school should be considered.

Page 4-105, Section 4.4.5 Social Services, 4.4.5.1 Existing Conditions, Medical Services, paragraph 1, lines 2-5; A medical services analysis should be conducted. The addition of 4,100 residences to medical demand should be further studied. The mauka estate properties that will be marketed to wealthy retirees will be approximately 12 miles distant from St. Francis – West, the nearest full-service hospital.

Page 4-106, Section 4.4.5 Social Services, 4.4.5.2 Probable Impacts, Fire Protection; Please refer to the comment for page 4-105, Section 4.4.5 Social Services, 4.4.5.1 Existing Conditions, Fire Protection.

Page 4-106, Section 4.4.5 Social Services, 4.4.5.2 Probable Impacts, Educational; Please refer to the comment for page 4-105, Section 4.4.5 Social Services, 4.4.5.1 Existing Conditions, Educational.

Page 4-106, Section 4.4.5 Social Services, 4.4.5.2 Probable Impacts, Medical Services; Please refer to the comment for page 4-105, Section 4.4.5 Social Services, 4.4.5.1 Existing Conditions, Medical Services.

Page 4-107, Section 4.4.5 Social Services, 4.4.5.3 Mitigative Measures, paragraph 1; Please refer to last six comments above.

Page 4-108, Section 4.5 Cumulative and Secondary Impacts, 4.5.1 Interrelationships and Cumulative Environmental Impacts, paragraph 2; Please provide a more balanced discussion of the positive and negative impacts of the Makaiwa Hills project.

Page 4-111 to 4-112, Section 4.5 Cumulative and Secondary Impacts, 4.5.1 Interrelationships and Cumulative Environmental Impacts, 4.5.1.1 Planning Context and Known Future Projects, Roadways and Traffic, last paragraph on page 4-111 and first three paragraphs on page 4-112. Please address impacts to the traffic load on the H-1 at peak periods after the improvements to the arterials are completed.

Page 4-112, paragraph 4, lines 3-4: Please include a reference to the data that supports your statement that bus usage in the Makaiwa Hills area will reduce traffic impacts from the Makaiwa Hills development.

Page 4-116, Section 4.5.2 Potential Secondary Effects, 4.5.2.1 Sustainability Analysis, Narrowing the Range of Beneficial Uses of the Environment, line 7: The word "form" should be deleted.

Page 4-117, Section 4.5.2 Potential Secondary Effects, 4.5.2.1 Sustainability Analysis, Foreclosing of Future Options, lines 3-4: Please refer to the comment above for page 2-22, 2.2.4, Residential Areas, paragraph 3 on page 2-22.

Page 4-118, Section 4.5.4 Adverse Environmental Effects that Cannot Be Avoided, 4.5.4.2 Unavoidable Adverse Long-Term Effects, paragraph 2, lines 1-2: Please refer to the comment above for page 2-22, 2.2.4, Residential Areas, paragraph 3 on page 2-22.

Page 4-118, Section 4.5.4.2, Unavoidable Adverse Long-Term Effects, paragraph 4: The conclusion reached here is not reflected in the earlier sections of this DEIS. The reader has to reach the final two pages of Section 4, Existing Conditions, Probable Impacts and Mitigative Measures, to ascertain this critical information.

Page 4-118, Section 4.5.4.2 Unavoidable Adverse Long-Term Effects, paragraph 5: Please refer to page 1-14, Section 1.6, Summary of Anticipated Impacts, 1.6.1 Potential Beneficial Impacts, Roadways and Traffic.

Page 4-118, Section 4.5.4.2, Unavoidable Adverse Long-Term Effects, paragraph 6: Does the viability of the Makaiwa Hills project depend upon, 1) the continued progress toward completion of the light rail system for the Ewa region and 2) design of a system that is sufficiently attractive and convenient to lure commuters out of their cars?

Page 5-10, Table 5-1, Section 226-20, Item 6: Please explain how the Makaiwa Hills Project is supportive in the areas mentioned. What steps will be taken to educate the community in to prevent dumping of liquid wastes into sewers?

Page 5-10, Table 5-1, Section 226-21, Item 2: The needs of middle and high school students generated by this project would have to be addressed for this project to be adequately supportive of educational services and facilities.

Page 5-17, Table 5-1, Section 226-106, Item 2: What are the specific alternative construction methods that will be used?

Page 5-19, Table 5-2, Transportation Functional Plan, Objective B: Does the achievement of this goal depend upon 1) the completion of an exclusive guideway mass-transit system and 2) the generation of an adequate number of top management and professional positions in the greater Kapolei area?

Page 5-24, Table 5-4, Part II: Economic Activity, Objective A, Policy 2: This project is very supportive of the development of small businesses by providing needed commercial space.

Page 5-33, Table 5-4, Part X: Culture and Recreation, Objective B, Policy 3: Please refer to the comments above for page 4-89, Section 4.3.1 Archaeological and Historic Resources, 4.3.1.1 Existing Conditions, paragraph 1.

Page 5-38, Chapter 3.6, Residential Development - General Policies, Discussion, lines 7-8: Please discuss the possibility of the project proponents dedicating building sites within the Makaiwa Hills Development for churches, child care and elder care centers.

Page 6-4 to 6-5, Section 6.3 Low Density Agricultural Subdivision (no change of zoning): An expanded study of this alternative should be conducted to determine its economic feasibility. The implementation of this alternative would greatly reduce the impacts resulting from the currently planned project.

Page 9-2, Section 9.0 Agencies and Parties Consulted, Table 9-1, B. State Agencies, line 3, Office of Environmental Quality Control - OEQC: The box under "Submitted Comments on EISPN" is not checked to reflect the comments submitted by the OEQC dated November 21, 2006. A copy of these comments is also not included among the copies of comment letters included in the document after page 9-6.

Should you have any questions, please call me at 586-4185.

Sincerely,



Ryan Thirugnanam  
Acting Director

c: Mr. Steve Kelly, AICP, Makaiwa Hills, LLC  
Mr. Jeffrey Overton, Group 70 International



Francis S. Ota,  
 AIA, D., FAIA, AICP  
 Norman G. Y. Hong, AIA  
 Sheryl B. Staman, AIA, ASID  
 Hitoshi Iida, AIA  
 Roy H. Hibi, AIA, CSI  
 James I. Naimoto, AIA  
 Stephen H. Yuan, AIA  
 Linda C. Miki, AIA  
 George I. Alta, AICP  
 Charles Y. Kaneshiro, AIA, LEED  
 Jeffrey H. Overton, AICP  
 Christine Mendez Rueda, AICP  
 James L. Stone, AIA, LEED

Paul P. O'Brien, AIA  
 Phila T. Quast, CSI, CDT  
 Kimberly Evans  
 Pete C. Galvez, AIA  
 Sulain Halim  
 Roy A. Inouye, AIA, CSI  
 Cami Kleiser, AICP  
 Katherine M. Mackell, AIA  
 Frank B. McCue  
 Kawika McKeague  
 Kathryn A. Nam  
 Hiram C. Pajo  
 Donna D. Pennington  
 Kimberly Polkorn, AIA, LEED  
 Scott Tangman  
 Tom Young, AIA  
 Rishi E. Pachera, AICP  
 Of Counsel

Mr. Laurence K. Lau  
 DATE  
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November 8, 2007

Mr. Laurence K. Lau  
 Interim Director  
 State of Hawai'i  
 Office of Environmental Quality Control  
 235 South Beretania Street, Suite 702  
 Honolulu, HI 96813

**SUBJECT: Makaiwa Hills – Responses to Comments on the Draft Environmental Impact Statement**

Dear Mr. Lau,

Thank you for your agency's comment letter concerning the Makaiwa Hills Draft Environmental Impact Statement. The following statements are offered in response to those comments.

**Employment and Affordable Housing.** Makaiwa Hills residents are expected to range from unskilled minimum wage workers to skilled managers and professionals. Project-related employment estimates are based on an analysis conducted by Decision Analysts Hawaii (2007). This report references the State of Hawaii Department of Labor and Industrial Relations (2005), which provides additional detail on the types of jobs expected at Makaiwa Hills. The City and County of Honolulu will establish an affordable housing condition with the qualifying income limits and a provision agreement with the developer, which typically addresses housing for residents earning 80 to 140% of O'ahu's median family income.

**Landfill.** The presently utilized area of the Waimānalo Gulch landfill site is planned for closure, capping and re-naturalization by 2008, well before the planned completion of residences closest to this area.

Our current understanding is that the City is considering utilizing additional areas of the Waimānalo Gulch property for landfill operations, which based on current landfilling rates, could provide for continued landfill operations until year 2024. Should the rate of landfilling be reduced by recycling and other diversion programs, the landfill could be operated beyond 2024. Should the landfill be expanded in the future to mauka expansion cells, distance, topography, vegetation and direction will all work to mitigate (potential) impacts from landfill odors and loose particulate matter, particularly on Makaiwa Hills residences.

The long term cumulative impact to solid waste facilities and the alternative uses of the project site as a landfill site is addressed in relevant sections of the FEIS.

Land Use History, Culture, and Archaeology. As noted in the relevant sections pertaining to archaeological resources, significant archaeological sites will be

protected pursuant to a Preservation Plan approved by the State Historic Preservation Division, and will include measures such as a 20 foot buffer zone, permanent fencing, signage, etc.

The built environment adjacent to the mauka – northwest corner of the project site is a Nike-Hercules anti-aircraft missile base which was constructed by the US Army around 1959 on lands at the head of Waimānalo Gulch. This site is not located within the project area, but on a 49-acre parcel northwest of the project boundary. Roads, paved areas and a number of rows of concrete bunkers remain at this abandoned, fenced off site, which is now privately owned. No hazardous waste impacts are known to exist from this site.

**Community and Planning Process.** We will clarify that the community collaboration conducted in the early 1990's was for a project smaller in scale with regard to the number of residential units. However, we believe the discussion clearly and appropriately focuses on recent extensive community efforts, outreach and involvement regarding the present project.

**Open Space.** Makaiwa Hills will contain about 1,100 acres of open space — over 60% of the overall project area. Preservation and remaining Agricultural land will be approximately 735 acres, which most closely addresses your question about natural open space. Open space in residential areas will represent 317 acres, and the remaining open space will be associated with other uses. Table 2-2 presents this information in the Final EIS.

**Infrastructure.** The former Estate of James Campbell and its affiliates have participated in implementing improvements to the regional water system to help provide for the needs of the proposed developments in the area. Its successors (including the developer of Makaiwa Hills) will continue to assist in developing water system improvements as they relate to their projects. A water master plan for Makaiwa Hills and a larger regional water plan will be developed in conjunction with the Board of Water Supply as development plans progress further.

The referenced discussion related to issues of overall capacity of Honolulu Wastewater Treatment Plant will be enhanced to note that the wastewater treatment plant, as a whole, presently has a design average dry weather flow liquid capacity of 38 MGD and a solids capacity of 28 MGD. At present, the solids side of the plant is at maximum capacity. The City and County of Honolulu Department of Environmental Services has commenced construction to expand the solids capacity of the plant by bringing additional aerobic digesters online by February 2009. In addition, there are plans to expand the overall plant capacity to 51 MGD.

**Traffic.** The portion of the development planned for upscale residences is scheduled to be constructed towards the end of the build-out process, which provides additional years for upper management employment opportunities to mature in the City of Kapolei. It is not expected that significant numbers of upper management personnel continuing to work in downtown Honolulu would move to Kapolei, thus the scenario described in your comment is unlikely to occur.



Mr. Laurence K. Lau  
DATE  
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Discussions are continuing with the State and the City and County of Honolulu regarding traffic and connectivity issues related to the project.

Hydrology. Landscape maintenance at residences and parks will involve some applications of chemical fertilizers and pesticides. The landscape industry is sensitive to water quality concerns, and is moving toward the use of products that have much less potential to affect surface and groundwater quality. One source used in this assessment is **WQWM-155 Revised: September 1995** <http://www.turfiles.ncsu.edu/pubs/management/wqwm155.html>

Natural Hazards. Consideration has been given to the future development of the Makaiwa Hills site in the planning and construction of downstream drainage facilities. Drainage improvements in Ko Olina and Kapolei West have been designed and constructed to accommodate peak runoff from the Makaiwa Hills project as required by County drainage standards. Accordingly, these and future drainage facilities downstream of Kapolei West are expected to reduce potential downstream flooding impacts. Therefore, impacts on developments downstream of the Makaiwa Hills site are not expected to be adverse since the drainage systems have been sized appropriately. A drainage master plan for the project will be prepared and submitted to the City and County Department of Planning and Permitting for review and approval.

According to the 1997 Uniform Building Code, all of O'ahu is located in Seismic Zone 2A. Potential health risks to prospective residents occupying homes within a previously uninhabited seismically sensitive area will be addressed by requiring all structures to be constructed in accordance with the County's Building Code to assure public safety concerns are addressed.

Flora. Five indigenous flora species were identified on the project site in the botanical survey. For the most part, these species are being overwhelmed by Guinea grass. Over 60% of the project area will be preserved, including potential habitats for indigenous flora species.

Noise. Noise mitigation will be implemented for homes constructed within 300 feet of the centerline of Farrington Highway. A common mitigation measure that can be implemented for these residential structures will be the installation of double glazed windows and central air conditioning systems. The FHWA noise model requires detailed roadway design plans for complete analysis, which are not available yet. The FHWA Traffic Noise Model Lookup-Tables Software was employed in the analysis for this project. The use of a constructed earthen berm would affect makai views for only the closest homes. The project will include on-site landscaping in the makai areas.

Socioeconomic Issues. The report prepared by Decision Analysts Hawaii (2007) identifies the target markets for potential buyers of homes at Makaiwa Hills. New homes are constantly being constructed on O'ahu for the full range of family income categories. Home buyers make decisions on their place of residence based on the

Mr. Laurence K. Lau  
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desirability of the neighborhood, proximity to services, and commuting distances. The Draft EIS contained an erroneous statement about the residential market conditions expected beyond 2025 that will be deleted from the Final EIS.

Social Services. The Honolulu Fire Department has provided a letter on the Draft EIS stating they have no comments at this time. The State Department of Education has made their initial analysis of the project, and has requested that both an elementary school site and a middle school site be provided, which the project will include. The commercial areas of the project will have office space available for medical service businesses to locate. Further, there are several medical-related services available in the Kapolei commercial area. St. Francis West Hospital is about 8 miles away from the center of the project site.

Alternatives. The lack of potential for agricultural use of the property is presented in the EIS. A low-density agricultural lot project is not a likely future use due to the current State Urban District designation for the property. Agricultural uses alone would not offset the sizable real property taxes for the 1,780-acre property. Continued agricultural uses, such as horse grazing or nursery uses, may still be possible in some of the large contiguous open space areas in the planned project, however we feel the urbanization of the property at the State Land Use Commission addressed appropriateness of agricultural use of the property.

Agencies and Consulted Parties. Unfortunately, we did not receive your comment letter dated November 21, 2006 on the Environmental Impact Statement (EIS) Preparation Notice, and only learned of its existence as a result of a reference in your May 23, 2007 comment letter on the project's Draft Environmental Impact Statement. Accordingly, this we be corrected in the FEIS to reflect receipt of OEQC's EIS Preparation Notice comments.

Miscellaneous. All grammatical, organizational, and clarifying discrepancies noted throughout your comment letter will be corrected in the FEIS.

Your comment letter and this response will be included in the Final EIS. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.



Jeffrey H. Overton, AICP  
Principal, Chief Environmental Planner

**UNIVERSITY OF HAWAII AT MANOA**  
**Environmental Center**

May 23, 2007  
RE:0763

Mr. Steve Kelly  
Makaiwa Hills, LLC  
1001 Kamokila Boulevard, Suite 250  
Kapolei, HI 96707

Dear Mr. Kelly:

**Draft Environmental Impact Statement**  
**Makaiwa Hills**  
**Kapolei, Oahu**

Makaiwa Hills, LLC, a joint venture between Kapolei Property Development, LLC and Monarch at Kapolei, LLC, proposes to develop Makaiwa Hills, a 1781-acre project mauka of the City of Kapolei, between Makakilo and Waianalo Gulch. Makaiwa Hills will be a residential community, with supporting commercial, infrastructure, educational, recreational and open space land uses. The project requires a zoning change from agriculture (Ag-1 and Ag-2) to a variety of residential and commercial designations consistent with the 'Ewa Development Plan. The property was urbanized at the Land Use Commission in 1993 for development of up to 4,100 residential units.

This review was conducted with the assistance of Greg Bruland, UHM Natural Resources and Environmental Management; and Mark Merflin, UHM Botany.

**General Comments**

The proposed development is located next to the Waianalo Gulch Sanitary Landfill, the only county landfill permitted on the island of Oahu. Yet, there is surprisingly little in the way of potential impacts of the land on the people who will move there. It is mentioned on page 2-23 that the trade winds should blow dust and odor away from the project area, but what about times when the winds are from the southwest or Kona direction? The landfill is slated to close in 2008, but it will probably be extended another 15 years by your own estimates (p. 4-88) so the landfill should be in operation even after full build out of the project. Given that residents in the vicinity of the landfill have complained vociferously about its impact on them, it would seem to be prudent to wait until after the landfill is closed and capped before the portion of the proposed development is developed? We think that you should consolidate the various sections that discuss the landfill and its impact on the proposed development into one section that explores all the potential problems.

The authors use some of the rhetoric of "smart growth" and indeed parts of the proposed development embrace it. The idea of developing a main street in the low land area around which the highest density-mixed use development is proposed is laudable. We also note that the

May 23, 2007  
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development is located near the transit center that the City and County is developing for its high-capacity corridor. However, we note the proposed residential areas lack the interconnective backbone that a grid roadway pattern would give it. The DEIS state on page 2-30 that "A well-connected network of backbone and internal collector streets and other minor roads will link various residential areas with Makaiwa Hill." Yet, a glance at the conceptual plan on page 2-19 shows a number of contiguous developments with no internal connection. There are a number of curvilinear roads that lead to cul-de-sacs that should be through streets leading from one part of the proposed development to another. A glance at the planned development show that collector streets feed into arterials at too few places. This is exactly the same pattern of development that leads to tremendous congestion in the developments around the city of Kapolei. We think that both the Department of Planning and Permitting and the developer should rethink the street network in this proposed development. There are no backstreet, surface roads, or alternate route to get around during the morning and afternoon rush hours. Everyone, no matter where they are going, will have to take a collector street onto the arterial and sit in traffic for hours.

We have a number of specific comments below.

**Agriculture (p. 1-16)**

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May 23, 2007  
Page 5 of 6

year following construction. This represents an 89% decrease or reduction in erosion potential by 37,100 tons/year. They state that a detailed comparison of erosion potential is included in Appendix C. Upon further inspection of Appendix C, it appears that the decrease in the erosion potential calculated by the USLE equation is due to the change in the slope length and gradient factor following construction. In Table 10 of Appendix C, different pre-construction LS values were calculated for each of the 9 subareas of the site (A-I). These LS values are quite high ranging from 8.73-20.70. However, in Table 11, the post-construction LS values for each of the 9 subareas are all assumed to be a much lower value of 3.06. It is reasonable to think that grading and the installation of a storm drainage system will reduce slope length and gradients for parts of the site, but this would not affect all parts of the site evenly. Especially since the EIS claims that 59% of the site will be kept in open space. A much better justification is needed as to why the LS factor of 3.06 was used for all subareas in the post-construction USLE calculations. As it stands, I think this represents an overestimation or unrealistic decrease in erosion potential following construction. I would like to see a unique LS value be calculated for each subarea and the pre-post comparison be recalculated. Also the subareas with no new planned construction should be identified and the LS factor should be adjusted accordingly. Finally, it should be acknowledged that bare ground on steep slopes in the worst possible combination for erosion. It appears that certain bare ground areas in steep slopes currently exists onsite. These areas, whether they are slated for development, or not, should be reseeded and watered throughout site development to reduce erosion and sediment transport from the site.

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May 23, 2007  
Page 6 of 6

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Thank you for the opportunity to review this DEIS.

Sincerely,



Peter Rappa  
Environmental Review Coordinator

cc: OEQC  
Eugene Takahashi, Department of Planning and Permitting  
Jeffrey Overton, Group 70  
James Moncur  
Greg Bruland  
Mark Merlin

**UNIVERSITY OF HAWAII AT MANOA**  
**Environmental Center**

May 23, 2007  
RE-0763  
REVISED

Mr. Steve Kelly  
Makaiwa Hills, LLC  
1001 Kamokila Boulevard, Suite 250  
Kapolei, HI 96707

Dear Mr. Kelly:

Draft Environmental Impact Statement  
Makaiwa Hills  
Kapolei, Oahu

Makaiwa Hills, LLC, a joint venture between Kapolei Property Development, LLC and Monarch at Kapolei, LLC, proposes to develop Makaiwa Hills, a 1781-acre project mauka of the City of Kapolei, between Makakilo and Waimanalo Gulch. Makaiwa Hills will be a residential community, with supporting commercial, infrastructure, educational, recreational and open space land uses. The project requires a zoning change from agriculture (Ag-1 and Ag-2) to a variety of residential and commercial designations consistent with the Ewa Development Plan. The property was urbanized at the Land Use Commission in 1993 for development of up to 4,100 residential units.

This review was conducted with the assistance of Greg Bruland, UHM Natural Resources and Environmental Management; and Mark Merlin, UHM Botany.

**General Comments**

The proposed development is located next to the Waimanalo Gulch Sanitary Landfill, the only county landfill permitted on the island of Oahu. Yet, there is surprisingly little in the way of potential impacts of the land on the people who will move there. It is mentioned on page 2-23 that the trade winds should blow dust and odor away from the project area, but what about times when the winds are from the southwest or Kona direction? The landfill is slated to close in 2008, but it will probably be extended another 15 years by your own estimates (p. 4-88) so the landfill should be in operation even after full build out of the project. Given that residents in the vicinity of the landfill have complained vociferously about its impact on them, it would seem to be prudent to wait until after the landfill is closed and capped before the portion of the proposed development is developed? We think that you should consolidate the various sections that discuss the landfill and its impact on the proposed development into one section that explores all the potential problems.

The authors use some of the rhetoric of "smart growth" and indeed parts of the proposed development embrace it. The idea of developing a main street in the low land area around which

2600 Dole Street, Krauss Annex 19, Honolulu, Hawaii 96822-2513  
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May 23, 2007  
Page 2 of 7

the highest density-mixed use development is proposed is laudable. We also note that the development is located near the transit center that the City and County is developing for its high-capacity corridor. However, we note the proposed residential areas lack the interconnectivity backbone that a grid roadway pattern would give it. The DEIS state on page 2-30 that "A well-connected network of backbone and internal collector streets and other minor roads will link various residential areas with Makaiwa Hill." Yet, a glance at the conceptual plan on page 2-19 shows a number of contiguous developments with no internal connection. There are a number of curvilinear roads that lead to cul-de-sacs that should be through streets leading from one part of the proposed development to another. A glance at the planned development show that collector streets feed into arterials at too few places. This is exactly the same pattern of development that leads to tremendous congestion in the developments around the city of Kapolei. We think that both the Department of Planning and Permitting and the developer should rethink the street network in this proposed development. There are no backstreet, surface roads, or alternate route to get around during the morning and afternoon rush hours. Everyone, no matter where they are going, will have to take a collector street onto the arterial and sit in traffic for hours.

We have a number of specific comments below.

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May 23, 2007  
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**Fire Prevention Measures (p. 4-14 - 4-17)**

The addition of more housing and commercial building development in this part of Oahu, increases the fire risk to the upper mountains which still contain a number of endemic and indigenous plants and some animals. In addition, without significant infrastructural improvements, especially in terms of roads and fire prevention, this project will further clog the island transportation network and increase the chances of one or many dangerous to disastrous fires, for humans as well as other animals and plants. The DEIS does address the danger of wildfire and cite a number of mitigative measures, but it concentrates the discussion on the built environment not the forest areas at higher elevations that are not part of the proposed development.

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**Flora and Fauna (p. 4-18 - 4-26)**

The surveys for the flora and fauna appear to have been adequately undertaken. The species observed along with any previous reports on the biota from this area in the foothills of the southern Waianae mountains appear to be consistent with our observations over many years, as residents, visitors or hike leaders during the period from 1971 to the present.

The flora and fauna in the proposed development area is overwhelming comprised of alien, naturalized species. There are a few native species, especially among the flora, and perhaps within the arthropod fauna, but these are almost all indigenous species. We know of no officially listed endangered species of plants in the area under consideration for development, although an endemic euphorb shrub or herb might still be found in the area.

If the development is approved then the commitment indicated in the DEIS regarding landscaping with many native plants would be a plus. The development company should be held accountable for their commitment to plant dryland native species naturally adapted to the relatively arid climate and poor, human degraded soils. They should expand their description and commitment in writing to guarantee that several appropriate native Hawaiian plant species will be planted and taken care of until they are securely established. This would be an enhancement of the flora in the area if undertaken by knowledgeable and committed restoration biologists with adequate experience in Hawaiian dryland ecological restoration. At least some animals, perhaps a few bird species and some insects could possibly also return to take advantage of the native Hawaiian plants.

We note, however, in the section on fauna, scientific names are used for some species and not for others. With the exception of dog, cats, horse and cattle, we suggest that scientific names be used for all species of fauna listed.

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**UNIVERSITY OF HAWAII AT MANOA**  
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Thank you for the opportunity to review this DEIS.

Sincerely,



Peter Rappa  
Environmental Review Coordinator

cc: OEQC  
Eugene Takahashi, Department of Planning and Permitting  
Jeffrey Overton, Group 70  
James Moncur  
Greg Bruland  
Mark Merlin

Draft Environmental Impact Statement  
Makaiwa Hills  
Kapolei, Oahu

May 30, 2007  
RE:0763  
REVISION 2

Mr. Steve Kelly  
Makaiwa Hills, LLC  
1001 Kamokila Boulevard, Suite 250  
Kapolei, HI 96707

Dear Mr. Kelly:

The Environmental Center submitted comments on May 23, 2007 and revisions on May 25, 2007 on the Makaiwa Hills DEIS. If we may, we would like to add comments from Dr. Karl Kim, UHM Professor of Urban and Regional Planning, who is an expert on traffic issues. We believe his comments will be beneficial to the project and worthy of your consideration and response.

**Traffic Issues**

The proposed project involves the development of 4,100 residential units, a commercial center, neighborhood retail center, recreational facilities, elementary school, and associated infrastructure. Given that the land is largely undeveloped and in agricultural uses, significant environmental impacts are likely to occur. Among the more significant impacts are those associated with traffic, congestion, and other transportation related impacts.

The DEIS suffers from inadequate documentation of traffic modeling procedures and insufficient detail regarding impacts associated with trip generation, distribution, and modal choice. Assumptions regarding population growth in the region as well as trip generation were not clearly specified. Trip tables or zone-to-zone production and attraction matrices were not provided, making it difficult to ascertain the nature and level of both impacts in the project area as well as in terms of regional traffic patterns. The trip generation data were estimated based on national data rather than the basis of locally generated information regarding trip rates for shopping centers, single-family homes, condominiums, and other project trip generators. Data should have been derived from regional travel demand models and other local sources instead relying just on the ITE publications. There seems to be little, if any validation of the assumptions and trip generation rates used. There also is insufficient discussion of the cumulative effects of the project on regional travel patterns. More attention should be paid to trip purposes – including the generation of work and commuting trips, trips for schooling,



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shopping and other purposes. At best, the DEIS provides a very general picture of the likely impacts of the proposed project.

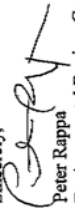
Data regarding the increased number of traffic accidents and conflicts between motorists, pedestrians, and bicyclists should also be provided, both in terms of regional and project affects as well as in terms of specific locations within the project site. To accomplish this, there should be a more detailed model and description of the travel behavior, by mode in terms of origins and destinations both within the project area and to and from adjacent areas. The discussion of pass through traffic and congestion in nearby areas is also inadequate.

The assumptions regarding modal choice are opaque. It is unclear what proportion of the trips generated is assigned to drive alone, carpool, bus, bus-rail, park and ride, and other combinations. Other than general descriptions of proposed transportation improvements, there seems to be little if any actual modeling of traveler behavior.

Overall, the methods used to estimate transportation impacts appear to be of a more general nature. Rather than take advantage of the numerous developments in transportation demand modeling and to use state-of-the-art traffic impact modeling software tied to GIS and mapping software, the report presents aggregate level estimates which do not allow for the inspection of either neighborhood level effects or impacts on regional travel demand.

In summary, the traffic analysis is deficient. It lacks sufficient detail on the modeling approach and does adequately describe the methods and assumptions used in the analysis. There is inadequate discussion of the data quality and little if any discussion of the validity, reliability, and accuracy of the data. In addition to missing crucial information about the time and location of congestion, the analysis also lacks rigor and completeness in terms of the consideration of safety and mode choice.

We hope these additional comments on traffic are helpful.

Sincerely,  
  
Peter Rappa  
Environmental Review Coordinator

- cc: OEQC  
Eugene Takahashi, Department of Planning and Permitting  
Jeffrey Overton, Group 70  
James Moncur  
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Mark Merlin  
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Francis S. Oda,  
Arch. D., F.A.A., AICP  
Norman G.Y. Hong, AIA  
Sheryl B. Samaan, AIA, ASD  
Heidi Hida, AIA  
Roy H. Nheh, AIA, CSI  
James I. Nishimura, AIA  
Stephen H. Yuen, AIA  
Linda C. Miki, AIA  
George I. Alta, AICP  
Charles Y. Kanestiro, AIA, LEED  
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Christine Mendes Ruchlis, AICP  
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Pearl P. Chorney, AIA  
Philip T. Cocca, CSI, CDT  
Kimberly Evans  
Peter C. Galvez, AIA  
Sabrin Hall  
Roy A. Inouye, AIA, CSI  
Carm Kleiser  
Katherine M. MacNeil, AIA  
Frank B. McCue  
Kawika McKeague  
Kathryn A. Nam  
Hiren C. Pigo  
Doreen D. Remington  
Kimberly Polkinton, AIA, LEED  
Scott Tangonan  
Tom Young, AIA  
Ralph E. Schwore, AICP  
OT Counsel

November 8, 2007  
Mr. Peter Rappa  
Environmental Review Coordinator  
State of Hawai'i  
University of Hawai'i at Manoa  
Environmental Center  
2500 Dole Street, Krauss Annex 19  
Honolulu, HI 96822

**SUBJECT: Makaiwa Hills – Responses to Comments on the Draft Environmental Impact Statement**

Dear Mr. Rappa,

Thank you for your three comment letters concerning the Makaiwa Hills Draft Environmental Impact Statement (EIS). While we did our best to address your comments, it was challenging to keep track of the various revisions. The following statements are offered in response to your comments.

**Landfill:** The planned residential area closest to the Waimānalo Gulch Sanitary Landfill was located after thorough site reconnaissance and with the confirmation that these elevations of the landfill are no longer in use, have been capped and in the process of being re-naturalized. By the time these homes are occupied in this phase of the project, anticipated around 2012-2015, only the upper increment of the landfill may still be active. These homes will be over 1,000 feet from the then-active portion of the landfill, and not downwind from it under typical conditions. There are no residential uses planned for the northwest portion of the project area that abuts the landfill's currently active or potential expansion areas.

Further, as noted in the EIS, potential impacts to the development from the landfill will be mitigated by the prevailing winds blowing from the ENE and NE, distance, and vegetative and topographic buffering.

While various sections of the EIS necessarily cover topics pertinent to the landfill, we will make every effort to consolidate the landfill discussions in the Final EIS.

**Interconnectivity:** The Land Plan for Makaiwa Hills was designed with significant attention to the topographic constraints of the hillside location. A standard grid roadway pattern obviously would not be suitable for most of the site, and the proposed land plan strikes a balance between the topographically-appropriate curvilinear roads and the inter-connective benefits of a typical grid system.

The land and roadway planning for Makaiwa Hills has focused on enhancing connectivity internal to the project and with accesses to and from the project. As illustrated in Figure 2.2 of the Final EIS, the conceptual land plan, three project access points are planned including new direct access connections between the project and the existing Makakilo and future Kapolei West communities. The internal roadway system consists of loop collector with multiple accesses to the residential hillside clusters which maximize connectivity given the project's unique hillside conditions. Our discussions with DPP on the project in its planning phases and about the 'Ewa Connectivity Study have assisted with incorporating connectivity into the project's circulation systems.

Detailed roadway master planning for Makaiwa Hills will be conducted in concert with the DPP and DTS to realize the project's smart growth and connectivity objectives. The street pattern in the community will be refined with a more detailed consideration of the project's phasing. TIAR findings and County roadway and subdivision standards.

**Agriculture:** The referenced Prime agricultural lands in the southeast corner of the project area are remnants from past "plantation era" times that became isolated after construction of the H-1 Freeway. Limited infrastructure, access and demand for this land, as well as the potential incompatibility with other surrounding Urban lands, restrict its suitability for present day agricultural use. As noted in the Agricultural Impact Assessment of the EIS, Prime agricultural lands have become plentiful across the State as a result of the decline of plantation agriculture, so the use of these lands for the proposed project is not expected to have a significant impact on agricultural productivity on O'ahu or the State.

Continued agricultural uses, such as horse grazing or nursery uses, may still be possible in some of the large contiguous open space areas in the planned project, however we feel the urbanization of the site at the State Land Use Commission addressed the appropriateness of agricultural use of the property.

The nursery leasing a small portion of the subject lands has long known of the plans for the development of Makaiwa Hills. Discussions about other available lands to relocate the operation will continue between the land owner and the nursery.

**Topography, Drainage, Soils and Erosion:** All proposed grading will conform to City ordinances, possibly including but not limited to the evaluation of slope hazard for slopes with a cut greater than 15 feet in height and grade steeper than 40%, the use of erosion control mats (temporary or permanent, as required), and benching where appropriate. Specific slope management measures will be implemented as appropriate or as required by permit conditions.

Temporary and permanent Best Management Practices (BMPs) for sediment control will be included in an approved erosion control plan that will be implemented as appropriate or as required by various permit conditions. These BMPs will also be designed to mitigate the potential impact of nutrients, fertilizers, herbicides and pesticides upon ground-, surface- and coastal water quality by removing total suspended solids and any nutrients or chemical loads that have banded onto the suspended solids.

The Preliminary Engineering Report (PER) proposes a storm drainage system with permanent BMPs, such as possibly stormwater detention facilities, infiltration and/or bio-swales, etc. to improve water quality at the site. This is discussed in more detail in the PER, along with revisions to the discussion and calculations related to the Universal Soil Loss Equation to assign appropriate values to the various factors. The developed site is expected to have significantly less soil erosion potential than the existing site conditions, due primarily to much better vegetative and land cover practices than currently exists.

**Land Use History:** The former agricultural ditches on the site were not identified as significant historic features, are in varying states of despair, and will be dismantled in the course of constructing Makaiwa Hills, thereby removing potential sources of sedimentation to the coastal plain.

**Land Use Commission Conditions:** The landowner and its forebearer, The Estate of James Campbell (collectively referred to herein as Campbell), have coordinated traffic planning and improvements with various State and City & County agencies for many years. The scale of future improvements under consideration necessarily require lengthy negotiations, which have already lead to significant commitments by Campbell to fund the construction of major

improvements, with both the County and State. These discussions will continue, and the fair share agreements reached with the agencies will typically be made available for public review by the local media and through agency press releases.

Sound attenuation measures will be determined in coordination with the Department of Transportation.

Flora and Fauna: Generally, the types and species of the plantings used in the project will be native, xeriscapic or appropriate for its leeward environment; specific, detailed landscaping plans will be developed as the project progresses through the planning process.

The Final EIS will be revised to place Barn Owls and Cattle Egrets in the Fauna section.

Residential Areas: As you note, the general use of smooth transitions between the lots, rather than many harsh elevation changes and retaining walls that could increase erosion during construction and decrease aesthetic visual appeal in the long-term, is proposed in the project.

Mixed Use and Commercial Areas: The Town Center or Main Street area will contain stores, shops, or service establishments consistent with the uses allowed under AMX-2 zoning that reinforce the concept of a vibrant walkable small town center. The types of businesses described in Section 2.2.5 of the Final EIS include banks, coffee shops, juice bars, neighborhood grocery stores, convenience/sundry stores and small service shops. As the population of Makaiwa Hills grows, the numbers and types of small businesses will expand to meet the community's needs as a large percentage of the units in the project are planned within walking distance from this area. The major grocery and other services will be available at the neighborhood commercial center in the project, also within walking distance from the denser residential neighborhoods.

The proposed BMX-3 zoning for the Neighborhood Commercial Center at Makaiwa Hills is intended to provide for employment and retail opportunities in close proximity to, or together with, multi-family residential uses. Based on recommendations from DPP planners in our discussions about the project about this commercial location, the landowner is considering various concepts that could include residential units at this site. We feel there is a strong potential to provide an innovative residential product at this location that incorporates well with the community serving commercial uses that will

predominate. This is consistent with the mix of uses planned along the project's entire makai corridor.

Power and Utilities: The Makaiwa Hills project will support the State's energy conservation goals, as described in the Sustainability section of the EIS's Project Description. Energy efficiency design guidelines will be developed and incorporated into the Conditions, Covenants and Restrictions that will apply to the project area. The project developer is exploring the opportunities and challenges of meeting Leadership in Energy and Environmental Design (LEED) certification, which may include solar hot water heating and photovoltaics.

Redirecting Regional Traffic: The Makaiwa Hills project is a longstanding element of the master plan for the City of Kapolei. One of the key concepts for the design of the Kapolei is that substantial employment opportunities will arise when the residential population of the community hits a critical mass. A present-day perspective of the traffic patterns does not capture the positive changes expected upon full build-out of the City of Kapolei, which also includes the development of the mass transit system.

Fire Plan: The format of the Fire Plan included in the EIS follows guidance from the Division of Forestry and Wildlife. The mitigation measures of this Plan include a recognized standard of a defensible space surrounding developed areas, as well as fire access routes throughout the development. These measures are expected to serve as a means to help suppress the spread of a fire into the higher elevation forest areas.

Traffic Analysis: The DEIS (and in particular, the Traffic Impact Analysis Report included as Appendix D) analyzes existing traffic conditions, future expected traffic conditions with and without the project at 2020 and probable 2015 traffic conditions with partial project development, and describes mitigation measures recommended for the 2020 timeframe.

The methodologies used for traffic analysis are based on nationally accepted practices, such as the use of trip generation rates published by the Institute of Traffic Engineers for trip generation, and the use of Highway Capacity Manual 2000 for Level of Service assessment of intersections and basic freeway segments. These accepted methodologies have been used together with information provided by the State Department of Transportation, the City and County of Honolulu Department of Transportation Services, and the O'ahu Metropolitan Planning Organization (OMPO), as well as reasonable assumptions about future conditions. Our continuing discussions with relevant State and City and County agencies suggest that the traffic analysis has

provided useful information for these agencies' required project reviews and approvals.

The TIAR provides an overview of the traffic forecasting methodology at the beginning of Chapters 3 and 4 with more detailed information provided in the various sections of the report.

- The travel forecasts for areas outside the Project site were based on the current plans and expectations of the developers and land owners for each development area by the 2020 forecast year. This should provide a more realistic assessment of the travel growth within the Project vicinity than obtained through use of the largely top-down allocation of population and employment reflected in the regional model.
- The methodology uses the existing traffic volumes and adds future traffic to these volumes, which minimizes some of the uncertainty in use of the regional model.
- National ITE vehicle trip generation rates were used in the study for the various land uses based on numbers and types of housing units, square footage for various types of commercial uses, and acres of industrial development. These were thought to reasonably reflect the types of future uses planned in the area.
- The distributions of trips for each type of use were based on trip tables obtained from OMPO for the regional travel forecasting model. The percentage distributions for new residential developments in the eastern areas of Kapolei were based on Villages of Kapolei and in the western areas on the zone including Makaiwa Hills, Kapolei West, and a portion of Ko Olina; industrial uses were based on the zones along the Kalaeloa Boulevard corridor; and commercial uses on the zones comprising the City of Kapolei. The percentage distributions for each type of use are presented in Appendix Table C-1 with distribution identified by "internal study areas" and major roadways at the periphery of the study area.

Although "zone-to-zone" aggregated trip tables are not produced by the study methodology, the number of trips between an internal area and the other internal areas or study corridor entry/exit roadways of interest to a reader could be estimated by the reader through the application of the distribution percentages in TIAR Appendix Table C-1 to the trip generated by that internal area, as presented in TIAR Appendices B and D.

The focus of the study was on the cumulative impacts within the Kapolei area and, in particular, whether the timing of the planned transportation facilities would accommodate the project traffic, and where expanded capacity may be needed within the study area. The proposed land uses within the project area are consistent with the type and scale of development long planned for the region. The project largely reflects the anticipated scope of development.

The TIAR also identifies several locations for expansion of the planned bicycle facilities to improve safety and convenience of bicycle travel within or through the area, and to reduce conflicts with motor vehicles. These proposed expansions were based on an assessment of the likely major travel corridors, destinations, and potential conflict points for bicyclists, but without quantification of potential usage or numbers of conflicts.

The TIAR inadvertently omitted including an estimate of the number of person trips produced by the Project residential uses on public transit on a typical weekday. The City and County of Honolulu estimates that the households on Oahu produce an average of 0.638 home-based transit trip ends on a weekday based on the 2000 Census information and the Fall 2004 bus rider survey. Based on use of this present trip rate, the Project is estimated to generate approximately 2,600 trips to/from the residential areas via public transportation during a typical weekday at build-out. This number would be increased by any trips made to the Project commercial uses or school by persons not associated with the Project residential uses.

Your comment letter and this response will be included in the Final Environmental Impact Statement. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.



Jeffrey H. Overton, AICP  
Principal, Chief Environmental Planner

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU  
630 SOUTH BERETANIA STREET  
HONOLULU, HI 96843



April 24, 2007

MUFF HANNEMANN, Mayor  
RANDALL Y. S. CHUNG, Chairman  
HERBERT S. K. KAOPIA, SR.  
SAMIJEL T. HATA  
J. P. HIC  
ROBERT P. QUINDIFF

LAVERNE T. HIGA, Ex-Officio  
BARRY FUJIMURA, Ex-Officio  
CLIFFORD P. LUM  
Manager and Chief Engineer

DEAN A. NAKANO  
Deputy Manager and Chief Engineer



Mr. Steve Kelly, AICP  
Makaïwa Hills, LLC  
1001 Kamokila Boulevard, Suite 250  
Kapolei, Hawaii 96707

Dear Mr. Kelly:

Subject: The Letter Dated April 8, 2007 Regarding the Draft Environmental Impact Statement for Makaïwa Hills, Ewa, Oahu TMK: (1) 9-1-15: 5 (por)

Thank you for the opportunity to comment on the proposed project.

Our comments, dated November 13, 2006, which are included in the Draft Environmental Impact Statement, are still applicable.

If you have any questions, please contact Robert Chun at 748-5440.

Very truly yours,

KEITH S. SHIDA  
Principal Executive  
Customer Care Division

cc: Mr. Eugene Takahashi, Department of Planning & Permitting  
Mr. Jeffrey Overton, Group 70 International, Inc.  
Office of Environmental Quality Control



Francis S. Oda,  
Arch. D., F.AIA, AICP  
Norman G. Y. Hong, AIA  
Sheryl B. Staman, AIA, ASD  
Heidi Hida, AIA  
Roy H. Nhei, AIA, CSI  
James I. Nishimoto, AIA  
Stephen H. Yuen, AIA  
Linda C. Miki, AIA  
George I. Aita, AICP  
Charles Y. Kaneshiro, AIA, LEED  
Jeffrey H. Overton, AICP  
Christine Mendes Rucobias, AICP  
James L. Stone, AIA, LEED

**SUBJECT: Makaïwa Hills – Responses to Comments on the Draft Environmental Impact Statement**

Dear Mr. Shida,

Thank you for your comment letter concerning the Makaïwa Hills Draft Environmental Impact Statement. The following statements are offered in response to your comments.

We appreciate the continued discussions with members of your staff that have been ensuing to resolve details related to water planning for this project. In coordination with your agency, the applicant is proceeding with the preparation of a regional water master plan, with particular focus on the lands west of the UH West Oahu campus. We are confident that the results of these efforts will satisfy the mutual interest in providing water service and fire protection to the Makaïwa Hills development in accordance with your Water System Standards.

Your comment letter and this response will be included in the Final Environmental Impact Statement. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP  
Principal, Chief Environmental Planner

DEPARTMENT OF COMMUNITY SERVICES  
**CITY AND COUNTY OF HONOLULU**

715 SOUTH KING STREET, SUITE 311 • HONOLULU, HAWAII 96813 • AREA CODE 808 • PHONE: 768-7792 • FAX: 768-7792



MUFT HANNEMANN  
MAYOR

DEBORAH KIM MORIKAWA  
DIRECTOR

MARK K. OTO  
SENIOR ADVISOR

May 2, 2007



Mr. Steve Kelly  
Makaiwa Hills, LLC  
1001 Kamokila Boulevard, Suite 250  
Kapolei, Hawaii 96707

Dear Mr. Kelly:

Subject: **Draft Environmental Impact Statement  
Makaiwa Hills**

Thank you for providing us with the opportunity to review and comment on the Makaiwa Hills Draft Environmental Impact Statement (DEIS). We understand that details of the affordable housing program in the Makaiwa Hills Project will be worked out with the County prior to development.

The Department of Community Services appreciates your consideration of these comments, and we look forward to reviewing the final EIS when it becomes available. Questions regarding this matter may be directed to Mr. Randy Wong at 768-7747.

Sincerely,

  
Deborah Kim Morikawa  
Director

DKM:tg

cc: **Office of Environmental Quality Control  
Department of Planning and Permitting  
Group 70 International, Inc.**



**GROUP 70**  
INTERNATIONAL

Francis S. Oda, Arch. D., F.A.A., AICP  
Norman G.Y. Hong, AIA  
Sheryl B. Swannan, AIA, ASD  
Hisashi Hida, AIA  
Roy H. Nishi, AIA, CSI  
James I. Nishimura, AIA  
Stephen H. Yuen, AIA  
Linda C. Miki, AIA  
George I. Aiba, AICP  
Charles Y. Kaneshiro, AIA, LEED  
Jeffrey H. Overton, AICP  
Christine Mendes Rucholis, AICP  
James L. Stone, AIA, LEED

Paul P. Cheney, AIA  
Philip T. Cocca, CSI, CDT  
Kimberly Evans  
Pete C. Galecz, AIA  
Sabrin Halim  
Roy A. Inouye, AIA, CSI  
Carm Klester  
Katherine M. Macchelli, AIA  
Frank S. McCue  
Kawaka McKeague  
Kathryn A. Nam  
Hiram C. Pigo  
Donna D. Remington  
Kimberly Polkithom, AIA, LEED  
Scott Truonghan  
Tom Young, AIA  
Ralph E. Richmond, AICP  
OT Counsel

November 8, 2007  
Ms. Deborah K. Morikawa  
Director  
City and County of Honolulu  
Department of Community Services  
715 South Street, Suite 311  
Honolulu, HI 96813

**SUBJECT: Makaiwa Hills – Responses to Comments on the Draft Environmental Impact Statement**

Dear Ms. Morikawa,

Thank you for your comment letter concerning the Makaiwa Hills Draft Environmental Impact Statement. The following statements are offered in response to your comments.

You are correct in your stated understanding that details of the affordable housing program in the Makaiwa Hills project will be worked out with the County prior to development. We will continue to coordinate with you on this issue as the project proceeds.

Your comment letter and this response will be included in the Final Environmental Impact Statement. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.



Jeffrey H. Overton, AICP  
Principal, Chief Environmental Planner

DEPARTMENT OF DESIGN AND CONSTRUCTION  
CITY AND COUNTY OF HONOLULU  
650 SOUTH KING STREET, 11<sup>TH</sup> FLOOR  
HONOLULU, HAWAII 96813  
Phone: (808) 768-8480 • Fax: (808) 523-4567  
Web site: [www.honolulu.gov](http://www.honolulu.gov)



MUJI HANNEMANN  
MAYOR

EUGENE C. LEE, P.E.  
DIRECTOR  
CRAIG I. NISHIMURA, P.E.  
DEPUTY DIRECTOR

May 4, 2007



Mr. Steve Kelly, AICP  
Makaiwa Hills, LLC  
1001 Kamokila Boulevard, Suite 250  
Kapolei, Hawaii 96707

Dear Mr. Kelly:

Subject: Draft Environmental Impact Statement  
Makaiwa Hills, Ewa, Oahu

Thank you for giving us the opportunity to comment on the above Draft Environmental Impact Statement.

The Department of Design and Construction has the following comments:

- The EIS should address possible problems with expansive soils and possible slope movements. Such problems are known to occur in Makakilo.
- The project proponent preparing the draft environmental impact statement should address more specifically how they intend to comply with the City's park dedication regulations. We recommend that the proponents meet with City officials in the Department of Planning and Permitting, Department of Parks and Recreation, and Department of Design and Construction at their earliest convenience regarding park dedication alternatives.

Should you have any questions, please contact Craig Nishimura, Deputy Director, at 768-8481.

Very truly yours,

Eugene C. Lee, P.E.  
Director

ECL:it (202629)

c: DDC Civil Division  
DDC Facilities Division  
Department of Planning and Permitting  
Group 70 International, Inc.



GROUP 70  
INTERNATIONAL

Francis S. Oda,  
Arch. D., F.AIA, AICP  
Norman G. Y. Hong, AIA  
Sheryl B. Samaan, AIA, ASD  
Hiroshi Hida, AIA  
Roy H. Nheii, AIA, CSI  
James I. Nishimura, AIA  
Stephen H. Yuen, AIA  
Linda C. Miki, AIA  
George I. Aita, AICP  
Charles Y. Kaneshiro, AIA, LEED  
Jeffrey H. Overton, AICP  
Christine Mendes Rucobias, AICP  
James L. Stone, AIA, LEED

Paul P. Cherny, AIA  
Philip T. Cocca, CSI, CDT  
Kimberly Evans  
Pete C. Galvez, AIA  
Sabrin Hallin  
Roy A. Inouye, AIA, CSI  
Carm Klester  
Katherine M. MacNeil, AIA  
Frank B. McCue  
Kawika Mokuogoe  
Kathryn A. Nam  
Hiram C. Pigo  
Donna D. Remington  
Kimberly Polkithorn, AIA, LEED  
Scott Tangonan  
Tom Young, AIA  
Ralph E. Robinson, AICP  
OT Counsel

November 8, 2007

Mr. Eugene C. Lee  
Director  
City and County of Honolulu  
Department of Design and Construction  
650 South King Street, 11th Floor  
Honolulu, HI 96813

**SUBJECT: Makaiwa Hills – Responses to Comments on the Draft Environmental Impact Statement**

Dear Mr. Lee,

Thank you for your comment letter concerning the Makaiwa Hills Draft Environmental Impact Statement (EIS). The following statements are offered in response to your comments.

The Final EIS will contain a geotechnical report addressing issues of potential concern. Pursuant to your recommendation regarding compliance with park dedication requirements, we will arrange a meeting to explore alternatives with staff from your department, along with the Departments of Parks and Recreation and Planning and Permitting, as project planning progresses.

Your comment letter and this response will be included in the Final Environmental Impact Statement. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP  
Principal, Chief Environmental Planner

DEPARTMENT OF EMERGENCY MANAGEMENT  
**CITY AND COUNTY OF HONOLULU**

650 SOUTH KING STREET HONOLULU, HAWAII 96813  
PHONE: (808)523-4121 FAX: (808)524-3439  
WORLDWIDE WEB: www.oahuDEM.org



MUFI HANMANN  
MAYOR

PETER J.S. HIRAI, CEM  
ACTING DIRECTOR

May 21, 2007

Mr. Jeffrey H. Overton, AICP  
Vice President  
Group 70 International, Inc.  
925 Bethel Street, 5<sup>th</sup> Floor  
Honolulu, Hawaii 96813-4307

Dear Mr. Overton:

**SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR MAKAIWA  
HILLS, EWA, OAHU**

The City and County of Honolulu's Department of Emergency Management (DEM, fka Oahu Civil Defense Agency) has the following comments for the Draft Environmental Impact Statement for Makaiwa Hills, Ewa, Oahu:

- 1) Request that adequate warning sirens be purchased, installed, and integrated with the current warning siren system for the City and County of Honolulu. This includes meeting all requirements of the State of Hawaii Department of Defense, Civil Defense Division.
- 2) Request that community centers and/or other common buildings be built to hurricane resistant standards to be used by the community members as an emergency refuge shelter for hurricanes, earthquakes, floods, or other emergencies.

You may direct any questions to me at 523-4121 or e-mail [phirai@honolulu.gov](mailto:phirai@honolulu.gov). Thank you for your support of emergency management programs.

Sincerely,

PETER J.S. HIRAI, CEM  
Acting Director



**GROUP 70**  
INTERNATIONAL

Francis S. Oda,  
Arch. D., F.AIA, AICP  
Norman G.Y. Hong, AIA  
Sheryl B. Staman, AIA, ASD  
Hiroshi Hida, AIA  
Roy H. Nheii, AIA, CSI  
James I. Nishimura, AIA

Stephen H. Yuen, AIA  
Linda C. Miki, AIA  
George I. Aita, AICP  
Charles Y. Kaneshiro, AIA, LEED  
Jeffrey H. Overton, AICP  
Christine Mendes Ruzibila, AICP  
James L. Stone, AIA, LEED

Pearl P. Chorney, AIA  
Philip T. Cocca, CSI, CDT  
Kimberly Evans  
Pete C. Galeez, AIA  
Sabrin Haim  
Roy A. Inouye, AIA, CSI

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Frank B. McCue  
Kawaka McKelague  
Kathryn A. Nam  
Hiram C. Pigo  
Dorena D. Remington  
Kimberly Polkinton, AIA, LEED  
Scott Tangonan  
Tom Young, AIA

Rajah E. Robinson, AICP  
OT Counsel

November 8, 2007

Mr. Peter J. S. Hirai  
Acting Director  
City and County of Honolulu  
Department of Emergency Management  
650 South King Street  
Honolulu, HI 96813

**SUBJECT: Makaiwa Hills – Responses to Comments on the Draft Environmental  
Impact Statement**

Dear Mr. Hirai,

Thank you for your comment letter concerning the Makaiwa Hills Draft Environmental Impact Statement (EIS). The following statements are offered in response to your comments.

As we acknowledged in our response to your agency's comments on the EIS Preparation Notice for this project, we understand that at least five warning sirens will be required for this project. The project developer will purchase and install these sirens in coordination with your agency to assure integration with both the City's and the State's civil defense programs.

Additionally, community centers and other appropriate common buildings will be constructed to hurricane-resistant standards so that these structures may be utilized as emergency refuge shelters during emergencies.

Your comment letter and this response will be included in the Final Environmental Impact Statement. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP  
Principal, Chief Environmental Planner



MUJI HANNEMANN  
MAYOR



May 23, 2007

VIA FACSIMILE: 808-674-3111

Steve Kelly  
 Makaiawa Hills, LLC  
 1001 Kamokila Blvd, Suite 250  
 Kapolei, Hawaii 96707

Dear Mr. Kelly:

Subject: Draft Environmental Impact Statement  
 Makaiawa Hills, Ewa, Oahu  
 TMK: (1) 9-1-15:5 (part) 17: 9-2-03, portions of 2, 5 & 84

In response to Mr. Jeffrey Overton's letter of April 8, 2007 on subject topic, we provide our comments (see attachment) for your consideration. Questions regarding individual comments should be referred to the individual point of contact (POC) staff listed on the attachment.

Thank you for the opportunity to comment. Should you have any questions or comments, please call me at 692-5727.

Sincerely,

*Jack Pobuk*  
 Jack Pobuk  
 CIP Program Coordinator

Attachment

cc: Group 70 International, Inc.  
 OEQC, State of Hawaii  
 DPP, City and County of Honolulu

ENVY Comments

Subject: Draft Environmental Impact Statement  
 Makaiawa Hills, Ewa, Oahu  
 TMK: (1) 9-1-15:5 (part) 17: 9-2-03; portions of 2, 5 & 84

No. / Reference	Comment
Refuse Division (POC: Steven Serikaku, Tel. No. 692-5378)	Re: Waimanalo Gulch Landfill. The letter indicates that the landfill is scheduled to close in 2010. Please be aware that the City and County of Honolulu (City) is currently in process of expanding Waimanalo Gulch landfill so that it may fully utilize the entire property area for landfill operations. Based on current landfilling rates it is estimated that the expanded area would allow adequate space for the city to continue landfill operations until year 2024. Should the rate of landfilling be lessened due to recycling and other diversion programs, the landfill could be operated beyond 2024.
1. Item No. 6, Mr. Overton's April 5, 2007 response letter to DPP	With this understanding, and as previously in DPP's November 24, 2006 letter to Mr. Steve Kelly of Makaiawa Hills, LLC, the DEIS should discuss how the proposed land uses within the western portion of the Makaiawa project would be affected by the abutting Waimanalo Gulch Landfill operation. In the Mayor's Advisory Committee on Landfill Selection" report dated December 2003, Makaiawa Gulch was identified as a possible location for Oahu's future landfill. This report also recommended that the City land bank these sites to reduce the potential for future land use conflicts when another landfill is needed.
2. Land banking for future landfill.	Based on this recommendation, the DEIS should discuss the ramifications of the City banking the portion of land identified within the Makaiawa project area for a future landfill. For your information we have attached information from the report discussing and showing the proposed location identified. In the DEIS discussions of the Waimanalo Gulch landfill expansion, please revise with the information provided above.
3. Section 4.2.10 Solid Waste and all other applicable areas in the DEIS. Environmental Quality Division, Storm water Quality Branch (POC: Gerald Takayesu, Tel. No. 692-5579)	Regarding the amount of refuse truck trips, for the collection of refuse from single family homes, each Refuse Division automated collection vehicle collects approximately 960 homes per day.
4. Pg 4-5 to 4-8 Sec 4.1.4	What happens to the 41,800 tons annual soil loss in the existing condition? Where does it go? Any existing mitigation measures? Verify calculation showing 89% reduction in soil losses can be obtained after development. Table 8 in Appendix C shows that nearly 50% of the area will be undeveloped.
5. Appendix C - Preliminary Engineering Report	Check soil loss calculations and address sediment yield. See comments on Preliminary Engineering Report. Report addresses soil loss, but not sediment yield. Revise to address sediment yield before, during, and after construction. Some of the areas appear to have existing slopes in the range of 20% to 40%. What is the basis for using an LS factor of 3.06 for all subareas in the developed condition?

**ENV Comments**

Subject: Draft Environmental Impact Statement  
 Makaiawa Hills, Ewa, Oahu  
 TMK: (1) 9-1-15:5 (por), 17; 9-2-03: portions of 2, 5 & 84

No. / Reference	Comment
	Explain how the soil losses after development can be reduced by 89%, while large segments remain "undeveloped." For example, 70% of Subarea C (Makaiawa Gulch) will remain undeveloped, but the report shows an 89% decrease in soil loss. Will Subarea C remain undeveloped or will it be graded and landscaped?
Office of Administrative Support, Program, Planning & Computer Support Section (POC: Jack Pobuk, Tel. No. 692-5727)	
6. 4.2.7.2 Pg 4-78 Proposed On-Site System	ENV Dept. would prefer alternatives for on-site systems that minimize the number of wastewater pump stations and reduce the length of the force mains. Consider alternatives for large gravity trunk sewers. Possible contingency plans in the event of a force main break should be included in the sewer master plan.
7. 4.2.7.3 Pg 4-78 Off-Site Sewer	Consider alternatives routes for a third interceptor line. It may be necessary to consider an alignment on the south side of the WWTP, along Geiger Rd., due to space limitations.

# 1 EXECUTIVE SUMMARY

This report summarizes the efforts of the Mayor's Advisory Committee on Landfill Selection (Committee) to identify potential landfill site(s) for consideration by the Mayor and City Council when it prepares an Environmental Impact Statement for a new landfill site.

## 1.1 Need for a New Landfill

The Committee was convened by the Mayor pursuant to a proposal by the City and in response to a decision by the State Land Use Commission (LUC) which extended the use of the Waimanalo Gulch Sanitary Landfill until 2008 (Attachment A). A major condition of the LUC, as part of the amendment to the City's State Special Use Permit, required that the City identify a new landfill site prior to closure of the existing site. Several Committee members noted that representatives of the current City Administration speaking at public meetings for the Waimanalo Gulch Sanitary Landfill Expansion committed to closure and to identify a new site by then.

The provision of municipal solid waste landfill capacity is a critical infrastructure element provided by the City to its citizens. A landfill is necessary for the disposal of non-combustible municipal solid waste and bulky items that cannot be recycled or reused. Further, a landfill provides for the disposal of municipal solid waste in a secure and economic manner. There are limited areas of Oahu where a landfill will have a *lower* overall impact. Finding these locations and recommending *sites* was the task of the Committee.

## 1.2 Mayor's Landfill Site Selection Committee

The Mayor appointed a 15-member committee composed of citizens representing various communities on Oahu. Committee members provided experience and expertise from a broad range of backgrounds that included: public and community interests; state and City officials; environmental and health sciences; legal, financial, business, and education professions; and, corporate administration. The Committee was directed by the Mayor to recommend one or more landfill sites. (See Attachment B for a list of members and a copy of the Mayor's letter.) The Committee deliberated between June and December 1, 2003, identified four potential sites, and developed recommendations.

## 1.3 The Process

The process began with an inventory of 45 potential landfill sites identified by the Department of Environmental Services (ENS) and consultant from the City's previous studies and investigations (See Section 2.2 for a list of them). The Committee was also asked for nominations of new potential

sites. No additional viable sites were recommended.

Landfill Siting Criteria to supplement those mandated by state and federal government agencies were developed to enable comparison of key considerations for a new landfill that were important to the Committee (e.g., proximity to residences, groundwater protection, and travel distances).

Various methods and criteria were applied to reduce the number of sites at each step. The methods and criteria included: application of the U.S. Environmental Protection Agency (USEPA) siting criteria, consideration of whether residential or other incompatible land uses had become developed near the proposed site; consideration of the location of the site in relation to potable groundwater resources; the minimum capacity criteria developed by the Committee; and finally, the 31 criteria developed by the Committee (which included the capacity criteria). The Committee evaluation was to review the site-specific factors that were important with respect to each of the site finalists. In this process, the Committee started with a list of eight sites distilled from the list of 45 sites after application of the criteria noted above and the minimum capacity criterion. The Committee reduced the list of eight sites to five as consensus could not be reached to remove any of the five sites from consideration. The five sites were at the last meeting reduced to four through a vote which prompted the resignation of four Committee members. The remaining Committee members are recommending four sites to the Mayor for forwarding to the City Council for further consideration.

The Committee in evaluating the remaining eight sites went through a process called a double blind evaluation. First, the Committee did not know the names of the sites to be evaluated until the criteria were developed and weighting was assigned. Second, the consultant did not know the weighting assigned by the Committee to the 31 criteria until they had finished their analysis and scoring of the sites using the 31 criteria. See Table 2 for a list of the criteria and their weighting factors.

Attachment C, provides the name, tax map key (TMK), and location of each of the 45 potential landfill sites.

### 1.4 Process Changes

The Committee removed one site from consideration at its December 1, 2003 meeting as a result of a vote, which was a change from the consensus process the Committee had employed up until this meeting. As a result of a successful motion to further limit the number of recommended sites through voting Bruce Anderson, Kathy Bryant-Hunter, Eric Guinther, and Representative Cynthia Thielen resigned from the Committee stating that they did not want to be part of a vote that would remove one or more sites from consideration. They felt that the Committee had done an excellent job and that the original five sites should go forward for the following reasons:

- That this Committee was not constituted to represent the interests of all the residents of the island of Oahu. Indeed, it was heavily weighted with members representing Leeward Oahu communities. Thus, it is inappropriate for the Committee to pretend that they represent these interests by voting to eliminate any site that, based on criteria developed by the

Committee, should be included just as it would be inappropriate to add sites based on a vote. The City Council, the duly elected legislative body representing the interest of all residents of Oahu, should make a final decision based on the best information that is available on all the alternatives.

- The Committee went as far as it could in reducing the list from eight sites to five sites with the limited information that was available to the Committee on each site. Unsolicited comments and information was received from developers and individuals who owned land adjacent to only three of the five sites. Further information is required on environmental, social and economic impacts associated with establishing a landfill at all five sites before a decision should be made to drop any of the sites from consideration. When the Land Use Commission made their decision only to extend the permit at Waimanalo Gulch landfill until 2008, they did not consider alternatives or the impacts at alternative sites. They need this information to make a good decision. Likewise, the City Council should be provided the best available information on all the alternatives to make a decision that best serves residents of the island of Oahu. Therefore, some members of the committee felt it was inappropriate and premature to eliminate any of the sites from further consideration by a vote.
- Waimanalo Gulch got the highest score in the Committee's double blind process
- It is an irresponsible land use decision to walk away from an operating landfill with 20 years of life left
- Some of the members felt that a letter sent by Ko Olina negated the integrity of the Committee's deliberations because it was perceived by some as threatening a lawsuit against individual Committee members (the letter can be found in Attachment E)
- The LUC made its order on the Waimanalo Gulch Landfill without the benefit of all the information the Committee had and without input as to the potential economic and other impacts that might result should a new site be chosen
- Although the City Administration had made a commitment to the Community, this commitment does not bind the City Council and the LUC has a process for revisiting its decision should the Waimanalo Gulch Landfill become the preferred site.

Members of the Committee requesting a vote to remove Waimanalo Gulch felt that the City had not made its commitment to the community lightly as implied by others. They felt strongly that the City had to honor that commitment and therefore the site should not be recommended by the Committee. They noted that the commitment to leave Waimanalo Gulch Landfill resulted from two years of study which occurred during the process to extend the Landfill for 15 years.

Todd Apo moved and Shad Kane seconded the motion to change the process from consensus to voting the motion carried. Those voting for the motion were: Todd Apo, Shad Kane, Gary Slovin, Michael Chun, Gary Tomina, George Yamamoto, Cynthia Rezenes, Ted Jung, and Robert Tong.

Those opposed to the motion were: Cynthia Thieleen, Kathy Bryant-Hunter, Eric Guinther, and Bruce Anderson.

Todd Apo then moved and Shad Kane seconded the motion to remove the Waimanalo Gulch Landfill from the list of sites. Prior to consideration of the motion, several of the members assigned, as noted above. Those voting for the motion were: Todd Apo, Shad Kane, Gary Slovin, Gary Tomita, Ted Jung, Cynthia Rezenites, George Yamamoto, Robert Tong, and Michael Chun. There were no votes in opposition.

### 1.5 Committee Recommendations

The four sites recommended by the remaining Committee members are listed in Table ES-1, Recommended Sites. The location of these sites is shown in Figure ES-1, Location of Four Recommended Sites. The sites are listed in alphabetical order and no prioritization of the sites was done by the Committee. The intent was that the sites would be evaluated through an Environmental Impact Statement (EIS) process.

Table ES - 1, Recommended Sites

Site Name	TMK	Acreage	Million Tons Capacity	Years of Capacity
Ameron Quarry	4-2-15:01	391	9	15
Mali	8-7-10:part. 03	200	9	15
Makauwa	9-2-3: part. 02	338	15	25
Nanakuli B	8-7-9: parts. 1 & 7	432	9	16

The Committee evaluated the sites using a two-step process. The first step was to apply the criteria and weighting factor to come out with a numerical scoring of sites based on the data available to the Committee. The second step was to discuss the various positive and negative attributes of each site to arrive at a list of recommended sites. The summary of the pros and cons is presented in Section 5, Committee Evaluation and Analysis. The pros and cons were not arrived at by consensus but were a compilation of Committee members' individual thoughts and concerns.

The Committee's recommended list of sites started with five, including the existing Waimanalo Gulch Landfill. As part of its deliberations, the Committee considered whether to remove Waimanalo Gulch Landfill. Prior to this time, the Committee had made its determinations by consensus. In coming to a recommendation regarding the Waimanalo Gulch Landfill, the Committee decided to vote as noted in Section 1.4.

Other important recommendations of the entire Committee included: (1) the City Administration and City Council should not zone or permit any site unless a Host Community Benefits package is negotiated with the affected community where a landfill is sited; and, (2) the City is encouraged to Land Bank sites to reduce the potential for future land use conflicts when another landfill is needed.

### 1.6 Other Considerations of the Entire Committee

The entire Committee during its deliberations spent considerable time discussing costs and benefits of various options. This included discussion on the role of and need for the City to move quickly to develop alternative technologies to landfilling, the impact such technologies could have on the necessary size of the sites, and whether or not it would be appropriate to develop several smaller sites. The Committee strongly feels that whatever site is selected that the City maximize the life of the site through aggressive actions to remove and reduce waste from being disposed in a landfill. Further discussion on these issues can be found in Section 6, Committee Recommendations, and the meeting notes found in Attachment B.

With these considerations, the Committee anticipates that the City will prepare an Environmental Impact Statement to evaluate in detail the benefits and constraints of each site and determine which site should be the preferred alternative for a new landfill.

## 6 COMMITTEE RECOMMENDATIONS

### 6.1 List of Sites Recommended

The Committee evaluated the remaining five sites to determine if any of them should be removed from the list recommended to the Mayor for forwarding to the City Council. The final determination was made at the last Committee meeting. The members of the Committee present at the last meeting were Anderson, Apo, Bryant-Hunter, Chun, Guinther, Jung, Kane, Rezendes, Slovin, Thielen, Tomita, Tong, and Yamamoto. Holmes and Paty were not present. The Committee's earlier determinations had all been arrived at by consensus. A motion was made by Todd Apo and seconded by Kane to move the process from consensus to voting. The motion passed with Todd Apo, Chun, Jung, Kane, Rezendes, Slovin, Tomita, Tong, and Yamamoto voting in favor. Anderson, Bryant-Hunter, Guinther, and Thielen voted against.

Another motion was made by Todd Apo and seconded by Kane to remove the Waimanalo Gulch Landfill from the list of recommended sites. Prior to a vote, four Committee members (Anderson, Bryant-Hunter, Guinther, and Thielen) resigned because they did not want to be part of a recommendation that was decided by voting rather than by consensus. There were nine votes in favor of removing the Waimanalo Gulch Landfill from the list of recommended sites (Todd Apo, Chun, Jung, Kane, Rezendes, Slovin, Tomita, Tong, and Yamamoto). There were no votes against the motion.

Table 5, Sites Recommended to the Mayor, lists the four sites forwarded by the Committee to the Mayor.

Table 5, Sites Recommended to the Mayor

Site Name	TMK	Acreage	Million Tons Capacity	Years of Capacity
Amerson Quarry	4-2-1501	391	9	15
Makaha	8-7-10por. 03	200	9	15
Makaha	9-2-3 por. 02	338	15	25
Nanakahi B	8-7-9 por. 1 & 7	432	9	16

### 6.2 Other Recommendations of the Entire Committee

#### 6.2.1 Host Community Benefits

Host Community Benefits (HCB) is a benefits package designed to address local impacts to the siting of landfills, which are essential to meet the City and County's future infrastructure needs. This section discusses the concept and summarizes the Committee's feelings regarding the use of such

benefits in siting a new landfill for Oahu. Attachment F provides more information about the use of HCB in other jurisdictions on the mainland. These points include:

- HCB can generate a significant amount of revenue to help meet local needs.
- HCB can be used for any type of project, in addition to landfill impact mitigation projects.
- HCB are not unusual. States that have them include New Jersey, Pennsylvania, Illinois, Iowa, Georgia, Michigan, West Virginia, Tennessee, California, and North Carolina.

The Committee recommends that the City Administration and City Council should not zone or permit any site unless a Host Community Benefits package is negotiated with the affected community where a landfill is sited. These benefits should be an integral part of the mitigation measures included in the EIS for the site.

The Committee further notes that HCB should not be mistaken for basic improvements that must be completed prior to operating a landfill, e.g., necessary highway or infrastructure improvements.

#### 6.2.2 Land Banking Sites

The Committee agreed that the selection of the next landfill site will serve a critical public purpose. At the same time, the effort needed to select and develop a landfill site is high, and the list of potential sites so short, that future landfill sites should be land-banked well in advance of their need. Land banking has the potential to reduce land use conflicts and minimize siting difficulties.

The Committee recommends that the City Council take steps to identify sites that address future landfill needs taking into consideration: the development of new technologies; the reduction in the waste stream that may result from such technologies and from current technologies; and the demand for landfill space. The Committee further recommends that land banking should be part of a process separate from the work of this Committee, and not limit the sites considered to those identified in this report.

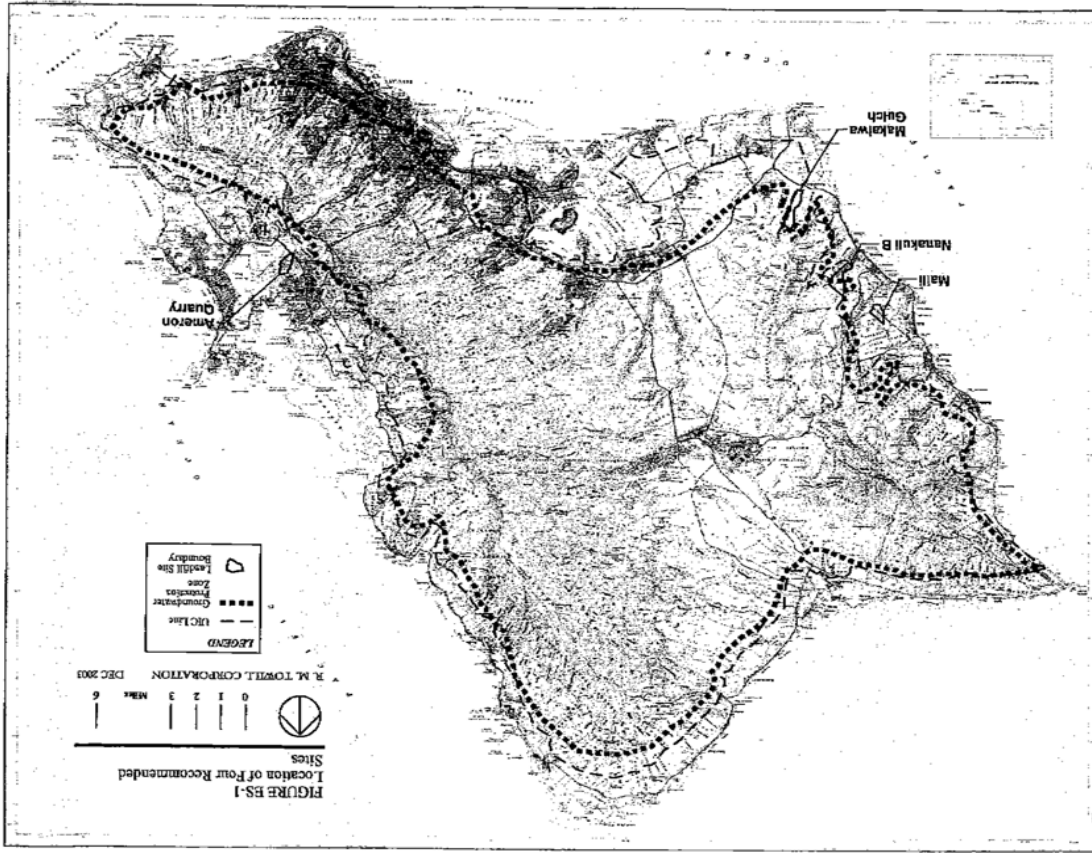
#### 6.2.3 Underground Injection Control Line and Groundwater Protection Zone

The evaluation done for the criterion related to groundwater illustrates a potential concern with the application of the UIC line and the Groundwater Protection Zone to the siting of landfills. These delineations are not precise enough to clearly identify areas that are appropriate or inappropriate for siting a landfill, nor were they intended to be used for this purpose when introduced. As previously noted, the City Council in 2003 by Resolution 03-09, applied these criteria to protect Oahu's groundwater, by precluding the siting of landfills in these areas. In this site evaluation, the Committee consultants relied on BWS staff expertise to accurately determine whether a potential site might be a problem with respect to current or future groundwater considerations.

The Committee expressed that there may be a need for the State and the City to revisit the protection that the UIC line and the Groundwater Protection Zone provide.

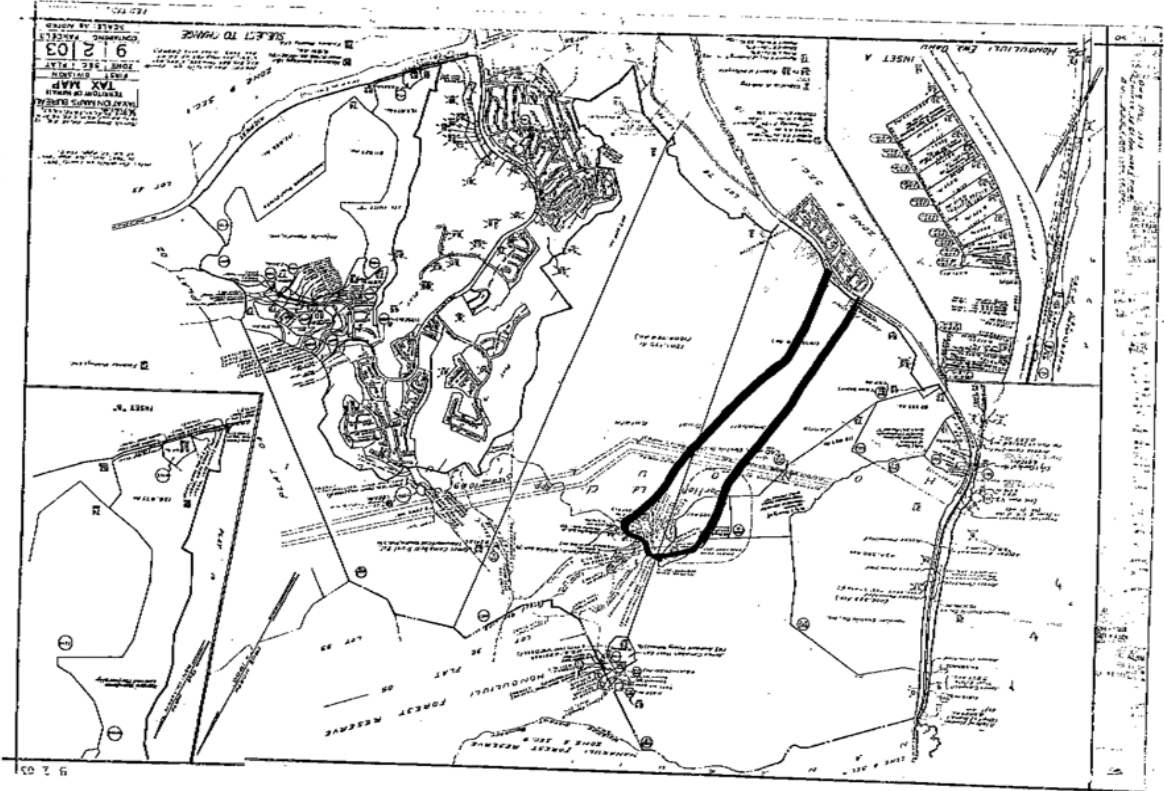
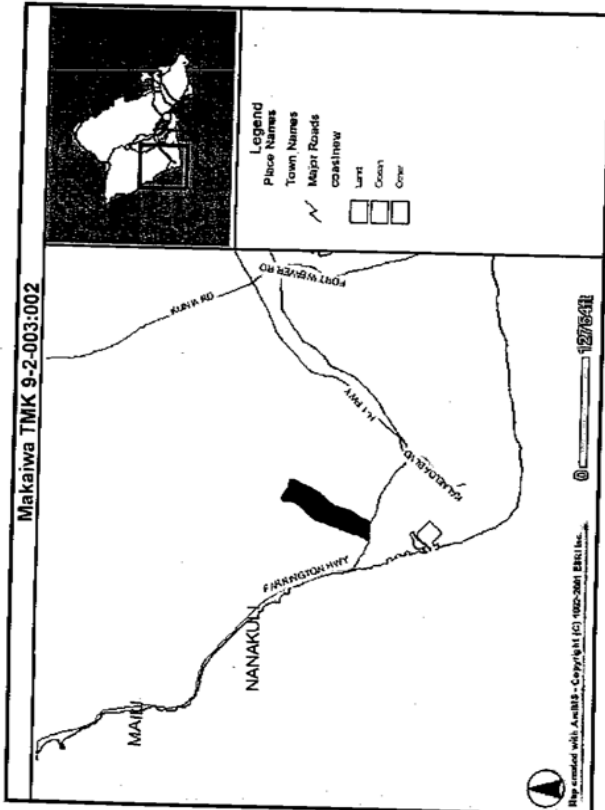
### 6.3 Continued Gathering of Information

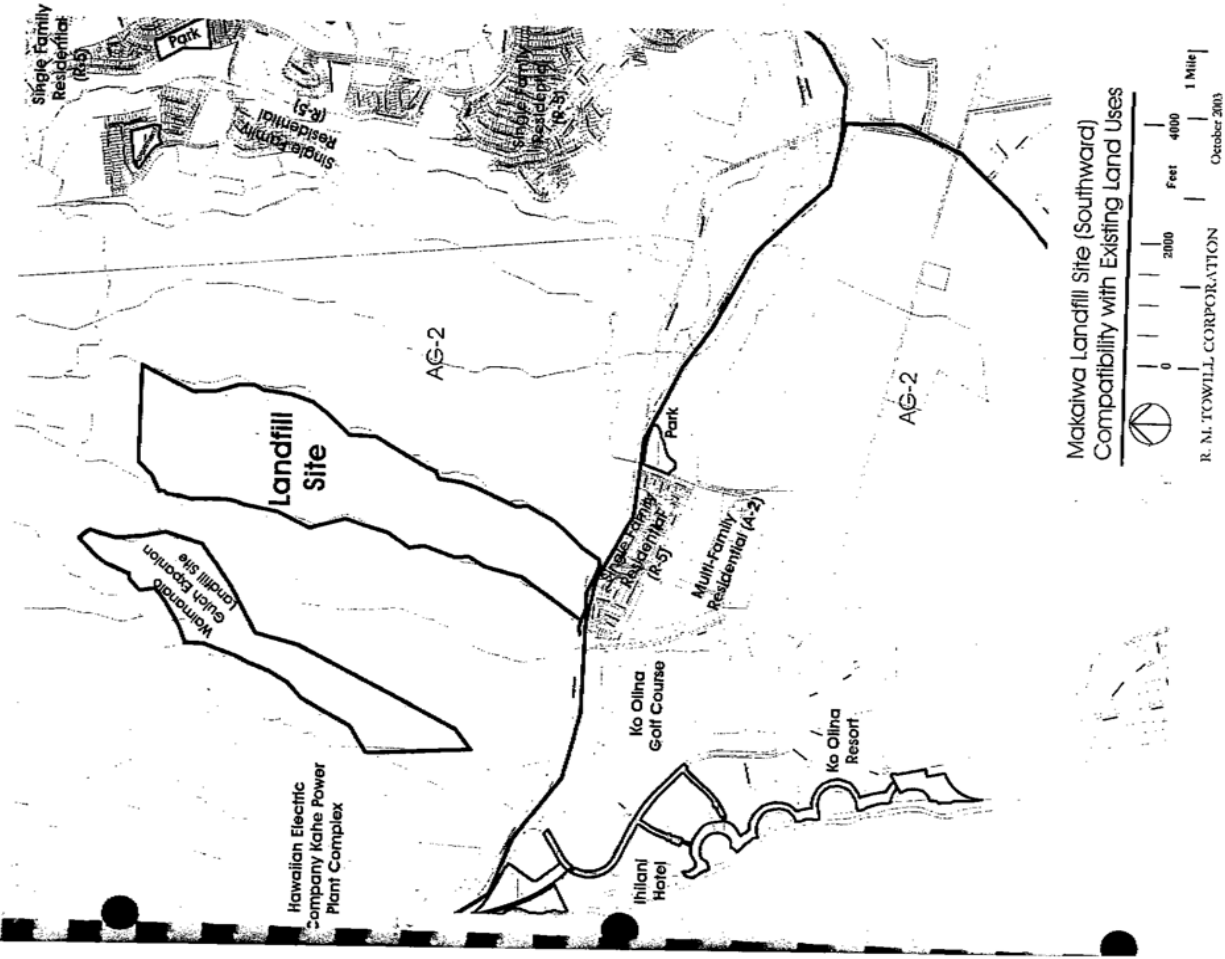
The Committee recognized that the time allowed for gathering information was limited and that more information is needed for each site before a final decision is made. The Committee suggested direct contact with the landowners or facility operators. Those parties will have important information that needs to be considered in locating the landfill that will serve the City in the future. The Committee recommends that these parties be contacted and their input be considered.



Map Output

Page 1 of 1





GROUP 70  
INTERNATIONAL

Francis S. Oda,  
Arch. D., F.AIA, AICP  
Norman G. Y. Hong, AIA  
Sheryl B. Saaman, AIA, ASD  
Heidi Hida, AIA

Roy H. Nishi, AIA, CSI  
James I. Nishimura, AIA  
Stephen H. Yuen, AIA  
Linda C. Miki, AIA

George I. Aiba, AICP  
Charles Y. Kawashiro, AIA, LEED  
Jeffrey H. Overton, AICP  
Christine Mendes Rucobila, AICP  
James L. Stone, AIA, LEED

Paul P. Chorney, AIA  
Philip T. Coocia, CSI, CDT  
Kimberly Evans  
Peter C. Galvez, AIA  
Sabrin Halim  
Roy A. Inouye, AIA, CSI  
Carm Klester

Katherine M. MacNeil, AIA  
Frank B. McCue  
Kawika McKelague  
Kathryn A. Nam  
Hiram C. Pigo  
Dorrea D. Remington  
Kimberly Polkithom, AIA, LEED  
Scott Taniguchi

Tom Young, AIA  
Ralph E. Squires, AICP  
OT Counsel

November 8, 2007

Mr. Jack Pobuk  
CIP Program Coordinator  
City and County of Honolulu  
Department of Environmental Services  
1000 Ulukouia Street, Suite 308  
Kapolei, HI 96707

**SUBJECT: Makaiwa Hills – Responses to Comments on the Draft Environmental Impact Statement**

Dear Mr. Pobuk,

Thank you for your comment letter concerning the Makaiwa Hills Draft Environmental Impact Statement (EIS). The following statements are offered in response to your comments.

**Waimanalo Gulch Landfill.** The owners are following the progress of the proposed expansion of this landfill. The proposed residential use in the western makai portion of the property will be generally located at the same elevation as closed sections of the landfill, which are currently being re-naturalized. By the time the homes are occupied in this phase of the project, anticipated around 2012-2015, only the upper increment of the landfill may be active. Should the City decide that the landfill will be expanded in the future to mauka expansion cells, distance, topography, vegetation and direction will all work to mitigate impacts from landfill operations. The new homes will be over 1,000 feet from the then-active portion of the landfill, and not downwind from it under typical conditions.

**Landfill Banking.** The Estate of James Campbell, as predecessor in title to the current landowner, has held numerous discussions and correspondence with the City to address the concept of siting a landfill at Makaiwa Gulch. Our understanding is that when the City designated Kapolei as Oahu's secondary urban center, it was for the express purpose of creating a new job center to allow people to work where they live, reduce the traffic congestion into Honolulu, and stimulate the economy by attracting new businesses to Hawaii. Locating a landfill in Kapolei at Makaiwa Gulch is contrary to this purpose.

Makaiwa Gulch is situated within the currently planned Makaiwa Hills residential development project. The Honolulu City Council placed Makaiwa Hills on the 'Ewa Development Plan in the early 1990s as an integral part of the area's development. In 1993, the State Land Use Commission urbanized the property. As it stands, any designation of Makaiwa Gulch as a landfill would have a material, negative impact on the landowners and on the burgeoning City of Kapolei.

The landowners have made substantial investments in the planning and entitlement of this property, would vigorously oppose any condemnation action on this property and would seek, in addition to the value of the land, direct and indirect damages caused by the adverse impact that such a facility would have on the value of marketability of the



Mr. Jack Pobuk, CIP Program Coordinator  
Department of Environmental Services  
DATE  
Page 2 of 3

surrounding land. The final price tag for Makaiwa Gulch would make it a far less economical and much more risky choice for the City.

At the City Council's request, an economic analysis was commissioned, and in 2004, Decision Analysts Hawai'i, Inc. reviewed documents relevant to the proposed siting of a solid waste landfill at Makaiwa Gulch, analyzed those documents, and set forth the economic impacts of such an action. To summarize the 2004 report, the cost to the community and the City of a landfill at Makaiwa Gulch was expected to be substantial as indicated in the following impacts related to the Makaiwa Hills project and the adjacent Kapolei West project:

- The 2004 present value of unrealized future economic benefits to the community (payroll, profits, and tax revenues) was estimated at about \$7 billion.
- Unrealized permanent employment was expected to exceed 5,400 jobs.
- The damage to the landowner was estimated to be approximately \$108 million.
- In addition to the cost of site acquisition for the landfill, the cost to the City to compensate for damages (i.e., reduced property values) was expected to exceed \$90 million.
- The 2004 present value of unrealized net revenues to the City was expected to exceed \$80 million.
- Because of the estimated cost of damages and unrealized net revenues, the annualized cost to the City of the landfill was expected to reach about \$13.6 million per year.

Obviously, the economic consequences noted above strongly suggest that siting a landfill at Makaiwa Gulch would be inappropriate and would impose a substantial financial burden on the City and County of Honolulu. For these reasons, we believe that the concept of the City "landbanking" Makaiwa Gulch for a landfill is ill-advised, and should be removed from consideration as soon as possible.

#### Soils Loss Mitigation:

Computations of the Universal Soil Loss Equation (USLE) calculate that approximately 42,500 tons of soils are lost annually from the project site under existing, undeveloped conditions. This fairly high quantity of soil erosion occurs primarily because no erosion mitigation measures currently exist on-site. Adjacent to the project site, a number of culverts under Farrington Highway allow storm runoff along with any suspended soil to continue its downhill flow toward the 'Ewa Plain and the ocean beyond.

The Final EIS contains a revised Preliminary Engineering Report (PER) for the project with new USLE calculations that show a 52% reduction in soil loss after the site has been fully developed. This significant decrease in soil loss is primarily due to the proposed implementation of a variety of mitigative measures to control erosion and soil loss from the project area. The new calculations include unique LS factors for each sub-area of the project site.

Sediment loss was analyzed, pursuant to standard application of the USLE; sediment yield was not analyzed as part of the PER since this is not currently part of the City and County of Honolulu's Erosion Control Standards. However, erosion and sediment control

Mr. Jack Pobuk, CIP Program Coordinator  
Department of Environmental Services  
DATE  
Page 3 of 3

measures will comply with the applicable standards in place at the time of design and construction. A sediment yield analysis will also be conducted if required by the applicable standards in place during design and construction.

#### Wastewater Management:

It may be possible to reduce the number of sewer pump stations shown in the PER along Old Farrington Highway through the use of deep sewers and trenchless technologies. This will be explored further in the sewer master plan.

Discussions are continuing with the City and County of Honolulu about the sewer alignment from F. Barrette Road to the Honouliuli treatment plant. We have an agreement in concept with the City to replace the existing Makakilo Interceptor sewer with a new, upsized line that would accommodate wastewater flows from Makaiwa Hills.

Your comment letter and this response will be included in the Final Environmental Impact Statement. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.



Jeffrey H. Overton, AICP  
Principal, Chief Environmental Planner

DEPARTMENT OF FACILITY MAINTENANCE  
**CITY AND COUNTY OF HONOLULU**

1000 Uluohia Street, Suite 215, Kapolei, Hawaii 96707  
Phone: (808) 692-5064 • Fax: (808) 692-5857  
Website: www.honolulu.gov



MUFI HANNEMANN  
MAYOR

LAVENE HIGA, P.E.  
DIRECTOR AND CHIEF ENGINEER  
GEORGE "KEOKI" MIYAMOTO  
DEPUTY DIRECTOR

IN REPLY REFER TO:  
DRM 07-443

May 17, 2007



Mr. Steve Kelly, AICP  
Makaiwa Hills, LLC  
1001 Kamokila Boulevard, Suite 250  
Kapolei, Hawaii 96707

Subject: **Draft Environmental Impact Statement (DEIS)**  
**Makaiwa Hills, Ewa, Oahu,**  
**TMK: (1) 9-1-15: 5 (por), 17; 9-1-3: portions of 2,5 & 84**

Thank you for the opportunity to review and comment on the subject DEIS dated March 2007.

The DEIS proposes the development of a residential community on approximately 781 acres of undeveloped land in Ewa, Oahu. Future development will include a network of streets with the required storm drainage improvements. Maintenance resources for the Department of Facility Maintenance (DFM) will need to be expanded for the additional infrastructure. The Ewa region is experiencing tremendous growth, putting a strain on resources that maintain the accompanied improvements.

The DEIS estimates a dollar amount of expenditures that will be needed to support all services to be provided by the City and County. However, we request that the final Environmental Impact Statement also include a maintenance analysis which anticipates the labor, equipment, and materials needed to maintain the proposed infrastructure to a recognized standard.

Furthermore, the DEIS anticipates numerous roadway crossings of gulches. DFM prefers that bridges be constructed at these crossings where the roadway elevation is considerably higher than the bottom of the gulch. We do not recommend high fills that would require long culverts. Bridges would allow the gulches to remain in their natural states which would be in the best interest of the City and adjacent communities. Also, bridges would minimize grading and soil erosion that may be attributable to high fill construction.

Mr. Steve Kelly, AICP  
Page 2  
May 17, 2007

The culverts, the upstream debris catchment structures, and the long/wide access roads on either side would be an added maintenance burden. Keeping the gulches in their natural state would require minimal maintenance and poses minimal threat of blockage.

Should you have any questions, please call Charles Pignataro of the Division of Road Maintenance, at 484-7697.

Very truly yours,

*Lavene Higa*  
Lavene Higa, P.E.  
Director and Chief Engineer

c: Office of Environmental Quality Control  
Department of Planning and Permitting  
Group 70 International, Inc.

April 8, 2007

**Subject: Draft Environmental Impact Statement  
Makaiwa Hills, Ewa, O'ahu**

**TMK: (1) 9-1-15: 5 (por), 17: 9-2-03; portions of 2, 5 & 84**

Dear Participant:

Attached for your review is a Draft Environmental Impact Statement (DEIS) for Makaiwa Hills which is a planned community proposed for the lands mauka of the City of Kapolei. This document was prepared pursuant to the EIS law (Hawaii Revised Statutes, Chapter 343) and the EIS rules (Hawaii Administrative Rules, Title 11, Chapter 200).

**TITLE OF PROJECT:** Makaiwa Hills  
**LOCATION:** Ewa, Island of O'ahu  
**TAX MAP KEY NUMBERS:** 9-1-15: 5 (por) & 17: 9-2-03; portions of 2, 5 & 84  
**AGENCY ACTION:**                      **APPLICANT ACTION:** YES  
**YOUR COMMENTS MUST BE RECEIVED OR POSTMARKED BY: May 23, 2007**

**Please send original comments to the applicant:**

Makaiwa Hills, LLC  
1001 Kamokila Blvd., Suite 250  
Kapolei, Hawaii 96707  
Contact: Mr. Steve Kelly, AICP  
Phone: (808) 674-3289

**Copies of the comments should be sent to OEQC and to the Accepting Authority:**

Department of Planning and Permitting  
City and County of Honolulu  
650 S. King Street, 7<sup>th</sup> Floor  
Honolulu, Hawaii 96813  
Contact: Eugene Takahashi  
Phone: (808) 527-6022

**Please also send a copy of the comments to the planning consultant:**

Group 70 International, Inc.  
925 Bethel Street, 5<sup>th</sup> Floor  
Honolulu, Hawaii 96813  
Contact: Jeffrey Overton, AICP, Vice President  
Phone: (808) 323-5866

If you no longer need this DEIS, please recycle it. Thank you for your participation in the EIS process!

Sincerely,

GROUP 70 INTERNATIONAL, INC.



Jeffrey H. Overton, AICP  
Vice President



November 8, 2007

Ms. Laverne Higa  
Director and Chief Engineer  
City and County of Honolulu  
Department of Facility Maintenance  
1000 Uluohia Street, Suite 215  
Kapolei, HI 96707

**SUBJECT: Makaiwa Hills – Responses to Comments on the Draft Environmental Impact Statement**

Dear Ms. Higa,

Thank you for your comment letter concerning the Makaiwa Hills Draft Environmental Impact Statement. The following statements are offered in response to your comments.

We believe your request to prepare a maintenance analysis that anticipates the labor, equipment and materials needed to maintain the proposed infrastructure to a recognized standard is premature at this point. Presently, it is not known what infrastructure will be designed, approved, constructed or accepted by the City over the course of the build-out of the project which is estimated to take over ten years. The project developer stands ready to closely coordinate with your agency on this matter throughout the design and construction process.

There are options for roadway crossings of the several gulches and gullies that traverse the project area; these options are highly dependent on the specific topographic and geologic conditions at each of the crossing locations. In general, the land planning for Makaiwa Hills has balanced the need to minimize major topographic crossings with the desire to create connectivity throughout the project. Preliminarily, the landowners are proposing roadway fill and culvert designs that create a stable roadway base and can help manage gulch runoff conditions. Bridges or other types of spans are options that can be considered if large amounts of culvert fill material would be required; however, constructing bridges would add substantial additional expenses that may make multiple crossings cost prohibitive. As the project's roadway design progresses to the subdivision and site development approval phases, the landowner will work closely with City agencies on the specific designs of these improvements.

Your comment letter and this response will be included in the Final Environmental Impact Statement. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.



Jeffrey H. Overton, AICP  
Principal, Chief Environmental Planner

DEPARTMENT OF PARKS AND RECREATION  
**CITY AND COUNTY OF HONOLULU**  
KAPOLEI HALE • 1000 ULUOHIA STREET, SUITE 309 • KAPOLEI, HAWAII 96707  
TELEPHONE: (808) 692-5561 • FAX: (808) 692-5131 • INTERNET: www.honolulu.gov



MUFT HANNEKMAN  
MAYOR

April 18, 2007

Mr. Jeffrey H. Overton, AICP  
Vice President  
Group 70 International  
925 Bethel Street, 5<sup>th</sup> Floor  
Honolulu, Hawaii 96813-4307

Dear Mr. Overton:

Subject: Draft Environmental Impact Statement  
Makaiwa Hills, Ewa, Oahu  
TMK: (1) 9-1-15:5 (por), 17; 09-2-03; portions of 2, 5 and 84

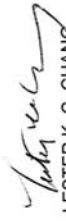
Thank you for the opportunity to review and comment on the Draft Environmental Impact Statement relating to proposed Makaiwa Hills development.

The Department of Parks and Recreation has no comment on the Draft Environmental Impact Statement at this time.

However, we invite Kapolei Property Development, LLC to contact my secretary, Ms. Carolyn Ikehara, at 692-5585 to schedule an appointment with me to discuss the City's desired park and recreation facilities, so that they can be included in the broad project design guidelines to be included in the next phase of project development.

Should you have any questions, please contact Mr. John Reid, Planner, at 692-5454.

Sincerely,

  
LESTER K. C. CHANG  
Director

LKCC:mk  
(202898)



**GROUP 70**  
INTERNATIONAL

Francis S. Oda,  
Arch. D., F.AIA, AICP  
Norman G. Y. Hong, AIA  
Sheryl B. Swannan, AIA, ASD  
Hisashi Hida, AIA  
Roy H. Nhele, AIA, CSI  
James I. Nishimura, AIA  
Stephen H. Yuen, AIA  
Linda C. Miki, AIA  
George I. Aiba, AICP  
Charles Y. Kaneshiro, AIA, LEED  
Jeffrey H. Overton, AICP  
Christine Mendes Rucobias, AICP  
James L. Stone, AIA, LEED

Paul P. Chorney, AIA  
Philip T. Cucchi, CSI, CDT  
Kimberly Evans  
Pete C. Galvez, AIA  
Sabrin Hallin  
Roy A. Inouye, AIA, CSI  
Carr Klaster  
Katherine M. MacNeil, AIA  
Frank B. McCue  
Kawaka Mokuogoe  
Kathryn A. Nam  
Hiren C. Pigo  
Dorina D. Remington  
Kimberly Polkinton, AIA, LEED  
Scott Tsangpan  
Tom Young, AIA  
Ralph E. Robinson, AICP  
OT Counsel

November 8, 2007

Mr. Lester K. Chang  
Director  
City and County of Honolulu  
Department of Parks and Recreation  
1000 Uluohia Street, Suite 309  
Kapolei, HI 96707

**SUBJECT: Makaiwa Hills – Responses to Comments on the Draft Environmental Impact Statement**

Dear Mr. Chang,

Thank you for your comment letter concerning the Makaiwa Hills Draft Environmental Impact Statement. The following statements are offered in response to your comments.

We acknowledge that the Department of Parks and Recreation has no comment at this time.

Pursuant to your invitation, we will schedule an appointment with you to discuss the City's desired Park and Recreation facilities, so that they can be considered in the design guidelines for the project.

Your comment letter and this response will be included in the Final Environmental Impact Statement. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.



Jeffrey H. Overton, AICP  
Principal, Chief Environmental Planner

DEPARTMENT OF PLANNING AND PERMITTING  
**CITY AND COUNTY OF HONOLULU**

650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813  
TELEPHONE: (808) 768-8000 • FAX: (808) 527-5743  
INTERNET: www.honolulu.gov • DEPT. WEB SITE: www.honoluluapp.org



HENRY ENG, FANCP  
DIRECTOR  
DAVID K. TANOUJE  
DEPUTY DIRECTOR

2007/ELOG-802

May 23, 2007

Mr. Steve Kelly  
Makaiwa Hills, LLC  
1001 Kamokila Boulevard, Suite Z50  
Kapolei, Hawaii 96707

Dear Mr. Kelly:

Subject: Draft Environmental Impact Statement (DEIS) for Makaiwa Hills  
Ewa, Oahu, Hawaii, TMKS: 9-1-15: 5 (por.); 9-2-3: portions of 2, 5, and 84

This is in response to your request dated April 8, 2007, asking for comments on the proposed Makaiwa Hills Draft Environmental Impact Statement (DEIS). We have reviewed the subject DEIS and offer the following comments:

- Section 2.2.2.3, Page 2-18, Item 3 – Please correct error: "... Makaiwa Hills will be may include incorporating ..."
- Section 2.2.5, Page 2-25 - The DEIS indicates that a "Town Center/Main Street ... would provide small-scale shopping and service amenities at a centralized location ....". The final EIS should indicate the type of stores, shops, service establishments conceptually being considered.
- Section 2.3, Page 2-32 – Reference is made to Figure 2.4 as depicting preliminary zoning districts being considered. Figure 2.4 is a rendering showing perspective view of the future Makaiwa Hills community. Figure 2.6 identifies preliminary zoning. Please correct reference to Figure 2.6.
- Table 2-3, Page 2-34, correctly states the intent of "BMX-3 ..... is to support the concept of providing residences in very close proximity to employment and retail opportunities." Why are no residential units proposed? The FEIS should discuss why residential units are not included in the proposed BMX-3 zone and/or why BMX-3 is being sought and not B-2 Community Business District.
- Table 2-3, Page 2-34 - Please indicate sub-totals for zoning category groups in Table 2-3 to provide clarity.

Mr. Steve Kelly  
Makaiwa Hills, LLC  
May 23, 2007  
Page 2

- Section 4.1.1.2: The department recommends that roadway culverts that cross over gullies be avoided if a significant amount of fill is required. The FEIS should discuss alternative designs.
- Section 4.1.4.3: Grading and erosion control plans shall be prepared in accordance with Chapter 14 of the ROH and the "Rules Relating to Soil Erosion Standards and Guidelines".
- Section 4.1.5.3: States that additional BMP, if required, may be recommended by the project's soils engineers. BMP are normally recommended by the civil and not soils/geotechnical engineers. Please clarify in the FEIS who will be making these recommendations.
- Section 4.1.6: a) What was the basis for concluding that the areas to be developed "are not subject to rockfall and slope stability issues..."? Section 2.1.4 states that the "...vast majority of the project area (70-80%) is classified as stony steep lands. The soil cover is generally thin with heavily weathered boulder-cobble rubble." Also, Section 4.1.3 states that the project may include removal of unsuitable soils. Furthermore, the second paragraph of Section 4.1.5.3 states that a "More detailed soils analyses, including soil stability, will be performed as planning of the project proceeds." If a qualified licensed geotechnical engineer did not perform a site reconnaissance, then isn't the conclusion premature? b) The statement "...the presently undeveloped gulches do not exhibit evidence of significant geotechnical hazard" seems inconsistent with Section 2.1.4, which states that "The gulch slopes have extensive exposed rock, boulders and loose rock material on the slopes."
- Section 4.1.7: According to the 1997 UBC, Oahu is located in Seismic Zone 2A.
- Section 4.2.1.2 states that the closest residential structure to the Waimanalo Gulch sanitary landfill will be located several hundred feet away. The statement should be revised to state that the residential structures are planned a minimum of 500 to 1,500 feet away from the waste facility. Section 21-5.680 of the Land Use Ordinance states:  

"No waste disposal and processing facility shall be located within 1,500 feet of any zoning lot in a country, residential, apartment, apartment mixed use or resort district. When it can be determined that potential impacts will be adequately mitigated due to prevailing winds, terrain, technology or similar considerations, this distance may be reduced, provided that at no time shall the distance be less than 500 feet."

- Section 4.2.8, 4th paragraph: Delete Appendix E and replace with Appendix C.
- Section 4.5.1.1, Page 4-110 - Other Planned Developments near the Project Area. There is no mention of UH West Oahu, Ho'opi'i or DHHL housing and commercial development or any cumulative impacts expected from these developments. These should be noted and discussed as necessary.
- Section 9.0, Group 70's April 5, 2007 letter to DPP: Compliance with Section II of the "Rules Relating to Storm Drainage Standards" (RRSDS) was not addressed. The response addressed construction related BMPs. This should not be confused with permanent post-construction BMP requirements pursuant to Section II of the RRSDS. A drainage master plan will be required to address the storm water quality section of the RRSDS. The FEIS should describe how Section II of the RRSDS will be satisfied.
- The City requires an onsite sewer master plan and an offsite master plan for the Makaiwa Hills subdivision. The FEIS should disclose when master plans will be prepared.
- An updated TIAR should be prepared about every two (2) years, or in increments of approximately 1,000 dwelling units. The TIAR should also determine the need and estimated lengths of left and right turn auxiliary lanes along all the major roadways and traffic signal warrants. Traffic signals should be installed by the applicant, when warranted.
- **APPENDIX B (Commercial Market Analysis):**  
The market analysis, consistently refers only to the project's "commercial site" or "trade area" in a generic sense without any differentiation between the "Town Center/Main Street" and the "Neighborhood Shopping Center", which appear to be approximately 0.75 mile apart, separated by the school and a residential area. While the market analysis noted the potential for a medical/office facility and estimated demand for various retail uses, no assessment or comparison was made of the Neighborhood Shopping Center vs. Town Center in terms of their respective functionality within the community or appropriate tenant mix.

• **APPENDIX C (Preliminary Engineering Report):**

**Section III – Drainage Criteria/Standards:**

- For consistency, use 50-yr instead of 1 in 50, etc.
- Table 7 (Preliminary Hydraulic Structure Sizing: Type, Size and Shape). The development must follow the "Rules Relating to Storm Drainage Standards" to include "freeboard requirements". The column for Q100/Qcap does not have significant value since the selection of the

drainage structure for crossing must meet capacity and freeboard requirements as a minimum.

**Section IV – Grading and Soil Erosion:**

- The R factor used to calculate soil erosion potential is not conservative and reflects the minimum average rainfall factor. This calculation should use the maximum or average rainfall factor.
- State the length and slope for the existing and developed LS factor for area. Also, Table 10 does not show how LS is developed for each area. The table should be revised based on the overall worst LS for each area.
- The existing factor C is the same for each area. Please state what was C factor based on. Was the C factor based on Table 20 of the City's "Rules Relating to Soil Erosion Standards and Guidelines"?
- The final EIS should state that these calculations take into account no erosion control practices.
- The DEIS and technical appendices state that plans may "include limiting site grading to increments of not more than 15 contiguous acres at a time." Please note that the ROH states that not more than 15 "consecutive" acres may be graded at any time.

**Section VIII – Wastewater:**

- There remains a reference to an on-site treatment plant as an alternative. The State Department of Health EISPN comment to Group 70 confirms that the project will connect to the City's sewer system. Please clarify this contradictory statement in the FEIS.
- Under projected wastewater flows, average peak flows are designated but peak flows are not provided. The Final Environmental Impact Statement needs to provide the peak flow information.

• **APPENDIX D (Traffic Assessment Report):**

- A comprehensive transportation master plan (TMP), which incorporates various modes of travel, including transit, vehicle, bicycle, and pedestrian should be developed. The plan should be designed to establish and promote a safe and efficient balance between the various travel modes, such as grade separated bicycle and pedestrian facilities, convenient and centrally located transit stops and terminals, traffic calming devices and other methods, as necessary. The TMP should incorporate traffic demand management (TDM) strategies in an effort to reduce the overall vehicular trip demand in and around the project site. The TDM strategies could include opening the commercial properties during the early stages of the development in an effort to increase internal capture within the site.

Mr. Steve Kelly  
Makaiwa Hills, LLC  
May 23, 2007  
Page 5

- A roadway master plan, incorporating "smart growth" and "connectivity" concepts, should be developed in concert with the Department of Planning and Permitting and the Department of Transportation Services. The roadway master plan should be based on a Traffic Impact Analysis Report (TIAR) which establishes projected traffic volumes along each major segment of roadway. This should be used to generally determine and define the hierarchy of streets, as it relates to a typical "grid" pattern of roadways to the greatest extent practical, given the existing terrain. The roadway sections should follow the City's Subdivision Rules and Regulations, unless a request for modification of the roadway standards has been approved.

Therefore, the final EIS should expand on how the above considerations will be addressed through project siting and other mitigative measures. If you have any questions, please call Eugene Takahashi of my staff at 768-8035.

Very truly yours,

  
Henry Eng, FAICP, Director  
Department of Planning and Permitting

HE:js

cc: Mr. Jeffrey H. Overton, AICP, Group 70 International  
Office of Environmental Quality Control

p:\divr\function\lea-eis\2007\2007eibg802.doc



November 8, 2007

Mr. Henry Eng, FAICP  
Director

City and County of Honolulu  
Department of Planning and Permitting  
650 South King Street, 7<sup>th</sup> Floor  
Honolulu, HI 96813

Francis S. Oda,  
Arch. D., F.A.A., AICP  
Norman G. Y. Hong, AIA  
Sheryl B. Samaan, AIA, ASD  
Heidi Hida, AIA

Roy H. Nhele, AIA, CSI  
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Pete C. Galvez, AIA  
Sabrin Halim

Roy A. Itooye, AIA, CSI  
Carm Klester  
Katherine M. MacNeil, AIA  
Frank B. McCue

Kawika Mokuogoe  
Kathryn A. Nam  
Hiram C. Pigo  
Dorena D. Pennington  
Kimberly Polkithom, AIA, LEED  
Scott Tangonan  
Tom Young, AIA

Ralph E. Rushmore, AICP  
OT Counsel

**SUBJECT: Makaiwa Hills – Responses to Comments on the Draft Environmental Impact Statement**

Dear Mr. Eng,

Thank you for providing comments on the Draft EIS prepared for Makaiwa Hills. The following responses have been prepared to your comment letter dated May 23, 2007. We also appreciate your identification of several corrections that we have made in the Final EIS.

1. **Town Center/Main Street.** The Town Center or Main Street area will contain stores, shops, or service establishments consistent with the uses allowed under AMX-2 zoning that reinforce the concept of a vibrant walkable small town center. The types of businesses described in Section 2.2.5 of the Final EIS include banks, coffee shops, juice bars, neighborhood grocery stores, convenience/sundry stores and small service shops. As the population of Makaiwa Hills grows, the numbers and types of small businesses will expand to meet the community's needs as a large percentage of the units in the project are planned within walking distance from this area. The major grocery and other services will be available at the neighborhood commercial center in the project, also within walking distance from the denser residential neighborhoods.

2. **Intent of BMX-3 District.** The proposed BMX-3 zoning for the Neighborhood Commercial Center at Makaiwa Hills is intended to provide for employment and retail opportunities in close proximity to or together with multi-family residential uses. Based on recommendations from DPP planners in our discussions about this commercial area in the project, the landowner is considering various concepts that could include residential units at this site. We feel there is a strong potential to provide an innovative residential product at this location that incorporates well with the community serving commercial uses that will predominate. This is consistent with the mix of uses planned along the project's entire makai corridor.

3. **Preliminary Zoning Districts.** Subtotals for the preliminary zoning areas are included in the Final EIS per your request.

4. Roadway Culverts. There are options for roadway crossings of the several gulches and gullies that traverse the project area; these options are highly dependent on the specific topographic and geologic conditions at each of the crossing locations. In general, the land planning for Makaiwa Hills has balanced the need to minimize major topographic crossings with the desire to create connectivity throughout the project. Preliminarily, the landowners are proposing roadway fill and culvert designs that create a stable roadway base and can help manage gulch runoff conditions. Bridges or other types of spans are options that can be considered if large amounts of culvert fill material would be required; however, constructing bridges would add substantial additional expenses that may make multiple crossings cost prohibitive and therefore limit connectivity in the project. As the project's roadway design progresses to the subdivision and site development approval phases, the landowner will work closely with DPP on the specific designs of these improvements.

5. Grading and Erosion Controls. The project grading and erosion control plan will be prepared in accordance with Chapter 14 of the Revised Ordinances of Honolulu (ROH) and "Rules Relating to Soil Erosion Standards and Guidelines."

6. Best Management Practices (BMP). The project civil engineers will be responsible for the development of BMP as part of the specific development and construction plans for the project. This will include consultation with soils engineers throughout the formulation of the most effective site development BMP.

7. Rockfall and Slope Stability. An important aspect of the initial land planning for Makaiwa Hills was locating residential areas, roadways and activity areas away from steep slopes to avoid the slope safety hazards and concerns other O'ahu communities face. In addition, new cut and fill slopes will be engineered to avoid creating rockfall hazards. In response to your comment on slope stability issues, a licensed geotechnical engineer has performed a site reconnaissance and their report is enclosed as a new Appendix to the Final EIS. We expect that detailed soils and slope engineering analyses will be a part of the subdivision process.

8. Seismic Zone. Thank you for providing the correct designation as Seismic Zone 2A.

9. Landfill Proximity. Discussions with DPP Zoning Regulations and Permits Branch staff have indicated that Section 21-5.680 of the LUO related to landfill siting does not apply in reverse to the siting of residential developments. We feel there is more than an appropriate buffer planned between closed areas of the landfill and future residential units by health, safety, aesthetic and marketability standards.

The planned residential area closest to the Waimānalo Gulch Sanitary Landfill was located after thorough site reconnaissance and with the confirmation that these elevations of the landfill are no longer in use, have been capped and in the process of being re-naturalized. There are no residential uses planned for the northwest portion of the project area nearest the landfill's currently active or potential expansion areas.

10. East Kapaolei Projects. Section 4.5.1.1, describing other planned developments near the project area, is expanded in the Final EIS based upon the best available information since projects in the area are at varying stages of the proposal, planning and permitting processes. It is therefore difficult to accurately assess the reality of all of the development concepts that have been proposed for the area. We understand that the upcoming 'Ewa Development Plan revision process will help identify and assess the types, appropriateness and sustainability of new or modified developments planned in the region that were not anticipated in the 1997 Development Plan or which have changed in concept substantially since then.

Regional cumulative impacts have been addressed in the Final EIS to the extent necessary to assess Makaiwa Hills' project impacts. For example, the traffic analysis contained in the EIS utilizes regional traffic modeling projections from the O'ahu Metropolitan Planning Organization to gauge traffic emanating from and traveling to the region. Also, future school locations within the region are closely coordinated with the Department of Education. Other infrastructure is also assessed based on regional capacities and the ability of the overall systems to serve the project.

11. Rules Relating to Storm Drainage Standards (RRSDS). We apologize for not addressing this issue in the response to your comment letter for the Notice of Preparation of Draft EIS. The Stormwater Quality section of the Preliminary Engineering Report (PER) (SSFM, October 2007) included in the Final EIS addresses compliance with Section II of the RRSDS through the construction of permanent BMPs.

12. Sewer Master Plan. The final on-site and off-site sewer master plans will be prepared prior to subdivision application to create development parcels. Preliminary regional sewer master planning is being closely coordinated with several County agencies to assess overall development requirements, agency coordination, project costs and scheduling.

13. Traffic Impact Assessment Report (TIAR). The project TIAR(s) will be updated periodically to address the traffic conditions and impacts of the project as the planning and permitting progresses as we anticipate this will be a condition of approval for the project's zone change request. The period for review will follow the pace of build-out for the project, with an update issued for approximately each new increment of 1,000 dwelling units if more than two years have past since the prior study. The planning and design of mitigative traffic lanes and traffic signal warrant studies will be conducted in the project design phase. The owners will participate in constructing mitigation measures to offset project impacts and provide their fair share contributions to traffic improvements as set forth in Chapter 33A ROH, Impact Fees for Traffic and Roadway Improvements in 'Ewa.

14. Commercial Market Analysis. The commercial market study addressed regional demand for commercial space at the proposed project, and did not differentiate between the two commercial areas within the project. The study indicates adequate demand for the range of commercial uses planned at both project areas. More refined



Mr. Henry Eng, FAICP  
DATE  
Page 4 of 5

analysis of the tenant mix at the Neighborhood Shopping Center versus the Town Center will be conducted as the project progresses since this type of analysis is highly dependent on the commercial market conditions at the time of development.

15. Preliminary Engineering Report (PER) - Drainage. The PER has been modified to address the drainage criteria/standards indicated in your comments.

16. PER – Grading and Erosion. The PER has been modified to address the Universal Soil Loss Equation factors indicated in your comments. The project developer will comply with appropriate sections of the ROH, including Section 14-15.1(e), which states "The maximum-sized parcel of land that may be opened for grading or grubbing is 15 acres. Noncontiguous increments may be worked concurrently provided that no single parcel exceeds 15 acres."

17. PER — Wastewater. We have removed the reference to a potential on-site wastewater treatment facility. Peak flow information is now included in the PER.

18. Comprehensive Transportation Master Plan (TMP). At this conceptual level, the Makaiwa Hills circulation system is designed to promote a safe and efficient balance between the various travel modes, such as bicycle and pedestrian facilities, convenient and centrally located transit stops and terminals, traffic calming and other methods. Various Transportation Demand Management (TDM) strategies will be employed to reduce overall vehicular demand in and around the project site. Use of bicycles, walking and coordination with The Bus and the future mass transit stop near the project are important elements in the project's transportation systems. We look forward to working closely with DPP to prepare the TMP as the project's design progresses.

19. Smart Growth and Connectivity. On a regional level, we feel that development in the secondary urban center of Kapolei as defined in the O'ahu General Plan and the 'Ewa Development Plan is quintessential smart growth. Directed growth, within urban growth boundaries and focused around an urban core are all critical aspects of a successful regional smart growth program. The focused density of development within Makaiwa Hills is also indicative of a smart pattern of growth at a project area scale.

The land and roadway planning for Makaiwa Hills has focused on enhancing connectivity internal to the project and with multiple accesses to and from the project. As illustrated in Figure 2.2 of the Final EIS, the conceptual land plan, three project access points are planned including new direct access connections between the project and the existing Makakilo and future Kapolei West communities. The internal roadway system consists of loop collector with multiple accesses to the residential hillside clusters which maximize connectivity given the project's unique hillside conditions. Our discussions with DPP on the project in its planning phases and about the 'Ewa Connectivity Study have assisted with incorporating connectivity into the project's circulation systems.

Mr. Henry Eng, FAICP  
DATE  
Page 5 of 5

Detailed roadway master planning for Makaiwa Hills will be conducted in concert with the DPP and DTS to realize the project's smart growth and connectivity objectives. The street pattern in the community will be refined with a more detailed consideration of the project's phasing, TIAR findings and County roadway and subdivision standards.

We appreciate your detailed comments and look forward to continued dialogue on the project. Your comment letter and this response will be included in the Final EIS. Please contact us if you have additional comments or questions.

Sincerely,

GROUP 70 INTERNATIONAL, INC.



Jeffrey H. Overton, AICP  
Principal, Chief Environmental Planner

HONOLULU FIRE DEPARTMENT  
**CITY AND COUNTY OF HONOLULU**

636 South Street  
Honolulu, Hawaii 96813-5007  
Phone: 808-723-7139 Fax: 808-723-7111 Internet: www.honolulu.gov/hfd



KENNETH G. SILVA  
FIRE CHIEF  
ALVIN K. TOMITA  
DEPUTY FIRE CHIEF

MUJI HANNEMANN  
MAYOR

Mr. Steve Kelly, AICP  
Page 2  
April 18, 2007

3. Submit civil drawings to the HFD for review and approval.

Should you have any questions, please call Battalion Chief Lloyd Rogers of our Fire Prevention Bureau at 723-7151.

Sincerely,

KENNETH G. SILVA  
Fire Chief

KGS/SK:jl

cc: Eugene Takahashi, Department of Planning and Permitting  
Genevieve Salmonson, Office of Environmental Quality Control  
Jeffrey Overton, Group 70 International, Inc. ✓



April 18, 2007

Mr. Steve Kelly, AICP  
Makaiwa Hills, LLC  
1001 Kamokila Boulevard, Suite 250  
Kapolei, Hawaii 96707

Dear Mr. Kelly:

Subject: Draft Environmental Impact Statement

Makaiwa Hills, Ewa, Oahu

Tax Map Keys: 9-1-015: 005 (portion) and 017

9-2-003: Portions of 002, 005, and 084

In response to a letter received from Mr. Jeffrey H. Overton of Group 70 International, Inc. dated April 8, 2007, regarding the above-mentioned project, the Honolulu Fire Department (HFD) reviewed the material provided and requires that the following be complied with:

1. Provide a fire apparatus access road for every facility, building, or portion of a building hereafter constructed or moved into or within the jurisdiction when any portion of the facility or any portion of an exterior wall of the first story of the building is located more than 150 feet (45 720 mm) from a fire apparatus access road as measured by an approved route around the exterior of the building or facility. (1997 Uniform Fire Code, Section 902.2.1.)
2. Provide a water supply, approved by the county, capable of supplying required fire flow for fire protection to all premises upon which facilities or buildings, or portions thereof, are hereafter constructed or moved into or within the county.  
On-site fire hydrants and mains capable of supplying the required fire flow shall be provided when any portion of the facility or building is in excess of the 150 feet (45 720 mm) from a water supply on a fire apparatus access road, as measured by an approved route around the exterior of the facility or building. (1997 Uniform Fire Code, Section 903.2, as amended.)



Francis S. Ode, Arch. D., FAIA, AICP  
 Norman G.Y. Hong, AIA  
 Sheryl B. Solomon, AIA, ASID  
 Hiabahi Hda, AIA  
 Roy H. Nwai, AIA, CSI  
 James I. Nishimoto, AIA  
 Stephen H. Yuan, AIA  
 Linda C. Miki, AIA  
 George I. Alta, AICP  
 Charles Y. Kaneshiro, AIA, LEED  
 Jeffrey H. Overton, AICP  
 Christine Mendez Ruatola, AICP  
 James L. Stone, AIA, LEED

Paul P. Chorney, AIA  
 Philip T. Cucchi, CSI, CDT  
 Kimberly Evans  
 Pats C. Galvez, AIA  
 Suzabin Hallam  
 Roy A. Inouye, AIA, CSI  
 Cami Kozlar  
 Katherine M. Macchelli, AIA  
 Frank B. McCue  
 Kawika Mokuogane  
 Kathryn A. Nam  
 Hiram C. Paipo  
 Donna D. Pennington  
 Kimberly Polkethorn, AIA, LEED  
 Scott Tangonan  
 Tom Young, AIA

Ralph E. Farnsworth, AICP  
 Of Counsel

November 8, 2007

Mr. Kenneth G. Silva  
 Fire Chief  
 City and County of Honolulu  
 Honolulu Fire Department  
 636 South Street  
 Honolulu, HI 96813

**SUBJECT: Makaiwa Hills – Responses to Comments on the Draft Environmental Impact Statement**

Dear Chief Silva,

Thank you for your comment letter concerning the Makaiwa Hills Draft Environmental Impact Statement.

The following are offered in response to your comments:

1. An acceptable fire apparatus access road will be constructed, pursuant to the referenced requirements of the 1997 Uniform Fire Code, Section 902.2.1.
2. A county-approved water supply (including on-site fire hydrants and mains, as required) capable of supplying the required fire flow for fire protection will be provided, pursuant to the requirements of the 1997 Uniform Fire Code, Section 903.2 as amended.
3. Relevant civil and construction drawings will be submitted to the Honolulu Fire Department for review and approval.

Your comment letter and this response will be included in the Final Environmental Impact Statement. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

*Jeffrey H. Overton*

Jeffrey H. Overton, AICP  
 Principal, Chief Environmental Planner

GROUP 70 International, Inc. • Architects • Planners • Interior Design • Building Design • As-built Management • Environmental Services  
 925 Beech Street, 9th Floor • Honolulu, Hawaii 96813-4307 • Ph: (808) 525-5898 • Fax: (808) 525-5874 • www.group70inc.com • mail@group70inc.com

POLICE DEPARTMENT  
 CITY AND COUNTY OF HONOLULU  
 801 SOUTH BERETANIA STREET - HONOLULU, HAWAII 96813  
 TELEPHONE: (808) 528-3111 • INTERNET: www.honolulu.gov



MUFFI HAHNEMANN  
 MAYOR

OUR REFERENCE BS-DK

May 14, 2007

BOISSE P. CORREA  
 CHIEF  
 GLEN B. KAJIYAMA  
 PAUL D. PUTZULU  
 DEPUTY CHIEFS



Mr. Steve Kelly, AICP  
 Makaiwa Hills, LLC  
 1001 Kamokila Boulevard, Suite 250  
 Kapolei, Hawaii 96707

Dear Mr. Kelly:

This is in response to your letter of April 8, 2007, regarding the Draft Environmental Impact Statement for the Makaiwa Hills project in Ewa.

This project will require the Honolulu Police Department (HPD) to add substantial resources to service the area. Additionally, one or two new beats would probably be needed, including 8 to 12 officers along with their vehicles and other equipment.

Page 4-104, Police Protection, states that, "Based on population growth estimates, the County anticipates the need for two additional substations to service the region by 2020. The proposed locations are Ewa Villages and Ko Olina." The HPD is not actively planning for substations at those locations. Additionally, such facilities are not the key element in safeguarding communities. Unlike fire or ambulance services, police officers do not respond to calls from a station but rather from their locations in the field. The critical factor in policing is having sufficient officers in the field. If Makaiwa Hills is built, the HPD will budget for those new positions.

If there are any questions, please call Major Michael Moses of District 8 at 692-4253 or Mr. Brandon Stone of the Executive Office at 529-3644.

Sincerely,

BOISSE P. CORREA  
 Chief of Police

By *John P. Kerr*  
 JOHN P. KERR  
 Assistant Chief of Police  
 Support Services Bureau

cc: OEOC  
 Mr. Eugene Takahashi, DPP  
 Mr. Jeffrey Overton, Group 70  
 International, Inc.

*Serving and Protecting With Aloha*



Francis S. Odeh, Arch. D., FAIA, AICP  
 Norman G.Y. Hong, AIA  
 Sheryl B. Samaan, AIA, ASID  
 Hiwahi Hida, AIA  
 Roy H. Nkei, AIA, CSI  
 James I. Nishimoto, AIA  
 Stephen H. Yuan, AIA  
 Linda C. Niki, AIA  
 George I. Alta, AICP  
 Charles Y. Kaneshiro, AIA, LEED  
 Jeffrey H. Overton, AICP  
 Christine Mendez-Ruizola, AICP  
 James L. Stone, AIA, LEED  
 Paul P. Chorney, AIA  
 Philip T. Cucchi, CSI, CDT  
 Kimberly Evans  
 Peter C. Galvez, AIA  
 Suzbin Halim  
 Roy A. Inouye, AIA, CSI  
 Cami Kozlar  
 Katherine M. MacBeth, AIA  
 Frank B. McCue  
 Kawika Mokuogua  
 Kathryn A. Nam  
 Hiram C. Paipo  
 Donna D. Pennington  
 Kimberly Polkshorn, AIA, LEED  
 Scott Tangonan  
 Tom Young, AIA  
 Ralph E. Fathoms, AICP  
 Of Counsel

November 8, 2007

Mr. Boisse P. Correa  
 Chief of Police  
 City and County of Honolulu  
 Police Department  
 801 S. Beretania Street  
 Honolulu, HI 96813

**SUBJECT: Makaiwa Hills – Responses to Comments on the Draft Environmental Impact Statement**

Dear Chief Correa,

Thank you for your comment letter concerning the Makaiwa Hills Draft Environmental Impact Statement (EIS). The following statements are offered in response to your comments.

We acknowledge your comments about needing to add resources to service the proposed development, including one or two new police beats with 6 to 12 officers along with their vehicles and other equipment. We understand that when the development is built, Honolulu Police Department (HPD) will budget for these new positions.

Additionally, we understand that HPD is not actively planning for substations at 'Ewa Villages and Ko 'Olina as indicated in the Makaiwa Hills DEIS, since the critical factor in policing is having officers in the field, not in a station. Accordingly, we will make this change in the Final EIS for the project.

Your comment letter and this response will be included in the Final Environmental Impact Statement. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP  
 Principal, Chief Environmental Planner



May 22, 2007

Mr. Steve Kelly, AICP  
 Makaiwa Hills, LLC  
 1001 Kamokila Blvd., Suite 250  
 Kapolei, HI 96707

Re: Comments on the Draft Environmental Impact Statement  
 Makaiwa Hills

Thank you for the opportunity to provide the attached comments on the Draft Environmental Impact Statement for the development of Makaiwa Hills. I am writing on behalf of the members of the Ko Olina Community Association, Inc. ("KOCA"), which is comprised of all owners within the Ko Olina Resort & Marina (the "Resort"). As you are aware, the Resort sits directly adjacent and makai of Makaiwa Hills and will be significantly impacted by the development. As members of a developing resort, we appreciate and encourage the continued development of the West Oahu region. Furthermore, we are fully aware of the multitude of issues surrounding any new development within the region. Given the amount of currently zoned development in the pipeline, new zonings must be balanced with the infrastructure and daily lifestyle affecting the region.

While the bulk of our attached comments concern major infrastructure issues (transportation, drainage, wastewater, etc.), our concerns also encompass the development of Kapolei as a true second city, the allocation of non-residential development outside of the Kapolei's urban core, and the importance of affordable housing for the job markets and economy being created by the City of Kapolei and the Resort.

We also recognize the need to expand the examination of impacts beyond the project's borders. Specifically, the effects of this project must be examined in conjunction with other rezonings and developments planned within the region. Given the continued growth planning for West Oahu, a review of this project (or any other regional project) within today's environment would need to include an examination that considers the cumulative impact on the West Oahu region of the various projects being proposed.

As a major development player in the region, we look forward to working with all area landowners, the City and the State, towards the future of West Oahu. Should you have any questions regarding the concerns raised in the attachment, please do not hesitate to contact me. We look forward to hearing from you on these issues.

Very truly yours,

Ko Olina Community Association, Inc.

Ken Williams  
 Vice President - Resort Operations

Copy to: Eugene Takahashi, Dept. of Planning & Permitting  
 Jeffrey Overton, Group 70





November 8, 2007

Mr. Ken Williams  
Vice President – Resort Operations  
Ko ‘Olina Resort and Marina  
92-1480 Aliimui Drive  
Kapolei, HI 96707



Francis S. Oda,  
Arch. D., FAIA, AICP  
Norman G.Y. Hong, AIA  
Shery B. Soaman, AIA, ASID  
Hitoshi Hida, AIA  
Roy H. Helms, AIA, CSI  
James I. Nishimura, AIA  
Stephen H. Yuan, AIA  
Linda C. Mak, AIA  
George I. Aita, AICP  
Charles Y. Kaneshiro, AIA, LEED  
Jeffrey H. Overton, AICP  
Christine Mendes Florobis, AICP  
James L. Stone, AIA, LEED

Paul P. Cheney, AIA  
Philip T. Cucola, CSI, CDT  
Keremey Evans  
Pete C. Galvez, AIA  
Sulain Halim  
Roy A. Inouye, AIA, CSI  
Cami Krater  
Kathlene M. Mackell, AIA  
Frank B. McCue  
Kawika Molelagua  
Kathryn A. Nam  
Hiram C. Pajo  
Dorina D. Pennington  
Kimberly Polakom, AIA, LEED  
Scott Tongonan  
Tom Young, AIA  
Ralph E. Puchner, AICP  
D. Cusnell

**SUBJECT: Makaiwa Hills – Responses to Comments on the Draft Environmental Impact Statement**

Dear Mr. Williams,

Thank you for providing comments on the Draft EIS prepared for Makaiwa Hills. We are particularly sensitive to the concerns of our neighbors at Ko ‘Olina Resort & Marina, Honokai Hale, Nanikai Gardens and Makakilo. The following responses have been prepared in response to your comments.

1. **Traffic.** Makaiwa Hills, LCC will comply with the conditions of the 1993 Land Use Commission requirements for transportation management. We will include this discussion in the Final EIS Section 4.2.2.

As we coordinated with DPP on the ‘Ewa Connectivity Study, the traffic planning the planning for Makaiwa Hills incorporates issues such as inter-neighborhood connectors, and community pedestrian and bicycle pathways and. Makaiwa Hills is designed to promote a safe and efficient balance between the various travel modes, such as bicycle and pedestrian facilities, convenient and centrally located transit stops and terminals, traffic calming and other methods. Various Transportation Demand Management (TDM) strategies will be employed to reduce overall vehicular demand in and around the project site. Use of bicycles, walking and coordination with The Bus are integrated with the Master Plan. Of note, Makaiwa Hills will be a pedestrian-friendly and bicycle-friendly community, with ample pathway systems integrated with the landscape and roadway network to encourage non-vehicular travel. The project will be linked with the Kapolei terminus of the locally-preferred alignment of the new mass transit route.

Regional traffic impacts of the project are addressed in the Traffic Impact Assessment Report, including specific analysis of the Honokai Hale, Nanikai Gardens and Ko ‘Olina connections with Farrington Highway. The owners will contribute funds to the roadway system in the vicinity of Makaiwa Hills on a fair share basis, as set forth in Chapter 33A, ROH and to mitigate project impact. There is no current plan for connection of the project to the Ko ‘Olina Interchange with Farrington Highway.

2. **Regional Infrastructure.** The project will provide its fair share of new infrastructure for roadways, drainage, water supply and wastewater management. A



The following are our comments on the Makaiwa Hills DEIS:

- Traffic:**  
The conditions of the Land Use Commission’s 1993 Makaiwa Hills Findings of Fact, Conclusions of Law, and Decision and Order (D&O) include transportation management (monitoring traffic and alternative transportation options) requirements. As this is not addressed in the DEIS, additional details should be included in Section 4.2.2 (Traffic). Additional questions concerning traffic would include: How do project roads address DPP’s Ewa Connectivity Study? What about the traffic impact on the region, especially as to Honokai Hale, Ko Olina and Waianae residents? How will the project contribute to regional traffic solutions? Will Makaiwa Hills be part of the “Ewa Highway Master Plan Impact Fee”? Will the Makaiwa project have any additional access points onto Farrington Highway in the vicinity of Honokai Hale and will there be any impact to Ko Olina’s Interchange ramp?
- Infrastructure:**
- Drainage:**  
Please specify what storm events the drainage improvements are designed for and whether the project’s storm water will drain into Ko Olina’s drainage system and marina? Will Makaiwa pay the cost to dredge the built-up siltation in the marina as needed? Will Makaiwa maintain the drainage culverts and be responsible for any water damage caused by its runoff? Need to address quality and quantity of discharge and retention and detention plans along with impacts. Will there be other drainage intrusions on Ko Olina?
- Wastewater (Sewer):**  
The text and Fig. 4.15 show Makaiwa Hills connecting to the Ko Olina Interceptor Sewer. Makaiwa needs to ensure that there is sufficient capacity for the project after Ko Olina’s needs are satisfied.
- Schools:**  
The D&O conditions require pro-rata contributions to school facilities serving the project area. The DEIS mentions that Makaiwa Hills will provide the location for a public elementary school. Is there any proposal to accommodate middle school and high school students generated by the project? As Makaiwa Hills grows, schools and access to schools will become an even more important issue for their residents and neighboring communities that are impacted by Makaiwa Hills.
- Land Use:**  
What type of commercial center is envisioned for the BMX-3 site? Why is more intense commercial use being proposed in light of the significant amount of already commercial zoned properties located in the nearby City of Kapolei? BMX-3 is usually reserved for an urban business mixed use area such as downtown Honolulu or the City of Kapolei, should B-2 zoning be considered for this area?
- Adjacent Industrial Facilities:**  
The D&O conditions require notification of prospective buyers of the presence of the adjacent landfill and HECO plant. Does Makaiwa Hills plan to do anything to overcome the negative effects of the neighboring landfill site?

Mr. Ken Williams  
DATE  
Page 2 of 3

comprehensive regional approach is being followed to address the infrastructure requirements with the respective State and County agencies.

The project is being designed to avoid the creation of adverse runoff conditions. On-site drainage controls will manage the quantity and quality of stormwater runoff from the site. For specific on-site drainage improvements, the project will satisfy the City and County of Honolulu rules and requirements for drainage system design at Makaiwa Hills. The on-site drainage culverts will be managed as part of the project's maintenance program. Refer to the Preliminary Engineering Report for more detailed information on the specific Best Management Practices for storm runoff.

Consideration has been given to the future development of the Makaiwa Hills site in the planning and construction of downstream drainage facilities. Drainage improvements in Ko 'Olina and Kapolei West have been designed and constructed to accommodate peak runoff from the developed Makaiwa Hills project as required by City and County drainage standards. Accordingly, these and future drainage facilities downstream of Kapolei West are expected to reduce potential downstream flooding impacts. Therefore, impacts on developments downstream of the Makaiwa Hills site are not expected to be adverse since the drainage systems have been sized accordingly. A drainage master plan for the project will be prepared and submitted to the City and County Department of Planning and Permitting for review and approval.

The development of the project is addressed in the capacity of the future Ko 'Olina Relief Interceptor Sewer and an improvement project planned for the Makakilo Interceptor Sewer.

3. Schools. Discussions with the Department of Education have resulted in the decision for the developer to provide land for a new middle school within the project area, in addition to the elementary school already planned within the development. The DOE believes other existing or planned high schools will suffice for the expected student load from this project.

4. Land Use. The proposed BMX-3 zoning for the Neighborhood Commercial Center at Makaiwa Hills is intended to provide for employment and retail opportunities in close proximity to or together with multi-family residential uses. Based on recommendations from DPP planners in our discussions about the project about this commercial location, the landowner is considering various concepts that could include residential units at this site. We feel there is a strong potential to provide an innovative residential product at this location that incorporates well with the community serving commercial uses that will predominate. BMX-3 is the lowest density zoning option available for business and residential mixed uses. This is consistent with the mix of uses planned along the project's entire makai corridor.

5. Industrial Facilities. The owners will notify prospective buyers of the presence of the adjacent landfill and the HECO plant. The scheduled 2008 closure of the

Mr. Ken Williams  
DATE  
Page 3 of 3

Waimānalo Gulch landfill would precede the development and occupancy of Makaiwa Hills. Should the City decide that the landfill will be expanded in the future to maka expansion cells, distance, topography, vegetation and direction will all work to mitigate impacts from landfill operations. All closed portions of the landfill will be capped and landscaped to mitigate negative effects on the neighbors.

We appreciate your detailed comments and look forward to continued dialogue on the project. Your comment letter and this response will be included in the Final EIS. Please contact us if you have additional comments or questions.

Sincerely,

GROUP 70 INTERNATIONAL, INC.



Jeffrey H. Overton, AICP  
Principal, Chief Environmental Planner

Mr. Steve Kelly, AICP  
Makaiwa Hills LLC  
May 22, 2007  
Page 2 of 3



**RALPH F. HARRIS, PRESIDENT**  
BOARD OF DIRECTORS  
KO OLINA FAIRWAYS ASSOCIATION OF APARTMENT OWNERS  
92-1527-H Aliimui Drive  
Kapolei, Hawaii 96707-2232

Phone: (808) 679-0085  
Fax: (808) 679-0086

May 22, 2007

Mr. Steve Kelly, AICP  
Makaiwa Hills, LLC  
1001 Kamokila Boulevard, Suite 250  
Kapolei, HI 96707

RE: Comments on the Draft Environmental Impact Statement (DEIS)

Dated: March 27, 2007

Title of Project: *Makaiwa Hills*

Location: *(Next to Waimanalo Dump)* Ewa, Island of Oahu

Tax map Key Nos: (1) 9-1-15: 5 (por), 17; 9-2-3; portion of 2, 5 & 84

Dear Mr. Kelly:

Thank you for the electronic copy of the Draft Environmental Impact Statement (DEIS) for the Makaiwa Hills project. For some reason the "Ko Olina Fairways" is not on your distribution list.

This letter is assemblage of comments we received from homeowners and members of the Board of Directors referring to the Makaiwa Hills draft DEIS. This letter represents a majority of the opinion in our association and we have encouraged individuals to voice their support or concerns directly if they so desire. Ko Olina Fairways has 280 townhomes and we are located at the East end of Aliimui Drive. Our Association is a member of the Ko Olina Community Association.

We acknowledge the proposed development of lands near or abutting the Resort as long as the developments complement each other as conceived in the original master planning by the former Trustees.

Also, Ko Olina Fairways anticipates the development of additional resort quality golf courses in or near our abutting lands. The proposed Kapolei West plan did not meet a standard promoted by Campbell Estate to complement the Resort and we understand that is being revisited by the successor entities. At Makaiwa Hills we now see that the golf course has been removed from the original plan. This departure from the original stewardship of the Campbell Plan changes the quality of the end product. These changes also affect the quality of the Resort homeowner experience.

Most pressing comments are noted below:

- 1. RESIDENTIAL HOUSING- APPROVED vs. PLANNED:** Without exception the overwhelming comment we heard was that there is already close to 40,000 units zoned and ready for development between Ko Olina Resort and Waipahu. Those "approved" for development already will impact many of the same systems that Makaiwa will impact. See the article posted in the *Honolulu Advertiser* dated September 19<sup>th</sup> 2006 *60,000 new homes planned for Oahu. (Copy included)*
- 2. Infrastructure TRAFFIC:** All residents at the Fairways are concerned about the impact of traffic on the community and the additional burden that will result from the proposed project. We have traffic nightmares as the current plan is in play and the issues have not been resolved at Kapolei. Adding 4,100 additional residential units at Makaiwa Hills will add additional 8,000-10,000 thousand cars to the stressed streets. Today the traffic to Honolulu frequently backs up in the morning to Kunia Road. The addition of traffic signals on Farrington Highway is unclear but noted and there may be a new signal at the location of the intersection of road "P" and Farrington. Farrington has two existing traffic signals fronting Honokai Hale and Nanakai Gardens. The additional signals on the highway will affect traffic flow that is already stressed.
- 3. Infrastructure DRAINAGE:** What will happen to the massive run off that will be created when the mountain side is developed? The current drainage system has seen some major rains and dumped volumes of water into the Ko Olina Marina. The run off comes from the Mauka side of the Resort property. With the proposed development will the lot owners and commercial owners be assess "siltng fees" to offset the impact on the marina dredging obligation? Note that heavy run off from the Waimanalo Dump can be seen after each storm as the dirt silt out through the existing drainage under the Farrington Highway. Will Makaiwa add to this problem?
- 4. Infrastructure SEWER CAPACITY:** Is the developer going to be required to develop additional sewer capacity? With the 40,000 or so units approved for development now in the "pipeline" how can Makaiwa Hills hook up to the system without displacing another developer?
- 5. ZONING AND LAND USE COMPATIBILITY:** Makaiwa Hills literally looks down directly into the City's existing municipal dump to the West! We think the City has made a mistake in continuing the Landfill operation as that use is not compatible with the zoning at Ko Olina or a proposed change in zoning for Makaiwa Hills? Also, as noted in unresolved issues, Makaiwa Gulch is listed as an Alternate Site under consideration for a Municipal Sanitary Landfill. Although the City promised to close the Waimanalo Gulch Landfill (Dump) in May 2008, the City & County of Honolulu does not appear to have a plan in place and delays

Mr. Steve Kelly, AICP  
Makaiva Hills LLC  
May 22, 2007  
Page 3 of 3

may persist. The draft assumes that the City has made a final decision on the Landfill and we believe this incorrect and needs to be corrected.

6. **The proposed commercial along Farrington Highway** is in the wrong place and should be placed closer to the Eastern or Kapolei side of the project. The draft plan shows that traffic will be attracted to the subdivision rather than the Second City or the new regional mall.

Thank you for including our comments in the review of the Draft EIS. Should you have any questions please contact me.

Sincerely,  
AOAO Ko Olina Fairways



Ralph F. Harris, President

Enclosures: **Honolulu Advertiser Article dated September 19, 2006 (60,000 new homes planned for Oahu)**

cc: The Office of Environmental Quality Control

Attention: Mr. Eugene Takahashi  
City & County of Honolulu  
650 S. King Street, 7<sup>th</sup> Floor  
Honolulu, Hawaii 96813

Group 70 International, Inc.

Attention: Mr. Jeffrey H. Overton, AICP  
925 Bethel Street, 5<sup>th</sup> Floor  
Honolulu, HI 96813

Ko Olina Community Association (KOCA)

Attention: Ken Williams, General Manager  
92-480 Aliiui Drive  
Kapolei, Hawaii 96707

Mrs. Marjorie Collier, Resident Manager

Ko Olina Fairways

92-1535-A Aliiui Drive

Kapolei, HI 96707



Posted on: Tuesday, September 19, 2006

## 60,000 new homes planned for O'ahu

Do you think 60,000 new homes on O'ahu in the next 20 years is too much, too little or just right? Voice your opinion in our forum.

By Andrew Gomes  
Advertiser Staff Writer

Developers, encouraged by strong housing prices, plan to build roughly 60,000 new homes on O'ahu over the next two decades, according to a city survey and Advertiser estimates.

The expansion — adding the equivalent of a new Milliani, Hawai'i Kai, Wahiawa, Kailua and Kane'ohe combined — comes with benefits and drawbacks. It's good for the economy, jobs and families pursuing the American Dream of homeownership. But it's often bad for open spaces, commuters frustrated by increasingly congested traffic and children attending overcrowded schools.

"Are we to become like Los Angeles?" asked Hank Higuchi, a Pearl City resident of 56 years. "I really can't see how our infrastructure can handle it."

The projects could mean significant impacts on O'ahu residents already facing congested freeways, crowded schools and rising fees for infrastructure such as sewer lines.

Whether developers will be able to follow through on their plans depends on market conditions, but the prospect of so many new homes is jarring to many.

Kathleen Kaiser, a longtime resident who has owned a condominium in Waipi'o Gentry since 1998, is dejected by residential sprawl into more of Central and Leeward O'ahu where city planners have directed urban growth.

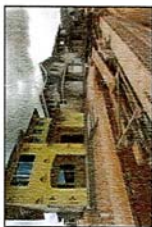
"It does not work on an island with a finite availability of land," she said. "I believe we are now at the tipping point of overdevelopment."

Still, as families grow, so do housing needs, especially for affordable housing that the city mandates for many new communities. There are enough people who support the growth and enough jobs dependent on it that limiting expansion is not considered an option by most lawmakers.

"You cannot stop growth," said state Rep. Michael Kahikina, D-44th (Nanakuli, Honokai Hale) House Housing Committee chairman. "People are still going to make babies."

Kahikina said he wants to see more workforce housing and smart-growth projects designed to minimize traffic increases, but controls on building do not make sense.

Whether people favor or oppose housing growth, the marketplace and regulatory constraints will largely dictate how many homes are built and how fast.



These homes on Kale'e Street at Haseko Hawaii's Ocean Pointe are nearing completion and are part of the unprecedented housing expansion cycle O'ahu has experienced over the past few years.

GREGORY YAMAMOTO | The Honolulu Advertiser

### HERE'S HOW TO GET INVOLVED

To get involved with the Hawai'i 2050 Sustainability Task Force, which is holding community meetings, go to [hawaii2050.org](http://hawaii2050.org) or call (808) 585-7931, ext. 101.



The new Capitol Place condominium in Downtown Honolulu is taking shape.

BRUCE ASATO | The Honolulu Advertiser



**STRONG DEMAND**

Over the past several years, O'ahu experienced an unprecedented housing expansion cycle with stratospheric price increases and sustained demand that recently has slowed but remains relatively strong.

The market, in turn, spurred developers to rekindle stalled plans, speed up construction of ongoing projects and propose a slate of new communities.

These plans have pumped up the development pipeline enough to potentially spew a flood of new residences throughout urban, suburban and rural communities.

Most of the development is concentrated among urban Ho-nolulu high-rises and massive master-planned communities of detached homes and townhomes in Central and Leeward O'ahu.

Advertiser calculations and city Department of Planning and Permitting's August 2005 survey show that developers could deliver about 5,500 homes both in 2008 and in 2009, after fewer than 4,000 estimated homes this year and next year.

By contrast, an average of 3,430 homes per year were added on O'ahu between 1990 and 2000 — 54 percent of it in Central and Ewa regions, according to the city.

The market may put the brakes on some of that construction. Sales of existing homes have slowed since late last year, in part because rising prices and interest rates are putting homes out of reach for more and more buyers.

Economists forecast that home prices will continue to rise, albeit only slightly, through 2007. If that is true, it follows that demand will continue to decline.

That could deter builders from delivering as many homes as they'd like.

"There's been a tremendous amount of permitting activity (to build homes) in the last few years," said Carl Bonham, a University of Hawaii economist. "Something's not going to get built. I think the peak is here."

Other industry observers also predict that many of the homes slated for delivery in the next few years will be delayed, and that the homebuilding "boom" is over.

**HOMEBUILDING PEAK**

Paul Brewbaker, chief economist for Bank of Hawaii, forecasts a slowdown in home construction starting next year and running through at least 2010.

"We're right at the peak for homebuilding," he said.

Brewbaker noted that the peak — expected to be under 4,000 homes this year — is lower than what it was in almost every year from about 1960 through the mid-1990s.

If the construction does slow, that's not terrible news for residents frustrated about transportation infrastructure and schools failing to keep pace with new subdivisions, and for people dismayed about former sugar cane fields being gobbled up for housing.

One major advantage to rapid new-home construction is that it can lead to lower prices, but the pace of building on O'ahu is not expected to boost supply enough to take pressure off prices in the near term.

Brewbaker notes that even if developers build 5,000 homes a year, it would be the equivalent of a roughly 1 percent increase to supply. "It's next to nothing," he said.

The city's most recent housing growth projection, made last year, is for 1 percent annual growth, or about 3,000 homes a year from 2000 to 2010, and then about 4,000 a year from 2010 to 2030. Updated projections won't be available until later this

year.

Developers typically try to alter production to match demand, so it's difficult to say exactly how many homes will get built.

"I don't think developers are going to push the envelope too hard," said Mike Jones, president of D.R. Horton's local Schuler Division. "We've all been through the bloodbath (when Hawaii's housing market crashed in the early 1990s)."

Large projects dependent on government approvals also can be delayed by the permit process, creating more uncertainty as to whether developer plans will be realized.

Of the nearly 60,000 homes slated for development in the next two decades, at least 25,000 need major government approvals such as zoning changes, including Castle & Cooke's Koa Ridge near Mililani and Schuler's Ho'opi'i on the Ewa Plain.

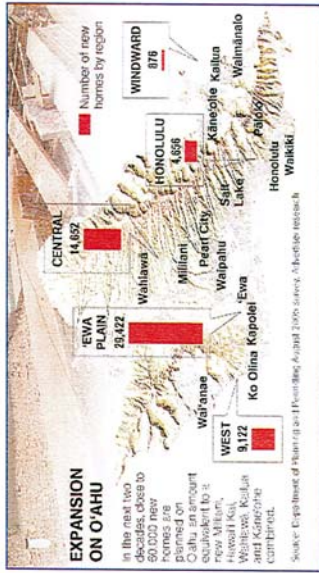
Many of the planned homes, however, are within already authorized and ongoing projects such as Ewa by Gentry, Haseko Hawaii's Ocean Pointe and numerous high-rise condos.

Residents can voice their concerns about development and the planning process by attending community meetings to begin in October.

A task force created last year by the state Legislature plans a series of meetings and studies to examine how much land development, water use and population Hawaii can support. The Hawaii 2050 Sustainability Task Force also plans to address other quality-of-life issues as development increases.

Reach Andrew Gomes at [agomes@honoluluadvertiser.com](mailto:agomes@honoluluadvertiser.com).

...



...



November 8, 2007

Mr. Ralph F. Harris  
President

Ko'Olina Fairways Association of Apartment Owners  
92-1527-H Alimui Drive  
Kapolei, HI 96707-2232

**SUBJECT: Makaiwa Hills – Responses to Comments on the Draft Environmental Impact Statement**

Dear Mr. Harris,

Thank you for your comment letter concerning the Makaiwa Hills Draft Environmental Impact Statement. The following statements are offered in response to your comments.

1. Residential Housing. Makaiwa Hills is included in the most recent news tally of planned new residential units in the 'Ewa region. The project was approved by the State Land Use Commission in 1993 and is included in the County's 'Ewa Development Plan which guides future growth in the region.

2. Traffic. We recognize that the additional vehicles from Makaiwa Hills will add to congestion on Farrington Highway. Specific traffic mitigation is proposed at the new highway intersection at Road D, including a new traffic signal on Farrington Highway. In addition, there are substantial regional infrastructure improvements that will be constructed over the next several years that will work to reduce congestion along the Farrington Highway/H-1 Freeway corridor. These include the Kapolei Interchange to which the developer is making significant contributions and coordinating closely with the State Department of Transportation.

3. Drainage Conditions. The project is being designed to avoid the creation of adverse runoff conditions. On-site drainage controls will manage the quantity and quality of stormwater runoff from the site. For specific on-site drainage improvements, the project will satisfy the City and County of Honolulu rules and requirements for drainage system design at Makaiwa Hills. The on-site drainage culverts will be managed as part of the project's maintenance program. Refer to the Preliminary Engineering Report for more detailed information on the specific Best Management Practices for storm runoff.

Consideration has been given to the future development of the Makaiwa Hills site in the planning and construction of downstream drainage facilities. Drainage improvements in Ko'Olina and Kapolei West have been designed and constructed to accommodate peak runoff from the developed Makaiwa Hills project as required by City and County drainage standards. Accordingly, these and future drainage facilities

Group 70 International, Inc., Architects - Planners - Interior Design - Building Design - Building Design - Building Design - Building Design - Building Design  
925 Bethel Street, 5th Floor - Honolulu, Hawaii 96813-4307 • Tel: (808) 525-5888 • Fax: (808) 525-3874 • www.group70.com • rfh@group70.com

NAME	LOCATION	NUMBER OF UNITS	2007	2008	2009	AFTER 2009	NOTES
California Ave Apartments	Waikanae	47	47				Eligible units
Aloa Ridge	near Waipahoehoe	5,500	500	110		5,000	5,000 to 50,000 persons
Bayview	Waipahoehoe	1,000	100			900	Units are available
Wilson by Castle & Cooke	Waipahoehoe	1,300	130			1,170	Units are available
Whales by Quarry	Waipahoehoe	5,000	500	350		4,350	1,200 to 1,800 persons
Waipahoehoe	Waipahoehoe	38	38				
<b>Central Oahu total: 14,652</b>							
15. Oahu		170				170	Units are available
16. Maui		225	225				
1700 Kalia	Maui	120	120				
Alana Wailea	Maui	305	305				
Maui Kai	Maui	150	150				
Country Club Village	Maui	150	150				
Ford Ranch	Maui	430	430				Multi-Unit Housing
Hale Ahi	Maui	200	200				
Hale Ahi	Maui	200	200				
Hale Ahi	Maui	185	185				
Hale Ahi	Maui	35	35				
Hale Ahi	Maui	706	706				
Maui Kai	Maui	47	47				
Maui Kai	Maui	39	39				
Maui Kai	Maui	107	107				
Maui Kai	Maui	116	116				
Maui Kai	Maui	155	155				
Maui Kai	Maui	212	212				
<b>Maui total: 4,058</b>							
18. Hawaii		1,403	270	113	1,222		Dept of Hawaiian Affairs
19. Kauai		1,850	250	300	1,300		
20. Molokai		1,200	120	328			
21. Oahu		12,000	1,000	1,000	10,000		
22. Maui		300	300	100	100	100	
23. Hawaii		2,600	260	770			
24. Oahu		600	250	250	100		
25. Maui		1,150	115	100	935		
26. Hawaii		2,200	220	300	1,680		
27. Oahu		6,000	600	516	5,484		
28. Maui		1,300	260	218	822		
29. Hawaii		1,200	120	300	780		
30. Oahu		1,800	180	250	1,370		
31. Maui		4,100	410	500	3,190		
32. Hawaii		70	70	74			
33. Oahu		137	56	74			
34. Maui		24	24	100	276		
35. Hawaii		135	135	140	130		
36. Oahu		125	125	55	55		
37. Maui		308	165	143			
<b>West Oahu total: 9,122</b>							
38. Hawaii		13	13	9			
39. Oahu		500	500	40	500		
40. Maui		153	153	40	13		
41. Hawaii		90	90	40	50		
42. Oahu		10	10	40			
43. Maui		11	11				
<b>West Oahu total: 9,272</b>							
<b>TOTAL UNITS</b>		<b>58,728</b>	<b>2,553</b>	<b>5,445</b>	<b>2,508</b>	<b>42,022</b>	

Back

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Mr. Ralph F. Harris, President  
Ko 'Olina Fairways Association of Apartment Owners  
DATE  
Page 2 of 2

downstream of Kapolei West are expected to reduce potential downstream flooding impacts. Therefore, impacts on developments downstream of the Makaiwa Hills site are not expected to be adverse since the drainage systems have been sized accordingly. A drainage master plan for the project will be prepared and submitted to the City and County Department of Planning and Permitting for review and approval.

4. Sewer Capacity. The development of the project is addressed in the capacity of the future Ko 'Olina Relief Interceptor Sewer and an improvement project planned for the Makakilo Interceptor Sewer.

5. Landfill Facilities. The owners will notify prospective buyers of the presence of the adjacent landfill and the HECO plant. The scheduled 2008 closure of the Waimānalo Gulch landfill would precede the development and occupancy of Makaiwa Hills. Should the City decide that the landfill will be expanded in the future to mauka expansion cells, distance, topography, vegetation and direction will all work to mitigate impacts from landfill operations. All closed portions of the landfill will be capped and landscaped to mitigate negative effects on the neighbors.

6. Town Center Commercial. The project includes the creation of a Town Center for the Makaiwa Hills community, with a vibrant ground-level retail storefront environment and upper floor apartment units. The spaces and functions at the Town Center are largely focused on the project residents, rather than providing a draw away from the larger nearby retail centers in the City of Kapolei or the new Kapolei Commons.

Your comment letter and this response will be included in the Final Environmental Impact Statement. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.



Jeffrey H. Overton, AICP  
Principal, Chief Environmental Planner



May 21, 2007

Mr. Steve Kelly, AICP  
Makaiwa Hills, LLC  
1001 Kamokila Boulevard, Suite 250  
Kapolei, HI 96707

RE: Comments on the Draft Environmental Impact Statement (DEIS)

Dated: May 22, 2007

Title of Project: *Makaiwa Hills*

Location: *(Next to Waimanalo Dump)* Ewa, Island of Oahu

Tax map Key Nos: (1) 9-1-15; 5 (por), 17; 9-2-3; portion of 2, 5 & 84

Dear Mr. Kelly:

The DEIS, the DEIS Appendices and the 1993 Findings of Fact, Conclusions of Law, and Decisions and Order, Docket NO. A92-687 continually reference the job base in Kapolei as being capable of providing sufficient residential income for O'ahu residents who will occupy Makaiwa homes. The reiteration of this statement by the State Land Use Commission and the Developer is an attempt to support of the State's goal to provide affordable homes for workers in nearby employment centers, thereby lessening commuter burden on urban Honolulu transportation systems. This statement has also been used in other Ewa Plains Developer EIS's to support the Hawaii Land - Use Master Plan, State Transportation Functional Plan identified below. This statement as fact has never come to fruition, nor will it, as Kapolei continues to be developed primarily as a residential community with little emphasis on job-base development for the type of employment that would support residents to both live and work in the Kapolei area.

**Hawaii Land -Use Master Plan:**

- **Section 226-106 Affordable Housing, section 226-106(8),** Give higher priority to the provision of quality housing that is affordable for Hawaii residents and less to development of housing intended primarily for individuals outside of Hawaii

- **Homeownership, Policy A (2)** Encourage increased private sector participation in the development of affordable housing units.

- **Policy A (3)** Ensure that (1) housing projects and (2) projects which impact housing provide a fair share/adequate amount of affordable homeownership opportunities.

**Hawaii Land -Use Master Plan:**

- **State Transportation Functional Plan:**

- **Policy L.A.1** Increase transportation capacity and modernize transportation infrastructure in accordance with existing master plans and laws requiring accessibility for people with disabilities.

Mr. Steve Kelly, AICP  
Makaiwa Hills LLC  
May 21, 2007  
Page 2 of 3

**- Policy I.B.1** Close the gap between where people live and work through decentralization, mixed zoning and related initiatives.  
**- Action I.B.1** a Promote the development of the 'Ewa Second City to provide jobs near homes. Promote the development of jobs near homes.

The proposed mitigation projects identified in the EIS addressing the increased transportation capacity and transportation infrastructure may alleviate some of the immediate Makawai Hills and Kapolei "city proper" transportation issues, but does not offer any resolution/mitigation with respect to the H-1 increased load use (During construction phase and, or upon completion). The "Ewa Second City Concept", under the guise and interdisciplinary guidance of the Campbell Company LLC (Formerly the Campbell Estate) and its affiliates has not made significant strides in regards to the State Transportation Functional Plan (see above). The Ewa Plain has been largely developed as a residential community with few significant economic employment stimuli. Current and proposed employment opportunities in both Kapolei and in the proposed Makaiwa Hills Expansion Area are limited to retail, sales, services, restaurant and general labor. The projected ratio of homeowner expenses and local employment income within this labor market is not conducive to support potential Makaiwa Hills homeowners (homeowners who work and live in the Kapolei/Proposed Makaiwa Hills areas).

The majorities of homeowners in the Ewa Plain communities are still earning their incomes between Pearl City, Waikiki and Hawaii Kai, and are dependant on the H-1 transportation corridor on a daily basis. This load capacity on the H-1 increases quarterly in proportion with the increases in Leeward Oahu housing developments. The Makaiwa Hills Project is but one of several. None of the identified Hawaii State Plan milestone prerequisites would be accomplished.


The DEIS, the DEIS Appendices and the 1993 Findings of Fact, Conclusions of Law, and Decisions and Order, Docket NO. A92-687 make continual reference to the availability of "affordable housing" at the proposed Makaiwa Hills development. If this is so, as identified, what methodology/mechanism would be in place to ensure that truly qualified buyers for "affordable housing" would only be allowed to purchase the Makaiwa Hills "affordable housing"? How would affluent buyers be kept from purchasing the "affordable housing" as investments and or turning them over for profit or rental? How would qualified buyers be controlled from purchasing and reselling for quick turn-around profit or rentals? Both of these scenarios defeat the "affordable housing" provision in the DEIS, the DEIS Appendices and the 1993 Findings of Fact, Conclusions of Law, and Decisions and Order.

Also;

- How can this region's infrastructure support another 4100 homes in addition to nearly 40,000 homes currently being planned for Kapolei West, East Kapolei and Kalaeloa?

Mr. Steve Kelly, AICP  
Makaiwa Hills LLC  
May 21, 2007  
Page 3 of 3

- What will be the cumulative affects of all three future Campbell projects at Kapolei West, Kapolei Harbor side and Makaiwa?

Sincerely,  
  
Timothy Spillane  
Board of Directors  
AOAO Ko Olina Fairways  
92-1507 Aliinui Drive #18H  
Kapolei, Hawaii 96707

cc: The Office of Environmental Quality Control  
Department of Planning and Permitting  
Attention: Mr. Eugene Takahashi  
City & County of Honolulu  
650 S. King Street, 7<sup>th</sup> Floor  
Honolulu, Hawaii 96813

Group 70 International, Inc.  
Attention: Mr. Jeffrey H. Overton, AICP  
925 Bethel Street, 5<sup>th</sup> Floor  
Honolulu, HI 96813

Ko Olina Community Association (KOCA)  
Attention: Ken Williams, General Manager  
92- 480 Aliinui Drive  
Kapolei, Hawaii 96707

Ralph F. Harris, President  
Board of Directors  
Ko Olina Fairways Association of Apartment Owners  
92-1527-H Aliinui Drive  
Kapolei, Hawaii 96707-2232

Mrs. Marjorie Collier, Resident Manager  
Ko Olina Fairways  
92-1535-A Aliinui Drive  
Kapolei, HI 96707



Francis S. Oda, Arch. D., FAIA, AICP  
Norman G.Y. Hong, AIA  
Sheryl B. Swaman, AIA, ASID  
Hiyab Hida, AIA

Roy H. Niki, AIA, CSI  
James I. Nishimori, AIA  
Stephen H. Yuen, AIA  
Linda C. Niki, AIA  
George I. Alta, AICP

Charles Y. Kaneshiro, AIA, LEED  
Jeffrey H. Overton, AICP  
Christine Mendis-Ruotola, AICP  
James L. Stone, AIA, LEED

Paul P. Chorney, AIA  
Philip T. Cucchi, CSI, CDT  
Kimberly Evans

Pete C. Galvez, AIA  
Sabrin Hallin  
Roy A. Inouye, AIA, CSI  
Cami Kogler  
Katherine M. Macchelli, AIA

Frank B. McCue  
Kawika Mokuogai  
Kathryn A. Nam  
Hiram C. Pigo  
Doreen D. Pennington  
Scott Tangonan  
Tom Young, AIA

Ralph E. Furlow, AICP  
Of Counsel

November 8, 2007

Mr. Timothy Spillane  
Board of Directors  
AOAO Ko Olina Fairways  
92-1507 Ailunui Drive, #18H  
Kapolei, HI 96707

**SUBJECT: Makaiwa Hills – Responses to Comments on the Draft Environmental Impact Statement**

Dear Mr. Spillane,

Thank you for your comment letter concerning the Makaiwa Hills Draft Environmental Impact Statement. The following statements are offered in response to your comments.

1. Kapolei Job Center. The growth of Kapolei as a primary job center is rapidly coming to reality. You are correct that some of the initial build-out of Kapolei showed an emphasis on residential increments, as this is a necessary first step in supporting subsequent commercial development. In the next 20 years, over 40,000 new jobs will be located in Kapolei. Commercial space is projected to grow to over 7 million sq. ft., which will compare closely with the greater Honolulu area (8.5 million sq. ft.). The City of Kapolei is rapidly fulfilling the promise of the Kapolei Master Plan from over 20 years ago, when the concept of living and working in 'Ewa was just a concept.

2. Transportation. A key aspect of the transportation planning for the project is the realization that the number of vehicles added to the H-1 freeway from the residents of the new homes will be reduced by the jobs held in the Makaiwa Hills project area, and the adjacent Kapolei employment areas. It is anticipated that about 80% of the homes will be occupied by full-time residents, and that most of the working residents will hold jobs in the area, further reducing the need to commute on H-1 during peak travel periods.

Makaiwa Hills is designed to promote a safe and efficient balance between the various travel modes, such as bicycle and pedestrian facilities, convenient and centrally located transit stops and terminals, traffic calming and other methods. Various Transportation Demand Management (TDM) strategies will be employed to reduce overall vehicular demand in and around the project site. Use of bicycles, walking and coordination with The Bus are integrated with the Master Plan. Of note, Makaiwa Hills will be a pedestrian-friendly and bicycle-friendly community, with ample pathway systems integrated with the landscape and roadway network to encourage non-vehicular travel. The project will link its residents with the Kapolei terminus of the locally-preferred alignment of the new mass transit route.

Mr. Timothy Spillane  
DATE  
Page 2 of 2

3. Affordable Housing. The project will fulfill its affordable housing requirement consistent with the requirements of the City and County of Honolulu. We anticipate a condition for 30% affordable housing associated with the Change of Zone approval, or approximately 1,230 units. There is a strict set of criteria for purchase and resale of these units, established and monitored by the City. It is anticipated that a portion of the affordable housing requirement will be set at 80% of Median Family Income, which is at the lower end of the affordable home pricing range.

4. Regional Infrastructure. The project will provide its fair share of new infrastructure for roadways, drainage, water supply and wastewater management. A comprehensive regional approach is being followed to address the infrastructure requirements with the respective State and County agencies.

5. Cumulative Effects. The Final EIS includes a detailed analysis of the potential cumulative effects of the planned projects in the Kapolei region, including Kapolei Harborside Center, Kapolei West and Makaiwa Hills. The three projects are being planned with a regional perspective on infrastructure requirements, including traffic and transportation, water supply, drainage, wastewater and other utilities.

Your comment letter and this response will be included in the Final Environmental Impact Statement. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

Jeffrey H. Overton, AICP  
Principal, Chief Environmental Planner

**Cynthia K.A. Rezendes**  
87-149 Maipela Street  
Wai'anae, Hawaii 96792-3154  
eAddress: rezendes@c@aol.com

May 23, 2007

City & County of Honolulu  
Department of Planning and Permitting  
Attn: Eugene Takahashi  
650 S. King Street, 7<sup>th</sup> Floor  
Honolulu, HI 96813

Subject: **Makaha Hills (HRS 343 DEIS)**

Dear Director Eng.

I am a resident of the Wai'anae Coast and thank you for the opportunity to submit my opposition to the proposed project as stated in the Draft Environmental Impact Statement published in March, 2007.

Although I do not object to development in general, I believe this project has not addressed issues that will impact the larger community. As stated in the DEIS, a project was accepted by your predecessor department (Department of General Planning) in April 1991 to include 2,130 residential units, and reserved the option to seek a future amendment for a golf course. A subsequent State Land Use District Boundary Amendment Petition for Urban District designation was approved in 1993, allowing 4,100 residential units and supporting land uses on the property.

Since the petitions were submitted and approved, the overall development of the region has been increasing and those units already developed have significantly impacted the region and adjacent communities. The proposed development that has been announced will, with this project only increase the impacts to the region without the requisite infrastructure being addressed to contain the impacts to the specific communities without further compounding the problems being experienced by the adjacent communities.

The project is anticipated to provide 1,100 permanent jobs at full build-out and occupancy. The jobs will consist of retail jobs, home and grounds maintenance jobs, and home-office jobs. In general, none of these jobs are of significant wage-earning ability to be able to allow potential homeowners the luxury of procuring most of the homes being proposed. While there is a commitment to provide affordable homes in accordance with City and County of Honolulu standards, it is clearly understood that the jobs that are being proposed for the area would probably not qualify the potential homeowners to afford even these homes. There should be a commitment in this DEIS to provide homes that can be afforded by the individuals who would be employed in the jobs identified in this DEIS. If this is not done, there needs to be an analysis of the numbers of individuals who would have to commute to work in this area every day. Also, as we see on the island of O'ahu, there is a tremendous number of individuals who are in a transitional or very low-income housing level. This should also be addressed, not only in this project but all large projects being projected for the area.

As far as stating that for each job identified that would result in one vehicle per job not needing to commute on the H-1, that premise only holds true if those individuals live in the area. Again, there needs to be a commitment to worker housing to fulfill that statement. The missing component in the statement regarding roadways and traffic is the numbers of vehicles that would be added to the H-1 per day. Typically, for each household there are two vehicles per household. If that is a valid average that means there would be approximately 8,200 additional

cars within the region. Even if only half of those vehicles were added to the daily commute on the H-1 freeway, that will add another 3,000 to 4,100 cars (if one can take 1,100 cars to stay within the Makaha Hills area) to the commuter traffic on the H-1. There needs to be a better roadway and traffic plan for this development project than to have all those vehicles added to the already significant commuter traffic on the H-1. Perhaps instead of the main ingress/egress being onto the H-1, there could be another major arterial through Makakilo and into Kunia, as an example.

Considering the strain on all of the schools within the region, including the middle school and high school, is it adequate to only provide land for the building of another elementary school? Has the Department of Education reviewed the impacts on the schools within the region based on this development and the other new approved developments in the area, i.e. DHHL, UH-West O'ahu, etc?

Does the commitment to cultural resources include critical area habitat for both flora and fauna? Are any of the lands identified for this project part of the Federally identified critical area habitat on the Wai'anae mountains? If so, are these lands to be preserved intact? If not, what plans are there for encountering of endangered species within the area?

Considering the slopes of some of the gulches within the area and the instability of many soils in Hawaii, are appropriate plans being made to not develop immediately downslope of areas of steep terrain? Is care being taken to not build below water pathways, e.g. Makaha Valley Towers? This needs to be considered in addition to not disturbing steep slopes.

The amount of water being approximated per unit is at 473 gallons per day. This approximation is higher than the daily approximation for a unit per the Board of Water Supply. What plans are being developed to allow development but minimize water usage to primary uses, i.e. hygiene, reserves (reservoirs), etc. and not for large-scale water intensive landscaping? The project also identifies lands for a golf course fronting Farrington Highway. Where will water come from for that project? The golf course should not be allowed to utilize potable water and should develop their own non-potable water source for maintenance of the golf course.

The wastewater projections being provided state that the solids side of the wastewater treatment facility at Honouliuli is already at capacity but that construction is underway to increase that capacity. With all of the other developments in the area, will that expansion be enough to handle the DHHL project, the UH-West O'ahu project, and the D.R. Horton project? If not, how will the future developments, including this one help to pay for the future requirements at the Honouliuli Wastewater Treatment Plant?

Currently, HECO is projecting a smaller safety factor in the "excess" capacity of their facilities. What plans are being laid out for development of the project using LEED? Will alternative energy sources be built into this project, i.e. solar water heating, photovoltaic energy, etc? Also, depending on when the first of these units come on line, will these units be qualified to receive the 7% decrease in energy costs as HECO is proposing for the 96707 area as part of a community benefits package for the Peaking Power Plant that is being proposed? What energy conservation measures will be used to minimize the air conditioning usage that might be expected in this development?

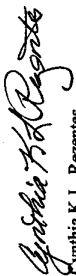
It is stated that substantial solid waste will be generated during the construction phases. How will this substantial solid waste be handled? Can there be re-use of construction "solid waste" on-site to minimize off-site disposal? What other plans will be put in place to mitigate solid waste generation besides making sure green wastes are handled separately from other solid waste generated?

These questions and concerns do not appear to be addressed in this DEIS and should be considering the changing environment that we are living in and the changes in the conditions that the region has experienced and is projected to experience over the near future. With the advent of the major developments already identified, DHHL, UH-West O'ahu, and D.R. Horton, we are also faced with significant retail development, i.e. Target, Costco, and the DHHL Shopping Center.

With all of this development in the area, and even with the proposed transit system (high traffic corridor project), these questions should be given more consideration and the overall impacts of this project needs to be given more serious consideration than has been given in this DEIS.

For those reasons, I am not in agreement with this proposed DEIS since it does not adequately address those issues that are of prime importance to the region already, e.g. traffic/transportation, water, wastewater management, and affordable housing (both in the usual sense and low-income).

Sincerely,

  
Cynthia K.L. Rezendes  
Waiana'e Resident

cc: Makaiwa Hills, LLC  
Group 70 International  
Office of Environmental Quality Control



November 8, 2007  
Ms. Cynthia K. L. Rezendes  
87-149 Maipela Street  
Waiana'e, HI 96792-3154

**SUBJECT: Makaiwa Hills – Responses to Comments on the Draft Environmental Impact Statement**

Dear Ms. Rezendes,

Thank you for your comment letter concerning the Makaiwa Hills Draft Environmental Impact Statement. The following statements are offered in response to your comments.

- 1. Regional Infrastructure.** The project will provide its fair share of new infrastructure for roadways, drainage, water supply and wastewater management. A comprehensive regional approach is being followed to address the infrastructure requirements with the respective State and County agencies.
- 2. Jobs and Housing On-Site.** As you have noted, there will be significant job creation at Makaiwa Hills in a range of job categories. Affordable housing will also be provided on-site in accordance with City and County of Honolulu standards. It is anticipated that a portion of the on-site affordable housing will be set at 80% of Median Family Income, which is at the lower end of the affordable home pricing range.
- 3. Jobs and Traffic.** The number of vehicles added by residents of new Makaiwa Hills homes to the H-1 freeway traffic into and out of Honolulu will be reduced by the jobs these residents hold in the project area and in the adjacent City of Kapolei employment areas. As the DEIS notes, by 2020 at project build-out, 65,000 jobs are expected in the Kapolei/Ewa area, compared to the 4,100 homes in the project. It is anticipated that about 80% of the homes will be occupied by full-time residents, and that most of the working residents will hold jobs in the area, further reducing the need to commute on H-1 during peak travel periods.

Makaiwa Hills is designed to promote a safe and efficient balance between the various travel modes, such as bicycle and pedestrian facilities, convenient and centrally located transit stops and terminals, traffic calming and other methods. Various Transportation Demand Management (TDM) strategies will be employed to reduce overall vehicular demand in and around the project site. Use of bicycles, walking and coordination with The Bus are integrated with the Master Plan. Of note, Makaiwa Hills will be a pedestrian-friendly and bicycle-friendly community, with ample pathway systems integrated with the landscape and roadway network to encourage

Francis S. Oda, Arch. D., F.AIA, AICP  
Norman G.Y. Hong, AIA  
Sheryl B. Saaman, AIA, ASD  
Hiroshi Hida, AIA  
Roy H. Nhele, AIA, CSI  
James I. Nishimoto, AIA  
Stephen H. Yuen, AIA  
Linda C. Miki, AIA  
George I. Aita, AICP  
Charles Y. Kaneshiro, AIA, LEED  
Jeffrey H. Overton, AICP  
Christine Mendes Rucobias, AICP  
James L. Stone, AIA, LEED  
Pearl P. Chorney, AIA  
Philip T. Cocca, CSI, CDT  
Kimberly Evans  
Pete C. Galezer, AIA  
Sabrin Halim  
Roy A. Inouye, AIA, CSI  
Carm Klester  
Katherine M. Mitchell, AIA  
Frank B. McCue  
Kawika Mokuagau  
Kathryn A. Nam  
Hiram C. Pigo  
Dorena D. Remington  
Kimberly Pokkikhom, AIA, LEED  
Scott Tangonan  
Tom Young, AIA  
Ralph E. Hutchins, AICP  
OT Counsel

non-vehicular travel. The project will link its residents with the Kapolei terminus of the locally-preferred alignment of the new mass transit route.

While the City and County of Honolulu is moving ahead with the planning for a mass transit system that will serve this area with an additional regional arterial, there are no known plans for developing another fixed guideway arterial through Makakilo or Kunia. These areas will be served by The Bus with feeder routes to the larger mass transit system.

4. **Schools.** Discussions with the Department of Education have resulted in the decision for the developer to provide land for a new middle school within the project area, in addition to the elementary school already planned within the development. The DOE believes other existing or planned high schools will suffice for the expected student load from this project.

5. **Natural Resources.** There are no known endangered flora or fauna species on the project site. No part of the project is included in the Federal critical habitat area, which starts nearly 2.5 miles mauka of the property in the Wai'anae Mountains.

6. **Slope, Rockfall and Runoff Hazards.** An important aspect of the plan for Makaiwa Hills is the location of residential areas, roadways and activity areas away from steep slopes to minimize rockfall hazards. A licensed geotechnical engineer has performed a site reconnaissance and their report is enclosed as a new Appendix to the Final EIS. New cut slopes and fill slopes will be engineered to avoid creating rockfall hazard. Site grading will modify some natural slope areas in a controlled manner, creating stable final slope conditions. Development planning will also avoid major gulch areas to minimize storm water flooding hazards.

Consideration has been given to the future development of the Makaiwa Hills site in the planning and construction of downstream drainage facilities. Drainage improvements in Ko 'Olina and Kapolei West have been designed and constructed to accommodate peak runoff from the developed Makaiwa Hills project as required by County drainage standards. Accordingly, these and future drainage facilities downstream of Kapolei West are expected to reduce potential downstream flooding impacts. Therefore, impacts on developments downstream of the Makaiwa Hills site are not expected to be adverse since the drainage systems have been sized accordingly. A drainage master plan for the project will be prepared and submitted to the City and County Department of Planning and Permitting for review and approval.

7. **Water Supply.** There is no golf course in this project, as it was removed from the prior plan for the property. The potable water supply will be developed through the regional BWS system, which is utilizing sources from the Kunia, Ewa and Makakilo area. Non-potable irrigation supply will be from existing on-site wells, a nearby agricultural supply well field and ultimately from reclaimed water sources. An overall landscape and irrigation water master plan will seek to minimize the use of irrigation water, using techniques such as xeriscape, irrigation controls, and use of brackish or

reclaimed water, as available. The EIS describes how the project area will have large open space areas that will be managed along its periphery to avoid wildfire hazard.

8. **Wastewater.** The Honouliuli Wastewater Treatment Plant is undergoing improvements for solids handling. The pace of new development in the service region is being addressed in the sizing of the new capacity, however, this will be added on an incremental basis. New developments are assessed with a Wastewater Facilities charge to account for their new demand on facilities.

9. **Energy Conservation.** The project will address energy conservation in the development and operation of new homes and commercial spaces. The potential for including solar water heating, photovoltaic energy applications and other sustainable design principles is being studied as part of the upcoming project design. Specific project design guidelines and standards will be established for new buildings with consideration of the guidelines of the Hawaii Model Energy Code.

10. **Solid Waste.** Construction period solid waste will be transported off-site to a private construction materials landfill. The potential to reuse construction solid waste will be considered to minimize off-site disposal. Green waste management will be instituted at the project, along with a materials recycling program for the various neighborhoods and commercial facilities.

We appreciate your detailed comments and look forward to continued dialogue on the project. Your comment letter and this response will be included in the Final EIS. Please contact us if you have additional comments or questions.

Sincerely,

GROUP 70 INTERNATIONAL, INC.



Jeffrey H. Overton, AICP  
Principal, Chief Environmental Planner



## **10.0 PREPARERS OF THE EIS**

## 10.0 PREPARERS OF THE DEIS

This ~~DEIS~~ **FEIS** was prepared for the petitioner, the Makaīwa Hills, LLC, by Group 70 International, Inc. The following list identifies the individuals and organizations involved in the preparation of this report and their respective contributions.

### **Group 70 International, Inc.**

Jeff Overton, AICP  
Tom Eisen  
Kirstin Hochart  
Kathryn Nam  
Joy Rabara  
Kristin Rocheleau  
Tracy Furuya

### **Role**

Principal-in-Charge  
Planner  
GIS/Graphics Preparation  
Graphics Preparation  
Graphics Preparation  
Document/Graphics Preparation  
Administrative Coordinator

### **Other Consultants**

Shapouri & Associates  
SSFM International/  
Engineering Concepts, Inc.  
Wilbur Smith Associates  
Cultural Surveys Hawai'i, Inc.  
Decision Analysts Hawai'i, Inc.  
B.D. Neal and Associates  
Rana Productions, Ltd.  
  
D.L. Adams Associates, Ltd.  
Decision Analysts Hawai'i, Inc./  
Robert Charles Lesser & Co./  
Colliers Friedlander

### **Technical Area**

Land Planning  
Civil Engineering / Infrastructure Analysis  
  
Traffic Impact Assessment  
Archaeology & Cultural Impact Assessments  
Agricultural, Economic and Fiscal Impact Analysis  
Air Quality Study  
Botanical, Invertebrate, Avian, and Mammalian Resources  
Studies  
Noise Impact Assessment  
Market Analysis