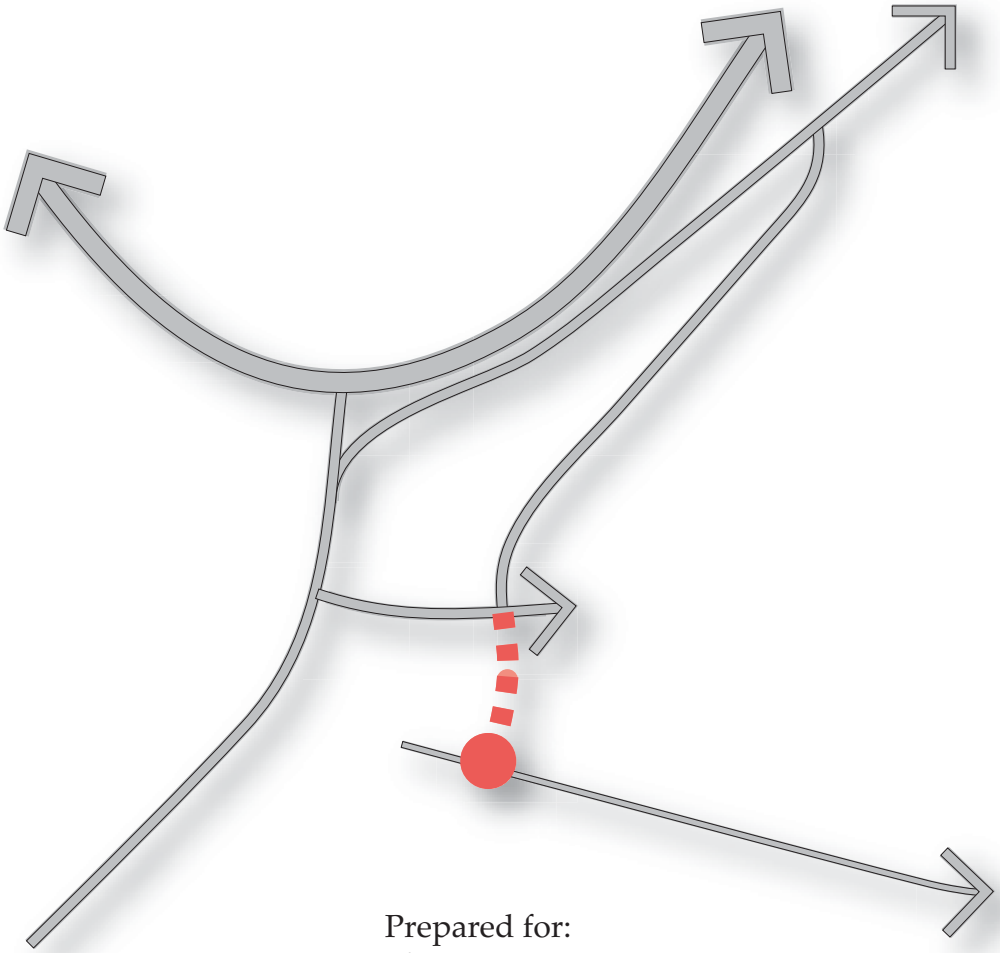
FINAL ENVIRONMENTAL ASSESSMENT

KAMOKILA BOULEVARD EXTENSION

Kapolei, Ewa District, Oahu



Prepared for:
Department of Transportation Services
City and County of Honolulu

July 2006

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Prepared for:
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Prepared by:

Kimura International

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A. Geotechnical Consultation Letter Report. Pacific Geotechnical Engineers, Inc. November 2, 2005

B. Air Quality Impact Report. J.W. Morrow. 21 January 2006

C. Phase I Environmental Site Assessment, Kamokila Boulevard Extension Project. Kimura International, Inc. June 22, 2005.

D. Environmental Noise Assessment Report. D.L. Adams Associates, Ltd. Environmental Noise Assessment Report, Kamokila Boulevard Extension. January 30, 2006.

E. Botanical Letter Report. Morden & Associates. 6 October 2005.

F. A Survey of Avian and Terrestrial Mammalian Species of the Kamokila Boulevard Extension Project Site. Rana Productions, Ltd. August 2005.

Section 7, ESA Consultation Correspondence

G. Archaeological Assessment and Cultural Impact Evaluation for the Kamokila Boulevard Extension Project, Kapolei. Cultural Surveys Hawaii. December 2005.

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H. Traffic Analysis Report. Julian Ng, Inc., February 2006.

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List of Acronyms

CATEX	Categorical Exclusion
CCD	Census County District
CEQ	Council on Environmental Quality
CO	carbon monoxide
dB	decibels
dBA	A-weighted sound level
DLNR	Department of Land & Natural Resources
DOH	Department of Health
DTS	Department of Transportation Services
EA	Environmental Assessment
EJC	Estate of James Campbell
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FHWA	Federal Highway Administration
HECO	Hawaiian Electric Company
HCDA	Hawaii Community Development Authority
HDOT	Hawaii State Department of Transportation
Leq	Equivalent Sound Level
Ldn	Day-Night Equivalent Sound Level
MOA	Memorandum of Agreement
NAAQS	National Ambient Air Quality Standards
NAS	Naval Air Station
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO_2	nitrogen dioxide
OMPO	Oahu Metropolitan Planning Organization
OR&L	Oahu Railway and Land Company
ORTP	Oahu Regional Transportation Plan
O_3	ozone
SHPD	State Historic Preservation Division
SMA	Special Management Area
SO_2	sulfur dioxide
SSA	Sole Source Aquifer
PM	particulate matter
TMK	tax map key
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish & Wildlife Service

1 PURPOSE AND NEED FOR ACTION

1.1 INTRODUCTION AND ORGANIZATION OF THIS ENVIRONMENTAL ASSESSMENT

This Environmental Assessment (EA) for the Kamokila Boulevard Extension project is being prepared in accordance with both State of Hawaii and federal environmental regulations and requirements, as the project will utilize both City and County of Honolulu and federal funds.

This EA meets the requirements of Chapter 343, Hawaii Revised Statutes (HRS), Act 241, Session Laws of Hawaii (SLH) 1992, and Chapter 200 of Title 11, Department of Health (DOH) Administrative rules, "Environmental Impact Statement Rules."

The State of Hawaii Department of Transportation (HDOT) will ask the Federal Highway Administration (FHWA) to satisfy National Environmental Policy Act (NEPA) requirements by approving a documented Categorical Exclusion, as defined by the Council on Environmental Quality (CEQ) regulations, 40 CFR Part 1508.4[3]. This EA, being prepared to satisfy Chapter 343 HRS, will be used for basic documentation for the NEPA Categorical Exclusion. A separate Section 4(f) evaluation, in accordance with Section 4(f) of the Department of Transportation Act of 1966 (49 U.S.C. §303) will be submitted for HDOT and FHWA approval.

This document is organized into the following chapters:

- Chapter 1 Purpose and Need for Action
- Chapter 2 Alternatives
- Chapter 3 Affected Environment and Environmental Consequences
- Chapter 4 Consistency with Existing Plans, Policies and Controls
- Chapter 5 Findings and Reasons Supporting the Anticipated Chapter 343 HRS Determination
- Chapter 6 References
- Chapter 7 Persons and Agencies Involved in the Preparation of this Environmental Assessment

1.2 PROJECT DESCRIPTION AND LOCATION

The City and County of Honolulu ("City") proposes to construct approximately 200 linear feet of roadway within a 100-foot wide right-of-way (ROW) to extend Kamokila Boulevard. The project site is the City of Kapolei, located in the Ewa plain on the southwestern end of the island of Oahu (Figure 1).

[3] "Categorical exclusion" means a category of actions which do not individually or cumulatively have a significant effect on the human environment and which have been found to have no such effect in procedures adopted by a Federal agency in implementation of these regulations.

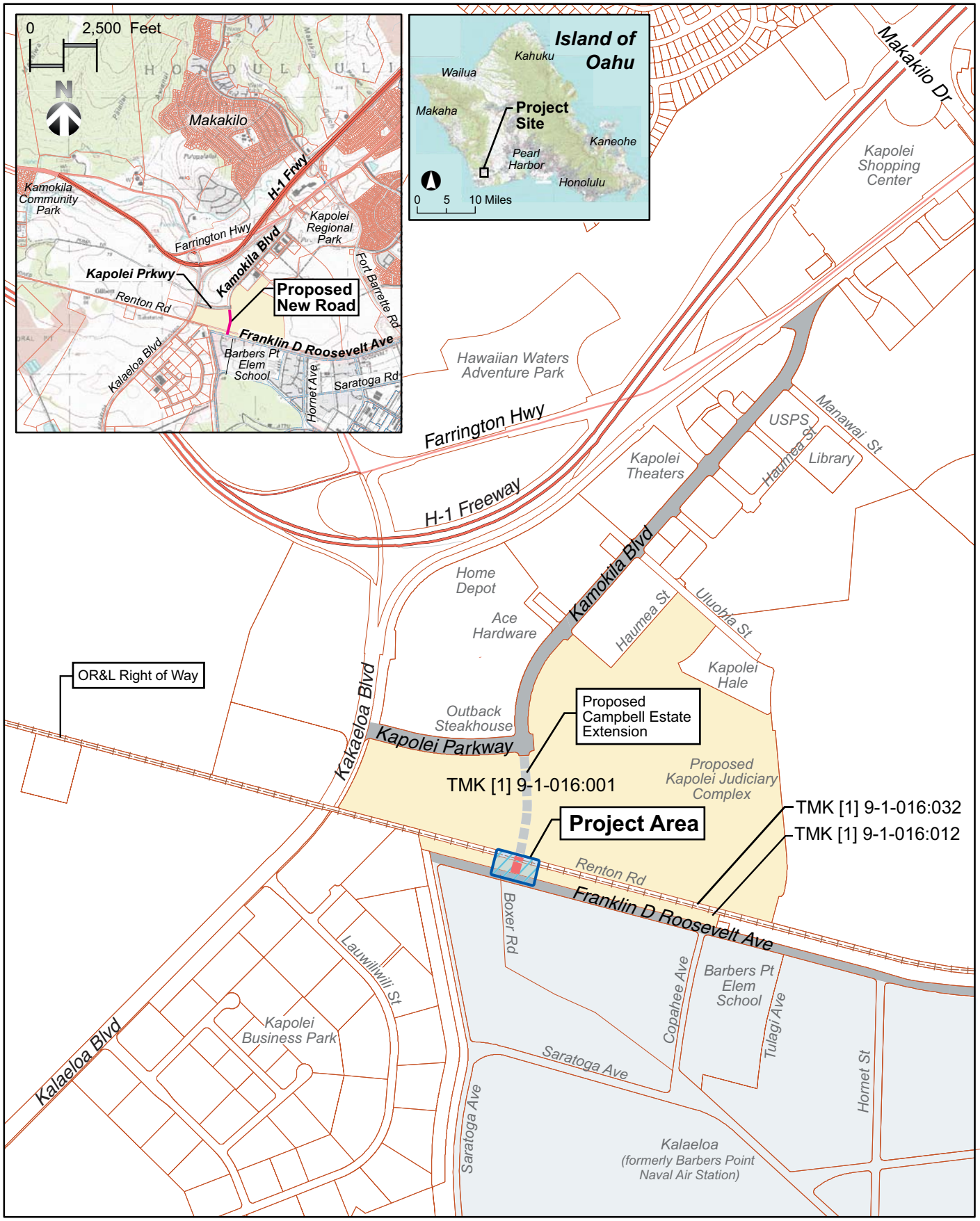


Figure 1
Project Location

The Estate of James Campbell (EJC), a major landowner in the area, is committed to constructing a 700-linear foot extension of Kamokila Boulevard from its current terminus near Kapolei Parkway to the makai boundary of the future Kapolei Judiciary Complex site. That road will be constructed by Aina Nui Corporation, an affiliate of the EJC.

The EJC-proposed extension is intended to provide access to a future State Judiciary Complex, planned for the site on the eastern (Honolulu) side of the new roadway. The road will terminate at the southern end of the Judiciary site, mauka of the historic Oahu Railway and Land Company (OR&L) railroad tracks. Aina Nui Corporation anticipates starting construction of the roadway extension in late 2006.

The City originally planned to construct the entire Kamokila Boulevard extension, from Kapolei Parkway to Franklin D. Roosevelt Avenue. However, in light of EJC's current plans, the City will continue the road extension from the EJC's termination point to Roosevelt Avenue. This last segment is a critical component in improving roadway connectivity in the Kapolei region.

1.3 PURPOSE AND NEED FOR ACTION

The proposed project will make the final connection between a planned extension of Kamokila Boulevard and Roosevelt Avenue. Currently, Kamokila Boulevard terminates at a "stub" at the Kapolei Parkway intersection. A connection between Kamokila Boulevard and Roosevelt Avenue has long been discussed by the Kapolei/Ewa community as an important component to improve "connectivity" of the roadway network, and to alleviate existing traffic congestion. Such a connection would provide an alternate route for commuters to get in and out of the Kapolei area during morning and afternoon rush hours.

Although the planned EJC roadway extension would provide access to the future Judiciary Complex, it would not improve regional traffic flow. By completing the roadway extension and making the connection to Roosevelt Avenue, the subject project will provide an alternate route for traffic between Kalaeloa and Kapolei, improving regional connectivity.

1.4 PROJECT SUMMARY

Table 1-1: Project Summary

Item	Description
Project Name	Kamokila Boulevard Extension project
Applicant	City and County of Honolulu, Department of Transportation Services
Location	Kapolei, Ewa District, Oahu
Tax Map Key	1-9-1-16:32 (portion) and 12 (portion)
Existing Uses	Vacant and undeveloped, scrub vegetation
Landowner	Estate of James Campbell

Item	Description
Project Description	Complete the extension of Kamokila Boulevard proposed by Estate of James Campbell by continuing the road to Roosevelt Avenue.
State Land Use	Urban
Ewa Development Plan Designation	City of Kapolei (high density residential/commercial)
Zoning	Ag-1 (Restricted Agriculture)
Flood Insurance Rate Map	Zone D (Areas in which flood hazards are undetermined)

1.5 POSSIBLE ENVIRONMENTAL PERMITS AND APPROVALS

The following is a summary of environmental approvals and consultations that may be required for the proposed action. Chapter 4 includes a more detailed discussion of the project's consistency with federal, State and local land use plans, policies and controls.

Table 1-2: Possible Environmental Permits and Approvals

Approval/Consultation	Agency
Federal	
National Environmental Policy Act, documented Categorical Exclusion (CATEX)	U.S. Department of Transportation, Federal Transit Administration
State of Hawaii	
Chapter 343 Hawaii Revised Statutes	Office of Environmental Quality Control
Section 106, National Historic Preservation Act consultation and HRS Chapter 6E review	Department of Land and Natural Resources, State Historic Preservation Division
Noise Permit	Department of Health
National Pollutant Discharge Elimination System (NPDES) permit *(for construction related storm water runoff, hydrotesting and dewatering)*	Department of Health, Clean Water Branch
Disability and Communication Access Board Approval	Department of Health, Disability and Communication Access Board
City and County of Honolulu	
Construction and grading permits	Department of Planning & Permitting

2 ALTERNATIVES

2.1 INTRODUCTION

This chapter describes the proposed action (preferred alternative) and other alternatives considered to meet the overall objective of extending Kamokila Boulevard to improve connectivity in the Kapolei area.

1. Preferred Alternative—Extend Kamokila Boulevard from OR&L ROW to Roosevelt Avenue
2. No Action
3. Extend Kamokila Boulevard from Its Current Terminus to Roosevelt Avenue
4. Design Alternatives
    - Alternative A
    - Alternative B (Preferred Alternative)
    - Alternative C
    - Alternative D

2.2 PREFERRED ALTERNATIVE

2.2.1 Project Description

The preferred alternative will construct approximately 200 linear feet of roadway within a 100-foot wide right-of-way (ROW) to complete the extension of Kamokila Boulevard to Roosevelt Avenue. The project will start at the terminus of a 700-foot extension of Kamokila Boulevard by the Estate of James Campbell (EJC). That 700-foot roadway segment will end in the vicinity mauka of the Oahu Railway & Land Company (OR&L) railroad right-of-way. The City's project will continue the Kamokila Boulevard extension from the point the EJC terminates its project to Roosevelt Avenue. (Figure 2).

2.2.2 Project Background

Originally, the City Department of Transportation Services (DTS) planned to extend Kamokila Boulevard from its current terminus near Kapolei Parkway to Roosevelt Avenue. During consultation with adjacent landowners, it was discovered that the EJC was proceeding with the design for its own extension of Kamokila Boulevard. Because the EJC's intent was to provide access for the State's planned Judiciary Complex, there were no plans to continue the road to Roosevelt Avenue. Drainage improvements were also planned.

Because the EJC was already in the project design phase, the scope of the City DTS project was reduced to the 200-foot segment to connect to Roosevelt Avenue. The City is coordinating its planning efforts with the EJC to ensure that the entire Kamokila Boulevard extension is comprehensive.

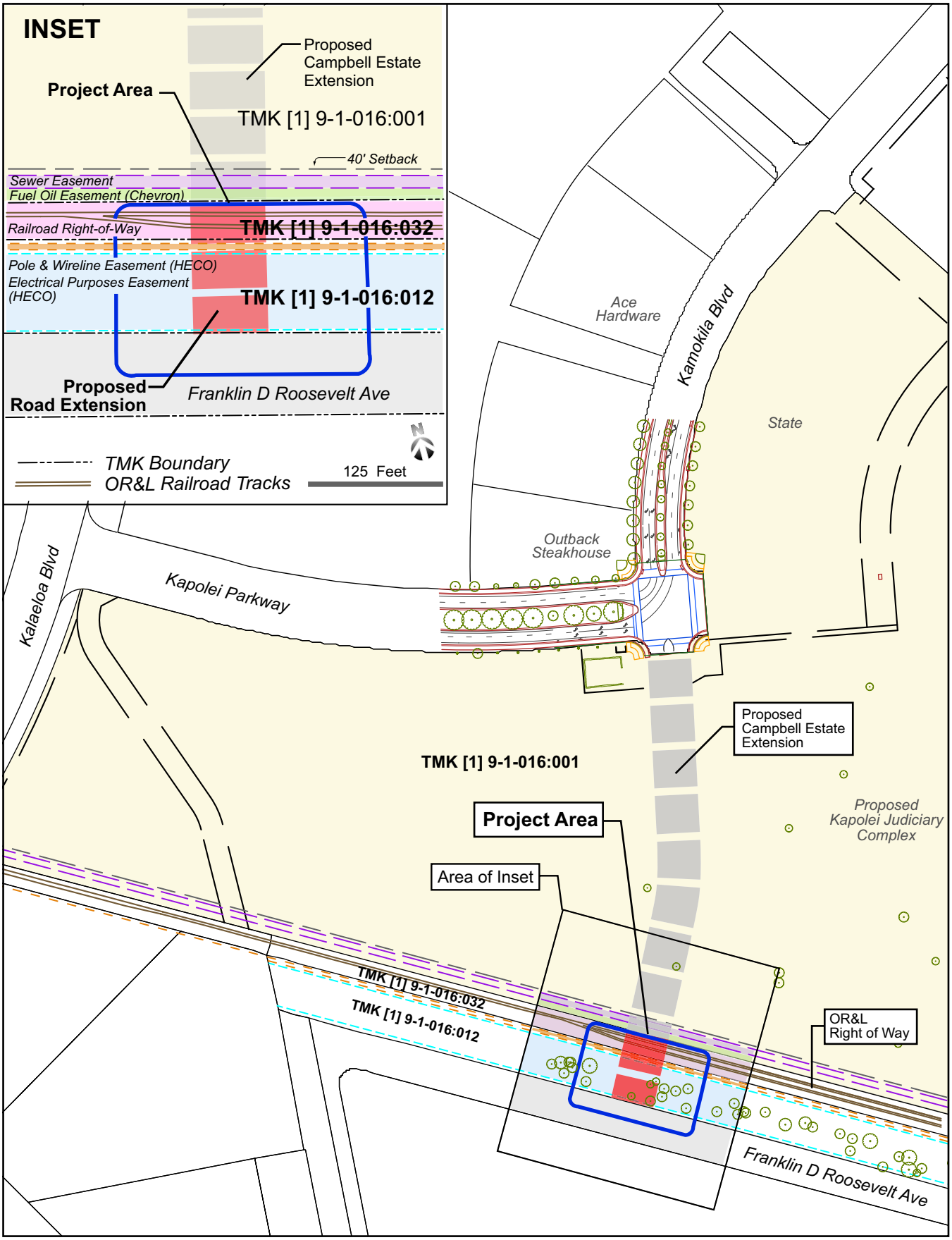


Figure 2
Study Area

2.2.3 Affected Landowners

Properties affected by this project include the OR&L railroad right of way (owned by the State of Hawaii), lands on the makai side of the railroad right of way owned by the EJC, and lands between the existing fence line demarcating the boundary between Campbell Estate and Kalaeloa (formerly known as Barbers Point Naval Air Station) up to Roosevelt Avenue owned by the State of Hawaii. Roosevelt Avenue is owned by the State of Hawaii and under the jurisdiction of the State Department of Transportation (see Figure 2 inset).

In this portion of roadway, an easement will be obtained from the State of Hawaii for use of the railroad right-of-way. In addition, land between the railroad right-of-way and Roosevelt Avenue will be dedicated to the City by the EJC. Roosevelt Avenue falls within the boundary of Kalaeloa, which is under the control of the State of Hawaii Community Development Authority (HCDA).

2.2.4 Proposed Roadway Design

The entire Kamokila Boulevard extension (including the EJC-constructed portion) will have a 100-foot right-of-way, as required by the City and County of Honolulu, Department of Planning and Permitting. The 100-foot right-of-way consists of two 11-foot wide travel lanes heading in the south direction and two 11-foot wide lanes heading in the north direction, divided by a 20-foot wide landscaped median. In addition, 4-foot wide bike lanes are provided on both the northbound and southbound lanes. The pavement area consists of 2-foot shoulders on both sides. Eight-foot wide sidewalks are provided on both sides plus a 2-foot wide buffer area. In addition to the 100-foot right-of-way, landscape buffers (10 feet wide) are provided on both sides. The road section is shown in Figure 3.

The roadway will connect to Roosevelt Avenue. The area around the new intersection of Kamokila Boulevard and Roosevelt Avenue may need to be rebuilt, since the road extension will be at a higher elevation than the existing condition. The elevation of the new road extension is being dictated by the elevation of the historic OR&L ROW, located roughly 130 feet before Roosevelt Avenue. This is a design issue that will be resolved during the design phase, and could be avoided if the road is constructed with a steeper slope at the end of Kamokila Boulevard, where it meets Roosevelt Avenue.

In addition, the State of Hawaii Department of Transportation (HDOT), in a Draft EA comment letter dated 4/13/06, indicated that it may require a right-turn lane on Roosevelt Avenue's westbound approach to the future intersection with Kamokila Boulevard, or realignment/redesign of this intersection (see Chapter 7).

The entire Kamokila Boulevard extension will be designed for a speed of 30 mph with a 25 mph posted speed limit. The road will be constructed to City standards.

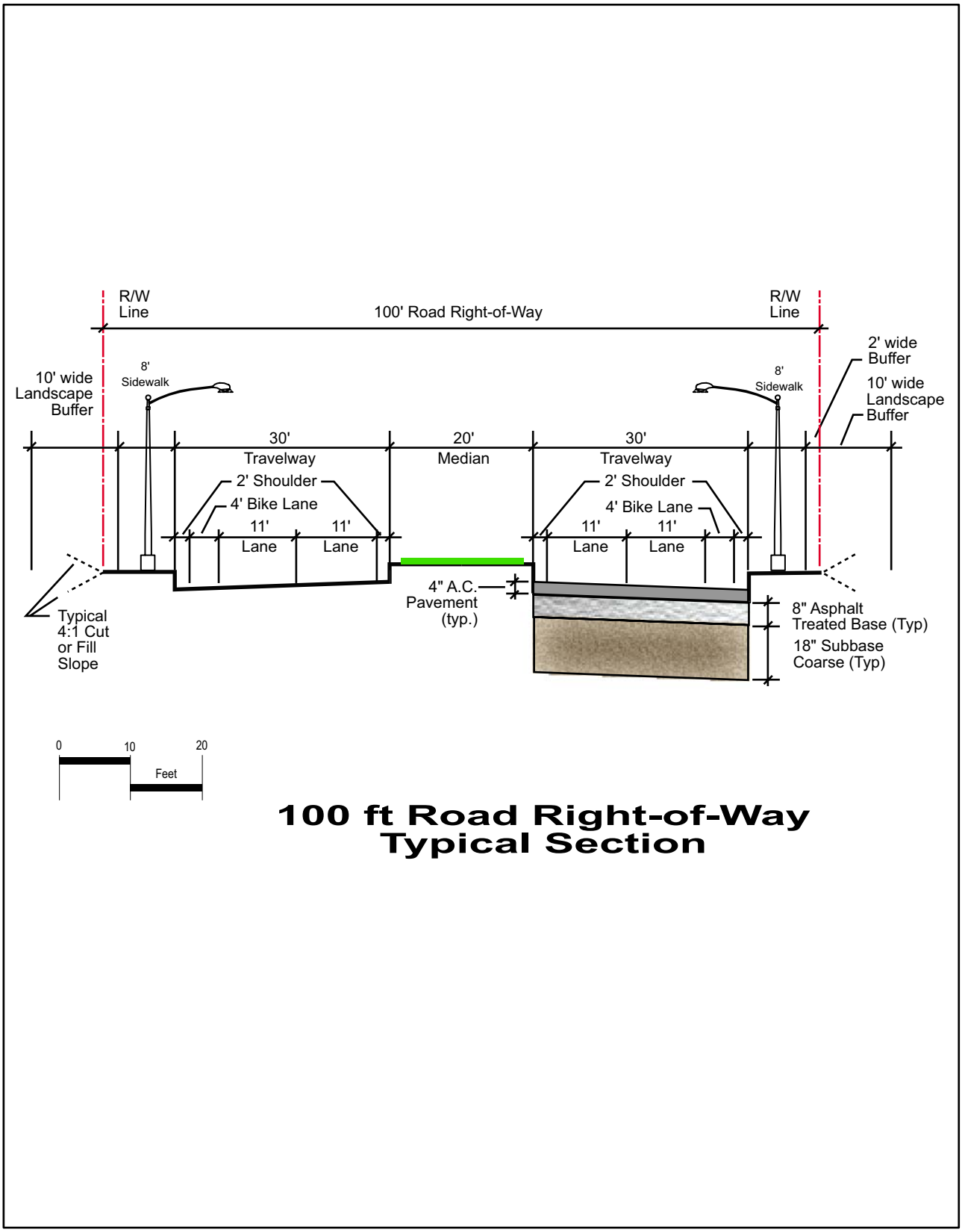


Figure 3
Typical Roadway Cross Section

2.3 NO ACTION

The no-action alternative would not extend Kamokila Boulevard to Roosevelt Avenue. The proposed extension to the OR&L right-of-way would still be completed by the Estate of James Campbell. However, there would be no connection to Roosevelt Avenue. Although the EJC-constructed road would provide access to the future Judiciary Complex, it would not provide an alternative route between Kapolei Town and the Kalaeloa area.

2.4 EXTEND KAMOKILA BOULEVARD FROM ITS CURRENT TERMINUS TO ROOSEVELT AVENUE

This alternative represents the original City DTS project to extend Kamokila Boulevard from its current terminus all the way to Roosevelt Avenue. However, as discussed previously, it was discovered that Aina Nui Corporation was proceeding through final design to extend Kamokila Boulevard to accommodate the State's future Judiciary Complex.

Although Aina Nui was aware of the City's intent to build the entire extension, they were motivated to proceed to accommodate the State's timetable for the planned Judiciary Complex. Therefore, plans to construct the entire roadway extension were modified accordingly.

2.5 DESIGN ALTERNATIVES

A total of four design alternatives (including the preferred alternative) were prepared for the Kamokila Boulevard extension. Because of the close coordination needed with EJC, the design alternatives covered the *entire* roadway extension, from Kapolei Parkway to Roosevelt Avenue. The designs are shown in Figures 4 to 7. They include the portion of roadway to be constructed by the EJC, as well as the City-constructed portion.

All four design alternatives proposed to meet Roosevelt Avenue at a T-intersection. The State of Hawaii Department of Transportation, in a Draft EA comment letter (see Chapter 7), raised the possibility of redesigning this T-intersection so that Kamokila Boulevard and the eastern leg of Roosevelt Avenue function as a continuous road, with the western leg of Roosevelt Avenue becoming a stop sign controlled approach. However, the proposed T-intersection is based on, and consistent with the State Hawaii Community Development Authority (HCDA)'s plans for the adjacent Kalaeloa property. This is discussed further in Chapter 4 (Section 4.4.2).

In evaluating the four design alternatives, site conditions and constraints were considered. The primary site constraint was the presence of a large, 138 kV electrical power pole within the project area, as discussed below. Another design constraint was the City Department of Planning and Permitting requirement that the roadway ROW be 100 feet wide, essentially a four-lane divided roadway.

After analysis of the four design alternatives, Alternative B was selected as the preferred alternative. The alternatives are discussed below.

2.5.1 Alternative A

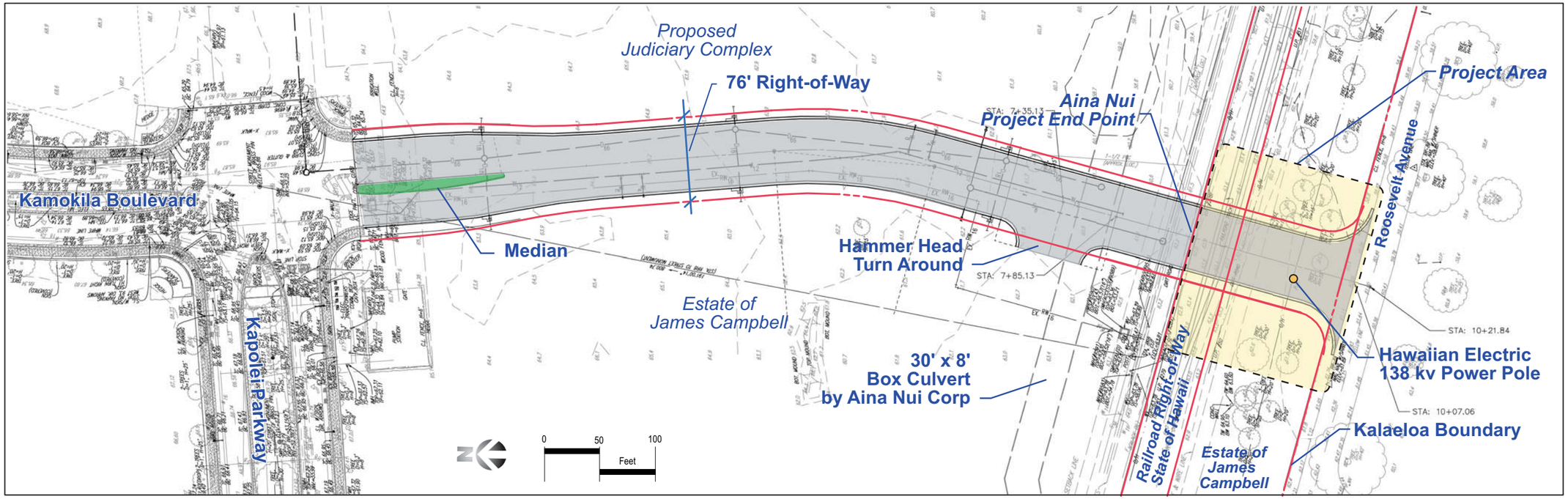
Features:

1. Two travel lanes
2. 76-foot right-of-way
3. Continuation of original EJC alignment

Alternative A was based on an early design concept prepared by EJC for its roadway extension. The roadway was designed to start as a 100-foot right-of-way at the Kamokila/Kapolei Parkway intersection and then taper down to a 76-foot right-of-way about 180 feet from the intersection. A 10-foot wide median was proposed within this short tapered segment of the roadway. Beyond this segment, the roadway was designed with two travel lanes, one heading south and the other north with no median dividing the two travel lanes. Aina Nui's proposal was to build a hammerhead turnaround at the point of the roadway that ended about 80 feet from the State's railroad right-of-way. A 30-foot wide by 8-foot deep box culvert was also planned in this same location to handle a projected storm water flow of 2,100 cubic feet per second.

Alternative A continued the alignment originally proposed by EJC for its extension. As shown in Figure 4, continuing this alignment to Roosevelt Avenue would have resulted in a conflict with a Hawaiian Electric Company 138kv power pole. This large, steel power pole is located on EJC land on the south side of the railroad right-of-way.

Project site, looking south toward Roosevelt Avenue, railroad tracks in foreground. Alternative A would require removal of the 138kV power pole. Alternatives B, C and D allow the pole to remain.



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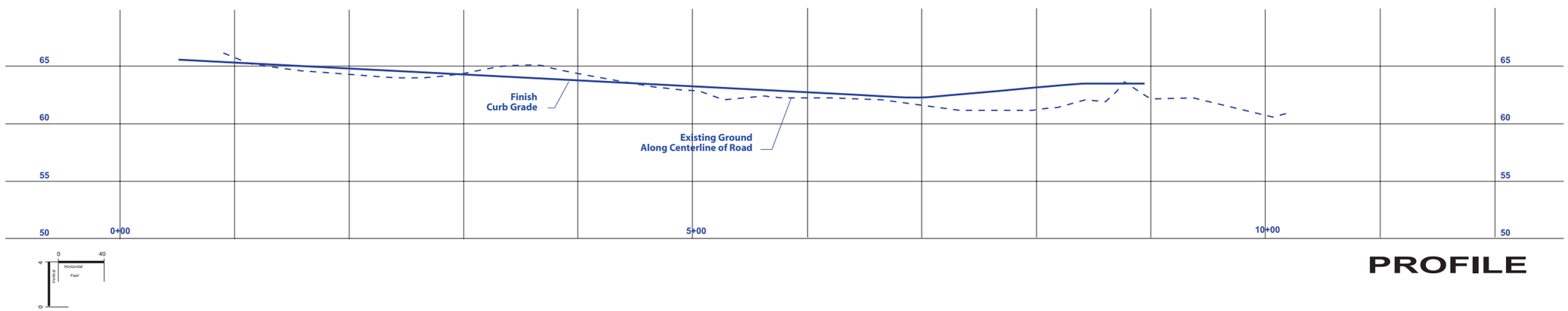


PROFILE

Figure 4
Alternative A: Original Design Concept

In order to address the conflict with the power pole, the City considered the following options:

1. Remove the pole and place the transmission lines underground within the roadway right-of-way,
2. Remove the pole and install two additional poles, one on each side of the roadway right-of-way
3. Realign the roadway to enable the existing pole to remain

Options 1 and 2, to remove the pole and replace it with underground or new above-ground poles, are technically possible, but would be very expensive and could involve significant power outages as the 138 kV and 46 kV lines were being modified. Therefore, Option 3, other roadway alignments, was pursued, and Alternative A was eliminated from further consideration.

Alternatives B, C and D (described below) represent the design alternatives which allow the electrical pole to remain.

At the same time, the City and County Department of Planning and Permitting, in its review of the EJC plans, requested that the roadway right-of-way be increased to 100 feet, and that a median be included. Alternatives B, C and D include this 100-foot wide ROW.

2.5.2 Alternative B (Preferred Alternative): 138 kV Pole in Median

Features:

1. Four travel lanes
2. 100-foot right-of-way
3. 138 kV pole in Median

Alternative B, shown in Figure 5, was eventually selected as the Preferred Alternative. In this alternative, the roadway is aligned so that the Hawaiian Electric Company 138kv power pole falls within the 20-foot wide median. The location of the power pole within the median is also designed to accommodate a left turn pocket if warranted. Because this alternative requires a wider right-of-way (than original Alternative A), this alternative reduces the amount of real estate on the Judiciary Complex by approximately 2,034 SF.

As noted previously, this alternative includes a 100-foot right-of-way, four 11-foot wide travel lanes and a 20-foot wide median. Bike lanes, sidewalks, shoulders, and a landscaped buffer area are provided on both sides of the road.

2.5.3 Alternative C: 138 kV Pole on Western Side

Features:

1. Four travel lanes
2. 100-foot right-of-way
3. 138 kV pole on western side

Alternative C (Figure 6) is based on the same design parameters as Alternative B. The only difference is the alignment has shifted to the east and the 138kv power pole falls outside of the right-of-way on the western (Ewa) side.

This alternative would have reduced the amount of real estate on the Judiciary Complex by 27,776 SF, significantly more than Alternative B. Because the planning for the Judiciary Complex is well underway, this loss of real estate could prove to be a hardship for the State Judiciary which would be forced to modify its plans for the new facility. Therefore, this alternative was seen as less favorable than Alternative B.

2.5.4 Alternative D: 138 kV Pole on Eastern Side

Features:

1. Four travel lanes
2. 100-foot right-of-way
3. 138 kV pole on eastern side

This alternative (Figure 7) is based on the same design parameters as Alternative B. The only difference is the alignment has shifted to the west and the 138kv power pole falls outside of the right-of-way on the eastern (Diamond Head) side. Because of the shift of the roadway alignment, this alternative increases the amount of real estate on the Judiciary Complex side by 26,983 SF. While the Judiciary site would increase in size, the vacant parcel across the street would be reduced by a comparable amount. This site has been identified by Campbell Estate as future commercial property. The large reduction in square footage could diminish the desirability of this site, and reduce potential revenue generation for EJC. This alternative was seen as likely to meet resistance from EJC, and was determined to be less favorable than Alternative B.

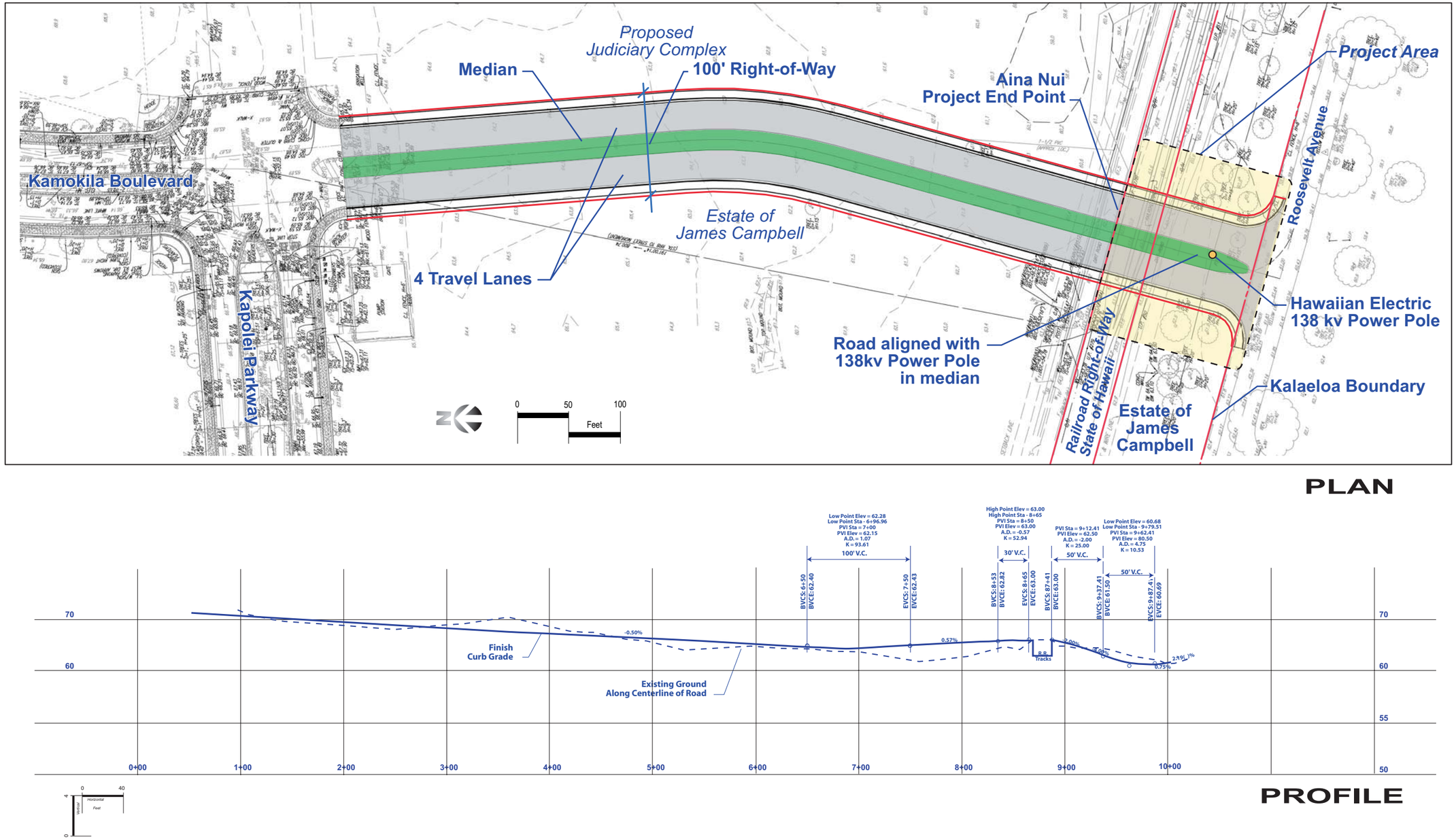
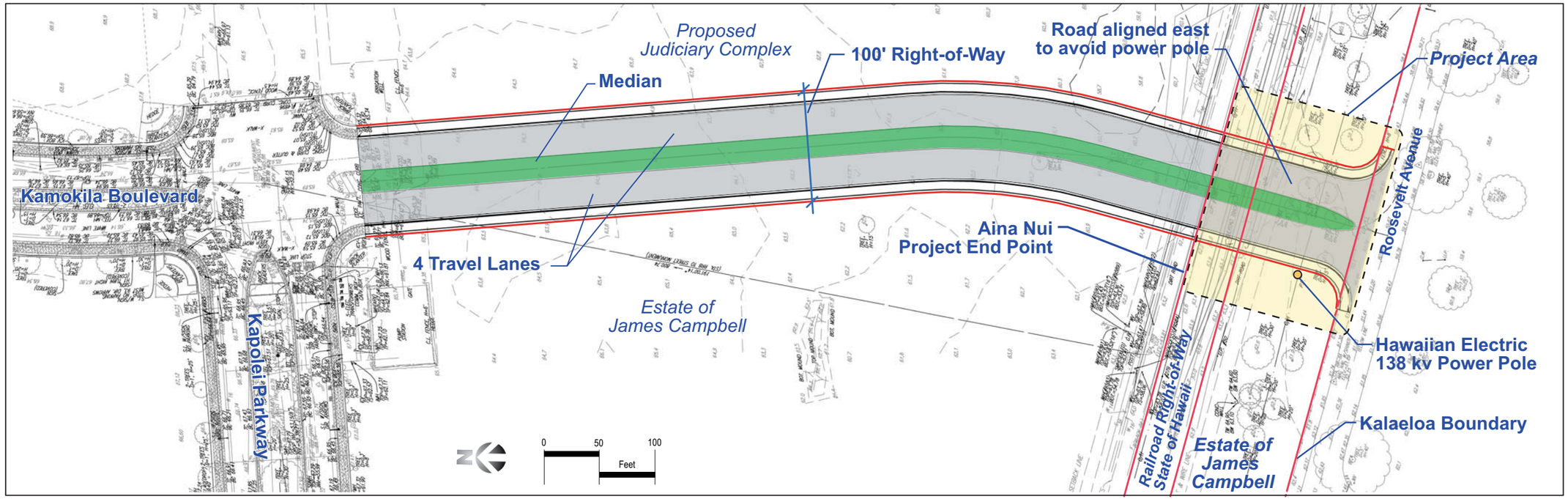


Figure 5
Alternative B: (Preferred Alternative)
Utility Pole in Median



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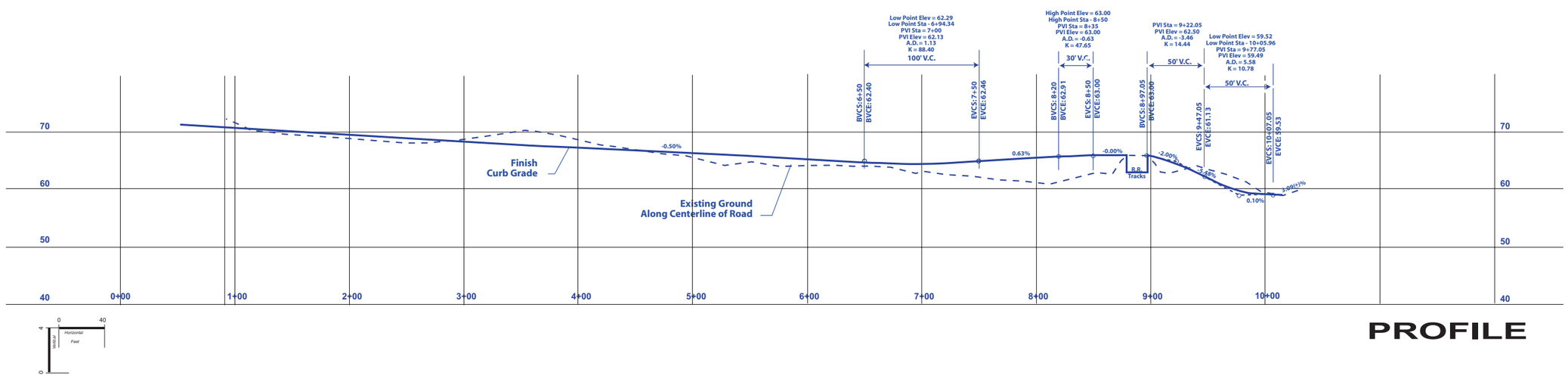

PROFILE

Figure 6
Alternative C: Utility Pole on Western Side

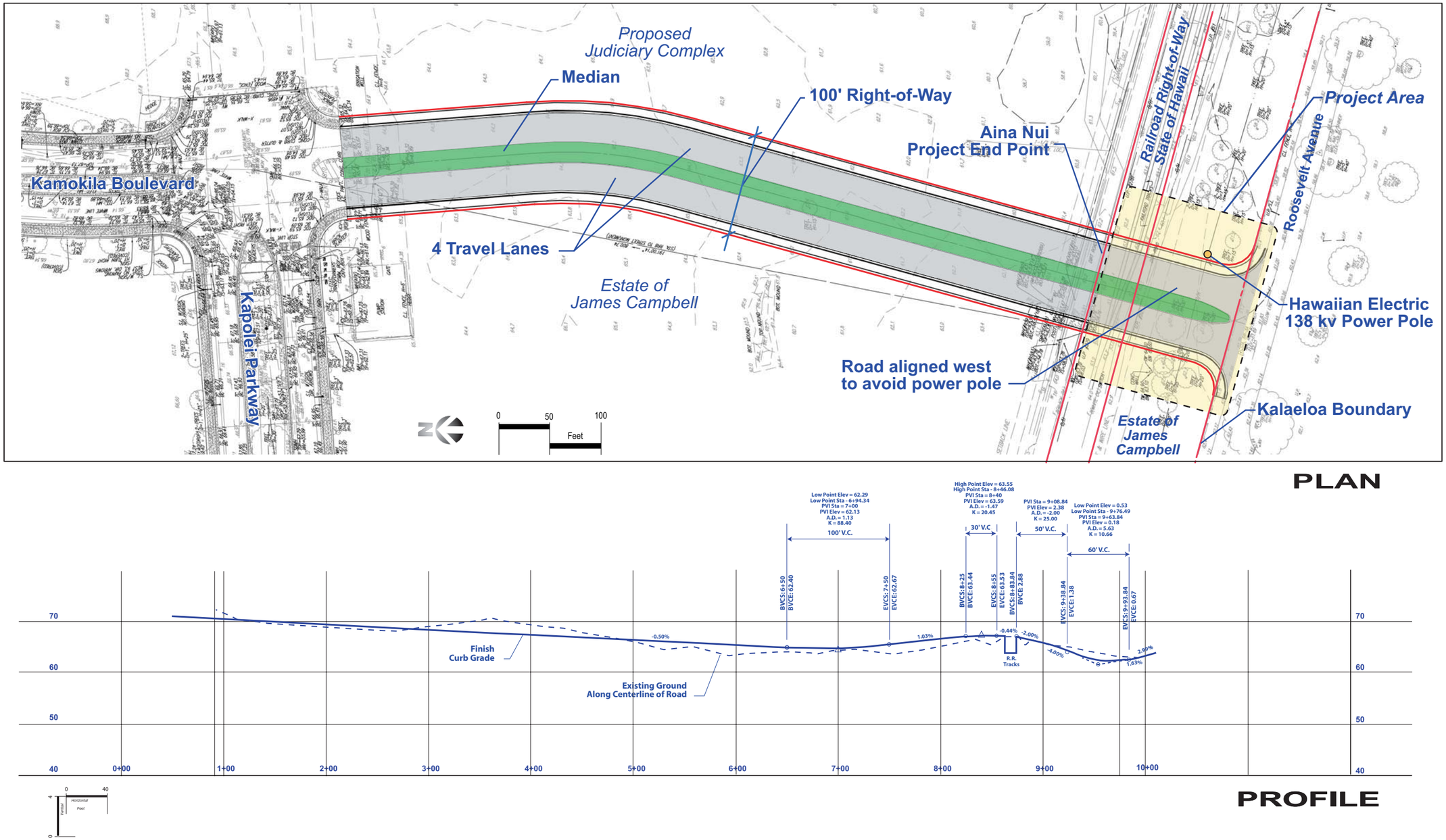

Figure 7
Alternative D: Utility Pole on Eastern Side

2.5.5 Summary of Design Alternatives

Alternative A was eliminated from consideration because of the extremely high cost of relocating the electrical power pole, and the Department of Planning and Permitting requirement that the roadway extension include a 100-foot ROW.

Of the other three design alternatives (B, C and D), Alternative B is preferred because it accommodates the power pole with minimal net changes to the size of the Judiciary Complex parcel, as well as minimal impact to Campbell Estate's future commercial (revenue-generating) lands to the west. As a result, Alternative B was pursued as the preferred alternative.

2.6 ANTICIPATED CONSTRUCTION SCHEDULE

The anticipated construction start for the project will depend on funding availability (City and federal) and the selection of a construction contractor. Planning and design for the project is City-funded. The City still needs to secure additional construction funding, and federal funds may be requested. Construction cost is estimated at $2.5 million.

If the necessary funding is secured, construction could start as early as Fall 2007, with construction duration of approximately one year. However, commencement of construction is contingent on the EJC completing their roadway extension and drainage improvements.

3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 INTRODUCTION

This chapter describes the existing environment, potential project impacts and proposed mitigation. This chapter is organized by resource area, and is generally divided into: 1) physical environment, 2) biological environment, 3) socio-economic environment, 4) utilities and infrastructure, 5) traffic, and 6) public facilities and services.

The discussion of environmental impacts includes both direct and indirect impacts. Direct impacts are those caused by the action and occur at the same place and time. Indirect effects may occur later in time or farther in distance, but are still reasonably foreseeable. The analysis in this chapter also identifies possible cumulative environmental impacts. Cumulative impacts are defined as the results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

In addition to evaluating the environmental impact of the proposed action, this chapter evaluates the impact of the project alternatives. The environmental analysis in this chapter provides the analytic basis for comparing the alternatives.

3.2 PHYSICAL ENVIRONMENT

3.2.1 Location

The proposed Kamokila Boulevard extension encompasses approximately 0.5 acres of land in the City of Kapolei, in the Ewa plain, on the southwestern end of the island of Oahu. The property is bounded by Kapolei Boulevard to the north, Kalaeloa Boulevard to the west, unimproved residentially zoned lands to the east, and by Franklin D. Roosevelt Avenue to the south. The property is located between the State-owned Oahu Railway and Land (OR&L) Company right-of-way and Roosevelt Avenue.

3.2.2 Land Ownership History

The project area is comprised of parcels TMK (1) 9-1-016, 12 and 32. The parcels are shown on Figure 8. Parcel 12, which is the area south (makai) of the railroad right-of-way, has been under the ownership of the James Campbell Trust Estate since the 1800's. Until 1954, the area comprising Parcel 12 was part of a larger Parcel 5. Both parcels were leased to Ewa Plantation Company. In 1968, Ewa Plantation merged with Ewa Sugar Company, Inc. In 1970, it merged with Oahu Sugar Company of Waipahu. The surrounding area continued in sugar cane production.

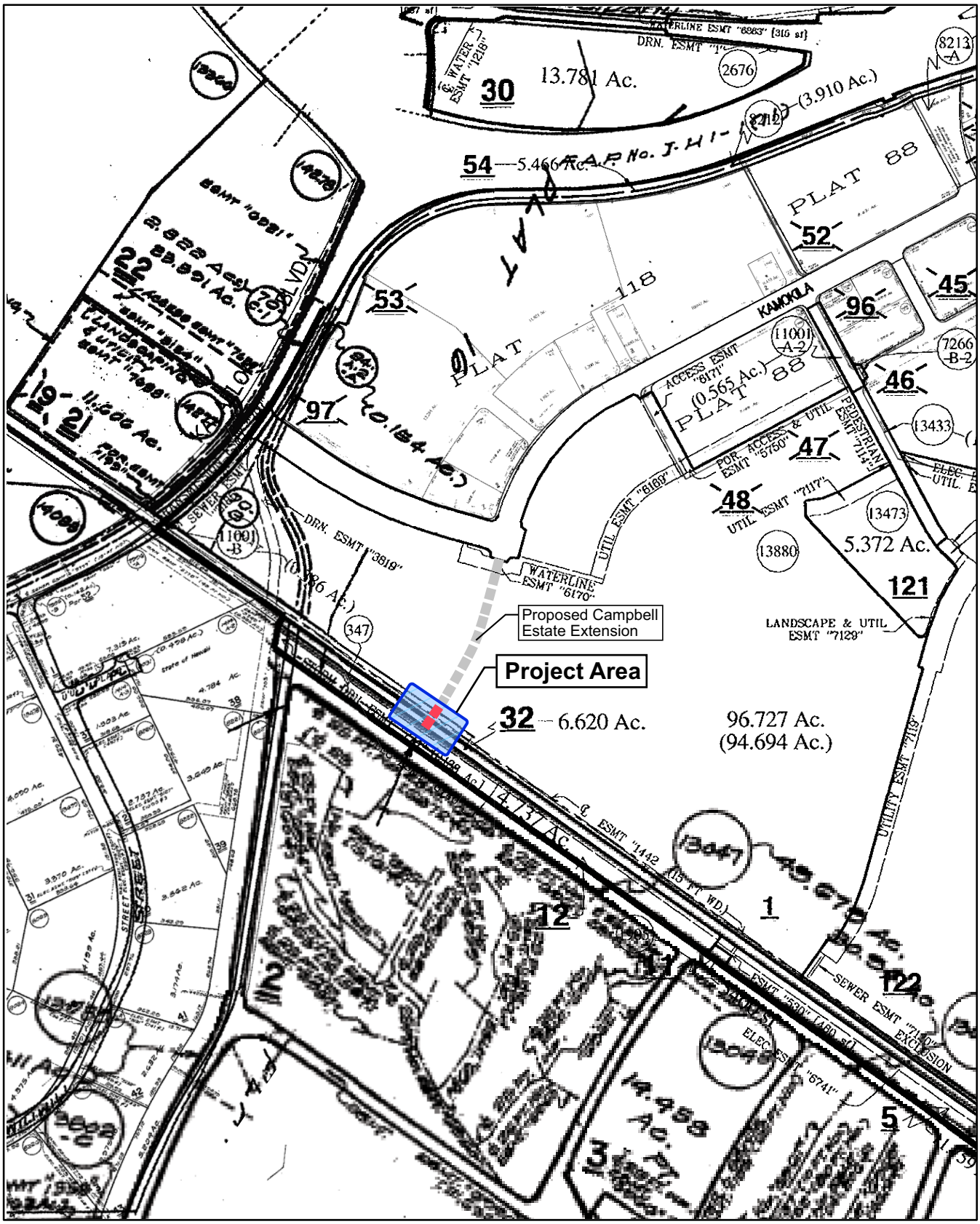

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Figure 8
Tax Map

Existing Intersection of Kamokila Boulevard and Kapolei Parkway

Project site looking south, as seen from approximate location of EJC's proposed roadway extension.

The property identified as (1) 9-1-16 Parcel 32, the railroad right-of-way, is part of a 12.5-mile long stretch of track, the longest remnant of an original 175 miles of track operated by the Oahu Railway & Land Company (OR&L). The railroad was built in 1889 by Benjamin Franklin Dillingham, who subsequently formed the OR&L Company. The railway was used to transport passengers and sugar during Oahu's plantation days in the late 1800's to the mid 1900's. OR&L Company ceased operation in 1947. Parcel 32 was acquired by the federal government (Navy) in 1951, and transferred to the State of Hawaii Department of Transportation in 1980.

In recent years, portions of the railroad track have been restored by the non-profit Hawaiian Railway Society. As part of its efforts to save Hawaii's railroad history, the Hawaiian Railway Society has restored about 6.5 miles of track, including the portion through the project area. Regularly scheduled commercial rides run through the project area, from the Hawaiian Railway Society's baseyard in Ewa Villages (east of the project area) to Kahe Point on the leeward coast. The regular rides occur on weekends, with occasional charter train rides during the week.

The regular rides occur on weekends, with occasional charter train rides during the week. The historic railroad tracks are discussed further in Section 3.4.2 of this chapter.

In 1972, the state facilitated the development of an energy corridor through the project area. The energy corridor allowed for the installation of fuel pipelines to be set underground and transport fuel from the refineries in Campbell Industrial park to tank farms and distribution centers in Honolulu, such as Honolulu International Airport. The pipelines are located on both sides of the railroad tracks.

TMK (1) 9-1-016 parcel 1, shown on the map, is located makai of the OR&L right-of-way, and is not included in the DTS project area.

The area immediately south (makai) of Roosevelt Avenue is Kalaeloa, formerly the Naval Air Station (NAS) Barbers Point. The air station was closed in 1999 as part of the federal base realignment and closure, but the perimeter fence around the former air station remains. Ownership of Roosevelt Avenue, inside the former air station boundary, was initially transferred to the Barbers Point Redevelopment Commission, and more recently to the State of Hawaii Department of Transportation. The surrounding land areas of Kalaeloa (makai of Roosevelt Avenue) are owned by the State of Hawaii, and are currently undeveloped.

3.2.3 Topography

Existing Conditions

The existing topography for the project area is relatively flat and has a gentle slope from Kapolei Parkway (elevation 65.6 feet) to Roosevelt Avenue (elevation 61 feet). Generally, the gradient of the site slopes slightly to the south/southwest. A large drainage culvert that leads to the ocean is located just southwest of the project area.

Fence line at former NAS Barbers Point boundary. Property on left side of fence is owned by the Estate of James Campbell. Roosevelt Avenue (right side of fence) is owned by the State.

Project Impacts and Mitigation

Impact of Alternatives

None of the alternatives will impact the site topography. Only minor grading will be required to construct the road extension.

3.2.4 Soils and Geology

Existing Conditions

The project area rests on land along the Ewa coastal plain of Oahu, which roughly encompasses the area from Pearl Harbor in the east to Kalaeloa in the west. This plain mainly consists of an emerged, ancient fringing coral reef that formed during periods of higher sea level. This emerged reef is primarily composed of consolidated marine calcareous sediments. It also consists of some layers or alluvium derived from the basaltic uplands to the north of the site (Pacific Geotechnical Engineers, 2005).

The U.S. Department of Agriculture Soil Conservation Services (now Natural Resource Conservation Service) classifies the soil as Mamala stony silty clay loam (coral limestone and calcareous sand with alluvium) (Figure 9). The soil type was derived as alluvium from igneous rock and deposited with upper elevations onto the coastal plain as the sea level receded.

The Mamala soil series is well-drained and found at nearly level to moderately sloping lands. Stone, mostly coral fragments, are common in the surface layer and in the profile.

Project Impacts and Mitigation

The project improvements will not affect soils or cause erosion. A geotechnical report for the project (Appendix A) noted that the coral reef deposits below the surface alluvial silty gravel should provide sufficient support for the proposed road extension. Primary geotechnical concerns at the site include:

- Presence of alluvial silty gravel at the surface. It is recommended that this material be removed and replaced with properly compacted granular select borrow.
- Potential presence of voids or cavities in the coral reef deposits. If encountered, they will need to be cleaned of soft or loose material and backfilled with properly compacted fill prior to road construction.
- Potential difficulty in excavating hard, well-cemented coral. The near surface coral ledge encountered in the boring was well cemented and medium hard, which could make excavation difficult. Excavation of the coral will need to be done carefully to reduce potential vibrations and potential disturbance to existing underground lines and utility poles.

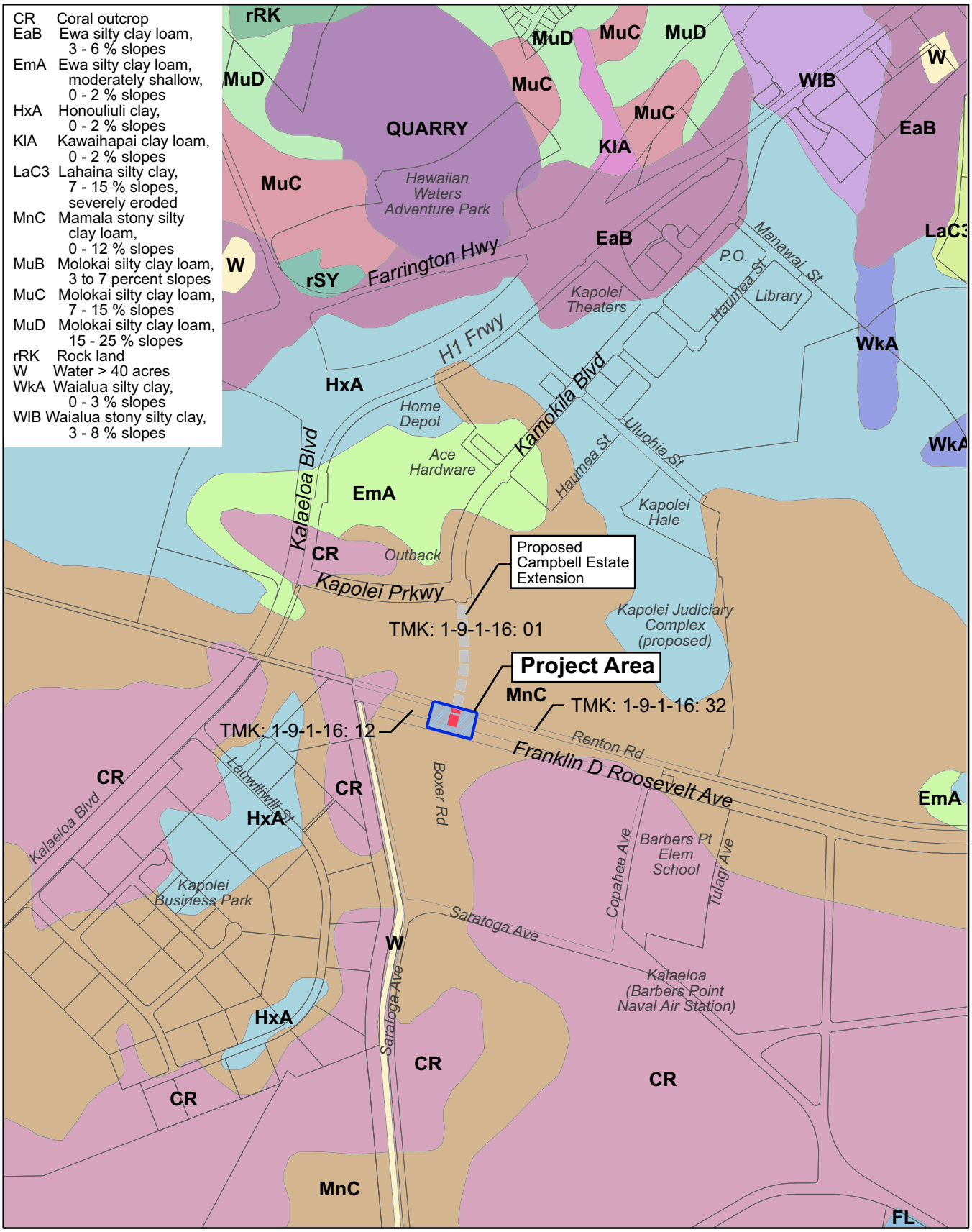


Figure 9
Soils

- Presence of existing underground utility lines. The utility corridor crossing the project site is known to include two 8-inch diameter fuel lines, a 14-inch diameter water line, a 16-inch diameter water line, and a 36-inch diameter sewer line. Care will be taken to reduce potential damage to these lines.

The geotechnical report in Appendix A included a list of recommendations for road design, site preparation and excavation. The findings will be incorporated into the project planning and design.

Impact of Alternatives

All build alternatives would have similar geotechnical concerns and require similar mitigation. The no action alternative would have no geotechnical or soil impacts.

3.2.5 Climate and Air Quality

Existing Conditions

Climate on the Island of Oahu is influenced by its subtropical location, topography, and the surrounding Pacific Ocean. Precipitation is primarily associated with the prevailing northeasterly trade winds that are intercepted and forced upwards at the Koolau and Waianae mountain ranges. Trade winds are less pronounced in the Ewa area, with local and land breezes prevailing most of the year. Average temperatures on Oahu range from 72 degrees Fahrenheit in January to 78.5 degrees Fahrenheit in August.

National Ambient Air Quality Standards (NAAQS) have been established for seven major air pollutants: carbon monoxide (CO), nitrogen oxides (NO_x), ozone (O_3), particulate matter smaller than 10 microns (PM_{10}), particulate matter smaller than 2.5 microns ($PM_{2.5}$), sulfur oxides (SO_x), and lead. Air pollutant levels are monitored by the State Department of Health (DOH) at a network of sampling stations statewide. The State monitors PM_{10}, sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO) and ozone (O_3).

Based on ambient air monitoring data, the U.S. Environmental Protection Agency has classified the island of Oahu and the State of Hawaii as being in attainment of the federal standards.

The Ewa Plain includes the largest industrial park in the State of Hawaii, the James Campbell Industrial Park, located southwest of the project site. Businesses within the industrial park provide a wide range of manufacturing, power generation, construction and waste management services. It includes 100 percent of the State's oil refining, most of State's gas manufacturing, and a large percentage of Oahu's electrical generation. Consequently, stationary-source air pollution emissions are concentrated in this area. Air monitoring data collected by the Department of Health Clean Air Branch indicate that national and state standards have been met in the region.

The DOH operates an air monitoring station just a few hundred meters southwest of the proposed Kamokila Boulevard extension. Air quality data from that site and from Sand Island, the only ozone monitoring site, indicates good air quality in the project area.

On site carbon monoxide sampling was conducted for this project at the existing terminus of Kamokila Boulevard. CO concentrations measured on two consecutive mornings found low concentrations, well below the regulatory standard.

Project Impacts and Mitigation

An Air Quality Report was completed by James Morrow, and is included as Appendix B. The purpose of the report was to assess the short and long-term impacts of the proposed roadway extension on air quality. The project is considered an "indirect source" of air pollution as defined in the federal Clean Air Act, since its primary association with air quality is its inherent attraction for mobile sources, i.e., motor vehicles. Much of the focus of the analysis, therefore, was on the project's ability to generate additional traffic in the project area with its resultant impact on air quality. Air quality impact was evaluated for near term (2010) and long-term (2025) conditions, with the proposed roadway.

During construction of the road, air pollutant emissions will be generated both on site and off site by vehicular movement, grading, concrete and asphalt batching, and general dust-generating construction activities. These impacts have also been addressed.

Short-Term Impacts

The principal source of short-term air quality impact will be construction-related activity. Construction vehicle activity can at times increase automotive pollutant concentrations along adjoining streets as well as on the project site itself. Site preparation and earth moving will create particulate matter (PM) emissions as will construction of the new roadway. Construction vehicle movement on unpaved areas will also generate PM emissions.

Given the area's semi-arid climate, there may be an increased potential for fugitive dust. During construction, dust control measures such as frequent watering of unpaved roadway sand areas of exposed soil will be employed. The soonest possible paving of roadways and landscaping of bare areas will also reduce dust emission. Transported or stored soils will be covered.

Because there are no existing residential uses in close proximity to the project area, there should be no construction related impacts on surrounding residents. However, construction activities will employ fugitive dust emission control measures in compliance with provisions of the State DOH Rules and Regulations (Chapter 43, Section 10) and Hawaii Administrative Rules (HAR) Chapter 11-60.1, "Air Pollution Control," Section 11-60.1-33 on Fugitive Dust.

There will also be some offsite impacts attributable to construction activity due to the operation of concrete and asphalt batching plants. These plants routinely emit particulate matter, though the impact of this project is expected to be minimal.

Long-Term Impacts

The evaluation of mobile source air quality impact was based on the traffic analysis report prepared by Julian Ng, Inc. Automotive emission of CO was estimated for years 2010 and 2025, with and without the project. CO concentrations were estimated at an array of 60 receptor sites spaced at a distance of 10 meters along each leg of the Kamokila Boulevard-Roosevelt Avenue intersection.

The results suggest that under worst case conditions of meteorology and traffic, both the federal and state 1-hour and 8-hour CO standards would be met. The changes in CO levels are insignificant due to the relatively small changes in projected traffic. No special mitigative measures are required.

There will be a long-term increase in traffic in the Kapolei region due to future residential and commercial development planned over the next 10 to 20 years. This future growth will occur with or without the Kamokila Boulevard extension. The project will actually alleviate traffic congestion in the area, which may indirectly and cumulatively have a positive impact on air quality.

Impact of Alternatives

None of the project alternatives will have a significant impact on long-term air quality. The no action alternative will not have construction-related impacts, but will do nothing to improve roadway connectivity. Vehicle delays and localized emissions could get worse as future development in the area continues.

None of the design alternatives will increase roadway capacity or the number of vehicles on the road. All alternatives that involve construction will have some minor, short-term air quality impacts associated with earthmoving activities and operation of construction equipment.

3.2.6 Hazardous Materials

Existing Conditions

A Phase I Environmental Site Assessment for the project site was conducted in 2005 (Kimura International, June 2005). The study is attached as Appendix C. A federal and state database search identified areas in and around the property that posed potential environmental concern.

The Phase I study reviewed the ownership history of the project site. Although much of the site and surrounding areas were used for active sugar cane cultivation, the study noted that any oil or pesticides applied during this period would have degraded to levels that do not pose a health threat.

Petroleum products such as gasoline, jet fuel, diesel and fuel oil have been transported through the energy corridor over the years. There have been spills and leaks associated with the pipelines. However, a review of State Department of Health records does not indicate any releases or spills in or near the project area. The pipelines have cathodic protection to prevent corrosion, and are routinely maintained and tested.

Project Impacts and Mitigation

Because of the presence of fuel pipelines in the project area, there is the potential for damage during excavation or construction of the roadway. Construction in the area will include surveys to determine the pipeline locations, and close coordination with Chevron and other utility companies will be maintained.

Impact of Alternatives

All of the build alternatives would cross the existing utility corridor and result in similar risks to existing fuel pipelines during subsurface work. Similar mitigation measures would be required. The no action alternative would not impact fuel lines in the area.

3.2.7 Natural Hazards

Existing Conditions

The Flood Insurance Rate Map (FIRM) for the island of Oahu prepared by the Federal Emergency Management Agency (FEMA) identifies flood hazard and flood prone areas. The entire roadway corridor and surrounding area is within Zone D (Figure 10). Zone D represents areas in which flood hazard is undetermined, and outside of the 100-year and 500-year flood zone (Federal Emergency Management Agency).

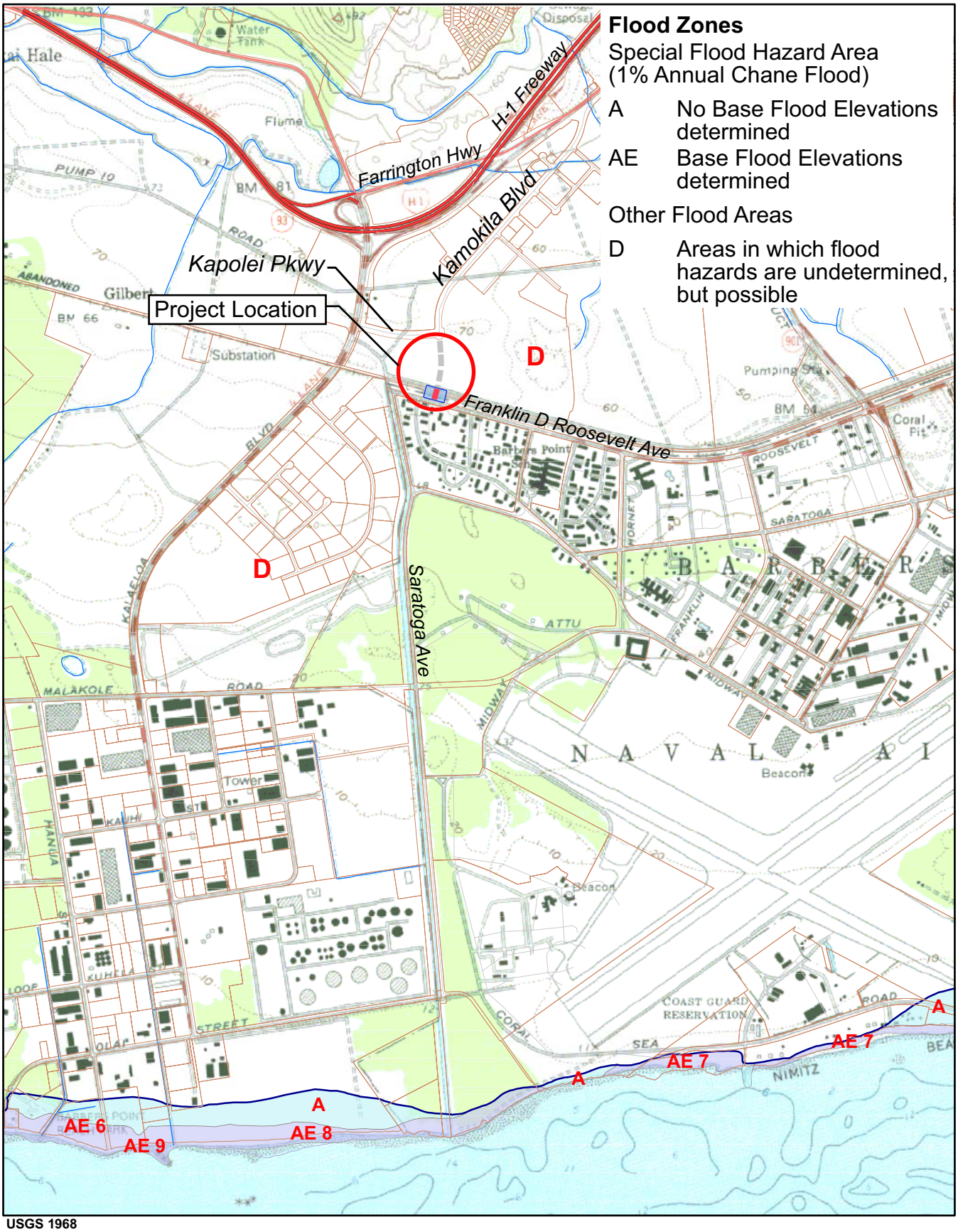
The site is not particularly susceptible to other natural hazards such as tsunami, earthquake or volcanic hazards.

Project Impacts and Mitigation

There will be no short-term construction-related impacts on natural hazards or on hazard preparedness. However, in the long term, the improved roadway connectivity in the Kapolei area could have a positive impact on emergency preparedness by improving the local roadway patterns and creating alternate travel routes in the event of a natural disaster.

Impact of Alternatives

None of the project alternatives will impact the occurrence of natural hazards or the impact of these hazards on the area population.



USGS 1968

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Figure 10
Flood Insurance Rate Map

3.2.8 Hydrology

Existing Conditions

Groundwater

The primary drinking water in the Hawaiian Islands is drawn from basal groundwater. Basal groundwater is formed by rainwater percolating down through the residual soils and permeable volcanic rock. The water forms as a lens of drinking water floating on seawater.

There are two aquifers beneath the project area. The upper aquifer is listed as unconfined, that is, the aquifer is not confined under pressure beneath relatively impermeable rocks or soil. The groundwater in this upper aquifer is currently in use, considered replaceable, moderately saline, and highly vulnerable to contamination. It is not of drinking water quality nor ecologically important. The lower, deep aquifer is listed as confined within flank-structured (horizontal) basalts. This lower groundwater is of low salinity, considered not of drinking water quality or ecologically important, but currently in use. The deep aquifer is irreplaceable, but of low vulnerability to contamination (Mink and Lau in Kimura International, 2005).

The Ewa area overlies the Southern Oahu Basal Aquifer, which is designated by the U.S. Environmental Protection Agency (USEPA) as a sole source aquifer. A sole source aquifer supplies 50 percent or more of the drinking water for an area. There are 70 USEPA-designated sole source aquifers nationwide, and two in Hawaii (the other being the Molokai Aquifer).

After an area is designated as a sole source aquifer, any Federal financially assisted project planned for this area must be coordinated with the Regional EPA Office, in accordance with Section 1424(e) of the Safe Drinking Water Act of 1974.

Surface Water

There are no streams or natural water bodies in the immediate project vicinity. The highly permeable soil and rock in the area allow storm water to infiltrate into the ground. There are no wetlands at the project site.

Project Impacts and Mitigation

The construction of a road will slightly alter existing drainage patterns, possibly reducing the amount of storm water that currently percolates into the ground, and diverting it to EJC's proposed Makai Drainage Channel. Drainage improvements are discussed below in Section 3.5.

The proposed 200-foot segment of roadway will slightly increase impervious surfaces in the area, but will not significantly increase non-point source pollution.

The proposed construction of the Kamokila Boulevard extension will not impact groundwater or surface water resources. Consultation has been conducted with the USEPA Region 9, Water Division, to verify that the project will not adversely impact the Southern Oahu Basal Aquifer, one of two sole source aquifers in Hawaii. In a January 31, 2006 e-mail, Mr. John Ungvarsky of the USEPA noted "the project adequately meets the requirements in Section 1424(e) of the Safe Drinking Water Act pertaining to Sole Source Aquifers (SSAs). Although it does not appear as though the project will impact the SSA, please ensure that any chemicals used as part of the construction process are properly disposed of."

Impact of Alternatives

None of the proposed alternatives will have direct, indirect or cumulative impacts on hydrologic resources in the area.

3.2.9 Noise

Existing Conditions

An environmental noise assessment report of the project area was conducted by D.L. Adams Associates, Ltd. and is included as Appendix D.

Noise Standards

Various local and federal agencies have established guidelines and standards for assessing environmental noise impacts and noise limits as a function of land use. These are discussed in detail in the noise assessment report.

The State of Hawaii Community Noise Control Rule, enforced by the State Department of Health (DOH), identifies three classes of zoning districts and corresponding maximum permissible noise levels due to *stationary* noise sources. The Community Noise Control Rule does not specifically address *moving* sources, such as vehicular traffic noise or air traffic noise.

The Federal Highway Administration (FHWA) defines four land use categories and assigns corresponding maximum hourly equivalent sound levels, Leq(h), for traffic noise exposure. These limits are viewed as design goals, and projects meeting these limits are deemed in conformance with FHWA noise standards.

The State of Hawaii Department of Transportation (HDOT) has adopted the FHWA's design goals for traffic noise exposure. A traffic noise impact occurs when predicted traffic noise levels "approach" or exceed FHWA's design goals, or when the predicted traffic noise levels "substantially exceed the existing noise levels." "Approach" means at least 1 dB less than FHWA's design goals, and "substantially exceed the existing noise levels" means an increase of at least 15 dB.

The U.S. Environmental Protection Agency has established a goal to reduce exterior environmental noise to a day-night equivalent sound level (Ldn) not exceeding 65 dBA, and a future goal to further reduce it to no more than 55 dBA. These goals are not intended as regulations, but rather as levels below which the general population will not be at risk from any of the identified effects of noise.

Existing Conditions

Long-term ambient noise measurements were conducted at the proposed intersection of Kamokila Boulevard and Roosevelt Avenue in January 2006. Noise levels generally range from 45 dBA at night to around 60 dBA during the day. The Day-Night Level (Ldn) was calculated to be 57 dBA. Dominant noise sources in the area included traffic on Kamokila Boulevard and Kapolei Parkway, and aircraft noise from airplanes landing at Honolulu International Airport. Secondary sources included distant construction noise, birds and wind.

Project Impacts and Mitigation

Short-Term Construction Impacts

During construction, the dominant noise sources will probably be earth moving equipment such as bulldozers, pavers, and diesel powered trucks. Although these activities will generate noise, there are no noise sensitive developments in proximity to the construction area that would be impacted.

All project activities will comply with the Department of Health (DOH) Administrative Rules Chapter 11-46, “Community Noise Control.” 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 DOH) to allow the operation of vehicles, construction equipment, power tools, etc. which emit noise levels in excess of the “maximum permissible” levels.

In order to obtain a construction noise permit, the contractor must submit a noise permit application to the DOH describing construction activities for the project. The State may, in turn, require the contractor to incorporate noise mitigation into the construction plan, conduct noise monitoring, or hold community meetings. The construction contractor will use reasonable and standard practices to mitigate noise, such as muffled equipment. In addition, the DOH, at its discretion, may require additional mitigation such as temporary noise barriers or time of day usage limits for certain kinds of construction activities.

Project-Generated Traffic Noise

A vehicular noise analysis was completed for existing traffic, future year 2010 traffic projections, and future year 2025 traffic projections. Future noise at two locations was analyzed—one location on Roosevelt Avenue and the other on Copahee Avenue near the Barbers Point Elementary School. Projected noise at both locations was below the FHWA/HDOT maximum noise limit of 67 dBA. Although completion of the Kamokila Boulevard extension

will cause noise on Roosevelt Avenue to increase noticeably, it will be less than a 15 dB increase over existing traffic levels. HDOT considers an increase of 15 dB or more a "substantial" increase.

In addition, the study noted that traffic on Roosevelt Avenue only comprises a small portion of the ambient noise along this road, due to very light existing traffic. Other noise sources, including nearby roads and overflying aircraft comprise more the ambient noise.

The project will not have a significant noise impact on the surrounding community because predicted traffic noise levels are less than the 67 dBA limit, and the noise increase caused by the new traffic will be less than 15 dB. No mitigation for vehicular traffic noise is required.

Impact of Alternatives

All of the project alternatives, except no action, would have similar construction period noise impacts. None of the alternatives would have significant long-term noise impacts along the Kamokila Boulevard corridor. The inclusion of sidewalks, bike lanes, and landscaped buffers further minimize traffic noise effects.

3.3 BIOLOGICAL ENVIRONMENT

3.3.1 Flora

Existing Conditions

Vegetation

An assessment of the botanical resources on site was conducted in July 2005 (Morden & Associates), and is included as Appendix E. The objective of the study was to describe the existing vegetation, and to identify the presence of threatened or endangered species. During the site visit, there was evidence that the site had recently been grubbed and some of the larger trees cleared up to the fence line that parallels Roosevelt Avenue. However, plant species were still present and identifiable.

There are several known endangered plant species in the Ewa region that could potentially have been at the site. The principal species include *Abutilon menziesii*, *Chamaesyce skottsbergii var skottsbergii*, and *Achyranthes splendens var. rotundata*. None of these species were found during the survey.

The habitat at the site was characterized as open grassland with intermittent herbaceous vegetation and localized woodlands. A number of weeds common to this habitat (xeric coastal plains with coralline soils) were present. Two native Hawaiian species were found at the site: ʻilima (*Sida fallax*) and ʻuhaloa (*Waltheria indica*). Both of these species are indigenous to the Hawaiian Islands and are common in this habitat.

The common trees that make up the canopy vegetation are located between the railroad tracks and the fence line parallel to Roosevelt Avenue. The larger trees are kiawe (*Prosopis pallida*) and smaller trees include koa haole (*Leucaena leucocephala*) and young opiuma (*Pithecellobium dulce*) trees primarily along the fence.

The area along the fence line on the Roosevelt Avenue site was dominated by bufflegrass (*Cenchrus ciliaris*) with occasional koa haole, kiawe, and opiuma trees. Occasional other herbs (i.e., lion's ear, and currant tomato) or vines (Hairy merremia) were found growing with the grass or on the fence, but in general, growth was very heavy and impenetrable by most other species.

Sida fallax (*'ilima*), indigenous species found commonly at the site. Buffelgrass is prevalent throughout and young kiawe tree in background.

Waltheria indica (*'uhaloa*), indigenous species found occasionally throughout the site.

Project Impacts and Mitigation

The proposed road is not expected to have a significant negative impact on the botanical resources. Road construction will require clearing the existing vegetation, but all vegetation types are common in the area. No threatened or endangered species will be affected.

Impact of Alternatives

Under the no-action alternative, there would be no change to existing site conditions or the biological environment. The area would remain in its undeveloped condition. Other build alternatives would also require vegetation clearing and would have impacts similar to the preferred alternative. No threatened or endangered plant species would be affected by any of the alternatives.

3.3.2 Terrestrial Fauna

A survey of avian and terrestrial mammalian species in the project area was conducted in August 2005 (Rana Productions, Ltd. 2005). The primary purpose of the survey was to determine if there were any federally or State listed endangered, threatened, proposed, or candidate avian or mammalian species on, or in the immediate vicinity of the site. The report is included as Appendix F.

Existing Conditions

Mammalian Species

Observations of mammalian species were limited to visual and auditory detection, coupled with visual observation of scat, tracks, and other animal sign. With the exception of the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), all terrestrial mammals currently found on Oahu are alien species, most are ubiquitous.

Two mammalian species, the domestic dog (*Canis f. familiaris*) and small Indian mongoose (*Herpestes a. auropunctatus*) were detected within the study site. Neither of these species was seen, however, scat, tracks and sign of both species were encountered within the site. Both of these introduced mammalian species are deleterious to native avian species.

Although no rodents were detected during the course of the 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 these rodents are deleterious to remaining native ecosystems and the native floral and faunal species that are dependent on them for survival.

The findings of the mammalian survey are consistent with the findings of several other faunal surveys conducted on lands in the general vicinity. The xeric nature of the site coupled with its

lack of cover makes it unattractive to most of the mammalian species currently established on Oahu.

Avian Species

One avian count station was sited in the middle of the project site. Counts were concentrated between 7:00 and 9:00 AM, the peak of daily bird activity. Forty-one individual birds of nine different avian species, representing eight separate families were recorded. One species, the Pacific Golden-Plover (*Pluvialis fulva*) is an indigenous migratory species. This shorebird spends the winter months in Hawaii, leaving for its breeding grounds in the high Arctic in late April each year.

The remaining eight species detected during the survey are considered to be alien to the Hawaiian Islands. They include the Grey Francolin (*Francolinus pondserianus*), Spotted Dove (*Streptopelia chenensis*), Zebra Dove (*Geopelia striata*), Red-vented Bulbuls (*Pycnonotus cafer*), Japanese White-eye (*Zosterops japonicus*), Common Myna (*Acridotheres tristis*), House Finch (*Carpodacus mexicanus*), and Common Waxbill (*Estrilda astrild*).

Zebra Doves were the most numerous species bird, accounting for slightly more than 24% of the total individual birds recorded. The study noted that avian diversity and densities were low, which was not unexpected given the xeric conditions coupled with the highly disturbed nature of the site. The study in Appendix F includes counts of the species observed. The results of the avian survey are consistent with the findings of several other recent surveys in the low lying areas in the Ewa District.

No avian species currently listed by either the U.S. Fish and Wildlife Service (USFWS) under the Endangered Species Act of 1973 or the State of Hawaii's endangered species program were detected.

Project Impacts and Mitigation

The modification of the site and the construction of the planned roadway extension will not have a negative impact on any endangered, threatened, proposed or candidate avian or mammalian species.

Section 7, Endangered Species Act Consultation

Section 7 of the Endangered Species Act requires that federally-funded actions not jeopardize any species listed as threatened or endangered, or adversely modify designated critical habitat. Consultation in accordance with Section 7 has been initiated, and documentation is provided in Appendix F. A letter was sent by the Department of Transportation Services to the USFWS on February 9, 2006. The DTS, on behalf of the Federal Highway Administration, has determined that the project will have "no effect" on any threatened or endangered species. In a February 21, 2006 phone conversation, Christa Russell from the USFWS indicated to DTS that they concurred with this determination.

Impact of Alternatives

All of the project alternatives would be similar to the proposed action, i.e., no adverse impact on birds or other wildlife in the area. None of the alternatives would affect threatened or endangered species.

3.4 SOCIO-ECONOMIC ENVIRONMENT

3.4.1 Population and Employment

Existing Conditions

Population

The Kapolei area is part of the U.S. Census Bureau's Ewa Census County District (CCD), which includes the surrounding communities of Ewa Beach, Makakilo, Waipahu, Waipio, Mililani Town and Wheeler. The demographic data in Table 3-1 is for the Ewa CCD.

Table 3-1: 2000 Census Data for the Ewa Census County District (CCD)

(in number of persons and percentage of total)

	Honolulu City & County	Ewa CCD
TOTAL	**876,156**	**272,328**
White alone	186,484 (21.3%)	47,116 (17.3%)
Asian alone	403,371 (46.0%)	139,286 (51.1%)
Native Hawaiian & other Pacific Islander alone	77,680 (8.9%)	19,027 (7.0%)
Black or African American alone	20,619 (2.4%)	6,983 (2.6%)
American Indian and Alaska native alone	2,178 (0.3%)	627 (0.2%)
Other race alone	11,200 (1.3%)	3,323 (1.2%)
Two or more races	174,624 (20.0%)	55,966 (20.6%)

Source: U.S. Census Bureau, 2000

Compared to Honolulu City and County as a whole, the Ewa CCD has a slightly lower percentage of white-only residents (17.3% versus 21.3%), more Asian-only residents (51.1% versus 46.0%), and slightly fewer Native Hawaiians (7.0% versus 8.9%).

Population in the City of Kapolei in the year 2000 was 68,718 persons, up from 42,983 persons in 1990 (City and County of Honolulu Department of Planning & Permitting, cited at http://www.kapolei.com/). According to the Estate of James Campbell (www.kapolei.com), the population in Kapolei is projected to continue to grow to 129,200 in 2015, and 173,170 in 2025.

Housing

The greater Ewa area has a variety of residential communities, including Kapolei, Ewa Villages, Ewa Beach, Makakilo, Ewa by Gentry, West Loch, Iroquois Point (Navy housing), and Ko Olina. According to the 2000 Census, the entire Ewa CCD had 80,101 housing units. In the City of Kapolei, there were 25,332 homes in 2005, and the Department of Planning and Permitting estimates an increase to 44,950, homes by 2020, a 77 percent increase in 15 years.

In 2000, 66.5% of the homes in the Ewa CCD were owner-occupied and 33.4% renter occupied. Median housing value was $270,600 at that time, which was about 12 percent below the County-wide median housing value (U.S. Census Bureau, 2000).

Employment and Income

The City of Kapolei is one of the fastest growing job centers in the State, and projected to become the major employment center for the Ewa region. Major employers in the City of Kapolei include the State of Hawaii, City and County of Honolulu, Bank of Hawaii, Hawaiian Adventures Water Park, and The Honolulu Advertiser. In 2005, the number of jobs in Kapolei was estimated at 24,860. Employment is projected to grow over 85 percent to 46,130 jobs by 2015 and by another 40 percent to 64,720 jobs by 2025 (Estate of James Campbell, 2006). Other employment areas in the greater Ewa region include Ko Olina resort, Ewa Marina, and Barbers Point Harbor.

According to 2000 Census data, the 1999 median household income for the Ewa CCD was $62,033. This was slightly higher than the County median of $51,914.

Project Impact and Mitigation

The project construction will not have an impact on population or housing in the Kapolei or Ewa areas.

On a local scale, the project will have construction-related impacts on noise, air quality and traffic. Because the immediately adjacent parcels are undeveloped, and there are no existing connecting roads, construction period impacts on the area population will be minor.

The project will have positive, short-term economic benefits through the City's expenditure of construction funds and construction employment. The roadway improvements will also have a positive socio-economic impact by enhancing connectivity through the area and facilitating access for existing and future developments. The roadway improvements will not increase roadway capacity, and will not directly cause or encourage future population growth or an increase in vehicular traffic.

Impact of Alternatives

All design alternatives would have short and long-term impacts similar to the proposed action. The no action alternative would have no short-term construction related effects, but it will do nothing to improve roadway connectivity between Kalaeloa and Kapolei. As Kalaeloa lands are developed in accordance with the State's recent master plan for the area, the addition of new residential, commercial and industrial space will generate additional vehicle trips to and from the area. Without the proposed project, congestion on other major thoroughfares (e.g., Fort Barrette Road) will increase.

3.4.2 Archaeological, Historic, and Cultural Resources

Existing Conditions

An Archaeological Assessment and Cultural Impact Evaluation for the project (Cultural Surveys Hawaii, December 2005) is included in Appendix G. The report assessed the potential for significant historic properties and potential impacts to cultural practices. The scope of work included background research, a review of land use within the vicinity, and limited consultation. No formal interviews were conducted, but informal consultations were undertaken and reported.

One historic site, a portion of the historic Oahu Railway and Land Company (OR&L) rail lines (Site 50-80-12-9714) is within the project area. The tracks, which run parallel to Roosevelt Avenue, were part of a railroad line that extended from Honolulu through the Ewa Plain to Waianae and to Kahuku. During World War II, the U.S. Navy took over a portion of the OR&L main line and used it to transport ammunition from the storage magazines in Lualualei, West Loch and Waikele to Pearl Harbor. In 1974, the Federal government donated this section of track to the State of Hawaii, and in 1975, the Lualualei-Pearl Harbor section was placed on the National Register of Historic Places. The Hawaiian Railway Society currently operates tourist train rides from Fort Weaver Road to the north side of Kahe Point.

In addition to the main track, the project area includes a railroad siding (separate track off the main track) with two train cars, a flatbed car and a water tanker. According to an undated OR&L map of Oahu, this siding is called Jensen's Siding. The siding and railway cars are in the path of the proposed roadway extension.

Other than the OR&L lines, no other historic properties have been identified in the project area. The Department of Land and Natural Resources/State Historic Preservation Division (DLNR/SHPD) has formally evaluated the remainder of the project area and determined it to be free of all other historic resources. The project site is not within known areas of pre-contact settlement, though it is near a pre-contact/early post-contact trail, which is located near the present-day Farrington Highway. In traditional Hawaiian times, the project area was probably only marginally utilized.

Historic railroad tracks and Jensen's siding with flatbed car and old water tanker, looking east.

Historic Railroad tracks, with Jensen's siding veering off, looking west.

A review of traditional Hawaiian literature, legends and ethnology does not indicate that the project area was associated with any Hawaiian gods, chiefs or heroes, or with storied places. There is no indication that this area was used to collect resources or to conduct traditional cultural practices in the recent past. It is not used for any cultural practices today. It is unlikely that any traditional Hawaiian sites would be found in the project area, though it is possible that some twentieth century sugar cane cultivation/irrigation features could be found.

Hawaiian Railway Society train crossing the project area.

Project Impacts and Mitigation

The road extension will cross the OR&L main line and Jensen's siding, and displace the two railroad cars owned by the Hawaiian Railway Society. The two railroad cars may be considered as contributing elements to the National Register Site 50-80-12-9714. Appropriate mitigation could include relocation of the two railway cars to another siding location. This will be worked out directly between the DTS and the Hawaiian Railway Society. The new roadway extension will include a signalized railroad crossing at the tracks.

During construction near the track crossing, the Hawaiian Railway Society's weekend train rides may be temporarily interrupted. Construction in this area will be expedited as much as possible to minimize impact to the commercial train operation.

Before construction of the proposed project, an agreement will be made between the City and County of Honolulu, State DOT (landowner of right-of-way), the SHPD and the Hawaiian Railway Society. The resulting Memorandum of Agreement (MOA) will detail the type of crossing that will be made across the main tracks and the siding, and any reconstruction of the line/siding that may be necessary. The MOA would stipulate the obligations and time frames for any work to be undertaken.

Examples of railroad crossings.

Section 106, National Historic Preservation Act Consultation

Consultation in accordance with Section 106 of the National Historic Preservation Act has been conducted, and documentation is provided in Appendix G. A letter initiating Section 106 consultation was sent by the Department of Transportation Services to the SHPD on February 13, 2006. Section 106 consultation letters were also sent to the Office of Hawaiian Affairs, Hui Malama I Na Kupuna O Hawaii Nei, Hawaiian Railway Society, and Ahahui Siwila O Kapolei Hawaiian Civic Club. The DTS, on behalf of the Federal Highway Administration, determined that the project will have "no adverse effect" on National Register Site 50-80-120-9714, the OR&L main line and Jensen's siding, given the mitigation described above. SHPD's concurrence with this determination was requested.

A response dated March 24, 2006 was received from the DLNR SHPO (LOG NO: 2006.0820, DOC NO:0603AJ19). In that letter, the SHPO stated:

> *We cannot at this time offer our concurrence with the DTS determination of "no adverse effect" to historic properties. Discussion concerning the proper mitigation of SIHP No.: 50-80-12-9714 between all parties concerned should occur prior to the commencement of construction activities. We agree with the CSH recommendation that appropriate mitigation measures should be worked out in a Memorandum of Understanding (MOU) between all parties involved with the project. In addition to the various State agencies and the Hawaiian Railway Society, we would also like to recommend that the Campbell Estate be included in the MOU…While the proposed undertaking will result in some modification to the historic integrity of SIHP No. 50-80-12-9714, appropriate mitigation will have an overall "net benefit" to the historic property.*

A Section 106 response letter from the Office of Hawaiian Affairs dated February 28, 2006 provided information on burials sites in the Honouliuli and Ewa areas in general. OHA also identified two individuals as cultural resources. Both individuals had already been contacted by Cultural Surveys Hawaii as part of their cultural impact evaluation.

A Section 106 Memorandum of Agreement, identifying agreed upon mitigation, has been drafted and is currently being reviewed. The MOA will be executed prior to commencement of project construction.

Impact of Alternatives

The no action alternative would not have an impact on the historic OR&L right of way. All other alternatives would have impacts similar to the proposed action.

3.4.3 Visual Resources

Existing Conditions

The project site and immediate environs are comprised of undeveloped former sugar cane fields with trees and grasses. These areas have an open, undeveloped visual appearance. The site is surrounded by the suburban development of Kapolei Town business and commercial areas and Kalaeloa to the south. Views to the Waianae Mountain range are unobstructed.

Project Impact and Mitigation

The construction of a new road extension will change the appearance of the project site from an undeveloped, overgrown area to a paved, maintained roadway. During the construction period, the visual character of the area will change due to the presence of equipment and personnel in the area. However, after completion, the new road will not have a substantial visual impact. It will not obstruct existing view planes.

The visual environment of the area is expected to change over the next 10 to 20 years, as the surrounding lands are developed. However, this would occur independent of the proposed roadway extension.

The road extension will have no long-term, indirect or cumulative development impacts that could affect the visual environment.

Impact of Alternatives

None of the project alternatives would have significant direct, indirect or cumulative impacts on visual resources in the area.

3.5 UTILITIES AND INFRASTRUCTURE

3.5.1 Drainage

Existing Conditions

There is no existing drainage infrastructure for the project site and immediate vicinity. The area is generally flat with sandy type soils, and rainfall typically percolates into the ground. Extreme storm flows may make its way down towards the existing drainage channel towards Kalaeloa Boulevard west of the project area, and then out to the ocean. Campbell Estate is currently planning construction of a new Makai Drainage Channel consisting of a new box culvert system running parallel to the OR&L right-of-way and perpendicular to the existing drainage channel. The new culvert will handle the increased storm runoff from future Campbell Estate developments in the Kapolei area.

The EJC's current plans for the Makai Drainage Channel call for a 30-foot wide by 8-foot high box culvert which will cross under the future Kamokila Boulevard extension. This main drainage box culvert will need to be very deep, roughly 25 to 30 feet in depth, in order to avoid an existing sewer main line.

Another design option for the EJC is to use a 120-foot wide trapezoidal drainage channel (roughly 10 to 12 feet deep) at the Kamokila Boulevard crossing. The trapezoidal drainage channel would transition down to a box culvert. Under this option, a bridge crossing at Kamokila Boulevard would be required.

Project Impacts and Mitigation

The Kamokila Boulevard extension will cross over the EJC's proposed Makai Drainage Channel. Runoff from the DTS roadway segment will be diverted west through the Makai Drainage Channel to an existing open drainage channel that runs south, parallel to Saratoga Road and out to the ocean.

The EJC and the DTS are coordinating their drainage channel and road designs. The EJC has requested the City's participation in cost sharing for the portion of the Makai Drainage Channel at the Kamokila Boulevard crossing. The extent of this cost sharing is being negotiated between the City and the EJC.

Overall, the roadway extension will have minimal impact on drainage conditions in the area or on the EJC's proposed Makai Drainage Channel. The associated runoff contribution from the DTS road segment will be nominal. The road will be designed to drain from the high point at the existing railroad ROW down toward Roosevelt Avenue. Catch basins will be installed at the intersection of Kamokila Boulevard and Roosevelt Avenue. From this point, drainage pipe culverts will take the storm runoff to the proposed Makai Drainage Channel's main box culvert.

Impact of Alternatives

All of the build alternatives would have impacts similar to the preferred alternative. All alternative roadway designs would cross the new Makai Drainage Channel, and coordination with the EJC would be required. Under the no action alternative, the EJC would still proceed with its plans to construct the Makai Drainage Channel. However, no road would cross the new channel, as the EJC-planned extension of Kamokila Boulevard stops mauka of the Makai Drainage Channel.

3.5.2 Potable Water

Existing Conditions

Potable water service to the Kapolei area is provided by the City and County of Honolulu Board of Water Supply. The regional potable water system consists of supply wells, storage reservoirs, booster pump stations, and transmission lines that carry water to distribution systems. A 14-inch diameter water line and a 16-inch diameter water line cross the project area within the utility easement parallel to the OR&L ROW (Pacific Geotechnical Engineers, 2005).

There is a separate, Navy-owned potable water system at Kalaeloa, the former NAS Barbers Point. This water system is still separate from the municipal system in the area near Roosevelt Avenue. The Navy-owned water facilities include a deep well pumping station, water treatment facilities, two underground storage reservoirs, a transmission main, and distribution system for domestic supply and fire protection. The Navy-owned water system will serve most of the future Kalaeloa development at the former air station.

Project Impacts and Mitigation

Prior to project construction, surveys will be done to determine the location of the existing water lines, and to ensure that they are not adversely impacted by construction activity. The roadway extension will not have a direct, indirect or cumulative impact on the City's potable water supplies, system, or demand. It will have no impact on the Navy-owned water system at Kalaeloa.

Impact of Alternatives

None of the project alternatives will have an impact on potable water supplies, system or demand.

3.5.3 Electrical and Telecommunications

Electrical

Existing Conditions

There are several existing overhead electrical systems that run parallel to the railroad tracks or Roosevelt Boulevard. These existing overhead electrical systems include the following:

Hawaiian Electric Company (HECO) 138 kV/46 kV Pole Line
The Hawaiian Electric Company (HECO) electrical system in the area consists of large metal poles with two 138 kV and two 46 kV transmission line circuits mounted on the poles. The large metal poles appear to be approximately 100 feet in height. The transmission pole line runs parallel to the railroad tracks and is located between the railroad tracks and the Kalaeloa boundary fence.

One of these existing transmission line poles is located in the vicinity where the future Kamokila Boulevard Extension would meet Roosevelt Avenue. Because of the high cost of relocating the 138 kV pole, alternative ways to avoid the pole were evaluated, and discussed in Chapter 2, Alternatives.

HECO 46 kV/12 kV Pole Line
This overhead electrical system consists of wood poles with one 46 kV transmission circuit and one 12 kV distribution circuit mounted on the poles. The 46 kV/12 kV pole line also runs parallel to the railroad tracks and is located between the railroad tracks and the 138 kV/ 46 kV pole line described above.

The existing poles for this overhead system do not conflict with the proposed Kamokila Boulevard extension. All the poles for this overhead system are located outside the roadway alignment. In addition, the subject poles appear to have sufficient height to provide adequate clearance for their associated overhead circuits (cables) that will cross the roadway.

Kalaeloa 12 kV Pole Line
This overhead electrical system was formerly part of the NAS Barbers Point electrical system, and is still owned by the Navy. In the project area, it consists of wood poles with one 12 kV circuit mounted on the poles. The distribution pole line runs parallel with Roosevelt Avenue and is located on the makai side of Roosevelt Avenue.

To date, HECO has not been willing to acquire the existing Navy electrical system due to concerns about the condition of the system, and potential environmental liability associated with the electrical system.

The poles and overhead circuits for the Navy's Kalaeloa electrical distribution system should have no impact and should not be impacted by the new Kamokila Boulevard intersection at Roosevelt Avenue.

Street Lighting System
The existing street lighting system at Kamokila Boulevard and Kapolei Parkway consists of metal standards and luminaires with energy efficient high-pressure sodium (HPS) lamps. An underground secondary electrical distribution system powers the existing street lighting system. The Kamokila Boulevard extension, including the portion constructed by the EJC, will utilize the same type of metal street light standards, luminaires and HPS lamps. The underground secondary electrical distribution system will also be extended to service the street lighting along the new roadway. The new street lighting will terminate at the intersection with Roosevelt Avenue.

Overhead lines along the existing utility corridor, running perpendicular to the roadway extension.

Telecommunications System

The existing overhead telecommunications system consists of wood poles with several telecommunications cables mounted on these poles. The cables belong to Hawaiian Telcom and Oceanic Time Warner Cable. These cables probably consist of copper and fiber optic cables. The telecommunications pole line is located on the mauka side of the railroad tracks and runs parallel to the railroad tracks.

The existing poles appear to be approximately 30 feet in height with the telecommunications cables attached to the poles at a lower height. Because of the relatively large size of some of these cables, the cables tend to sag below their point of attachment to the poles. If there is insufficient clearance between the road surface and the overhead cables, the cables will be raised if there is adequate cable slack, or placed underground at the roadway crossing. The situation and resolution will be coordinated further with Hawaiian Telcom.

There is a separate Navy-owned telephone and communications cable system in Kalaeloa to the south. The project will not impact these facilities.

Impact of Alternatives

All design alternatives would have similar impacts to the preferred alternative, as all would cross the utility corridor. The no action alternative would have no impact on electrical or telecommunications facilities.

3.5.4 OR&L Railroad Crossing

Existing Conditions

The Hawaiian Railway Society operates modified diesel locomotives which use the existing railroad tracks within the State-owned railroad right-of-way. The train rides are offered as an educational and tourist attraction. Currently, there are two regularly scheduled rides on Sundays at 1:00 and 3:00 pm. The train is available for charter on weekdays.

Project Impacts and Mitigation

The proposed Kamokila Boulevard extension will cross the railroad, which is used on weekends by the Hawaiian Railway Society for recreational train rides. The City is coordinating its improvements with the Hawaiian Railway Society. Railroad crossing equipment (possibly electronically activated arms) warning devices and pavement design which incorporates the tracks will be provided. This will be similar to the crossing equipment planned for installation by HDOT at the crossings at Barrette Road and Kalaeloa Boulevard.

A new signal system will be provided where the Kamokila Boulevard extension crosses the existing railroad tracks. Electrical service to support this new signal system will be provided

from the nearest HECO pole with a 12 kV circuit. It is assumed that HECO will provide a new pole mounted transformer and underground secondary electrical service to the new signal system power supply/controller. Metering, disconnecting means and overcurrent protection will be provided for the electrical service.

During construction of the road at the railroad crossing, the regular weekend train rides may be temporarily disrupted. The City will continue to coordinate with the Hawaiian Railway Society to minimize and mitigate disruption to its operations.

As discussed in Section 3.4.2, the OR&L lines are an historic property, identified as Site 50-80-12-9714 on the State Register of Historic Places. The project will impact the main railway right-of-way and Jensen's siding, which contains two rail cars belonging to the Hawaiian Railway Society. The SHPO has recommended continued discussion with all parties (SHPD, HDOT, Hawaiian Railway Society) to identify proper mitigation prior to commencement of construction. As recommended by the SHPO, a Memorandum of Agreement between these parties is being developed to identify appropriate mitigation. The SHPO has noted that "*While the proposed undertaking will result in some modifications to the historic integrity of SIHP No. 50-80-12-9714, appropriate mitigation will have an overall 'net benefit' to the historic property*."

Impact of Alternatives

All design alternatives would have similar impacts to the preferred alternative. The no action alternative would have no impact on the railroad crossing, and no improvements would be required.

3.5.5 Wastewater and Non-Potable Water Systems

Existing Conditions

The Kapolei area is served by the City and County of Honolulu's wastewater system. There is a separate, Navy-owned wastewater system at Kalaeloa, immediately south of the project area. This system is currently in the process of being conveyed to the City and County.

Honouliuli Wastewater Treatment Plant

The Honouliuli Wastewater Treatment Plant (WWTP) is the regional wastewater treatment facility for the Ewa region. The WWTP is owned and operated by the City and County of Honolulu, and is located on Geiger Road, east of the former NAS Barbers Point, about three miles east of the project site. The Honouliuli WWTP services an area of approximately 76,000 acres, extending from Red Hill to the east, up to Mililani on the north, and to Makakilo and Ko Olina to the west.

All residential, commercial, industrial and agricultural areas within these boundaries are included in the service area except for Pearl Harbor, Campbell Industrial Park and several small pockets

that are served by cesspools or septic tanks. Wastewater treated at the Honouliuli WWTP is discharged into West Mamala Bay through a deep ocean outfall.

The plant was initially designed to treat up to 25 million gallons per day (mgd) of wastewater to the primary level only. Over the years, the plant capacity has been expanded to meet increasing and expected future flows. The plant presently has a design average dry weather flow capacity of 38 mgd, with future plans to further expand its capacity to 51 mgd. (Honolulu Board of Water Supply).

A major trunk sewer line is located in a utility easement located on the mauka side of the railroad right-of-way. The proposed roadway extension will cross this 36-inch diameter sewer line.

Honouliuli Water Recycling Facility

Secondary treatment facilities were constructed at the Honouliuli WWTP in 1996 as a result of a State of Hawaii Department of Health (DOH) consent order. The main objective of the consent order was to establish secondary treatment facilities at the plant to allow for treated portions of the wastewater flow to be reused. Initial water reuse was initiated in 1998 with approximately 2 mgd being used for in-plant demands.

In 1995, the U.S. Environmental Protection Agency (EPA), DOH, and the City entered into an agreement (309 Consent Decree) which required a commitment by the City to improve its wastewater system. As part of the consent decree, the City was required to develop an effluent reuse system to recycle 10 mgd of water by July 2001. The Honouliuli WWTP was selected for implementation of the water reuse requirements because of the demands on the Ewa caprock aquifer, the termination of sugar cultivation which led to the significant decrease in groundwater recharge, and the proximity of the facility to potential users of reclaimed water.

Construction of water recycling facilities at the Honouliuli WWTP were completed in 2000. The facility currently has a capacity of 12 million gallons per day (mgd) and produces two grades of recycled water--"R-1 water" used for irrigation, and "Reverse Osmosis (RO)" for industrial uses. R-1 water is used throughout the state for golf course irrigation, landscaping, and agriculture. The RO water is used strictly for industrial uses such as boiler feed water, cooling tower make-up water, and process water for refineries.

There is a non-potable 16-inch RO water line which runs through the project area. The line runs along the energy corridor parallel to the OR&L ROW. The line runs from Honouliuli WWTP to Campbell Industrial Park. A HECO RO water line project will connect to this 16-inch line just past the proposed Kamokila Boulevard extension, and take water to HECO's Kahe Power Plant. The water will be used for the boiler feed and to reduce the domestic demand at the power plant.

Project Impacts and Mitigation

The project will not have a direct, indirect or cumulative effect on existing wastewater systems, or on the water recycling facilities. The new road extension will cross the 36-inch trunk sewer

line and 16-inch RO water line, but pre-construction surveys and coordination with the utility companies will be conducted to identify their location and ensure that they are not impacted during construction.

Impact of Alternatives

None of the project alternatives would have any impact on wastewater generation, the collection system, or on the Honouliuli water recycling system.

3.5.6 Solid Waste

The City and County of Honolulu's Department of Environmental Service is responsible for refuse pick up, hauling and disposal from residential areas. Commercial establishments and multi-family residential development contract with private haulers. The City's H-POWER refuse to energy plant located at Campbell Industrial Park and the Waimanalo Gulch Landfill are both located in the Ewa district.

The project will not have short or long-term impacts due to hazardous materials, waste or petroleum products. Construction activities will utilize hazardous materials including paints, metal, tar, petroleum products and cleaners. All construction materials will be properly used, transported, stored and disposed. All construction debris and waste will be removed from the project area. The construction contractor will dispose of all debris at DOH-approved City and County disposal or recycling facilities, and in accordance with City requirements. No construction waste materials will be buried on site.

The contractor will develop a contingency plan to control accidental spills of petroleum products. Material and equipment necessary for spill clean up will be kept on site.

The contractor will comply with Hawaii Revised Statutes Chapter 103D-407, which stipulates that all highway and road construction and improvement projects funded by the State or County (or roadways that will be accepted as public roads) use a minimum of ten percent crushed glass aggregate in all base course (treated or untreated) and sub base, when the glass is available to the quarry or contractor at a price no greater than that of the equivalent aggregate.

3.5.7 Impact of Alternatives

All the project alternatives, with the exception of no action, would have utility and infrastructure impacts similar to the proposed action.

3.6 TRAFFIC

A Traffic Analysis Report for the project was completed (Julian Ng, Inc., 2006) and is included as Appendix H. The Traffic Analysis Report looked at existing and projected conditions for 2010 and 2025.

3.6.1 Existing Conditions

Regional Roadways

The project site is located in the City of Kapolei in the Ewa area of Oahu. Major east-west arterials of the Ewa roadway system include the H-1 Freeway and Farrington Highway, both of which are located north (mauka) of the project area. North-south roads, which distribute traffic onto and off of the east-west arterials include Fort Weaver Road, Fort Barrette Road, Makakilo Drive and Kalaeloa Boulevard. North-South Road is a planned road that will become a major arterial (Figure 11).

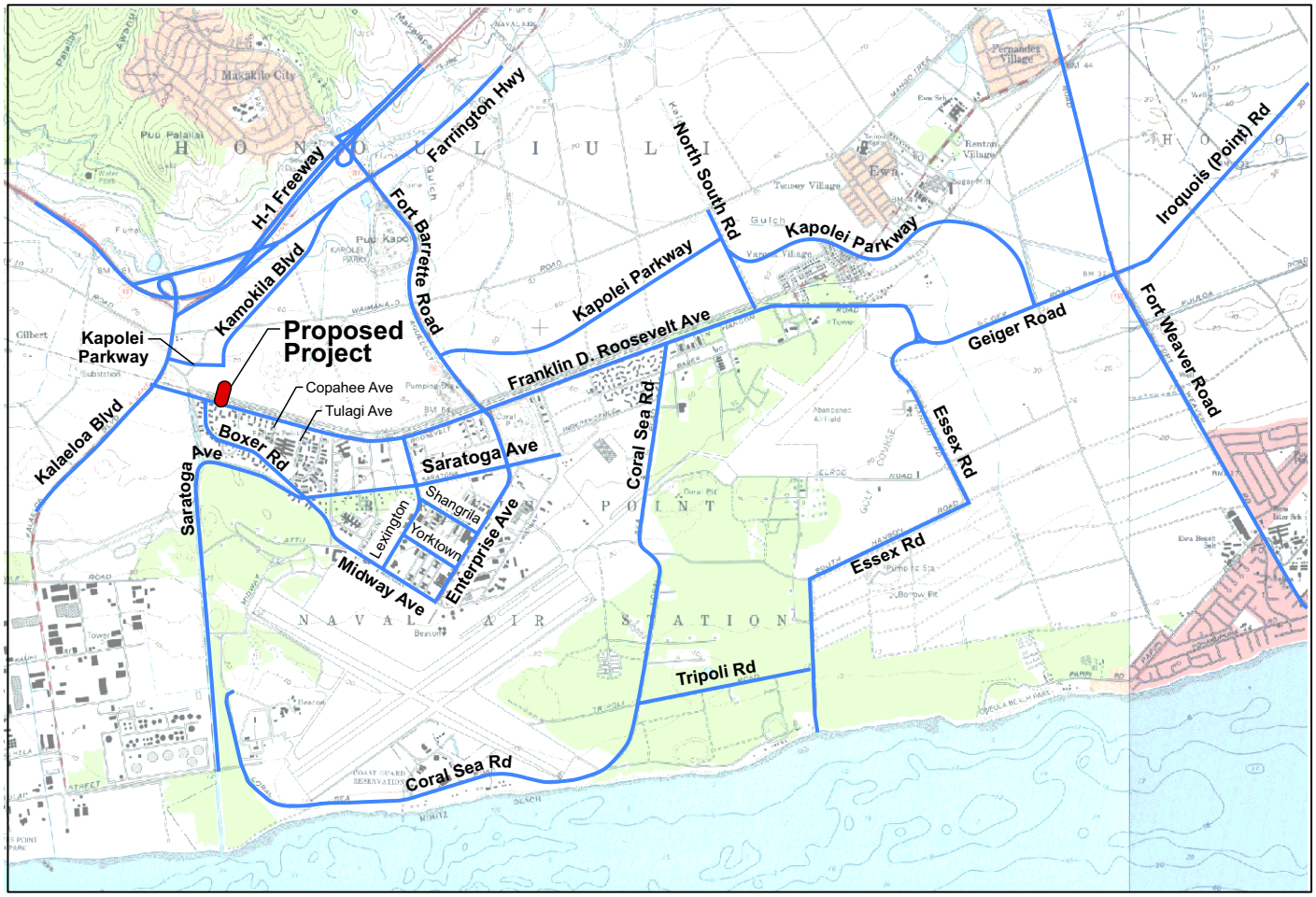
Project Area

Kamokila Boulevard is the main thoroughfare through the Kapolei Town center, and is a divided four-lane roadway. It currently ends at Kapolei Parkway, where traffic makes a right-turn westbound out of Kapolei. The planned extension will be constructed as a four-lane roadway (two lanes in each direction) continuing straight ahead (south) from the Kapolei Parkway intersection. The Estate of James Campbell will extend Kamokila Boulevard from Kapolei Parkway to the railroad tracks of the former OR&L. The EJC road extension is being completed primarily to provide access to the State's proposed Kapolei Judiciary Complex, located on the east side of the extension. The property on the opposite (east) side of the EJC road extension, is planned for future commercial development.

The subject project proposed by DTS will extend Kamokila Boulevard another 200 feet to join Roosevelt Avenue. Franklin D. Roosevelt Avenue is the perimeter roadway along the northern boundary of the former Naval Air Station (NAS) Barbers Point, currently known as Kalaeloa. Roosevelt Avenue is a two-lane roadway with 13-foot lanes and 2-foot wide shoulders. In the area of the proposed connection, traffic flow on Roosevelt Avenue is minimal due to very little activity to the west.

Traffic volumes are estimated to be less than 20 vehicles per hour in each direction in the morning (AM) peak hour and 30 vehicles per hours in each direction in the afternoon (PM) peak hour.

The primary traffic generator in the vicinity is the Barbers Point Elementary School, which has a current enrollment of about 550 students. The main vehicular entrance to the campus is located on Boxer Avenue between Copahee and Tulagi Avenues, approximately 1,500 feet east of the proposed connection to Kamokila Boulevard. The Traffic Analysis Report includes an intersection analysis for current conditions.



N

0 1,200 2,400
Feet

Figure 11
Regional Roadways

Roosevelt Avenue looking west.

Roosevelt Avenue looking east.

3.6.2 Project Impacts and Mitigation

Construction Period Impacts

Construction period impacts on traffic will be limited to Roosevelt Avenue in the area where the road connection is made. The roadway area at the future intersection may need to be rebuilt, since the new Kamokila Boulevard extension may be a couple feet higher than existing Roosevelt Avenue. During this period, Roosevelt Avenue is likely to be closed to through traffic. A temporary bypass road around the construction site could be an option to maintain traffic flow. Work at this intersection is likely to take several weeks to complete.

Future Traffic Volumes on Project Roadway

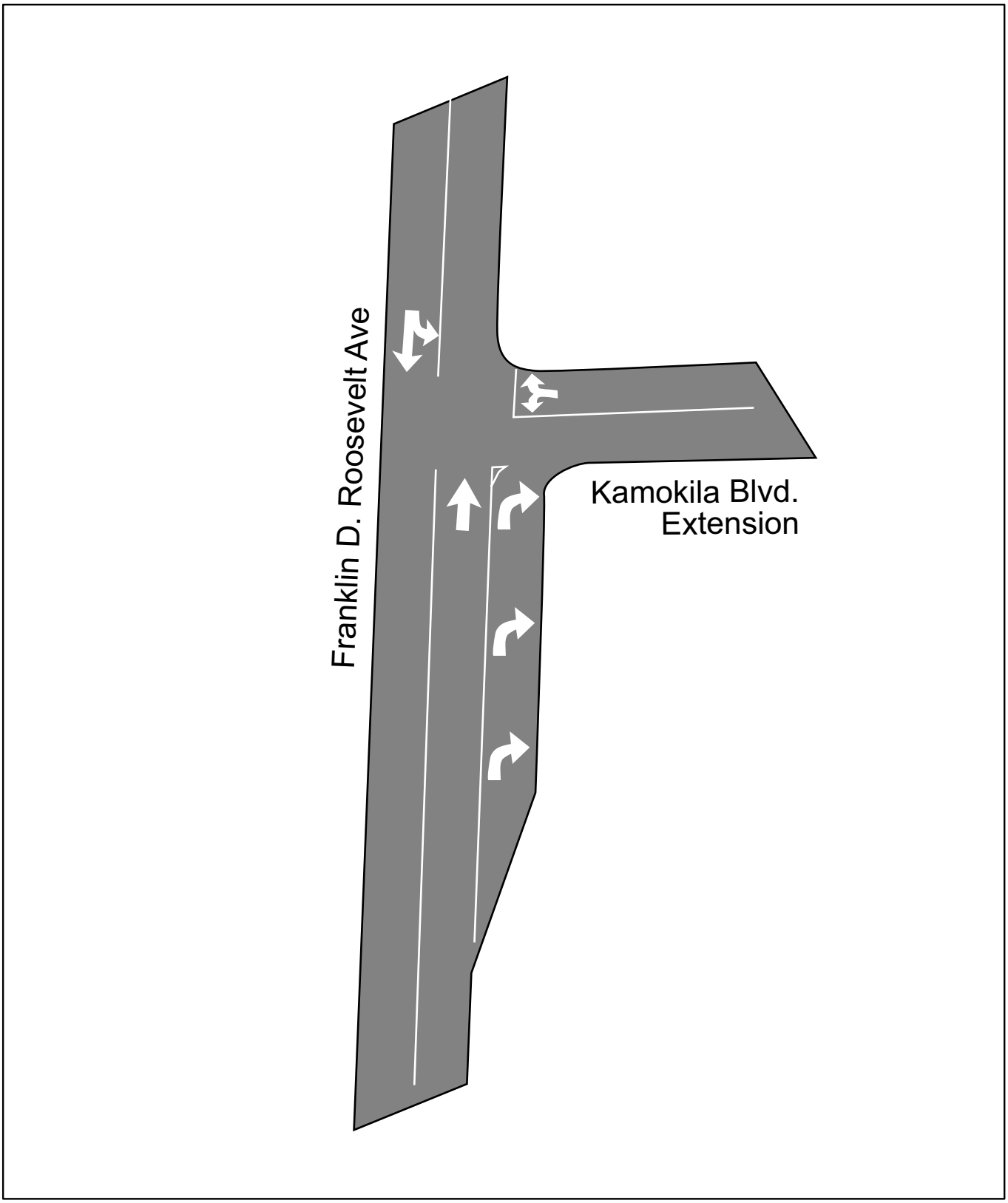
The Traffic Analysis Report evaluated future traffic at the intersection of Kamokila Boulevard and Roosevelt Avenue. It noted that minimal development is proposed for Kalaeloa west of Kamokila Boulevard. However, during the State's proposed widening of Fort Barrette Road, the new roadway extension will provide an alternate route for traffic. Average daily traffic on the project segment is estimated to be 14,400 vehicles per day. In the longer term, once construction on Fort Barrette Road is complete, that road will provide an improved connection from Kalaeloa to Kapolei. This will alleviate the diversion of traffic onto the proposed Kamokila Boulevard extension.

The State's Master Plan for Kalaeloa calls for total build of nearly 6,500 dwelling units, 117,000 SF of commercial floor area, 725,000 SF of office floor area, 1,820,000 SF of light industrial space, and 470,000 SF of light industrial mixed use. Total build out is anticipated by 2025. The Traffic Analysis Report estimates that these land uses will generate a total of nearly 94,000 vehicle trips per day, with Kamokila Boulevard carrying an average daily volume of 11,260 vehicles per day. The uses in Kalaeloa will result in a small number of internal trips that will not leave Kalaeloa. Other roadway improvements are included in the Master Plan, increasing the number of possible routes in and out of Kalaeloa from the existing two to as many as ten. Three roadway connections to the west and four roadway connections to the north are shown in the State's Draft Master Plan. In summary, Kamokila Boulevard will carry only about one eighth of the traffic in and out of Kalaeloa (Julian Ng, Inc., 2006).

Kamokila Boulevard and Roosevelt Avenue Intersection

The proposed T-intersection at the intersection of Kamokila Boulevard and Roosevelt Avenue would be controlled by a stop sign on the southbound approach. A capacity analysis of this intersection for year 2010 shows that without other improvements, over capacity conditions will occur during both AM and PM peak hours. However, if a separate right-turn lane were provided on the westbound (Roosevelt Avenue) approach, peak hour conditions would be acceptable (Figure 12).

Analysis similar to that done for year 2010 was also conducted for year 2025 volumes at this intersection. The southbound approach would be stopped and the additional westbound right-turn lane is assumed to be in place. While there is sufficient capacity for the traffic demand in the AM peak hour, left turns (from Kamokila Boulevard onto Roosevelt Avenue) will still experience very long delays (Level of Service E). Traffic demand in the PM peak hour will exceed the intersection capacity. The stop control at the T-intersection with the stop sign on the southbound approach would not provide adequate service. Traffic signals at the intersection could mitigate the poor peak hour operating conditions, and would likely be warranted by the year 2025.



Not to Scale

Figure 12
Conceptual Intersection Layout to Accommodate 20 Year Traffic Volumes

As a signalized intersection, acceptable peak hour conditions could be provided with minimal lane improvements.

Effect on Barbers Point Elementary School Traffic (Intersection of Roosevelt Avenue and Copahee Avenue)

The connection of Kamokila Boulevard to Roosevelt Avenue will provide a shorter route between the school and residential communities to the west, including Honokai Hale and Ko Olina, where a portion of the school's student body resides. The proposed project, however, is not expected to affect the total volume of traffic on Copahee and Tulagi Avenues, the streets that border the Barbers Point Elementary School.

The Traffic Analysis Report notes that the increases in through traffic on Roosevelt Avenue, along with the expected increase in left turns from Copahee Avenue to Roosevelt Avenue (to leave the area via Kamokila Boulevard) will result in poor level of service for traffic on the northbound approach (Copahee Avenue) in the AM peak hour. One possible mitigation measure is the implementation of a "no left turn" from westbound Roosevelt Avenue to Copahee Avenue during the peak period. This would save the available gaps in the eastbound traffic for the left turns from Copahee Avenue. Traffic wishing to turn left at Copahee Avenue would turn one block sooner, onto Tulagi Avenue to access the school.

Conclusions and Recommendations

The proposed project will provide an alternate route into Kalaeloa. Access to the Barbers Point Elementary School from the west could be improved, as the connection will provide a shorter path than the existing route via Fort Barrette Road.

In the interim (2010) condition, development at Kalaeloa is not expected to have a significant impact on regional traffic volumes. However, some diversion of traffic from Fort Barrette Road is expected due to planned construction on that roadway. Acceptable peak hour conditions could be achieved at an unsignalized intersection of Roosevelt Avenue and Kamokila Boulevard for 2010 peak hour traffic with the addition of a dedicated right-turn lane for westbound traffic. Southbound traffic on Kamokila Boulevard would be controlled by a stop sign.

With the development of the Kalaeloa lands, higher traffic volumes on Roosevelt Avenue west of Kamokila Boulevard are expected. The unsignalized intersection would not have sufficient capacity for the PM peak hour traffic wishing to turn left from Kamokila Boulevard to Roosevelt Avenue. A traffic signal would be warranted and simple two-phase operation would provide acceptable conditions for the 2025 peak hour traffic volumes. Figure 12 shows a conceptual layout of the intersection to accommodate 20-year traffic volumes.

3.6.3 Impact of Alternatives

All of the design alternatives would have traffic impacts identical to the preferred alternative. The no action alternative would not provide this additional route to and from Kalaeloa. As

Kalaeloa is built out over the next ten to 15 years, the no action alternative would place increased pressure on other major north-south routes such as Fort Barrette Road.

3.7 PUBLIC SERVICES AND FACILITIES

3.7.1 Police

Existing Conditions

The project area is within Honolulu Police Department's District 8, the Kapolei Waianae police district. District 8 services the communities of Ewa, Ewa Beach, West Loch, Barbers Point, Kapolei, Makakilo, Campbell Industrial Park, Honokai Hale, Ko Olina, Nanakuli, Maili, Waianae, Makaha, Makua and Kaena. Its headquarters is the Kapolei Station, at 1100 Kamokila Boulevard. The three-story facility is over 50,589 square feet in size and is built on 5.13 acres of land donated by the Estate of James Campbell. The station provides offices and meeting rooms for District 8 command staff and patrol officers as well as personnel from the Criminal Investigation, Juvenile Services and Narcotics/Vice Division. The station has a modern cellblock consisting of 41 cells.

Project Impacts and Mitigation

Because the project will construct a new road extension where there is none, there will be no traffic disruption during the construction period.

The police department has indicated that the project should have minimal impact on the facilities and services of the Police Department. The new roadway will improve roadway connectivity in the area, and will not increase demand for police services.

Impact of Alternatives

All of the design alternatives would have a similar impact, negligible impact on police services.

3.7.2 Fire and Emergency Medical Services

Existing Conditions

The project area is served by the City and County Fire Department's Kapolei Station (Station 40) at 2020 Lauwiliwili Avenue. This station serves Kapolei and the Ewa communities to the south.

The City and County of Honolulu has 18 Emergency Medical Service (EMS) Advanced Life Support Ambulance units and two Rapid Response Paramedic units. The Makakilo EMS Unit is located at the Kapolei Fire Station, and Rapid Response Unit 1 is based at Saint Francis Medical Center West.

Saint Francis Medical Center West is the nearest full service hospital, and is located on Fort Weaver Road, about four miles east of Kapolei. This hospital provides emergency care, outpatient, laboratory, x-ray services, and includes medical offices. There are also a number of medical clinics in Kapolei Town, including Kaiser Permanente Hawaii and Queen's Health Care Center, as well as smaller clinics and private health care providers.

Project Impacts and Mitigation

The project will not have short or long-term impacts on the demand for fire or emergency medical services. The new roadway extension will be constructed to City and County standards, and will accommodate fire and emergency vehicles. No mitigation measures are necessary. The improved connectivity through the Kapolei and Kalaeloa areas that will result from the project may also improve emergency vehicle access in the area.

Impact of Alternatives

The alternative sites and alternative design would have impacts similar to the proposed action.

3.7.3 Parks

Existing Conditions

The Kapolei Regional Park is located in central Kapolei, about 0.75 miles from the project site. A number of smaller community parks are scattered throughout the Kapolei and Makakilo residential areas. There are three beach parks in the Ewa area--Ewa Beach Park, Oneulua Beach Park in Ewa Beach and Barbers Point Beach Park in Campbell Industrial Park.

Other recreational facilities in the Ewa area include eight golf courses (Barbers Point, Coral Creek, Ewa Villages, Hawaii Prince, Kapolei, and Ko Olina, New Ewa Beach, West Loch), two of which (Ewa Villages and West Loch) are municipal courses.

Project Impacts and Mitigation

The Department of Parks and Recreation has noted that the project will not impact any of its programs or facilities. There will be no short or long-term, direct, indirect or cumulative impact on parks or other recreational resources in the area.

Impact of Alternatives

None of the project alternatives would have a direct, indirect or cumulative impact on park or recreational resources.

3.7.4 Schools

Existing Conditions

Barbers Point Elementary School is located on Boxer Avenue, between Copahee and Tulagi Avenues. The school is operated by the State of Hawaii Department of Education (DOE) and is part of the DOE's Kapolei Complex, feeding into Kapolei Middle School and Kapolei High School. Enrollment in 2003-2004 was approximately 550 students in grades K through 6. Students are from Kalaeloa, Honokai Hale and Upper Makakilo communities.

There are also a number of private schools in Kapolei, including Island Pacific Academy in the City of Kapolei and Seagull Schools.

Project Impacts and Mitigation

The roadway extension will not induce residential development in the area or increase school enrollment. However, the construction of the roadway extension and connection to Roosevelt Avenue will provide an alternative route to school for Barbers Point Elementary students coming from communities to the west.

The Traffic Analysis Report (Ng, 2006) noted that the improvements would not affect the total volume of traffic on Copahee and Tulagi Avenues, which border the school campus. However, there will be an increase in through traffic on Roosevelt Avenue, and turning movements onto Roosevelt Avenue will be delayed. Implementation of a "no left turn" restriction for westbound Roosevelt Avenue to Copahee Avenue during the morning hours was recommended as mitigation. This would "save" the available gaps in the eastbound traffic for the left turns from Copahee Avenue. Traffic wishing to turn left at Copahee Avenue would turn one block sooner, onto Tulagi Avenue (followed by right turns at Boxer and Copahee Avenue to enter the school).

A letter from the Department of Education (DOE) received during the EA early consultation period (see Chapter 7) expressed concerns about traffic impacts around the school, specifically the possibility of children entering school from Roosevelt Avenue, or being dropped off on Roosevelt Avenue and walking down Copahee or Tulagi Avenues to enter from Boxer Avenue. These concerns about student drop-off areas are most appropriately addressed by the school through policy and rules, and then communicated directly to the school community. A letter received from the DOE during the Draft EA comment period reiterated their concerns about traffic, and requested that the project include two gates to secure the pedestrian access points in the school's perimeter fence. According to the DOE, the gates would prevent people from walking into the school from Roosevelt Avenue, and parents from dropping students off on Roosevelt Avenue. City ordinance prohibits the City from constructing improvements on State or privately-owned property, and as such, they cannot be included as part of the Kamokila Boulevard Extension project. However, this appears to be an appropriate and relatively simple solution for pedestrian safety and drop-off concerns.

The City will continue to keep the DOE and school officials informed of the plans for the roadway extension.

Impact of Alternatives

3.7.5 Future Kapolei Judiciary Complex

Existing Conditions

The vacant site directly to the east of the proposed roadway extension is planned for a new State Judiciary Complex. The State of Hawaii has been planning for a new courthouse for the Family Court of the First Judicial Circuit for approximately 15 years. The Estate of James Campbell donated the approximately 15.3-acre site to the State for the new court complex.

The proposed Kapolei Judiciary Complex will include a new Juvenile Detention Facility, and will accommodate more court operations to relieve overcrowding at other facilities on Oahu. The proposed Judiciary Complex represents recognition of the population shift on the island of Oahu and an opportunity for the Judiciary to have a significant presence in West Oahu.

In 2005, the State Legislature approved funds for the new Kapolei Judiciary Complex and Juvenile Detention Facility, thereby ensuring the transfer of the land from the EJC to the State. Planning for the new Judiciary Complex is currently in the design phase. According to the State Department of Accounting and General Services, the anticipated time for on-site construction is December 2007 through December 2010.

Project Impacts and Mitigation

The Kamokila Boulevard extension, as proposed, will have a negligible impact on the proposed Judiciary Complex. As discussed in Chapter 2, the proposed roadway extension (including the portion to be constructed by the EJC) was realigned to avoid a large utility pole close to Roosevelt Avenue. The preferred roadway alternative reduces the amount of land on the Judiciary (east) side by about 2,000 square feet. The State's preliminary plans indicate this area of the Judiciary site was proposed for parking, and the loss of 2,000 SF can be accommodated without significantly modifying the design of the facility. The EJC and DTS determined that this alignment was the least disruptive to the Judiciary and other adjacent land uses. Another road alignment could have taken as much as 27,000 square feet from the Judiciary site.

In a Draft EA comment letter dated April 7, 2006 (see Chapter 7), the Department of Accounting and General Services expressed concerns about possible "short term impacts" to the Judiciary Complex associated with construction of the Kamokila Boulevard Extension. One of the concerns was the impact of construction period dust on the Juvenile Detention Facility and parking areas. Another concern was construction period noise impacts on the Juvenile Detention Facility's sleeping quarters, and on the proposed Court Building.

The Kamokila Boulevard Extension is expected to be complete by the time the Judiciary Complex opens in early 2011. Because work will begin near the Judiciary Complex and move south toward Roosevelt Avenue, even if some construction is still ongoing in early 2011, it will be in the areas away from the Complex. In the event that road construction is still ongoing, appropriate dust control measures will be employed and enforced to minimize impacts on the Judiciary Complex. Construction will follow a standard Monday through Friday, 8:00 AM to 5:00 PM schedule, and should not impact sleeping quarters or court facilities.

The DAGS also raised concerns about access for their construction contractors if Kamokila Boulevard construction occurs concurrently. They were also concerned about "disturbance to permanent access driveways from Kamokila Boulevard for adjacent lots." The City's Traffic Analysis Report (Ng, 2006) assumed that the City contractors would access the construction site from Roosevelt Avenue, where existing traffic volume is minimal and short-term construction impacts to traffic will be negligible. Given this scenario, there should be no conflict with the State's construction access, or access driveways on Kamokila Boulevard.

Impact of Alternatives

Alternative C, which shifted the Kamokila Boulevard extension to the east to avoid the electrical power pole, could have reduced the Judiciary site by over 27,000 square feet. This would have had a major adverse effect on the design of the Court Complex. As such, it was determined to be undesirable. Alternative D, which shifted the road extension to the west to avoid the power pole, would have increased the size of the Judiciary site by almost 27,000 square feet, but would have decreased a future commercial site across the street. This alternative was also determined to be unsatisfactory because of its impact on the lease potential of the commercial site.

The no action alternative and Alternative A would have no effect on the Judiciary site, but were eliminated for other reasons.

3.8 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

The table below summarizes the environmental effects of the proposed action and alternatives evaluated in this environmental assessment. The no action alternative would not affect any of the resource areas. All the build alternatives would have impacts similar to the preferred alternative. All would result in temporary, construction period impacts such as noise and dust. None of the build alternatives would have adverse impacts to biological resources, infrastructure, or public services. However, one of the design alternatives could have a significant adverse impact on the State's future Judiciary Complex by reducing the size of the site. All of the build alternatives will change the visual appearance of the area by constructing a new road on a currently undeveloped site. However, the area is already planned for future development, and none of the alternatives would obstruct scenic views.

All of the build alternatives would cross the OR& L railroad tracks, which is listed on the National Register of Historic Places, and all would displace the historic railroad cars on Jensen's Siding. Mitigation measures are being identified in a Memorandum of Agreement between the DTS, SHPD, State of Hawaii and the Hawaiian Railway Society. The MOA is currently in progress. With appropriate mitigation, the project should have an overall net benefit to the historic railroad.

With the exception of no action, all of the alternatives would improve traffic connectivity through the area. This will be a positive effect, particularly with the anticipated development of Kalaeloa to the south, and the overall Ewa/Kapolei region. Development in the surrounding areas would occur with or without this roadway improvement project.

Table 3-2: Summary of Impacts and Mitigation for Project Alternatives

Affected Resource	Alternatives			
	Extend Kamokila Blvd. from OR&L ROW to Roosevelt Ave. *(Preferred Alternative)*	**No Action**	**Extend Kamokila Blvd. from Current Terminus to Roosevelt Ave.**	**Design Alternatives A, C, and D**
Physical				
Topography & Slopes	No impact.	No impact.	No impact.	No impact.
Soils	No impact.	No impact.	No impact.	No impact.
Air Quality	Short-term construction related impacts. May be long-term improvement near intersections due to reduced traffic congestion.	No impact.	Same as preferred alternative.	Same as preferred alternative.
Hazardous Materials	Potential for damage to fuel pipelines during construction.	No impact.	Same as preferred alternative.	No impact.
Natural Hazards	Not in flood or tsunami inundation zone. No impact on natural hazards.	No impact.	No impact.	No impact.
Hydrology	No impact to surface or groundwater resources.	No impact.	No impact.	No impact.
Noise	Short-term construction period noise. Project will not increase roadway capacity or traffic volumes	Same as preferred alternative.	Same as preferred alternative.	
Biological				
Flora	No impact to threatened or endangered species.	No impact.	No impact.	No impact.
Terrestrial Biology	No impact to threatened or endangered species.	No impact.	No impact.	No impact.
Socio-Economic				
Population & Employment	Creates short-term construction jobs. No direct, indirect or cumulative impact on population. Planned residential developments and population growth will occur on adjacent lands with or without this project	No impact.	Same as preferred alternative.	Same as preferred alternative.
Archaeological, Historic, Cultural	Proposed road will cross OR&L rail lines and Jensen's siding (Site 50-	No impact.	Same as preferred alternative.	Same as preferred alternative.

Affected Resource	Alternatives			
	Extend Kamokila Blvd. from OR&L ROW to Roosevelt Ave. *(Preferred Alternative)*	**No Action**	**Extend Kamokila Blvd. from Current Terminus to Roosevelt Ave.**	**Design Alternatives A, C, and D**
	80-12-9714) which are listed on National Register. Two train cars on the siding will require relocation. MOA between DTS, HDOT, SHPD and Hawaiian Railway Society specifying appropriate mitigation is being developed.			
Visual Resources	Will alter visual appearance of presently undeveloped site. No impact on important, identified scenic resources.	No impact.	Same as preferred alternative.	Same as preferred alternative.
Utilities & Infrastructure	Coordination needed with EJC for crossing of proposed Makai Drainage Channel in project area. Avoids large HECO 138kV power pole. Railroad crossing will include warning devices and new signal system. Potential impact on underground fuel lines to be mitigated by toning prior to excavation. No anticipated impact on other existing utility lines in the area. Project will not increase long-term utility demand.	No impact.	Similar to preferred alternative, although no coordination with EJC needed for construction of the roadway extension.	Same as preferred alternative.
Traffic	Project will improve traffic flow and connectivity in the area. Anticipated increase in area traffic due to Kalaeloa and Kapolei development will occur with or without the project. Localized improvements (separate right-turn lane on Roosevelt Avenue,	Will do nothing to improve area roadway connectivity. As adjacent Kalaeloa lands area built out, traffic congestion on surrounding roads will increase.	Same as preferred alternative.	Same as preferred alternative.

Affected Resource	Alternatives			
	Extend Kamokila Blvd. from OR&L ROW to Roosevelt Ave. *(Preferred Alternative)*	**No Action**	**Extend Kamokila Blvd. from Current Terminus to Roosevelt Ave.**	**Design Alternatives A, C, and D**
	intersection signalization, etc.) will be needed to address future traffic volumes at Roosevelt Avenue intersection.			
Public Services				
Police	No impact on police facilities or services.	No impact.	No impact.	No impact.
Fire and Emergency Medical Services	No impact on police facilities or services. May have positive indirect and cumulative impact due to improved roadway connectivity and improved emergency response times.	No impact.	No impact.	No impact.
Parks	No impact.	No impact.	No impact.	No impact.
Schools	Will provide shorter route for Barbers Point Elementary School students living to the west. Will not affect total number of students or volume of traffic immediately around school. Will increase traffic on Roosevelt Avenue.	No impact.	Same as preferred alternative.	Same as preferred alternative.
Future Judiciary Complex	Realignment to avoid large power pole will reduce land on Judiciary site by about 2,000 SF.	No impact.	Same as preferred alternative.	Design Alternative C would reduce Judiciary Complex site by over 27,000 SF, possibly jeopardizing this State project. Alternative D would increase Judiciary site by almost 27,000 SF, but reduce future commercial site on opposite side of Kamokila Blvd.

4 CONSISTENCY WITH EXISTING PLANS, POLICIES AND CONTROLS

4.1 FEDERAL

4.1.1 Section 4(f) Department of Transportation Act

Section 4(f) of the Department of Transportation Act, 49 U.S.C. §303 states that it is national policy to preserve public parks, recreation areas, wildlife and waterfowl refuges and historic sites. It prohibits the use of federal funds for projects that have significant adverse impacts on the above resources unless there is no prudent and feasible alternative and the project includes all possible planning to minimize harm resulting from the use of such lands.

The intent of Section 4(f) is to preserve significant parkland, recreation areas, refuges, and historic/archaeological sites by limiting the circumstances under which such land can be used for transportation projects. "Use" is defined as:

- land is permanently incorporated into a transportation facility;
- there is a temporary occupancy of land that is adverse in terms of preservation of the resource; or
- the project's proximity to the site substantially impairs those functions that qualify the site as a Section 4(f) resource even though no land is permanently or temporarily acquired. This is called "constructive use."

There are no public parks, recreation areas, or wildlife and waterfowl refuges in the project area. The project will not adversely impact any of these resources. None of the project alternatives would impact these resources.

There is one historic site in the project area, a portion of the historic OR&L rail line which is listed on the National Register of Historic Places (Site 50-80-12-9714). No other historic resources are in the project area or would be affected by the improvements.

The proposed Kamokila Boulevard extension will cross the site, which includes the existing rail line and siding (Jensen's Siding). The new road will also cause displacement of two railway cars on the siding that are owned by the Hawaiian Railway Society. The two railroad cars may be considered "contributing elements" to the National Register site. The City has consulted with the SHPO and other agencies in accordance with Section 106 of the NHPA. The SHPO has indicated that it cannot, at this time, concur with a "no adverse effect" determination, and recommended discussion of proper mitigation between all parties involved. The execution of a Memorandum of Agreement (MOA) was recommended. The SHPO concluded that while the proposed undertaking will result in some modification to the historic integrity of Site 50-80-12-9714, appropriate mitigation will have an overall "net benefit" to the historic property.

An MOA is currently being developed between the SHPD, the City and County of Honolulu, the State of Hawaii Department of Transportation (the owner of the right-of-way), and the Hawaiian Railway Society. The MOA will address issues such as disposition of the railway cars (for example relocation to another siding location), the type of crossing at the main tracks and siding, and any reconstruction of the line/siding that may be necessary. The MOA will include time frames for the work to be undertaken.

4.1.2 Executive Order 12898 Environmental Justice

Title VI of the Civil Rights Act of 1964 prohibits discrimination based on race, color or national origin. Executive Order 12898, Environmental Justice, requires projects utilizing federal funds to identify and address potential for disproportionately high and adverse human health or environmental effects on minority and low-income populations. It requires that a good faith effort must be made to avoid disproportionate and adverse impacts to minority or low income populations.

As discussed in Chapter 3 (Section 3.4), the Ewa County Census District (CCD) has a slightly higher percentage of Asian only residents and a slightly lower percentage of white residents than the City and County as a whole. Median household income was slightly above the County-wide median.

During construction, there will be noise and dust, but because of the distance between the project site and surrounding residential areas, adverse impacts should be minimal. Surrounding lands are currently undeveloped, and the closest residential units are located in Kalaeloa, at least a half-mile east of the construction area. There should be little disruption to existing traffic flow, except for minor disruption to traffic on Roosevelt Avenue when the connection to that road is made.

Overall, the construction of the Kamokila Boulevard extension will not have a disproportionate adverse environmental impact on low income or minority populations. There will not be disproportionate health risks such as traffic safety, air quality, noise or release of hazardous materials.

Presentations will be made to the area Neighborhood Board to discuss the project and possible construction period impacts. This outreach is expected to be adequate to address Title VI and Environmental Justice concerns.

In the long term, the region's population, including its minority and low-income residents, will benefit from improved roadway connectivity and an alternative route between Kalaeloa and Kapolei. These benefits will occur without disproportionate health or environmental impacts on these residents.

4.2 STATE OF HAWAII

4.2.1 Hawaii State Plan

The 1996 Hawaii State Plan (Chapter 226, HRS) is the umbrella document in the statewide planning system. It serves as a written guide for the future long-range development of the state by describing a desired future for the residents of Hawaii and providing a set of goals, objectives, and policies that are intended to shape the general direction of public and private development.

State plan objectives for transportation facility systems are: 1) An integrated multi-modal transportation system that services statewide needs and promotes the efficient, economical, safe and convenient movement of people and goods; and 2) A statewide transportation system that is consistent with and will accommodate planned growth objectives throughout the State. (HRS §226-17). The State Plan's Transportation Functional Plan was prepared in 1991, and recommends specific strategies and policies to achieve the State Plan objectives.

The roadway improvements are consistent with the objectives and policies of the Hawaii State Plan and Transportation Functional Plan.

4.2.2 State Land Use Classification

The State Land Use Commission, pursuant to Chapter 205 and 205A, HRS and Chapter 15-15, Hawaii Administrative Rules, is empowered to classify all lands in the State into one of four land use districts: urban, rural, agricultural and conservation. The entire project area and immediately surrounding lands are all within the State's Urban District (Figure 13). The City and County of Honolulu regulates activities or uses within the Urban district. The proposed roadway improvements are consistent with this State Land Use designation.

4.3 CITY AND COUNTY OF HONOLULU

4.3.1 County General Plan

General Plan Objectives and Policies

The project is in conformance with the following policies and guidelines of the City and County of Honolulu's *1992 General Plan Objectives and Polic*ies:

<u>Chapter I. Population</u>

<u>Objective C</u>: To establish a pattern of population distribution that will allow the people of Oahu to live and work in harmony.

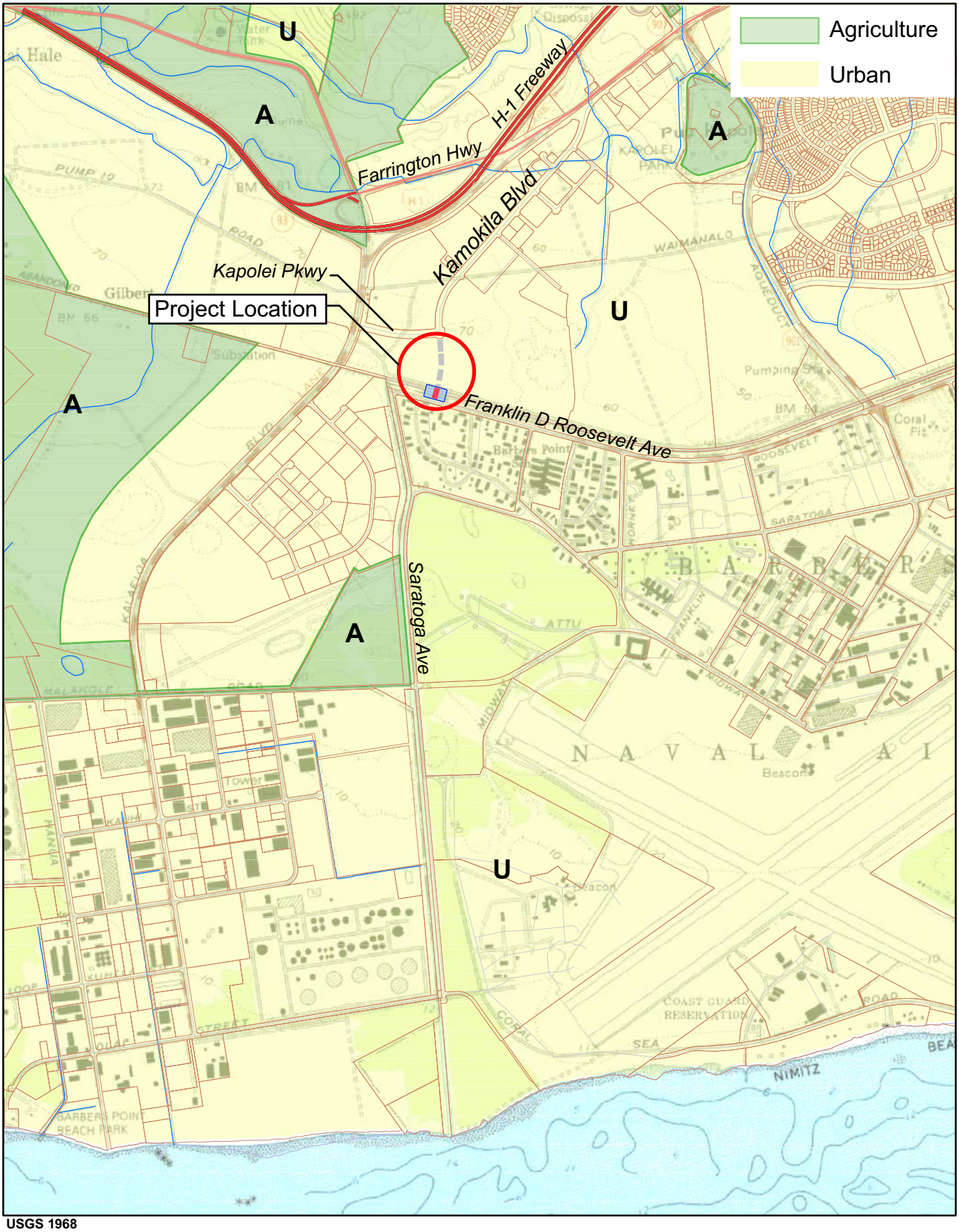


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Figure 13
State Land Use

Policy 2: Encourage development within the secondary urban center at Kapolei and the Ewa and Central Oahu 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.

Chapter V. Transportation and Utilities

Objective A: To create a transportation system which will enable people and goods to move safety, efficiently, and at 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.

Policy 4: Improve transportation facilities and services in the Ewa corridor and in the trans-Koolau corridors to meet the needs to Ewa and windward communities

Policy 5: Improve roads in existing communities to reduce congestion and eliminate unsafe conditions.

Chapter VII. Physical Development and Urban Design

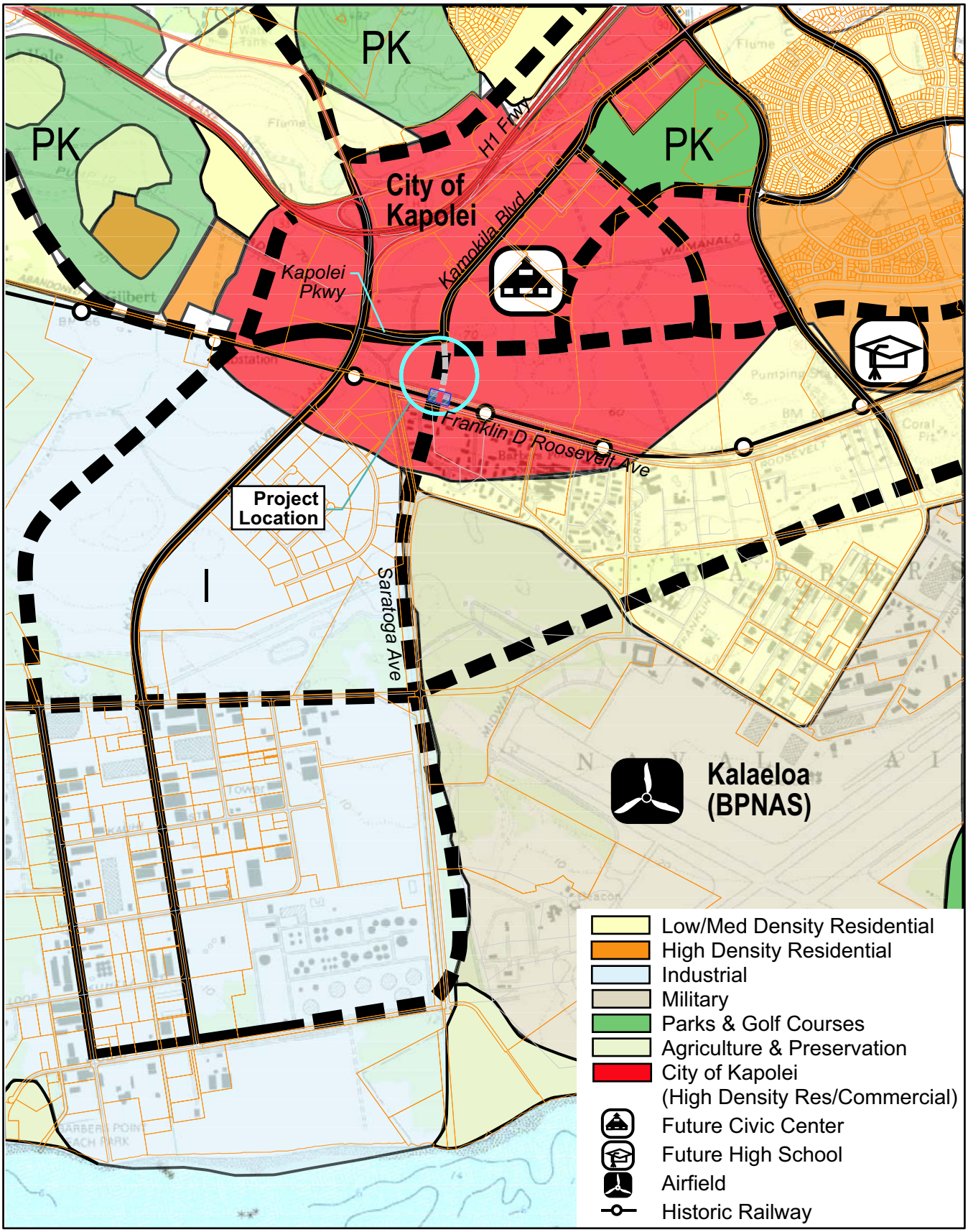
Objective C: To develop a secondary urban center in Ewa with its nucleus in the Kapolei area.

Policy 1: 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.

Policy 2: Encourage the development of a major residential, commercial, and employment center within the secondary urban center at Kapolei.

4.3.2 Ewa Development Plan

The project site is located in Kapolei, within the Ewa Development Plan area. The Ewa Development Plan (August 1997) envisions that the City of Kapolei will be the heart of a secondary urban center, with an urban mix of commercial, office and residential uses. By 2020, the Ewa Development Plan projected that the City of Kapolei will house over 7,000 residents, and provide work sites for 25,000 private jobs and 5,000 public (City and State) jobs. The land use plan shows the project area as part of the City of Kapolei, which is identified for high density residential and commercial development (Figure 14).



Development & Sustainable Communities Plans, Ewa 1997

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Feet

Figure 14
Ewa Development Plan

Chapter 4, Public Facilities and Infrastructure Policies and Principles, includes guidance for future planning and construction of facility projects and infrastructure systems to carry out the vision for future development of Ewa. This chapter notes that "additional east-west and north-south roadways will be needed to enhance movement between the various parts of the Ewa region and to provide improved access to activity centers such as Ewa Marina and…Kalaeloa."

The proposed extension of Kamokila Boulevard to Roosevelt Avenue will create an additional north-south route, enhancing movement throughout the region, as called for in the 1997 Ewa Development Plan. The inclusion of a bike path along the roadway extension is also consistent with the Ewa Development Plan which calls for the incorporation of bike ways in major roadways and an extensive network of bike lanes within the City of Kapolei.

On June 4, 2003, Council Resolution 03-81, CD1 was approved. This resolution revised the Ewa Public Infrastructure Map (PIM) for the Ewa Development Plan area, to incorporate the proposed Kamokila Boulevard extension.

Ewa Development Plan Five Year Review

The City and County is currently undergoing its five-year review of the 1997 Ewa Development Plan. Since early 2004, the City has held workshops, interviews, focus groups, and made presentations as part of the review process. A draft report of findings and recommendations is being prepared. This report will be reviewed at a public workshop. The revised five-year review report, with recommended revisions to the Development Plan, will be submitted to the Planning Commission and City Council.

Among the preliminary recommendations to the Ewa Development Plan made by a national consultant team were to "improve connections and network between regional destinations and activities" and "between neighborhoods and communities." (Department of Planning & Permitting, April 20, 2005).

Kalaeloa Special Area Development Plan

Kalaeloa, formerly the Naval Air Station (NAS) Barbers Point, is located directly south of the project area. Roosevelt Avenue forms the northern boundary of the former NAS. The property is currently under the control of the State's Hawaii Community Development Authority. When NAS Barbers Point was closed in 1999, it was under the control of a redevelopment commission, which in 1996 prepared a Kalaeloa Community Redevelopment Plan. The Redevelopment Plan called for mostly public uses by federal, state, and local government agencies, with private uses to be allowed on land owned by the Department of Hawaiian Home Lands. The Navy retained approximately 1,100 acres at Kalaeloa, which was not been included in the plan.

Elements of the Kalaeloa Redevelopment Plan were then incorporated into a Special Area Plan for Kalaeloa, which became part of the City's Ewa Development Plan.

This Special Area Plan for Kalaeloa includes a circulation plan, with the goal of integrating the former NAS Barbers Point into the surrounding communities by improving vehicular circulation to, within, and through the former station. Although an extension of Kamokila Boulevard to Roosevelt Avenue is not mentioned directly, Figure 3-2 (Trail Connections Ewa to Kapolei) of the Special Area Plan shows a "proposed bike lane or route" extending along the proposed project route, from Kamokila Boulevard to Roosevelt Avenue.

City of Kapolei Urban Design Plan

The City of Kapolei Urban Design Plan provides guidelines for future development of Kapolei. The Plan centers on a "garden city" theme that includes tree-lined promenades and a large central park offering a variety of community activities.

In 2004, the City held a series of workshops on Smart Growth which focused on refining the Ewa Development Plan and Kapolei Urban Design Plan. The Smart Growth concept focuses on developing walkable, mixed use neighborhoods, and protection of natural and historic resources. Local and mainland experts participated in the workshops. Recommendations for the City of Kapolei Urban Design Plan included improving street networks and connections. The purpose of the proposed roadway extension is to provide that increased connectivity, consistent with this urban design objective.

4.3.3 County Zoning

The City and County of Honolulu's Land Use Ordinance (Section 21, ROH) is its zoning ordinance, which regulates land use in a manner that will encourage orderly development in accordance with adopted land use policies.

As shown in Figure 15, the project area is zoned AG-1, Restricted Agriculture. The intent of the AG-1 restricted agricultural district is to conserve and protect important agricultural lands for the performance of agricultural functions. It should be noted that the project site and surrounding areas are zoned AG-1 because of its historic use for sugar cane cultivation. However, the site and immediately surrounding areas are currently designated in the Ewa Development Plan for future high density residential and commercial use.

In their Draft EA comments (see Chapter 7), the Department of Planning and Permitting said that, *"the EA should recognize that [Ordinance 04-46, dated 12/15/2004] Unilateral Condition 1.d. that requires the drainage channel to be designed as a grass-lined drainage system."* The drainage channel the letter refers to is being constructed by the EJC as part of their extension of Kamokila Boulevard, and is not part of the City's project. Although the EJC plans to construct a grass lined channel on the east side of the future Kamokila Boulevard, their current plans call for a 30-foot by 9 foot box culvert on the west side.

4.3.4 Special Management Area

Coastal Zone Management objectives and policies (Section 205A-2, HRS) and the Special Management Area (SMA) guidelines (Section 25-3.2 ROH) have been developed to preserve, protect, and where possible, to restore the natural resources of the coastal zone of Hawaii. As shown in Figure 15, the project site is well outside of the Special Management Area, and will not have a direct or indirect impact on the coastal zone. None of the alternatives considered will impact the coastal zone.

4.4 OTHER REGIONAL PLANNING DOCUMENTS AND PLANS

4.4.1 Regional Plans

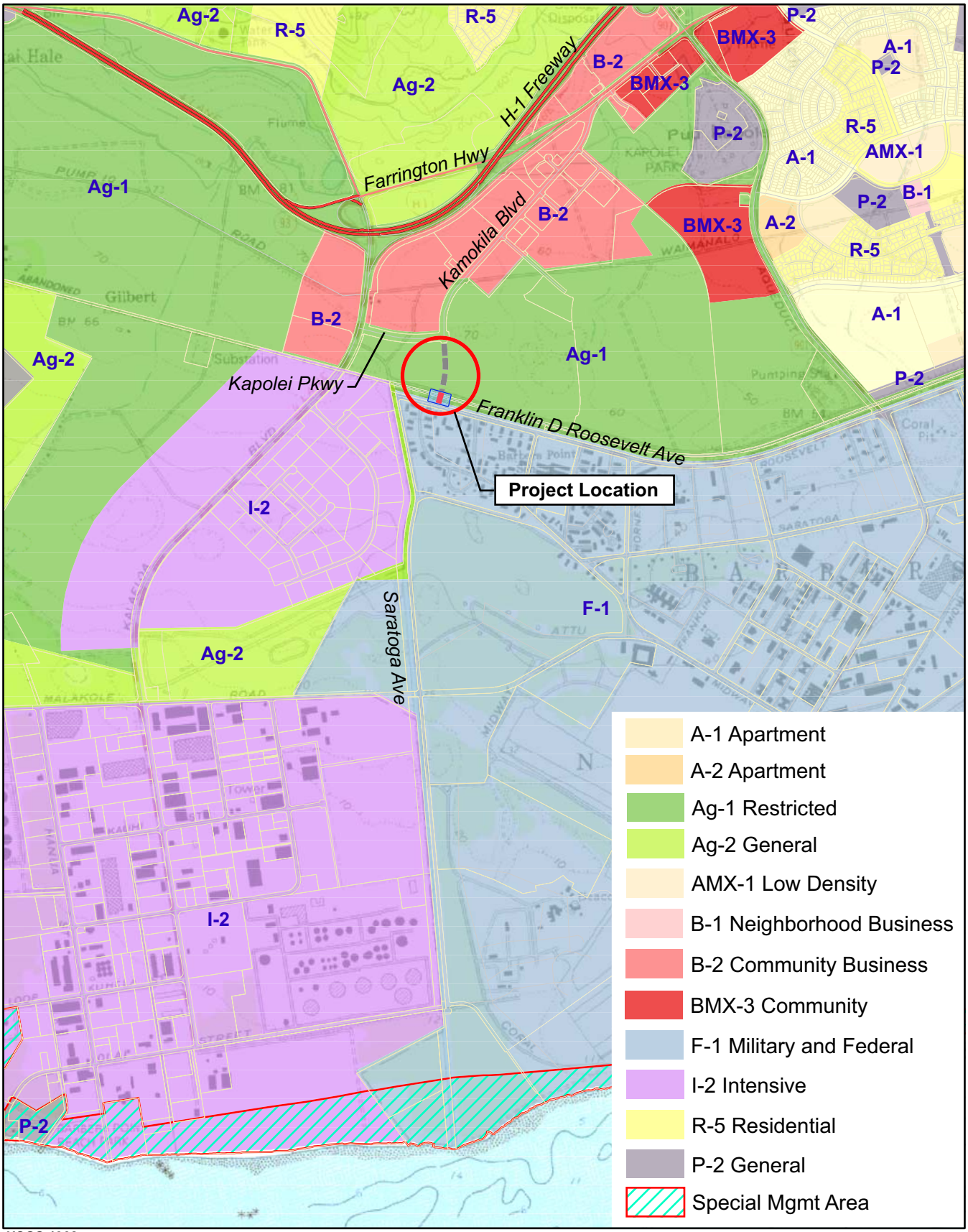
Oahu Regional Transportation Plan (ORTP)

The Oahu Regional Transportation Plan (ORTP), prepared by the Oahu Metropolitan Planning Organization (OMPO), is a long-term vision document that outlines transportation goals, objectives, and policies for Oahu, and prioritizes highway and transit projects. The document is updated every five years as mandated by the Federal Department of Transportation, as a means of verifying eligibility for federal transportation funds.

The most current version of the ORTP is the Transportation for Oahu Plan TOP 2025, which was prepared under the Transportation Equity Act for the 21st Century ("TEA 21"). The TOP 2025 was adopted in 2001. It includes a prioritized listing of roadway projects in the Ewa area.

The proposed extension of Kamokila Boulevard is not specifically identified in the listing of projects in the TOP 2025. The listed projects focus on improvements to major thoroughfares such as Fort Barrette Road, Fort Weaver Road, and completion of the Kapolei Parkway. However, the TOP 2025 notes that “community planning efforts for the Ewa area have identified the need for additional street and highway facilities in the high growth Ewa and Kapolei areas.” It also notes the importance of improving local circulation within communities. As such, the proposed project is generally consistent with the TOP 2025 recommendations for the Ewa area.

The current revision of the ORTP, scheduled for adoption in April, 2006, will update the plan to 2030.



USGS 1968

N

0 1,000 2,000
Feet

Figure 15
Zoning and SMA

Ewa Region Highway Transportation Master Plan (1992)

The Ewa Region Highway Transportation Master Plan was prepared by a consortium of landowners and developers in 1992 as part of the process to determine what highway improvements will be needed in the Ewa region, and how much of the costs each developer would pay. The plan shows elements of the existing and future Ewa roadway network, and identifies major improvements, including the construction of Kapolei Parkway, a major east-west corridor, a new North-South Road, and improvements to H-1 Freeway interchanges in the area.

Although not specifically identified in this document, the proposed extension of Kamokila Boulevard is consistent with and will enhance the proposed Ewa roadway network.

Pearl Harbor Historic Trail Master Plan

The Pearl Harbor Historic Trail Master Plan was prepared by the City and County of Honolulu in 2001 as part of the City's "Vision Team" initiative, where Oahu residents proposed new regional projects to improve their neighborhoods, parks and roads. The Aiea-Pearl City Community Vision Team's project evolved into a long-range master plan for an 18.6 mile rail-and-trail system between Aiea and Nanakuli. The Pearl Harbor Historic Trail Master Plan was adopted by the City Council in 2003.
The centerpiece of the Pearl Harbor Historic Trail is the Oahu Railway and Land Company (OR&L) right-of-way extending between Aiea and Nanakuli. This includes the segment of the right-of-way that passes through the Kamokila Boulevard Extension project area.

The Pearl Harbor Historic Trail Master Plan's vision statement is to "Develop the Pearl Harbor Historic Trail as a world-class heritage and recreational corridor that enhances the communities from Aiea to Nanakuli." Goals and objectives focus on the following four areas:

1. Outdoor Recreation/Fitness and Alternative Transportation
2. Historic Preservation and Education
3. Economic Revitalization
4. Environmental Preservation and Education

A continuous path for bicyclists and pedestrians is along the 18.6 mile route is envisioned, alongside the historic train tracks. The plan calls for expansion of the Hawaiian Railway Society's operating train line, and implementation of the State's planned Leeward Bikeway (see Section 4.4.2 below) parallel to the train route. Areas along the historic trail are identified for redevelopment and economic revitalization. Natural areas and wetlands along the route are also identified for preservation, with possible educational/interpretive programs.

The Kamokila Boulevard Extension will cross a section of the OR&L track where Hawaiian Railway Society trains currently operate. However, the railroad track will be replaced and coordinate with the Hawaiian Railway Society to minimize disruption to the train operations. The City will work with the SHPO and Hawaiian Railway Society in developing mitigation to protect the integrity of this historic resource. The project is compatible with the goals and

objectives of the Pearl Harbor Historic Trail Master Plan, and will not adversely impact implementation of this plan.

4.4.2 Proposed Projects

North-South Road, State of Hawaii Department of Transportation

The State Department of Transportation (HDOT) is constructing the North-South Road, a 2.5 mile arterial roadway in the Ewa area linking Kapolei Parkway and Farrington Highway to the H-1 Freeway. The new road is intended to alleviate traffic congestion in the growing Ewa plain by providing an additional route to and from the H-1 Freeway. This route will supplement the area's two existing north-south routes, Fort Barrette Road and Fort Weaver Road.

Phase I of the North-South Road is currently under construction, and will complete the first three lanes from Kapolei Parkway to the H-1 Freeway. The target date for completion is the end of 2008. Phase II will complete the North-South Road to its final six-lane configuration.

The project is funded by both State and federal sources. The estimated cost for the project is $120 million, $60 million for Phase I and $60 million for Phase II.

The proposed Kamokila Boulevard Extension project will not impact or be impacted by the North-South Road project.

Leeward Bikeway Project, State of Hawaii Department of Transportation

The HDOT is proposing to construct a Leeward Bikeway, extending from Waipio Point Access Road, through the Ewa plain, to the Lualualei Naval Road on the Waianae Coast. Construction of the Leeward Bikeway was mandated in the deed transferring title of the OR&L right-of-way from the federal government to the HDOT. The deed transfer requires that the State construct a bikeway within the OR&L right-of-way. The bikeway is being developed primarily for pedestrian/cyclists, with a secondary purpose to provide access to the historic railroad and additional recreational facilities. The project will be funded by both the federal DOT and HDOT.

According to the HDOT, the Leeward Bikeway project is currently in the fee negotiation stage. Although detailed plans have not yet been developed, the bikeway will follow the OR&L right-of-way, and will cross a number of existing roads, including the future Kamokila Boulevard extension. The HDOT project manager has indicated that when the bikeway intersects a roadway, the users of the bikepath will be directed to the nearest intersection as much as possible. This will be safer for pedestrians, and result in the least disruption to vehicular flow.

The Leeward Bikeway would most likely cross the Kamokila Boulevard extension at the Roosevelt Avenue intersection. Heading in the ewa direction, the bikeway will follow the OR&L ROW until Kamokila Boulevard, where it will be diverted south toward Roosevelt Avenue where it will cross, then return to the OR&L ROW.

During the Kamokila Boulevard design phase, the City's consultant will contact the HDOT to check on the status of the Leeward Bikeway project, and to coordinate efforts as much as possible. The Kamokila Boulevard extension will not preclude development of a Leeward Bikeway through the area.

4.4.3 Adjacent Landowners

Estate of James Campbell /Aina Nui Corporation

The surrounding lands north of Roosevelt Avenue are owned by the Estate of James Campbell (EJC), the major landowner in the Kapolei area. Aina Nui Corporation is an affiliate of the EJC.

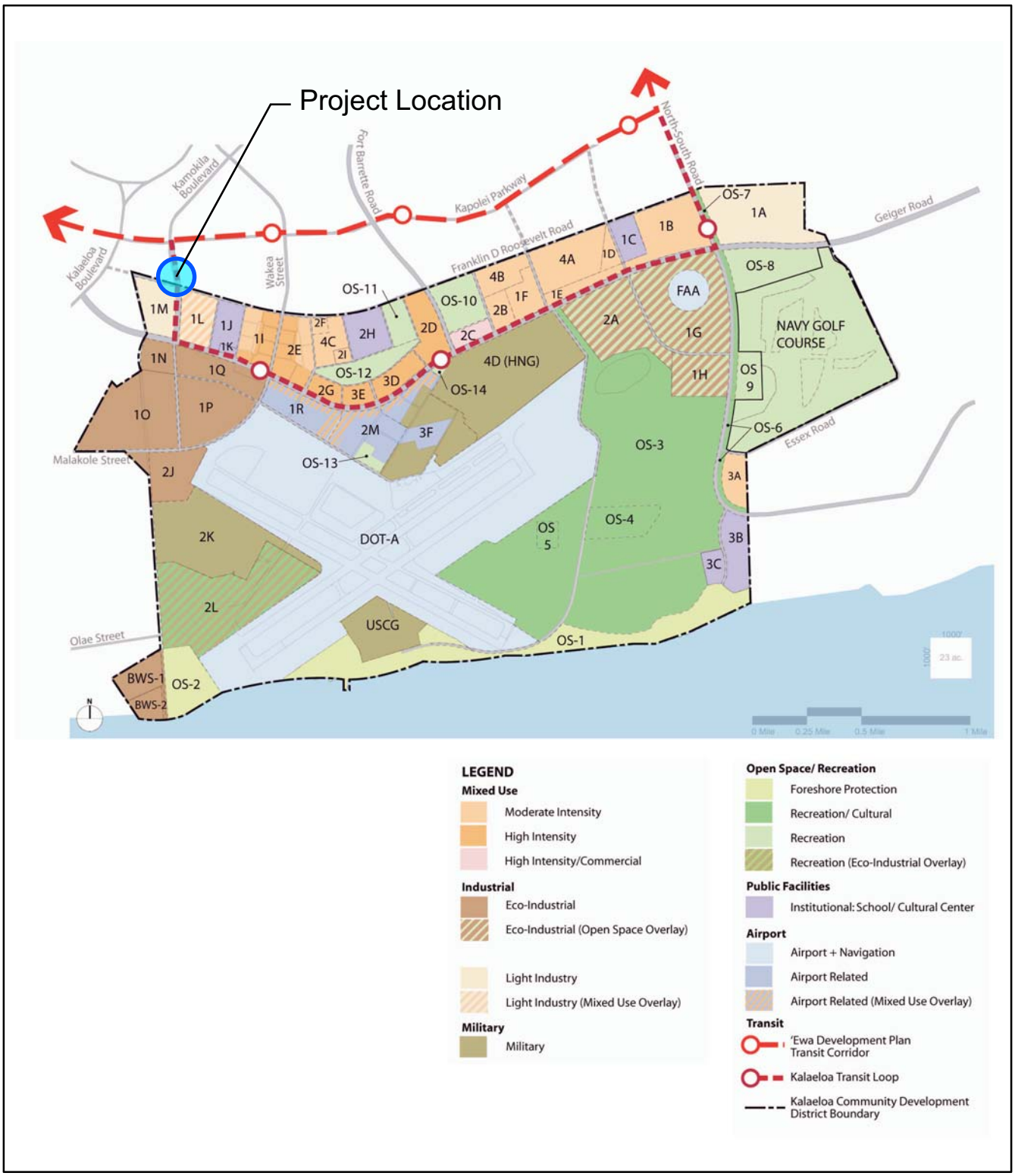
The Estate of James Campbell's Kapolei Area Long Range Master Plan shows and extension of Kamokila Boulevard to Renton Road (former plantation era roadway that has since been abandoned), but not to Roosevelt Avenue. The Kapolei Area Long Range Master Plan designates land on the east side of the roadway extension for Public Facility (future judiciary complex). The vacant 13.1 acre parcel on the west side of the roadway extension is designated on the Master Plan as "Commercial/Office" land use, and by Kapolei Property Development LLC as "land available for sale and lease" (see Figure 3).

Hawaii Community Development Authority (HCDA)/Kalaeloa Community Development District

The Kamokila Boulevard Extension is also adjacent to the Kalaeloa Community Development District (Kalaeloa), the former Naval Air Station (NAS) Barbers Point. Roosevelt Avenue, where the roadway extension will terminate, is the northern boundary of Kalaeloa, which encompasses approximately 3,700 acres. When the former naval air station closed in 1999, about 1,050 acres were retained by the Navy, 472 acres were transferred to other federal agencies, and 2,165 acres were surplus and made available to various state and city agencies. At present, only 44% of the surplus land has been conveyed from the Navy.

Kalaeloa is currently under the jurisdiction of the Hawaii Community Development Authority (HCDA), a State agency responsible for economic development and renewal of the area. HCDA has the authority to designate land uses and entitlements to facilitate development activities. The agency has recently completed a draft Master Plan for Kalaeloa, updating a previous 1997 Development Plan. The Master Plan is intended to be a 20-year plan, focusing on a phased development approach to provide services, education, jobs, and recreational land uses, with some residential use. The Draft Master Plan is currently undergoing public review (Figure 16).

In an early consultation letter for this Draft Environmental Assessment dated November 18, 2005 (see Chapter 7), the HCDA stated that "this roadway, when completed, will provide a new access point in the northwestern region of the Kalaeloa Community Development District (Kalaeloa), thus affording residents and businesses with increased connectivity in and around Kapolei and Kalaeloa."



Source: Hawaii Community Development Authority, 2005

Not to Scale

Figure 16
HCDA Kalaeloa Master Plan Draft

The HCDA noted that the proposed project is consistent with the Draft Kalaeloa Master Plan, and that the Draft Master Plan:

1. Anticipates a moderate density, mixed-use and light industrial development at the intersection of Kamokila Boulevard and Franklin D. Roosevelt Avenue;
2. Contemplates a continuance of Kamokila Boulevard south into Kalaeloa and eventually intersecting an east-west connector road at Malakole Street, and
3. Identifies Kamokila Boulevard as a possible route for mass transit system through Kalaeloa, linking it to Kapolei and eventually to the primary urban center in Honolulu.

The proposed extension of Kamokila Boulevard to Roosevelt Avenue is compatible with the HCDA's long-range plans to extend it further south. The project is also consistent with the Draft Master Plan's proposed Kalaeloa transit loop, which includes an extended Kamokila Boulevard, Saratoga Avenue/Geiger Avenue, and Kapolei Parkway.

U.S. Navy

The Navy has confirmed that it does not own (i.e., did not retain) the lands near the future intersection of Kamokila Boulevard and Roosevelt Avenue (Phone con and e-mail correspondence with Lynn Tanaka and Jill C. Kaya, Navy Region Hawaii, May 24, 2005). However, future Navy decisions regarding the use of its retained lands at Kalaeloa could affect all of Kapolei.

The Navy is currently considering homeporting an aircraft carrier strike group in Hawaii. Should an aircraft carrier be stationed in Hawaii, it would bring approximately 5,000 crew members, and an aviation wing of 70 to 80 aircraft. In this scenario, it is likely that much of the former NAS Barbers Point lands will be needed to support the aviation wing. Rapid development of Kalaeloa in the project vicinity would follow. This would, in turn, significantly increase traffic on the new road extension, as well as on the surrounding Kapolei roadway network. HCDA's Kalaeloa Master Plan will include an assessment of Navy reuse should a carrier be homeported in Hawaii.

4.5 OTHER CONSIDERATIONS

4.5.1 Unavoidable Adverse Effects

All potential environmental impacts discussed in Chapter 3 could either be avoided or mitigated to an extent that they would not be significant.

4.5.2 Energy Requirements and Conservation Potential of Various Alternatives and Mitigation Measures

Energy consumption will be required in the short-term for ground clearing, grading, and roadway construction. Because the improvements are strictly to provide increased connectivity, the project will not increase roadway capacity. Neither the preferred alternative nor any of the alternatives will increase energy requirements in the long-term.

By providing an alternate north-south route between Kapolei and Kalaeloa, the project may reduce overall traffic congestion, and in this way, may indirectly reduce vehicular energy consumption.

4.5.3 Relationship of Short-Term uses and Long-Term Productivity

In the short-term, the project will have temporary construction-related impacts on the surrounding area. The road improvements will require a commitment of public construction funds. However, the long-term project benefits far outweigh the short-term tradeoffs. The roadway improvements will increase regional connectivity and increase the efficiency of the local roadway network. This will become increasingly important in coming years, as the adjacent lands at Kalaeloa are built out.

4.5.4 Irretrievable and Irreversible Resource Commitments

Resources that are committed irreversibly or irretrievably are those that cannot be recovered if the project is implemented. The proposed project will involve two types of resources: 1) general industrial resources including capital, labor, fuels and construction equipment; and 2) project-specific resources such as natural resources and land at the affected site. General industrial resources will be spent during project construction and for long-term operation and maintenance of the road. Rather than preventing its use for commercial or office development, the construction of the road extension would actually enhance these future uses.

5 DETERMINATION, FINDINGS AND REASONS SUPPORTING THE ANTICIPATED CHAPTER 343 HRS DETERMINATION

5.1 ANTICIPATED CHAPTER 343 HRS DETERMINATION

Based on the information and analysis in this Environmental Assessment, the proposed project is not expected to result in a significant impact on the environment. The City and County of Honolulu Department of Transportation Services intends to issue a Finding of No Significant Impact (FONSI), pursuant to requirements of the State of Hawaii HRS Chapter 343, and recommends that an Environmental Impact Statement (EIS) not be required.

5.2 CHAPTER 343 HAWAII REVISED STATUTES (HRS) SIGNIFICANCE CRITERIA

In determining whether an action may have significant impact on the environment, the applicant or agency must consider all phases of the project, its expected consequences both primary and secondary, its cumulative impact with other projects, and its short and long-term effects. The State of Hawaii Department of Health Rules Section 11-200-12 (Hawaii Administrative Rules, revised 1996) establish 13 "Significance Criteria" to be used as a basis for identifying whether significant environmental impact will occur.

An agency will determine an action may have a significant impact on the environment if it meets any of the following criteria:

1. Involves an irrevocable commitment to loss or destruction of any natural or cultural resources;

The project site is privately owned, and is currently undeveloped. However, it is identified in State, City and County, and the landowner's (Estate of James Campbell) plans for future urban development. There are no significant biological resources within the project site, including threatened or endangered species or their habitats. The new road extension will cross the historic OR&L railroad main line and Jensen's siding, which are on the National Register of Historic Places. A signalized railroad crossing will be constructed in conformance with State and federal standards. The City and the FHWA have determined that there will be no adverse effect on this historic site. Mitigation measures will be developed and outlined in a MOA between the City, the HDOT, SHPD and the Hawaiian Railway Society. There are no archaeological resources in the area.

The cultural impact evaluation noted that there is no indication that this area was used to collect resources, to conduct traditional cultural practices in the past, or for present cultural practices. It noted it is unlikely that any traditional Hawaiian sites would be found, though it is possible that twentieth century sugar cane cultivation or irrigation features would be found.

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

The proposed project does not curtail the range of beneficial uses of the environment. Future public facilities (Judiciary Complex) and commercial development are planned for the immediately adjacent lands. The project area is in the City of Kapolei, and identified in City and County land use plans for future urban development. The new roadway extension will not curtail these future beneficial uses of the environment. Rather, the new Kamokila Boulevard extension support future development in Kapolei, as well as and in the Kalaeloa lands to the south.

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

The proposed project is consistent with the environmental policies established in Chapter 344, HRS and the National Environmental Policy Act. As a roadway improvement, the proposed project is consistent with the Chapter 344 policy of *"Establishing communities which provide a sense of identity, wise use of land, efficient transportation…in harmony with the natural environment*…[§344-3 (2)(C)]. It is also consistent with the guidelines on Transportation, which *"Encourage transportation systems in harmony with the lifestyle of the people and environment"* and the guideline to *"Encourage public and private vehicles and transportation systems to conserve energy, reduce pollution emission, including noise, and provide safe and convenient accommodations for their users."* [§344-4(6)].

The project is consistent with Executive Order 12898, Environmental Justice, as there will be no disproportionate adverse effect on minority and low-income communities.

4. Substantially affects the economic or social welfare of the community or state;

The proposed project will not substantially affect the economic or social welfare of the community or State. Construction will have minor, short-term air and noise impacts. However, due to its distance from existing land uses, these effects will be minimal. The project will have a long-term positive impact on area traffic movement, and thus, on the economic and social welfare of the community.

5. Substantially affects public health;

The project will not substantially affect public health. The temporary construction-period impacts to air quality and noise are insignificant when weighed against its overall, long-term positive impacts.

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

The roadway extension alone will not generate additional vehicle traffic, population changes or affect public facilities. The City of Kapolei and the Kalaeloa lands are already planned for future

development. Build out of these areas will occur over the next 10 to 20 years with or without the roadway extension.

7. Involves a substantial degradation of environmental quality;

Construction period impacts related to noise and air quality will be temporary and short-term, and will not degrade environmental quality. The project site has no significant botanical or other biological resources. The project will not obstruct views or degrade the visual environment. The roadway extension is consistent with surrounding land uses and land use plans for the area.

8. Is individually limited but cumulatively has considerable effect up on the environment or involves a commitment for larger actions;

The proposed action is intended to improve roadway connectivity in the area. It will not increase roadway capacity or increase traffic. These improvements will not involve a commitment for larger actions. The proposed build out of Kapolei and Kalaeloa will increase the area's population and traffic, but these will occur whether or not the Kamokila Boulevard extension is implemented.

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

No rare, threatened or endangered species or its habitat will be impacted by the project. There are no significant biological resources in the project vicinity.

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

The project will result in short-term construction period increases in fugitive dust and noise. Once it is completed and operational, the roadway extension will have no impact on air or water quality. It will not increase vehicular traffic or traffic-associated noise.

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

The project site is not within a flood plain, tsunami zone, erosion prone area or near fresh or coastal waters.

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

The project will not impact scenic vistas or viewplanes identified in county or state plans or studies. The roadway improvements will be at grade, and compatible with the existing roads and surrounding developments.

13. Requires substantial energy consumption.

The project will not require substantial energy consumption. Energy resources will be consumed during project construction. Operational period energy consumption will be negligible. The project will not have indirect or cumulative impacts on energy consumption.

6 REFERENCES

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Internet References

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Hawaii Statewide GIS Program, http://www.hawaii.gov/dbedt/gis/

Honolulu Board of Water Supply, Honouliuli Water Recycling Facility, http://www.hwea.org/watreuse/wrusfbws1.htm

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Hawaii Community Development Authority, Kalaeloa website, http://www.hcdaweb.org

U.S. Census Bureau, 2000 Census Data. http://factfinder.census.gov. Census 2000 Summary File 1 (SF1) 100 Percent Data, and Summary File 3 (SF)-Sample Data.

7 PERSONS AND AGENCIES INVOLVED IN THE PREPARATION OF THE ENVIRONMENTAL ASSESSMENT

7.1 LIST OF PREPARERS

This Final Environmental Assessment (EA) was prepared for the City and County of Honolulu Department of Transportation Services and U. S. Department of Transportation, Federal Transit Administration by Kimura International, Inc. The following individuals were involved in the preparation of the EA.

Name	Contribution/Specialization
Kimura International, Inc.	Environmental Assessment
Glenn T. Kimura	Project Manager
Leslie Kurisaki	Primary Author
Bryce Hataoka	Phase I Site Assessment
Subconsultants	
Lester Fukuda, Hawaii Pacific Engineers	Civil Engineer
Lennox Nishimura, ECS, Inc.	Electrical Engineer
Ed Yeh, Control Point Surveying	Topographic Survey
Glen Lau, Pacific Geotechnical Engineers, Inc.	Geotechnical
Julian Ng, Julian Ng, Inc.	Traffic Engineer
Clifford Morden, Morden & Associates	Botanical Resources
David Shideler, Cultural Surveys Hawaii, Inc.	Archaeology, Cultural Resources, Cultural Impact

7.2 EARLY CONSULTATION FOR DRAFT ENVIRONMENTAL ASSESSMENT

The following agencies and organizations were contacted during the early consultation for the Draft Environmental Assessment. Letters soliciting comments were sent in October 2005, and a total of 11 responses were received. Agencies that responded are noted with an asterisk (*) below. Comments received are included at the end of this chapter.

Federal

U.S. Army Engineer Division
U.S. Environmental Protection Agency
Federal Highway Administration
U.S. Fish & Wildlife Service

State

Department of Business, Economic Development & Tourism, Office of Planning
*Department of Education
Department of Hawaiian Home Lands
Department of Land and Natural Resources
- Land Division
- State Historic Preservation Division

Department of Health
- Environmental Management Division
- Office of Environmental Quality Control

Department of Human Services
*Department of Transportation
*Hawaii Community Development Authority
*Office of Hawaiian Affairs

City and County of Honolulu

Department of Budget & Fiscal Services
*Department of Design and Construction
Department of Environmental Services
Department of Facility Maintenance
*Fire Department
*Department of Planning & Permitting
*Oahu Civil Defense Agency
*Department of Parks and Recreation
*Police Department
*Board of Water Supply

Other Organizations

Aina Nui Corporation/Estate of James Campbell
Hawaiian Electric Company
Hawaiian TelCom
Oceanic Time Warner Cable

Elected Officials

Senator Brian Kanno
Representative Rida Cabanilla
Councilmember Todd Apo
Ewa Neighborhood Board

7.3 COMMENTS RECEIVED DURING DRAFT EA COMMENT PERIOD

The Draft EA was published in the March 8, 2006 edition of the Office of Environmental Quality Control (OEQC)'s The Environmental Notice. The 30-day comment period ended on April 7, 2006. Copies of the Draft EA were sent to the agencies and organizations listed below, and also made available at public libraries. During the comment period, twenty-one (21) comment letters were received, from the agencies noted in **bold** type below.

Comments received are included at the end of this chapter. (A letter was also received from the State Historic Preservation Division as part of the Section 106 consultation process. That letter is included in Appendix G).

Federal

Department of the Army, U.S. Army Engineer Division
U.S. Environmental Protection Agency
Federal Highway Administration
U.S. Navy, Navy Region Hawaii
U.S. Fish & Wildlife Service

State

Department of Accounting and General Services
Department of Business, Economic Development & Tourism, Office of Planning
Department of Education
Department of Hawaiian Home Lands
Department of Land and Natural Resources
- Land Division
- State Historic Preservation Division

Department of Health
- Environmental Management Division
- **Office of Environmental Quality Control**

Department of Human Services
Department of Transportation
Hawaii Community Development Authority
Office of Hawaiian Affairs

City and County of Honolulu

Department of Budget & Fiscal Services
Department of Design and Construction
Department of Environmental Services
Department of Facility Maintenance
Fire Department

Department of Planning & Permitting
Oahu Civil Defense Agency
Department of Parks and Recreation
Police Department
Board of Water Supply

Other Organizations

Aina Nui Corporation/Estate of James Campbell
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Hawaiian TelCom
Oceanic Time Warner Cable
Hawaiian Railway Society

Elected Officials

Senator Brian Kanno
Representative Rida Cabanilla
Councilmember Todd Apo
Ewa Neighborhood Board

Comments Received During Draft EA Early Consultation

(October 2005)

LINDA LINGLE
GOVERNOR

PATRICIA HAMAMOTO
SUPERINTENDENT

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

OFFICE OF BUSINESS SERVICES

RECEIVED
NOV 10 2005

November 9, 2005

Mr. Glenn T. Kimura, President
Kimura International
1600 Kapiolani Boulevard, Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura:

SUBJECT: Early Consultation on Proposed Kamokila Boulevard Extension, Ewa, Oahu: TMK: 9-1-016: 32 & 12

The Department of Education (DOE) is concerned that an extension of Kamokila Boulevard to Roosevelt Avenue would impact traffic surrounding Barbers Point Elementary School. The school would need adequate time to address the possibility of children entering the school from Roosevelt Avenue or being dropped off on Roosevelt Avenue and walking the length of Copahee or Tulag Avenue to enter the school from its Boxer Road entrance.

The inclusion in your traffic study of the current morning and afternoon traffic volume at Barbers Point Elementary would be helpful in evaluating the impact of the Kamokila Boulevard extension.

If you have any questions, please call me at 586-3444 or Heidi Meeker of the Facilities Development Branch at 733-4862.

Sincerely,

Rae M. Loui
Assistant Superintendent

RML:ly

c: Mamo Carreira, CAS, Campbell/Kapolei/Waianae Complex Areas
Claudia Nakachi, Barbers Point Elementary School, Principal

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU
801 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96813 - AREA CODE (808) 529-3111
http://www.honolulupd.org
www.honolulu.gov

MUFI HANNEMANN
MAYOR

BOISSE P. CORREA
CHIEF

GLEN R. KAJIYAMA
PAUL D. PUTZULU
DEPUTY CHIEFS

OUR REFERENCE BS-KP

November 7, 2005

RECEIVED
NOV 10 2005

Mr. Glenn T. Kimura, President
Kimura International, Inc.
1600 Kapiolani Boulevard, Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura:

Thank you for the opportunity to review and comment on the Environmental Assessment/Early Consultation for the Kamokila Boulevard Extension Project.

This project should have minimal impact on the facilities and services of the Honolulu Police Department. We would, however, like to reserve further comment until more information is provided. Additionally, we look forward to seeing the draft environmental assessment.

If there are any questions, please call Major Michael Tamashiro of District 8 at 692-4253 or Mr. Brandon Stone of the Executive Bureau at 529-3644.

Sincerely,

BOISSE P. CORREA
Chief of Police

By
KARL GODSEY
Assistant Chief of Police
Support Services Bureau

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

MUFI HANNEMANN
MAYOR

LESTER K.C. CHANG
DIRECTOR

DANA TAKAHARA-DIAS
DEPUTY DIRECTOR

RECEIVED
NOV 07 2005

November 4, 2005

Mr. Glenn T. Kimura, President
Kimura International, Inc.
1600 Kapiolani Blvd., Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura:

Subject: Kamokila Boulevard Extension Project
TMK (1) 9-1-016, 12 and 32
Environmental Assessment – Early Consultation

Thank you for the opportunity to comment at the Early Consultation Stage of the Environmental Assesssment relating to the Kamokila Boulevard Extension Project.

The Department of Parks and Recreation has no comment and, as the proposed project will not impact any programs or facilities of this department, you are invited to remove us as a consulted party to the balance of the EIS process.

Sincerely,

LESTER K. C. CHANG
Director

LKCC:mk
(125991)

OAHU CIVIL DEFENSE AGENCY
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4121 • FAX: (808) 524-3439 • INTERNET: www.co.honolulu.hi.us/ocda

MUFI HANNEMANN
MAYOR

WLLIAM D. BALFOUR, JR.
ACTING ADMINISTRATOR

RECEIVED
NOV 03 2005

November 1, 2005

Mr. Glenn T. Kimura, President
Kimura International, Inc.
1600 Kapiolani Blvd., Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura:

RE: Kamokila Boulevard Extension Project
(TMK (1) 0-1-016. 12 and 32, Kapolei, Ewa District, O'ahu
Environmental Assessment – Early Consultation

Thank you for the opportunity to review the location maps indicated for improvements of the above mentioned area. The Oahu Civil Defense Agency (OCDA) does not have any comments, or questions at this time.

Sincerely,

W. D. Balfour

WILLIAM D. BALFOUR, JR.
Acting Administrator

/ms

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
PHONE: (808) 523-4432 • FAX: (808) 527-6743
DEPT. WEB SITE: www.honoluludpp.org • CITY WEB SITE: www.honolulu.gov

MUFI HANNEMANN
MAYOR

HENRY ENG, FAICP
DIRECTOR

DAVID K. TANOUE
DEPUTY DIRECTOR

RECEIVED
NOV 22 2005

2005/ELOG-2533

November 21, 2005

Mr. Glenn T. Kimura, President
Kimura International
1600 Kapiolani Blvd., Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura:

Re: Kamokila Boulevard Extension Project
TMK: 9-1-016: 12 and 32, Kapolei, Ewa, Oahu
Environmental Assessment – Early Consultation

The Department of Planning and Permitting appreciates your early consultation regarding the proposed Kamokila Boulevard Extension Project. We are pleased to provide the following comments.

1. The DEA should discuss Resolution 03-81, CD1, which revised the Ewa Public Infrastructure Map (PIM) to facilitate the proposed project;

2. The DEA should discuss the project's consistency with the General Plan, Ewa Development Plan, and the City of Kapolei Urban Design Plan; and

3. The DEA should discuss the proposed ROW widths and configurations and indicate that pedestrian ways and bikeways can be adequately accommodated and linked.

Very truly yours,

for Henry Eng, FAICP, Director
Department of Planning and Permitting

HE:hs
411734

cc: Department of Transportation Services

PHONE (808) 594-1888

FAX (808) 594-1865

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
711 KAPI'OLANI BOULEVARD, SUITE 500
HONOLULU, HAWAI'I 96813

RECEIVED
NOV 17 2005

HRD05/1830B

November 10, 2005

Leslie Kurisaki
Kimura International, Inc.
1600 Kapiolani Blvd., Suite 1610
Honolulu, HI 96814

RE: Proposed Kamokila Boulevard Extension Project, Kapolei, O'ahu, TMK (1) 9-1-016, 12 and 32.

Dear Leslie Kurisaki,

The Office of Hawaiian Affairs (OHA) is in receipt of your October 25, 2005 request for comment on the above listed proposed project, TMK (1) 9-1-016, 12 and 32. OHA offers the following comments:

OHA recommends contacting Shad Kane and Nettie Tiffany for your pre- Environmental Assessment consultation effort. Mr. Kane and Mrs. Tiffany have served as cultural resources on past projects and would likely aid in the community consultation process. Thank you for your continued correspondence, our staff looks forward to review the Draft Environmental Assessment.

OHA further requests your assurances that if the project goes forward, should iwi or Native Hawaiian cultural or traditional deposits be found during ground disturbance, work will cease, and the appropriate agencies will be contacted pursuant to applicable law.

Thank you for the opportunity to comment. If you have further questions or concerns, please contact Jesse Yorck at (808) 594-0239 or jessey@oha.org.

'O wau iho nō,

Clyde W. Nāmu'o
Administrator

Sent to David Shideler

HAWAII COMMUNITY DEVELOPMENT AUTHORITY

KAKAAKO KALAELOA

Linda Lingle
Governor

James S. Kometani
Chairperson

Daniel Dinell
Executive Director

677 Ala Moana
Boulevard
Suite 1001
Honolulu, Hawaii
96813

Telephone
(808) 587-2870

Facsimile
(808) 587-8150

E-Mail
contact@hcdaweb.org

Web site
www.hcdaweb.org

Ref. No.: P.L. Kalaeloa 17.1.1

November 18, 2005

RECEIVED
NOV 18 2005

Mr. Glenn T. Kimura
President
Kimura International, Inc.
1600 Kapiolani Boulevard, Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura:

Subject: Environmental Assessment Early Consultation
Kamokila Boulevard Extension Project
TMK: 9-1-016: 12 and 32, Ewa District, O'ahu

Thank you for the opportunity to review and comment on the subject project. The Hawaii Community Development Authority (HCDA) supports the City Department of Transportation Services' (DTS) planned roadway extension project. This roadway, when completed, will provide a new access point in the northwestern region of the Kalaeloa Community Development District (Kalaeloa), thus affording area residents and business with increased connectivity in and around Kapolei and Kalaeloa.

We also note that HCDA has recently completed a Draft Master Plan for the Kalaeloa. In reviewing the planned roadway extension in the context of our Draft Kalaeloa Master Plan, there appears to be consistency in the DTS' plans and the new roadways and land uses envisioned for the northwest region of Kalaeloa. In particular, we note that the Draft Kalaeloa Master Plan:

1. Anticipates a moderate density, mixed-use and light industrial development at the intersection of Kamokila Boulevard and Franklin D. Roosevelt Road;

2. Contemplates a continuance of Kamokila Boulevard south into Kalaeloa and eventually intersecting an east-west connector road at Malakole Street; and

3. Identifies Kamokila Boulevard as a possible route for a mass transit system through Kalaeloa, linking it to Kapolei and eventually to the primary urban center in Honolulu.

We encourage DTS' consideration of the HCDA's plans for Kalaeloa in the preparation of the environmental assessment for this project. Copies of the Draft Kalaeloa Master Plan may be obtained from the HCDA website (www.hcdaweb.org) or by contacting the HCDA Office.

Additionally, we note that much of the proposed project area is located on land owned by the State Department of Transportation (DOT), particularly the planned intersection at Franklin D. Roosevelt Road. We recommend that DTS consult with DOT in throughout the planning, design and construction phases of the project.

Should you have any questions or need additional information, please call Mr. Stanton Enomoto, Director of Planning & Development - Kalaeloa at (808) 587-8156.

Sincerely,

Daniel Dinell
Executive Director

DD:ske

c: Henry Eng, Director, City & County of Honolulu, Department of Planning & Permitting

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

MUFI HANNEMANN, Mayor

RANDALL Y. S. CHUNG, Chairman
HERBERT S. K. KAOPUA, SR.
SAMUEL T. HATA
ALLY J. PARK

RODNEY K. HARAGA, Ex-Officio
LAVERNE HIGA, Ex-Officio

DONNA FAY K. KIYOSAKI
Deputy Manager and Chief Engineer

November 16, 2005

RECEIVED
NOV 18 2005

Mr. Glenn T. Kimura, President
Kimura International, Incorporated
1600 Kapiolani Boulevard, Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura:

Subject: Your Letter of October 25, 2005 on the Environmental Assessment—Early Consultation for Kamokila Boulevard Extension Project

Thank you for the opportunity to comment on the proposed project.

We do not have any comments on the proposed roadway extension.

If you have any questions, please contact Joseph Kaakua at 748-5442.

Very truly yours,

FOR KEITH S. SHIDA
Principal Executive
Customer Care Division

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

WAYNE M. HASHIRO, P.E.
DIRECTOR

EUGENE C. LEE, P.E.
DEPUTY DIRECTOR

RECEIVED
NOV 16 2005

CDD-B 05-127768

November 10, 2005

Mr. Glenn T. Kimura, President
Kimura International, Inc.
1600 Kapiolani Boulevard, Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura:

Subject: Kamokila Boulevard Extension Project
Environmental Assessment – Early Consultation

The Department of Design and Construction does not have any comments at this time on the subject project.

Should you have any questions, please contact Marvin Char at 527-6381.

Very truly yours,

for Wayne M. Hashiro, P.E.
Director

LC:pto

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU
3375 KOAPAKA STREET, SUITE H425 • HONOLULU, HAWAII 96819-1869
TELEPHONE: (808) 831-7761 • FAX: (808) 831-7750 • INTERNET: www.honolulufire.org

INTERNATIONALLY ACCREDITED AGENCY
Commission on Fire Accreditation International
2000-2005

MUFI HANNEMANN
MAYOR

ATTILIO K. LEONARDI
FIRE CHIEF

JOHN CLARK
DEPUTY FIRE CHIEF

November 9, 2005

RECEIVED
NOV 14 2005

Mr. Glenn T. Kimura, President
Kimura International, Inc.
1600 Kapiolani Boulevard, Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura:

Subject: Environmental Assessment - Early Consultation
Kamokila Boulevard Extension Project
Kapolei, Oahu, Hawaii
Tax Map Key: 9-1-016: 012 and 032

We received your letter dated October 25, 2005, requesting our comments on the above-mentioned subject.

The Honolulu Fire Department has no objections to the project.

Should you have any questions, please call Battalion Chief Lloyd Rogers of our Fire Prevention Bureau at 831-7778.

Sincerely,

ATTILIO K. LEONARDI
Fire Chief

AKL/SK:jl

LINDA LINGLE
GOVERNOR

RODNEY K. HARAGA
DIRECTOR

Deputy Directors
BRUCE Y. MATSUI
BARRY FUKUNAGA
BRENNON T. MORIOKA
BRIAN H. SEKIGUCHI

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

IN REPLY REFER TO:

STP 8.1982

December 14, 2005

RECEIVED
DEC 20 2005

Mr. Glenn T. Kimura
Kimura International
1600 Kapiolani Boulevard, Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura:

Subject: Environmental Assessment – Early Consultation
Kamokila Boulevard Extension, Kapolei, Oahu
TMK: (1) 9-1-016, 12 and 32

Thank you for your advance notification on the subject project.

We are interested in an assessment of the impact of the subject extension on the network of State roadways and local streets in the Kapolei area, including any connection to or crossing of our highway right-of-way.

We will defer our comments until after we receive and review your draft environmental assessment. Please transmit four (4) copies of the assessment report to our Department.

Very truly yours,

RODNEY K. HARAGA
Director of Transportation

Comments Received During Draft EA Comment Period

(March-April 2006)

TP 3/06-145869

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, HONOLULU
BUILDING 223
FORT SHAFTER, HAWAII 96858-5440

REPLY TO
ATTENTION OF: **CEPOH-EC-T**

March 15, 2006

MAR 17 2 21 PM '06
CTS
TRANS PLANNING

Civil Works Technical Branch

Mr. Brian Suzuki
City and County of Honolulu
Department of Transportation Services
650 South King Street, 3rd Floor
Honolulu, Hawaii 96813

Dear Mr. Suzuki:

Thank you for the opportunity to review and comment on the Draft Environmental Assessment (DEA) for the Kamokila Boulevard Extension Project, Ewa, Oahu (TMKs 9-1-16: 12 and 32). The following comments are provided in accordance with Corps of Engineers authorities to provide flood hazard information and to issue Department of the Army (DA) permits.

a. Based on the information provided, a DA permit will not be required for the project.

b. We concur with the flood information provided on page 3-10 of the DEA.

Should you have any questions, please call Ms. Jessie Dobinchick of my staff at 438-8876.

Sincerely,

James Pennaz

James Pennaz, P.E.
Chief, Civil Works
Technical Branch

DEPARTMENT OF TRANSPORTATION SERVICES

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 3RD FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 523-4529 • Fax: (808) 523-4730 • Internet: www.honolulu.gov

MUFI HANNEMANN
MAYOR

MELVIN N. KAKU
DIRECTOR

TPD06-00297

July 5, 2006

Mr. James Pennaz, P.E.
Chief, Civil Works
Technical Branch
Department of the Army
U.S. Army Engineer District, Honolulu
Building 223
Fort Shafter, Hawaii 96858-5440

Dear Mr. Pennaz:

Subject: Draft Environmental Assessment
Kamokila Boulevard Extension
Kapolei, Ewa District, Island of Oahu
TMK 11-9-1-16:32 (Por) and 12 (Por)

Thank you for your comment letter dated March 15, 2006 regarding this project. In this letter, you stated that a Department of the Army (DA) permit will not be required for this project and that you concur with the flood information provided in the DEA.

Please feel free to call Mr. Brian Suzuki at 527-6880 if you have any other comments or questions.

Sincerely,

MELVIN N. KAKU
Director

cc: Kimura International, Inc.
Office of Environmental Quality Control

DEPARTMENT OF THE NAVY
COMMANDER
NAVY REGION HAWAII
850 TICONDEROGA ST STE 110
PEARL HARBOR HI 96860-5101

RECEIVED MAR 25 2006

5750
Ser N45/ 00081
23 MAR 2006

Mr. Brian Suzuki
City and County of Honolulu
Department of Transportation Services
650 South King Street 3rd Floor
Honolulu HI 96813

Dear Mr. Suzuki:

Thank you for the opportunity to review and comment on the Draft Environmental Assessment for the Kamokila Boulevard Extension Project.

We do not have any comments on this project at this time.

Should you have any questions, please contact Ms. Mika Orimoto at 473-4137, extension 224.

Sincerely,

C. K. Yokota

C. K. YOKOTA
Director
Regional Environmental Department
By direction of
Commander, Navy Region Hawaii

Copy to: Office of Environmental Quality Control
Ms. Leslie Kurisaki, Kimura International, Inc.

DEPARTMENT OF TRANSPORTATION SERVICES

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 3RD FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 523-4529 • Fax: (808) 523-4730 • Internet: www.honolulu.gov

MUFI HANNEMANN
MAYOR

MELVIN N. KAKU
DIRECTOR

TPD06-00300

July 5, 2006

Mr. C. K. Yokota, Director
Regional Environmental Department
Commander, Navy Region Hawaii
850 Ticonderoga Street, Suite 110
Pearl Harbor, Hawaii 96860-5101

Dear Mr. Yokota:

Subject: Draft Environmental Assessment
Kamokila Boulevard Extension
Kapolei, Ewa District, Island of Oahu
TMK 11-9-1-16:32 (Por) and 12 (Por)

Thank you for your letter dated March 23, 2006 regarding this project. In this letter, you stated that you have no comments on this project.

Please feel free to call Mr. Brian Suzuki at 527-6880 if you have any comments or questions.

Sincerely,

MELVIN N. KAKU
Director

cc: Kimura International, Inc.
Office of Environmental Quality Control

TP149224

LINDA LINGLE
GOVERNOR

RUSS K. SAITO
COMPTROLLER

KATHERINE H. THOMASON
DEPUTY COMPTROLLER

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

(P)1088.6

APR 7 2006

Mr. Brian Suzuki
Department of Transportation Services
City and County of Honolulu
650 South King Street, 3rd Floor
Honolulu, Hawaii 96813

APR 10 9 14 AM '06

Dear Mr. Suzuki:

Subject: Kamokila Boulevard Extension
Draft Environmental Assessment

Thank you for the opportunity to provide comments on the subject project's Draft Environmental Assessment (EA). I strongly support this initiative as the extension of Kamokila Boulevard will provide necessary access to the Kapolei Judiciary Complex which is now in design.

We do have several concerns that should be addressed:

1. The Draft EA does not indicate the anticipated construction schedule for the Department of Transportation (DTS) work "from the EJC's termination point to Roosevelt Avenue" other than indicating under "1.2 PROJECT DESCRIPTION AND LOCATION" on Page 1-3 that "Aina Nui Corporation anticipated starting construction of the roadway extension in 2006." Please include the anticipated construction schedule for DTS work in the Final EA.

2. The Draft EA and its supporting Environmental Noise Assessment Report (Appendix D) does not indicate the anticipated construction workdays and associated workday time periods. Please include the anticipated construction workdays and associated workday time periods for DTS work in the Final EA.

3. If the anticipated construction schedule for the DTS work is not clear at this time, the Draft EA's analyses of the "short-term impacts" for "construction-related activity" may not fully assess the various specific time periods tied to their respective impacts. The anticipated time period for the on-site construction activity for the Kapolei Judiciary Complex is from December 2007 through December 2010. Our concerns related to

possible "short-term impacts" to the Kapolei Judiciary Complex project which may require mitigative measures on the part of DTS include:

a. Should the anticipated construction schedule for the DTS work occur following the time period when the construction of the Kapolei Judiciary Complex is near or past substantial completion, the Final EA should include assurance that appropriate dust-control measures will be employed and strictly enforced to avoid dust problems affecting the new Juvenile Detention Facility building as well as visitor and employee vehicles parked on the Kapolei Judiciary Complex site adjacent to the DTS project zone.

b. The supporting Traffic Analysis Report (Appendix H) does not address "short-term impacts" for construction access from Kamokila Boulevard for adjacent construction projects. Should the anticipated construction schedule for the DTS work occur concurrently with the construction activity for the Kapolei Judiciary Complex, the Final EA should indicate that access to the DTS project zone by DTS construction vehicles shall not block and/or interfere with State contractor construction vehicles accessing the Kapolei Judiciary Complex from the Kamokila Boulevard extension; and identify the proposed construction access path to the DTS project zone, as well as delineate the DTS construction zone to analyze these "short-term impacts" of construction access issues. These comments may apply equally for construction access issues to the proposed development of the adjacent Estate of James Campbell's (EJC) commercial property located across the Kamokila Boulevard extension from the Kapolei Judiciary Complex site.

c. The supporting Traffic Analysis Report (Appendix H) does not address "short-term impacts" for disturbance to permanent access driveways from Kamokila Boulevard for adjacent lots. Please ensure that the Final EA discusses the proposed construction access path to the DTS project zone and locates the DTS construction zone to allow for analysis of "short-term impacts" for disturbance to permanent access driveways for adjacent lots. Should the anticipated construction schedule for the DTS work occur following the time period when the construction of the Kapolei Judiciary Complex is near or past substantial completion, the Final EA should ensure that no DTS construction vehicles or construction activity will block and/or interfere with the Makai (i.e., 2nd lower) access driveway to the Kapolei Judiciary Complex site, and that the turnaround on Kamokila Boulevard located just Mauka of the DTS project zone be kept unobstructed. These comments probably apply equally for permanent access issues to the proposed development of

adjacent Campbell Estate's commercial property located across EJC's Kamokila Boulevard extension from the Kapolei Judiciary Complex site.

d. Because neither the anticipated construction schedule for the DTS work nor the anticipated construction workdays and associated workday time periods are indicated, the Draft EA statement under "3.2.9 NOISE" on Page 3-14 that "there are no noise sensitive developments in proximity to the construction area that would be impacted" may not reflect a full assessment of potential impacts. Should the anticipated construction schedule for the DTS work occur following the time period when the construction of the Kapolei Judiciary Complex is past completion and Judiciary operations have commenced, the Final EA will need to address "short-term construction noise impacts" to the 24-hour/7-day-a-week operations of the Juvenile Detention Facility (particularly with regard to sleeping quarters located around the building perimeter) which is closest to and faces the DTS project zone, as well as to the daytime judicial proceedings for the Court Building (particularly with regard to its courtrooms and judges private chambers located around the building perimeter).

4. The radius of the bend in the road indicated for the proposed Alternative B (DTS Preferred Alternative) as shown in Figure 5 on Page 2-11 does not appear to reflect the most recent dimension shown in EJC's current construction plans for the extension of Kamokila Boulevard from its current terminus near Kapolei Parkway. The Final EA should reflect consistency with EJC's most current construction plans.

5. We also recommend that the COSTCO project be mentioned and discussed where it is relative. The traffic study that COSTCO is conducting should be referenced and the content in that report should be incorporated into the Final EA, as it is relevant. Hence, we propose that the following amendments be incorporated:

a. Section 1.2, Paragraph 3: "The EJC-proposed extension is intended to provide a future access to a future State Judiciary Complex <u>and COSTCO,</u>..."

b. Section 1.3, Paragraph 2: "Although the planned EJC roadway extension would provide access to the future Judiciary Complex <u>and COSTCO,</u>..."

6. Neither the Department of Accounting and General Services (DAGS) nor the Judiciary were listed among the State agencies contacted during the early consultation for the Draft EA. We also did not receive copies of the Draft EA until staff read The Environmental Notice published on March 8, 2006, and subsequently requested a copy of the Draft EA

for review which we received last week. As a result, our response may not be as comprehensive, and certainly is not as timely, as our standard practice dictates. Please ensure that both the DAGS Public Works Division, Planning Branch, and Ms. Christina E. Uebelein of the Judiciary are provided with copies of the Final EA Report in time to allow for appropriate review and comment.

I look forward to your continued cooperation throughout the planning, design, construction and operation phases as the Kapolei Judiciary Complex will be directly affected by this project.

If you have any questions, please have your staff call Ms. Christine Kinimaka of the Planning Branch at 586-0499.

Sincerely,

ERNEST Y. W. LAU
Public Works Administrator

CK:jk
c: Ms. Genevieve Salmonson, DOH-OEQC
Ms. Christine E. Uebelein, Judiciary

DEPARTMENT OF TRANSPORTATION SERVICES

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 3RD FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 523-4529 • Fax: (808) 523-4730 • Internet: www.honolulu.gov

MUFI HANNEMANN
MAYOR

MELVIN N. KAKU
DIRECTOR

TPD06-00288

July 5, 2006

Mr. Ernest Y.W. Lau, Public Works Administrator
Department of Accounting and General Services
State of Hawaii
P.O. Box 119
Honolulu, Hawaii 96810

Dear Mr. Lau:

Subject: Draft Environmental Assessment
Kamokila Boulevard Extension
Kapolei, Ewa District, Island of Oahu
TMK 11-9-1-16:32 (Por) and 12 (Por)

Thank you for your comment letter dated April 7, 2006 regarding this project. The following are our responses to your comments:

1. The anticipated construction start date will depend on funding availability (City and Federal) and the selection of a construction contractor. We estimate that construction could start as early as fall 2007 and that the construction duration will be approximately one year. Please note, however, that commencement of construction is contingent on the Estate of James Campbell (EJC) completing their roadway extension and improvements.
2. We anticipate construction will follow a standard Monday through Friday, 8:00 A.M. to 5:00 P.M. schedule.
3. You stated that the anticipated time period for on-site construction for the Kapolei Judiciary Complex is from December 2007 through December 2010 and expressed concern about the short-term impacts of the roadway construction. Even if road construction begins in late 2009,

it should be complete by the time the Kapolei Judiciary Complex opens in early 2011.

a. The Final EA will include assurance that appropriate dust control measures will be employed and enforced to minimize impacts to adjacent land uses.

b. Your concern regarding construction access seems to assume that the only access to the DTS work site would be along the Kamokila Boulevard Extension fronting the Judiciary site. Our Traffic Analysis Report assumed that the DTS contractor would get to the site from Roosevelt Avenue, where existing traffic volume is minimal and therefore, short-term construction impacts to traffic will be a non-issue.

c. See response to "b" above. The Final EA will clarify that construction access is assumed to be from Roosevelt Avenue, in order to minimize traffic impacts to existing and future uses along Kamokila Boulevard.

d. As stated previously, the road extension is expected to be completed by early 2011, when the Kapolei Judiciary Complex opens. Work will begin near the Judiciary Complex and move south toward Roosevelt Avenue. Therefore, even if some construction work is still ongoing, it will be in the area away from the Complex. Moreover, work will be limited to weekdays, from 8:00 A.M. to 5:00 P.M., and should not adversely impact the Juvenile Detention Facility's sleeping quarters or court facilities.

4. Our design consultants have and will continue to coordinate the proposed alignment with the EJC and its engineers. The preferred alternative shown in the Draft EA (Alignment B) is consistent with the EJC's most current plans and was reviewed by the EJC engineers.

5. Regarding the Costco project, the intended future use of the site was not known at the time the traffic report was prepared. We understand that Costco currently has a purchase agreement with the EJC for the site. We recently checked with Mr. Michael Chu of LP&D Hawaii, who is conducting planning studies for Costco. He indicated that the traffic study has not yet been completed.

6. Both the DAGS Public Works Division, Planning Branch, and Ms. Christina E. Uebelein of the State Judiciary will receive a copy of the Final EA.

Thank you for your interest in this project. Please feel free to call Mr. Brian Suzuki at 527-6880 if you have any additional comments or questions.

Sincerely,

MELVIN N. KAKU
Director

cc: Kimura International, Inc.
Office of Environmental Quality Control

LINDA LINGLE
GOVERNOR

PATRICIA HAMAMOTO
SUPERINTENDENT

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

OFFICE OF THE SUPERINTENDENT

RECEIVED MAR 23 2006

March 24, 2006

Mr. Melvin Kaku, Director
Department of Transportation Services
City and County of Honolulu
650 South King Street, 3rd Floor
Honolulu, Hawaii 96813

Dear Mr. Kaku:

Subject: Draft Environmental Assessment for Proposed Kamokila Boulevard Extension, Ewa, Oahu: TMK: 9-1-016:32 & 12

The Department of Education (DOE) has reviewed the Draft Environmental Assessment (DEA) for the proposed extension of Kamokila Boulevard to Roosevelt Avenue in Kapolei.

The DOE appreciates the additional efforts made to study the impact of the Kamokila extension on the traffic to and from Barbers Point Elementary School. The DEA acknowledges that the connection of Kamokila to Roosevelt will increase Roosevelt traffic to the school, but states there will be no change in the volume of traffic on Copahee and Tulagi Avenues. However, there is no way to get to the entrance of the school from Roosevelt without using one of those streets. In addition, the DEA elsewhere acknowledges there will be an increase in Copahee traffic northbound which will have to wait to make a left turn onto Roosevelt.

The DOE expressed its concerns about student safety in my November 9, 2005, letter to your consultant (copy attached). The DEA's only response was that the issues should be addressed by the school. Traffic issues are routinely addressed by the school but they require some cooperation from the city when its plans will dramatically increase the volume and speed of traffic passing along the most remote of the school's boundaries.

The DOE requests that the Kamokila extension project include supplying two gates to secure the pedestrian access points in the school's perimeter fence to prevent the possibility of people walking into the school from Roosevelt and to prevent parents from dropping students off on Roosevelt. The school would secure and maintain the gates.

Thank you for the opportunity to review and comment on this EA. Should you have any questions, please call Heidi Meeker of the Facilities Development Branch at 733-4862.

Very truly yours,

Patricia Hamamoto

Patricia Hamamoto

PH:jmb

Attachment

c: Randolph Moore, Acting Assistant Superintendent, OBS
Duane Kashiwai, Public Works Manager, FDB
Mamo Carreira, CAS, Campbell/Kapolei/Waianae Complex Areas
Claudia Nakachi, Principal, Barbers Point Elementary
Genevieve Salmonson, OEQC
✓Leslie Kurisaki, Kimura International

LINDA LINGLE
GOVERNOR

NOV 1 0 REC'D

PATRICIA HAMAMOTO
SUPERINTENDENT

Planning Section

N/9

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

OFFICE OF BUSINESS SERVICES

November 9, 2005

Mr. Glenn T. Kimura, President
Kimura International
1600 Kapiolani Boulevard, Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura:

SUBJECT: Early Consultation on Proposed Kamokila Boulevard Extension, Ewa, Oahu: TMK: 9-1-016: 32 & 12

The Department of Education (DOE) is concerned that an extension of Kamokila Boulevard to Roosevelt Avenue would impact traffic surrounding Barbers Point Elementary School. The school would need adequate time to address the possibility of children entering the school from Roosevelt Avenue or being dropped off on Roosevelt Avenue and walking the length of Copahee or Tulag Avenue to enter the school from its Boxer Road entrance.

The inclusion in your traffic study of the current morning and afternoon traffic volume at Barbers Point Elementary would be helpful in evaluating the impact of the Kamokila Boulevard extension.

If you have any questions, please call me at 586-3444 or Heidi Meeker of the Facilities Development Branch at 733-4862.

Sincerely,

Rae M. Loui
Assistant Superintendent

RML:ly(HM)

c: Mamo Carreira, CAS, Campbell/Kapolei/Waianae Complex Areas
Claudia Nakachi, Barbers Point Elementary School, Principal

DEPARTMENT OF TRANSPORTATION SERVICES

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 3RD FLOOR
HONOLULU, HAWAII 96813
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MUFI HANNEMANN
MAYOR

MELVIN N. KAKU
DIRECTOR

TPD06-00290

July 5, 2006

Ms. Patricia Hamamoto, Superintendent
Department of Education
State of Hawaii
P.O. Box 2360
Honolulu, Hawaii 96804

Dear Ms. Hamamoto:

Subject: Draft Environmental Assessment
Kamokila Boulevard Extension
Kapolei, Ewa District, Island of Oahu
TMK 11-9-1-16:32 (Por) and 12 (Por)

Thank you for your comment letter to Kimura International dated March 24, 2006 regarding this project.

You reiterated the concerns expressed in Ms. Rae Loui's letter dated November 9, 2005, related to student safety due to increases in volume and speed of traffic in the vicinity of Barbers Point Elementary School. As you noted, these types of traffic issues are routinely addressed by the school. However, the City is committed to working with the school and the DOE to address your safety concerns.

Regarding your request for two gates to secure the pedestrian access points in the school's perimeter fence, City ordinance prevents us from constructing gates or other improvements on State or privately-owned property.

We will continue to keep you informed of this project's progress. Please feel free to call Mr. Brian Suzuki at 527-6880 if you have any comments or questions.

Sincerely,

Melvin N. Kaku

MELVIN N. KAKU
Director

cc: Kimura International, Inc.
Office of Environmental Quality Control

LINDA LINGLE
GOVERNOR
STATE OF HAWAII

MICAH A. KANE
CHAIRMAN
HAWAIIAN HOMES COMMISSION

BEN HENDERSON
DEPUTY TO THE CHAIRMAN

KAULANA H. PARK
EXECUTIVE ASSISTANT

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P.O. BOX 1879
HONOLULU, HAWAII 96805

RECEIVED MAR 16 2006

March 14, 2006

Mr. Glenn Kimura, President
Kimura International, Inc.
1600 Kapiolani Boulevard, Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura:

Subject: Draft Environmental Assessment Report
Kamokila Boulevard Extension, Kapolei, Ewa, Oahu

Thank you for the opportunity to comment on the Draft Environmental Assessment Report. The Department of Hawaiian Home Lands has no comment on the proposed roadway extension project.

Should you have any questions, please call Linda Chinn, Land Management Division Administrator, at 587-6434.

Aloha and mahalo,

Micah A. Kane, Chairman
Hawaiian Homes Commission

DEPARTMENT OF TRANSPORTATION SERVICES

CITY AND COUNTY OF HONOLULU

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MUFI HANNEMANN
MAYOR

MELVIN N. KAKU
DIRECTOR

TPD06-00305

July 5, 2006

Mr. Micah A. Kane, Chairman
Department of Hawaiian Home Lands
State of Hawaii
P.O. Box 1879
Honolulu, Hawaii 96805

Dear Mr. Kane:

Subject: Draft Environmental Assessment
Kamokila Boulevard Extension
Kapolei, Ewa District, Island of Oahu
TMK 11-9-1-16:32 (Por) and 12 (Por)

Thank you for your letter to Kimura International dated March 14, 2006 regarding this project. In this letter, you stated that you have no comment on this project.

Please feel free to call Mr. Brian Suzuki at 527-6880 if you have any comments or questions.

Sincerely,

Melvin N. Kaku

MELVIN N. KAKU
Director

cc: Kimura International, Inc.
Office of Environmental Quality Control

LINDA LINGLE
GOVERNOR OF HAWAII

GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186
E-mail: oeqc@health.state.hi.us

RECEIVED APR 17 2006

April 13, 2006

Mr. Melvin Kaku
Mr. Brian Suzuki
Department of Transportation Services
City and County of Honolulu
650 S. King Street, 3rd Floor
Honolulu, HI 96813

Ms. Leslie Kurasaki
Kimura International Inc.
1600 Kapi'olani Boulevard, Suite 1610
Honolulu, HI 96814

Dear Messrs. Kaku and Suzuki, and Ms. Kurasaki:

Having reviewed the draft environmental assessment for the Kamokila Boulevard Extension to Roosevelt Avenue, Tax Map Key (1st) 9-1-016, portions of parcels 32 and 12, located in the judicial district of 'Ewa, the Office of Environmental Quality Control offers the following comments for your review and response.

1. ***Early Assessment and Consultation***: Section 11-200-9(a)(1), Hawai'i Administrative Rules requires the proposing agency to seek the advice and input of the lead county agency responsible for implementing the county's general plan in which the proposed action is to occur, and to consult with other agencies having jurisdiction or expertise as well as citizen groups and individuals which the approving agencies reasonably believes to be affected. Section 11-200-10 (3) notes that the environmental assessment must identify agencies, citizen groups, and individuals consulted. We note that a list of consulted parties is provided on page 7-1. We would like to respectfully request that the Department of Transportation Services describe the advice and input you received from the Department of Planning and Permitting (the lead agency for implementing the county general plan) especially with respect to citizen groups and individuals that DPP reasonably believed to be affected by the proposed action.
2. ***Cost of Project Breakdown***: Please disclose the estimated cost of the project to the Campbell Estate and to the City and County of Honolulu.
3. ***Glassphalt***: Please consider using glassphalt as roadway aggregate.
4. ***Native Hawaiian Landscaping***: Please consider using native Hawaiian vegetation in landscaping the project. Please refer to our Internet site at http://www.state.hi.us/health/oeqc/index.html for more information in this regard.

Thank you for the opportunity to comment. If there are any questions, please contact Mr. Leslie Segundo, Environmental Health Specialist, at (808) 586-4185.

Sincerely,

GENEVIEVE SALMONSON
Director

DEPARTMENT OF TRANSPORTATION SERVICES

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 3RD FLOOR
HONOLULU, HAWAII 96813
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MUFI HANNEMANN
MAYOR

MELVIN N. KAKU
DIRECTOR

TPD06-00292

July 5, 2006

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

Dear Ms. Salmonson:

Subject: Draft Environmental Assessment
Kamokila Boulevard Extension
Kapolei, Ewa District, Island of Oahu
TMK 11-9-1-16:32 (Por) and 12 (Por)

Thank you for your comment letter dated April 13, 2006 regarding this project. We offer the following response to your comments:

1. **Early Assessment and Consultation**: You stated that Section 11-200-9(a)(1), Hawaii Administrative Rules, requires the Department of Transportation Services (DTS) to seek the advice and input of the lead county agency responsible for implementing the County's general plan, and to consult with other agencies, citizen groups and individuals who may be affected. The Draft Environmental Assessment (DEA) was reviewed by a number of government agencies and other interest groups.

   You asked about the input received from the Department of Planning and Permitting (DPP), the lead agency for implementing the County general plan, especially with respect to affected citizen groups and individuals. In a comment letter dated April 7, 2006, the DPP suggested discussing the project's proximity to the Pearl Harbor Historic Trail (PHHT), and any

impacts to the PHHT master plan goals. This discussion will be included in the Final EA. The DPP noted the project is in compliance with the 1992 General Plan and Ewa Development Plan, and that it would "complete an important north-south link between two major regional destinations, City of Kapolei and Kalaeloa."

2. **Cost of Project Breakdown**: The estimated cost of the project to the City and County of Honolulu will be included in the Final EA. We do not have information on the cost of the improvements proposed by the Estate of James Campbell.

3. **Native Hawaiian Landscaping**: As suggested, we will consider including native Hawaiian vegetation in landscaping the project.

Please feel free to call Mr. Brian Suzuki at 527-6880 if you have any other comments or questions.

Sincerely,

Melvin N. Kaku

MELVIN N. KAKU
Director

cc: Kimura International, Inc.

LINDA LINGLE
GOVERNOR

LILLIAN B. KOLLER, ESQ.
DIRECTOR

HENRY OLIVA
DEPUTY DIRECTOR

RECEIVED APR 04 2006

STATE OF HAWAII
DEPARTMENT OF HUMAN SERVICES
Benefit, Employment and Support Services Division
820 Mililani street, Suite 606
Honolulu, Hawaii 96809

March 30, 2006

Mr. Brian Suzuki
City and County of Honolulu
Department of Transportation Services
650 S. King Street, 3rd Floor
Honolulu, Hawaii 96813

Title of the Project:	Kamokila Boulevard Extension
Location:	Kapolei, Ewa District, Island of Oahu
Tax Map Key Number:	1-9-0-16:32 (por) and 12 (por)

Dear Mr. Suzuki:

Thank you for your letter of March 3, 2006 regarding the Kamokila Boulevard Extension Project. The Director of the Department of Human Services (DHS) has forwarded your letter to me for a response.

There are licensed child care facilities on the campuses of Island Pacific Academy and Seagull School of Kapolei and our concern is for the safety of the children. It does not appear that the proposed construction will have any effect on the operations of the preschools other than traffic. We are confident that the contractor will make every effort to ensure the safety of the children who attend these facilities.

Thank you for the opportunity to provide comments on your proposed project. Should you have any questions or concerns, please contact Guy Hirata, Supervisor, at the Child Care Connection Hawaii Office 2 of the Benefit, Employment & Support Services Division at 675-0470.

Sincerely,

Patricia Murakami

Patricia Murakami
Division Administrator

c: Lillian B. Koller, Esq., Director
OEQC
✓ Kimura International

DEPARTMENT OF TRANSPORTATION SERVICES

CITY AND COUNTY OF HONOLULU

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MUFI HANNEMANN
MAYOR

MELVIN N. KAKU
DIRECTOR

TPD06-00304

July 5, 2006

Ms. Patricia Murakami, Division Administrator
Department of Human Services
State of Hawaii
820 Mililani Street, Suite 606
Honolulu, Hawaii 96809

Dear Ms. Murakami:

Subject: Draft Environmental Assessment
Kamokila Boulevard Extension
Kapolei, Ewa District, Island of Oahu
TMK 11-9-1-16:32 (Por) and 12 (Por)

Thank you for your letter dated March 30, 2006 regarding this project. We note that the project will not impact your licensed child care facilities in Kapolei (Island Pacific Academy and Seagull School of Kapolei). As you indicated, the contractor will make every effort to ensure the safety of the children who use these facilities.

Please feel free to call Mr. Brian Suzuki at 527-6880 if you have any comments or questions.

Sincerely,

Melvin N. Kaku

MELVIN N. KAKU
Director

cc: Kimura International, Inc.
Office of Environmental Quality Control

LINDA LINGLE
GOVERNOR

RODNEY K. HARAGA
DIRECTOR

Deputy Directors
BARRY FUKUNAGA
BRENNON T. MORIOKA
BRIAN H. SEKIGUCHI

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

IN REPLY REFER TO:

HWY-PS
2.1240

JUN 27 2006

RECEIVED JUL 07 2006

Mr. Brian Suzuki
City and County of Honolulu
Department of Transportation Services
650 South King Street, 3rd Floor
Honolulu, Hawaii 96813

Dear Mr. Suzuki:

Subject: Draft Environmental Assessment (EA) for Kamokila Boulevard Extension, Kapolei, TMK: 1-9-16: por. 12 and por. 32

Thank you for consulting us. We support this project and have the following comments:

1. The adopted STIP lists $320,000 of STP Flexible funds for project design in federal FY 2007 and $2,000,000 of STP Flexible funds for project construction in federal FY 2008. If, as we recently learned, the City no longer plans to use federal funds for project design, this should be confirmed with us during our monthly federal-aid project status meetings or during our quarterly "Over the Shoulder Reviews." Moreover, if the City plans to use City-funded design expenditures as match and the fair market value of right-of-way (ROW) to be donated by Campbell Estate as "soft-match" for federal-aid funding of project construction, this has to be approved by FHWA. Finally, the City needs to request that OMPO process an appropriate TIP amendment to reflect these changes.

2. Obligation of FHWA funds for project construction requires FHWA concurrence with classification of the Kamokila Boulevard extension as a collector or arterial. Please submit a request for DOT to functionally classify the proposed Kamokila Boulevard extension. Your request should propose a functional classification, briefly explain why the proposed classification is justified, and include long-range traffic projections and a location map showing the road's limits.

3. In general, FHWA requires DOT to review and approve all submittals to FHWA concerning county federal-aid projects and holds DOT responsible for ensuring county compliance with federal requirements.

4. Since FHWA has not reviewed and authorized publication of a federal EA, FHWA will not recognize the current Draft EA as satisfying NEPA requirements. Rather than republish the Draft EA with FHWA edits, please revise pages 1-1 and 1-4 of the EA to indicate that 1) DOT will ask FHWA to satisfy NEPA requirements by approving a documented categorical exclusion, 2) The EA prepared to satisfy Chapter 343, HRS, will be used for the NEPA documented categorical exclusion, and 3) A separate 4(f) evaluation needs to be submitted for DOT and FHWA approval.

5. The EA should describe project timing, cost, and funding including the proposed "soft match."

6. The EA should evaluate the benefits and drawbacks of realigning/redesigning the proposed T-intersection so that Kamokila Boulevard and the eastern leg of Roosevelt Avenue function as a continuous road and the western leg of Roosevelt Avenue becomes the stop-sign-controlled approach and ties into the curved portion of the continuous Kamokila Boulevard/Roosevelt Avenue at a right angle.

7. Page 2-3 of the Draft EA states that "…no improvements to Roosevelt Avenue are planned as part of this project." The EA should note that the State may require a right-turn lane on Roosevelt Avenue's westbound approach to the intersection with Kamokila Boulevard or may require realignment/redesign of the T-intersection so that Kamokila Boulevard and the eastern leg of Roosevelt Avenue function as a continuous road.

8. We request that the City consult the community and Barbers' Point Elementary School concerning EA findings and recommendations concerning the potential for "…very long delays for left turns from Copahee Avenue to F. D. Roosevelt Avenue in the [2010] AM Peak Hour."

9. The EA should discuss DOT plans to construct the Leeward Bikeway within the OR&L ROW and recommend an appropriate design for the Leeward Bikeway intersection with Kamokila Boulevard. The Kamokila Boulevard extension will probably be completed before the Leeward Bikeway.

10. Please delete reference to FHWA from the sentence on page 4-1 of the Draft EA, which states "The City and the FHWA have determined…"

11. After the EA is finalized, please coordinate with the Highways Division, Highway Design Section, Attention: Christine Yamasaki to review draft plans, specifications and estimates for compliance with federal requirements.

12. Please contact our Highways Division, ROW Branch's County Federal-Aid Liaison for advice and to ensure the City's use of fair market value of donated ROW is in accordance with applicable provisions of 23 CFR 710.505 and/or 710.507. Please also contact our Highways Division, ROW Branch, Property Management Section concerning the Use and Occupancy Agreement, which will be required for the proposed crossing of the OR&L ROW.

If you have any questions, please contact Ronald Tsuzuki, Head Planning Engineer, Highways Division, at 587-1830.

Very truly yours,

BRENNON T. MORIOKA
Deputy Director - Highways

c: Federal Highway Administration (Pat Phung)
Office of Environmental Quality Control
Kimura International

DEPARTMENT OF TRANSPORTATION SERVICES

CITY AND COUNTY OF HONOLULU

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MUFI HANNEMANN
MAYOR

MELVIN N. KAKU
DIRECTOR

TPD06-00293

July 5, 2006

Mr. Brennon T. Morioka, Deputy Director
Highways Division
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Morioka:

Subject: Draft Environmental Assessment
Kamokila Boulevard Extension
Kapolei, Ewa District, Island of Oahu
TMK 11-9-1-16:32 (Por) and 12 (Por)

Thank you for your comment letter to dated April 12, 2006, and for your support for this project. We offer the following responses to your comments:

1. The Kamokila Boulevard Extension project design phase will be City-funded. The City may seek federal aid for project construction. At this time, we are not looking at using the land donated by the Estate of James Campbell (EJC) as a "soft match" for the federal aid funding. If we do seek federal aid, we will request that OMPO process an appropriate TIP amendment.
2. As requested, we will submit a request to HDOT to functionally classify the proposed Kamokila Boulevard Extension as a "minor arterial," along with the required documentation.
3. Comment acknowledged.
4. The Final Environmental Assessment (EA) will be revised as you recommended to state that a documented Categorical Exclusion will be

prepared to satisfy NEPA requirements. Since the project will impact the OR&L right-of-way (ROW), a historic site, we will submit a separate Section 4(f) Evaluation to HDOT and FHWA for approval.

5. The Final EA will include information about project timing, cost, and anticipated funding. As stated above, there are no current plans to use the ROW donated by the EJC as a soft match for federal funding.

6. The proposed T-intersection at Roosevelt Avenue is based on and consistent with the roadway plan in the Hawaii Community Development Authority's (HCDA) Draft Kalaeloa Master Plan (March 2006). The Kalaeloa Master Plan proposes that Kamokila Boulevard be extended south beyond Roosevelt Avenue to Saratoga Avenue (Geiger Road). The extended Kamokila Boulevard, along with Saratoga Avenue/Geiger Road, and Kapolei Parkway, is also identified as a future "transit loop" for the region. On the other hand, Roosevelt Avenue is not proposed as a major thoroughfare through the area and is expected to remain a local road. As such, the creation of a continuous road from Kamokila Boulevard to the eastern leg of Roosevelt Avenue would be incompatible with the HCDA's long-range circulation plan for the region.

7. As requested, the Final EA will be revised to note that the State may require a right-turn lane on Roosevelt Avenue's westbound approach to the intersection with Kamokila Boulevard. We will also include a discussion of the Draft Kalaeloa Master Plan's proposed roadway improvements to extend Kamokila Boulevard to Saratoga Avenue, as discussed above.

8. The City will work with Barbers Point Elementary School representatives/staff to address their concerns about pedestrian safety. However, Roosevelt Avenue is a State-owned and maintained road, and any mitigation implemented would be the responsibility of the State. Mitigation would be pursued only if the anticipated impacts (i.e., *"very long delays for left turns from Copahee to Roosevelt in the AM peak hour"*) are realized. The appropriate action would be based on consultations at that time between the State, the school, and the affected community.

9. The Final EA will mention the HDOT plan to construct the Leeward Bikeway within the OR&L ROW, which will cross the Kamokila Boulevard Extension. However, we understand that there are no existing plans for

the bikeway. During the Kamokila Boulevard Extension design phase, our design consultant will contact your office to check whether any preliminary plans have been developed.

However, in the absence of information on the bikeway's design specifications or crossing location, it would not be appropriate for us to recommend a design for the bikeway's crossing.

10. Reference to FHWA will be deleted as requested.
11. The City will coordinate with HDOT Highways Division to review draft plans, specifications, and estimates for compliance with federal requirements.
12. Although it is not currently planned, if the EJC-donated ROW is used as a soft match for federal funds, we will contact your Highways Division ROW Branch's Federal-Aid Liaison for advice regarding the fair market value of the property. We will contact your Property Management Section concerning the Use and Occupancy Agreement, which will be required for the proposed crossing of the OR&L ROW.

Thank you for your comments and your interest in this project. Please feel free to call Mr. Brian Suzuki at 527-6880 if you have additional comments or questions.

Sincerely,

MELVIN N. KAKU
Director

cc: Kimura International, Inc.
Office of Environmental Quality Control

HAWAII COMMUNITY DEVELOPMENT AUTHORITY

KAKAAKO KALAELOA

Linda Lingle
Governor

James S. Kometani
Chairperson

Daniel Dinell
Executive Director

677 Ala Moana Boulevard
Suite 1001
Honolulu, Hawaii 96813

Telephone
(808) 587-2870

Facsimile
(808) 587-8150

E-Mail
contact@hcdaweb.org

Web site
www.hcdaweb.org

Ref. No.: P.L. KALAELOA 17.1.1

April 7, 2006

RECEIVED APR 08 2006

Mr. Brian Suzuki
City & County of Honolulu
Department of Transportation Services
650 South King Street, 3rd Floor
Honolulu, Hawaii 96813

Dear Mr. Suzuki:

Subject: Draft Environmental Assessment
Kamokila Boulevard Extension Project
TMK: 9-1-016: 12 and 32, Ewa District, O'ahu

Thank you for the opportunity to review and comment on the subject project. The Hawaii Community Development Authority (HCDA) supports the City Department of Transportation Services' (DTS) planned roadway extension project. This roadway, when completed, will provide a new access point in the northwestern region of the Kalaeloa Community Development District (Kalaeloa), thus affording area residents and businesses with increased connectivity in and around Kapolei and Kalaeloa.

HCDA recently completed a Master Plan for Kalaeloa in March 2006 and the extension Kamokila Boulevard to Roosevelt Avenue is consistent with the roadways and land uses planned for the northwestern region of Kalaeloa.

In review of the Draft Environmental Assessment, we offer several comments regarding the Preferred Alternative B where the 138 kV utility pole is kept in the roadway median. In general, HCDA is concerned that having the 138kV pole in the median:

1. Raises the potential for it to become an attractive nuisance. The pole could become a target for vandals or others to grafitti, post signs, banners, advertisements, or other visual distractions (examples of such visual distractions and blight can currently be seen at the intersection of Fort Barrette Road and Roosevelt Avenue).

2. Creates challenges for the future installation of a traffic signal, necessary roadway signage, and other engineering requirements such as drainage.

3. May pose a visual obstruction for vehicles entering the intersection and could also become a physical obstruction or crash hazard should a motor vehicle inadvertently enter into the median.

4. Increases adverse impacts on electrical service and maintenance. A motor vehicle accident into the utility pole could cause significant damage to the pole and potentially disrupt a major electrical supply line. Also, periodic maintenance on the utility pole could potentially require the temporary closure of all lanes of Kamokila Boulevard.

While HCDA understands the rationale for the Preferred Alternative, we believe that the above potential impacts warrant selection of another alternative. Therefore, in consideration of the two other alternatives presented, HCDA recommends that DTS select Alternative C where the road is aligned such that the 138kV utility pole lies to the west of the intersection of Kamokila Boulevard and Roosevelt Avenue.

Thank you for the opportunity to provide comments on the Draft Environmental Assessment. Should you have any questions or need additional information, please call Mr. Stanton Enomoto, Director of Planning & Development - Kalaeloa at (808) 587-8156.

Sincerely,

Daniel Dinell
Executive Director

DD:ske

c: Genevieve Salmonson, Director, Office of Environmental Quality Control
Glenn Kimura, President, Kimura International
Henry Eng, Director, City & County of Honolulu, Department of Planning & Permitting

DEPARTMENT OF TRANSPORTATION SERVICES

CITY AND COUNTY OF HONOLULU

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MUFI HANNEMANN
MAYOR

MELVIN N. KAKU
DIRECTOR

TPD06-00287

July 5, 2006

Mr. Daniel Dinell, Executive Director
Hawaii Community Development Authority
State of Hawaii
677 Ala Moana Boulevard, Suite 1001
Honolulu, Hawaii 96813

Dear Mr. Dinell:

Subject: Draft Environmental Assessment
Kamokila Boulevard Extension
Kapolei, Ewa District, Island of Oahu
TMK 11-9-1-16:32 (Por) and 12 (Por)

Thank you for your comment letter dated April 7, 2006 regarding this project. We acknowledge your concerns about Alternative B, which places the 138 kV pole in the roadway median. You have suggested Alternative C, where the utility pole lies west of the roadway.

Unfortunately, the proposed road alignment is constrained by third party development plans on both sides of the extension. The State's Kapolei Judiciary Complex, located east of the proposed extension is well into its design phase. In the last year, the DTS has modified the original road alignment (set by the Estate of James Campbell), in order to avoid a costly relocation of the 138 kV pole. The realignment resulted in a slight reduction in acreage for the Judiciary complex, to which they agreed. However, Alternative C would significantly reduce the size of the Judiciary site, jeopardizing the State's current plans and project funding which has already been committed by the Legislature.

Likewise, the road cannot be aligned to the west (Alternative D-i.e. with the utility pole on the east), as Costco has a purchase agreement with Campbell Estate to obtain this vacant site. It is our understanding that Costco also has completed preliminary plans for its proposed facility. Although we agree that having the utility pole in the roadway median is not ideal, we feel it represents the best compromise solution given the above constraints.

Thank you for your interest in this project. Please feel free to call Mr. Brian Suzuki at 527-6880 if you have any additional comments or questions.

Sincerely,

Melvin N. Kaku

MELVIN N. KAKU
Director

cc: Kimura International, Inc.
Office of Environmental Quality Control

PHONE (808) 594-1888

FAX (808) 594-1865

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
711 KAPI'OLANI BOULEVARD, SUITE 500
HONOLULU, HAWAI'I 96813

RECEIVED MAR 22 2006

HRD06/1830D

March 20, 2006

Brian Suzuki
City and County of Honolulu
Department of Transportation Services
650 S. King Street, 3rd Floor
Honolulu, HI96813

RE: Draft Environmental Assessment for the Proposed Kamokila Boulevard Extension, Kapolei, O'ahu, TMK: 1-9-1-16: 32 (por.) and 12 (por.).

Dear Mr. Suzuki,

The Office of Hawaiian Affairs (OHA) is in receipt of your March 3, 2006 request for comment on the above listed proposed project. OHA offers the following comments:

OHA asks that the applicant hold a pre-construction meeting with all applicable crew members and consultants to stipulate that, in accordance with Section 6E-46.6, Hawaii Revised Statutes and Chapter 13-300, Hawaii Administrative Rules, if any significant cultural deposits or human skeletal remains are encountered, work shall stop in the immediate vicinity and the State Historic Preservation Division (SHPD/DLNR) shall be contacted.

Thank you for the opportunity to comment. If you have further questions or concerns, please contact Jesse Yorck, Native Rights Policy Advocate, at (808) 594-0239 or jessey@oha.org.

'O wau iho nō,

Clyde W. Nāmu'o
Administrator

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

√ Leslie Kurisaki
Kimura International, Inc.
1600 Kapiolani Blvd., Suite 1610
Honolulu, HI 96814

TP3/06 - 143655

PHONE (808) 594-1888

FAX (808) 594-1865

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
711 KAPI'OLANI BOULEVARD, SUITE 500
HONOLULU, HAWAI'I 96813

HRD06/1830C

February 28, 2006

Alfred A. Tanaka
City and County of Honolulu
Department of Transportation Services
650 South King Street, 3rd Floor
Honolulu, HI 96813

RE: Section 106 Consultation for the Proposed Kamokila Boulevard Extension, 'Ewa, O'ahu, TMK (1) 9-1-16: 012, 032.

Dear Mr. Tanaka,

The Office of Hawaiian Affairs (OHA) is in receipt of your January 30, 2006 request for comment on the above listed proposed project. OHA offers the following comments:

The 'Ewa plain has historically been known to contain sinkholes in which human skeletal and avi-faunal remains have been encountered. These sinkholes can continue to exist in areas that have been graded or heavily cultivated for agricultural uses.

According to records at the Bishop Museum pertaining to inventories conducted for compliance with the Native American Graves Protection and Repatriation Act of 1990, burial sites in Honouliuli and in 'Ewa in general have been documented in the past including:

> *In 1938, human remains representing six individuals from Honouliuli, 'Ewa, O'ahu were collected by Kenneth P. Emory and William A. Lessa and acquired by the Bishop Museum. Museum documentation indicates these remains were in a shallow crypt burial one mile from the coast;*
>
> *In 1933, human remains representing three individuals from stone pits at 'Ewa, O'ahu were collected by J.W. Barrington and Edwin H. Bryan;*
>
> *In 1942, human remains representing two individuals from Kualakai, 'Ewa Beach, O'ahu were donated to the Bishop Museum;*
>
> *In 1959, human remains representing seven individuals from 'Ewa, O'ahu were donated to the Bishop Museum by the Anthropology Club of the University of Hawaii (from Standard Oil Refinery land);*

> *In 1980, human remains representing nine individuals from Honouliuli, O'ahu were collected and donated to the Bishop Museum by Albert, Borthwick and Folk. Donor information indicates these human remains were recovered from coral sinkholes.*

In the last decade, unmarked burial sites have been found in the area of St. Francis West, West Loch Estates, Old Fort Weaver Road, Kalaeloa, One'ula Beach, Campbell Estate, Ko'Olina and other areas in the vicinity of this project.

The depth of grading activities and the likelihood of adversely impacting any sub-surface cultural sites or deposits is contingent upon understanding the original surface grade as it may have existed prior to agricultural activities such as sugarcane.

Native Hawaiian burial 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, sinkholes, crypts, etc.) could lead to the survival of these sites despite intensive agricultural activities on the surface.

As for the future consultation process, OHA recommends contacting two individuals in particular: Shad Kane and Nettie Tiffany. Both individuals have served as cultural resources on past projects and would likely aid in the community consultation process.

OHA asks that, In accordance with Section 6E-46.6, Hawaii Revised Statutes and Chapter 13-300, Hawaii Administrative Rules, if any significant cultural deposits or human skeletal remains are encountered, work shall stop in the immediate vicinity and the State Historic Preservation Division (SHPD/DLNR) shall be contacted.

Thank you for the opportunity to comment. If you have further questions or concerns, please contact Jesse Yorck, Native Rights Policy Advocate, at (808) 594-0239 or jessey@oha.org.

'O wau iho nō,

Clyde W. Nāmu'o
Administrator

DEPARTMENT OF TRANSPORTATION SERVICES

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 3RD FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 523-4529 • Fax: (808) 523-4730 • Internet: www.honolulu.gov

MUFI HANNEMANN
MAYOR

MELVIN N. KAKU
DIRECTOR

TPD06-00298

July 5, 2006

Mr. Clyde W. Namu'o
Office of Hawaiian Affairs
State of Hawaii
711 Kapiolani Boulevard, Suite 500
Honolulu, Hawaii 96813

Dear Mr. Namu'o:

Subject: Draft Environmental Assessment
Kamokila Boulevard Extension
Kapolei, Ewa District, Island of Oahu
TMK 11-9-1-16:32 (Por) and 12 (Por)

Thank you for your Section 106 Consultation letter dated February 28, 2006, and your Draft Environmental Assessment (EA) comment letter to Kimura International dated March 20, 2006.

As suggested in your February 28th letter, both Mr. Shad Kane and Ms. Nettie Tiffany were contacted by Cultural Surveys Hawaii as part of the Archaeological Assessment and Cultural Impact Evaluation, February 2006. Their comments are summarized on page 40 of that report (see DEA, Appendix G). They had no particular concerns regarding the project.

As requested, the City will require the construction contractor to hold a pre-construction meeting to discuss appropriate procedures. In the event that cultural deposits or human remains are encountered, the consultants will be instructed to stop work in the immediate vicinity and contact the State Historic Preservation Division.

Please feel free to call Mr. Brian Suzuki at 527-6880 if you have any additional comments or questions.

Sincerely,

MELVIN N. KAKU
Director

cc: Kimura International, Inc.
Office of Environmental Quality Control

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

RECEIVED MAR 30 2006

MUFI HANNEMANN
MAYOR

DIRECTOR

EUGENE C. LEE, P.E.
DEPUTY DIRECTOR

March 29, 2006

Mr. Glenn Kimura, President
Kimura International
1600 Kapiolani Boulevard, Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura:

Subject: Draft Environmental Assessment (DEA)
Kamokila Boulevard Extension
Kapolei, Ewa District, Island of Oahu
TMK 1-9-1-16:32 (por) and 12 (por)

Thank you for the opportunity to comment on this DEA. The City and County of Honolulu, Department of Design and Construction have these comments:

From our Facilities Division, Terry Hildebrand:

The report fails to include or analyze impacts to the proposed multi-use pedestrian/bike path which is planned to be constructed within the OR&L right-of-way (ROW) according to the City's Bicycle Master Plan, Ewa Development Plan, and Aiea-Pearl City Livable Communities Plan. This path is a continuation of an existing path which has been built only as far as the West Loch Shoreline Park at this time. Plans are presently afoot to ultimately extend the path to the end of the OR&L ROW at Nanakuli. This path will link together a variety of City public facilities, including some major parks.

It is likely that the proposed multi-use pedestrian/bike path will be constructed after the roadway extension. The report should address how possible conflicts between pedestrians and bicyclists using this path will be resolved with vehicular traffic using the proposed roadway extension. The report should also address whether the site conditions of the OR&L ROW after construction of the road ROW will impede or create possible problems for construction of the pedestrian/bike path, such as abrupt grade changes or physical barriers.

From our Civil Division, Marvin Char:

All sidewalks and crossings (including Kamokila Boulevard/Kapolei Parkway and Kamokila Boulevard/Franklin D. Roosevelt Avenue) should be ADA accessible.

Should there be any questions, please contact me at 523-4716.

Sincerely,

Eugene C. Lee, P.E.
Deputy Director

EL:lmy (144507)

DEPARTMENT OF TRANSPORTATION SERVICES

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 3RD FLOOR
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MUFI HANNEMANN
MAYOR

MELVIN N. KAKU
DIRECTOR

TPD06-00289

July 5, 2006

MEMORANDUM

TO: EUGENE C. LEE, P.E., ACTING DIRECTOR
DEPARTMENT OF DESIGN AND CONSTRUCTION

FROM: MELVIN N. KAKU, DIRECTOR

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT
KAMOKILA BOULEVARD EXTENSION
KAPOLEI, EWA DISTRICT, ISLAND OF OAHU
TMK 11-9-1-16:32 (POR) AND 12 (POR)

Thank you for your letter dated March 29, 2006 to Kimura International regarding this project. The following are responses to your comments:

Facilities Division, Terry Hildebrand

You commented that the Draft EA fails to include or analyze impacts to the proposed multi-use pedestrian/bike path planned to be constructed within the OR&L right-of-way (ROW) through the project area to Nanakuli. Your letter requests that the Environmental Assessment (EA) address "how possible conflicts between pedestrians and bicyclists using this path will be resolved with the vehicular traffic crossing the proposed roadway extension" and "whether the site conditions of the OR&L right-of-way (ROW) after construction of the road ROW will impede or create possible problems for construction of the pedestrian/bike path...".

We will revise the Final EA to mention the State's proposed Leeward Bikeway. However, we understand that at present, there are no existing plans or

DEPARTMENT OF FACILITY MAINTENANCE

CITY AND COUNTY OF HONOLULU

1000 Uluohia Street, Suite 215, Kapolei, Hawaii 96707
Phone: (808) 692-5054 • Fax: (808) 692-5857
Website: www.honolulu.gov

MUFI HANNEMANN
MAYOR

LAVERNE HIGA, P.E.
DIRECTOR AND CHIEF ENGINEER

GEORGE "KEOKI" MIYAMOTO
DEPUTY DIRECTOR

IN REPLY REFER TO:
DRM 06-292

March 30, 2006

RECEIVED APR 03 2006

MEMORANDUM

TO: MELVIN N. KAKU, ACTING DIRECTOR
DEPARTMENT OF TRANSPORTATION SERVICES

ATTENTION: BRIAN SUZUKI, REGIONAL PLANNING BRANCH

Laverne Higa

FROM: LAVERNE HIGA, P.E., DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF FACILITY MAINTENANCE

SUBJECT: **DRAFT ENVIRONMENTAL ASSESSMENT (DEA)**
KAMOKILA BOULEVARD EXTENSION

Thank you for the opportunity to provide comments on the DEA, dated February 2006, for the subject project. We have no comments to add to the document at this time.

Should you have any questions, please call Charles Pignataro of the Division of Road Maintenance, at 484-7697.

cc: OEQC-Director
Kimura International

DEPARTMENT OF TRANSPORTATION SERVICES

CITY AND COUNTY OF HONOLULU

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MUFI HANNEMANN
MAYOR

MELVIN N. KAKU
DIRECTOR

TPD06-00306

July 5, 2006

MEMORANDUM

TO: LAVERNE HIGA, P.E., DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF FACILITY MAINTENANCE

FROM: MELVIN N. KAKU, DIRECTOR

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT
KAMOKILA BOULEVARD EXTENSION
KAPOLEI, EWA DISTRICT, ISLAND OF OAHU
TMK 11-9-1-16:32 (POR) AND 12 (POR)

Thank you for your memo dated March 30, 2006 regarding this project. In this memo, you stated that you have no comments at this time.

Please feel free to call Brian Suzuki at Local 6880 if you have any comments or questions.

Melvin N. Kaku

MELVIN N. KAKU

cc: Kimura International, Inc.
Office of Environmental Quality Control

HONOLULU FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU
636 SOUTH STREET • HONOLULU, HAWAII 96813
TELEPHONE: (808) 723-7139 • FAX: (808) 723-7111 • INTERNET: www.honolulufire.org

RECEIVED MAR 30 2006

MUFI HANNEMANN
MAYOR

KENNETH G. SILVA
FIRE CHIEF

ALVIN K. TOMITA
DEPUTY FIRE CHIEF

March 24, 2006

TO: MELVIN N. KAKU, DIRECTOR
DEPARTMENT OF TRANSPORTATION SERVICES

ATTN: BRIAN SUZUKI, BRANCH CHIEF
REGIONAL PLANNING BRANCH

FROM: KENNETH G. SILVA, FIRE CHIEF

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT
KAMOKILA BOULEVARD EXTENSION
KAPOLEI, EWA DISTRICT, ISLAND OF OAHU
TAX MAP KEY: 1-9-1-016: 32 (PORTION) AND 12 (PORTION)

In response to a letter dated March 3, 2006, from Mr. Glenn Kimura of Kimura International, Inc., regarding the above-mentioned project, the Honolulu Fire Department (HFD) reviewed the material provided and requires that the following be complied with for the duration of the project:

1. Maintain fire apparatus access throughout the construction site.

2. Maintain access to fire hydrants. Please notify the HFD's Fire Communication Center at 523-4411 regarding any interruption of the existing fire hydrant system.

Should you have any questions, please call Battalion Chief Lloyd Rogers of our Fire Prevention Bureau at 723-7151.

KENNETH G. SILVA
Fire Chief

KGS/SK:jl

cc: Ms. Genevieve Salmonson, Office of Environmental Quality Control
Ms. Leslie Kurisaki, Kimura International, Inc.

DEPARTMENT OF TRANSPORTATION SERVICES

CITY AND COUNTY OF HONOLULU

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MUFI HANNEMANN
MAYOR

MELVIN N. KAKU
DIRECTOR

TPD06-00302

July 5, 2006

MEMORANDUM

TO: KENNETH G. SILVA, FIRE CHIEF
HONOLULU FIRE DEPARTMENT

FROM: MELVIN N. KAKU, DIRECTOR

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT
KAMOKILA BOULEVARD EXTENSION
KAPOLEI, EWA DISTRICT, ISLAND OF OAHU
TMK 11-9-1-16:32 (POR) AND 12 (POR)

Thank you for your memo dated March 24, 2006 regarding this project. As requested, fire apparatus access, including access to fire hydrants, will be maintained throughout the construction site. The Fire Communication Center will be notified if there will be any interruption of the existing fire hydrant system during construction.

Please feel free to call Brian Suzuki at Local 6880 if you have any comments or questions.

Melvin N. Kaku

MELVIN N. KAKU

cc: Kimura International, Inc.
Office of Environmental Quality Control

DEPARTMENT OF PARKS AND RECREATION
CITY AND COUNTY OF HONOLULU
KAPOLEI HALE
1000 ULUOHIA STREET, SUITE 309
KAPOLEI, HAWAII 96707

RECEIVED MAR 21 2006

March 20, 2006

TO: MELVIN N. KAKU, DIRECTOR
DEPARTMENT OF TRANSPORTATION SERVICES

FROM: LESTER K. C. CHANG, DIRECTOR

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT
KAMOKILA BOULEVARD EXTENSION
KAPOLEI, HAWAII
TAX MAP KEY: 1-9-1-16:32 (POR) AND 12 (POR)

Kimura International provided this office with a copy of the Draft Environmental Assessment relating to the Kamokila Boulevard Extension for review and comment.

The Department of Parks and Recreation has no comment on this project and as it will not impact any program or facility of the department, you are invited to remove us as a consulted party to the balance of the EIS process.

LESTER K. C. CHANG
Director

LKCC:mk
(144552)

cc: Director, Office of Environmental Quality Control
Leslie Kurisaki, Kimura International, Inc.

DEPARTMENT OF TRANSPORTATION SERVICES

CITY AND COUNTY OF HONOLULU

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MUFI HANNEMANN
MAYOR

MELVIN N. KAKU
DIRECTOR

TPD06-00295

July 5, 2006

MEMORANDUM

TO: LESTER K.C. CHANG, DIRECTOR
DEPARTMENT OF PARKS AND RECREATION

FROM: MELVIN N. KAKU, DIRECTOR

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT
KAMOKILA BOULEVARD EXTENSION
KAPOLEI, EWA DISTRICT, ISLAND OF OAHU
TMK 11-9-1-16:32 (POR) AND 12 (POR)

Thank you for your memo dated March 20, 2006 regarding this project. In your memo, you stated that you have no comment on this project, as it will not impact any program or facility of your department. As suggested, we will remove your name from our mailing list for this project.

Please feel free to call Brian Suzuki at Local 6880 if you have any comments or questions.

Melvin N. Kaku

MELVIN N. KAKU

cc: Kimura International, Inc.
Office of Environmental Quality Control

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4432 • FAX: (808) 527-6743
DEPT. INTERNET: www.honoluludpp.org • INTERNET: www.honolulu.gov

RECEIVED APR 17 2006

MUFI HANNEMANN
MAYOR

HENRY ENG, FAICP
DIRECTOR

DAVID K. TANOUE
DEPUTY DIRECTOR

2006/ELOG-504

April 7, 2006

MEMORANDUM

TO: MELVIN N. KAKU, ACTING DIRECTOR
DEPARTMENT OF TRANSPORTATION SERVICES

ATTN: BRIAN SUZUKI

FROM: HENRY ENG, FAICP, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (DEA) – KAMOKILA BOULEVARD EXTENSION, KAPOLEI, EWA DISTRICT, OAHU
TMK (1) 9-1-016: 32 (POR) AND 12 (POR)

Following are the comments of the Department of Planning and Permitting on the Draft Environmental Assessment (DEA) report for the proposed Kamokila Boulevard Extension.

Chapter 3. Pages 3-22 to end of chapter are mixed up.

Pearl Harbor Historic Trail (May 2001)
Sections 3.5.4 and 4.3.5 should discuss the project's proximity to the PHHT, and any impacts to the PHHT Master Plan's goals.

Ordinance 04-46
The EA should recognize Unilateral Agreement Condition 1.d. that requires the channel to be designed as a grass-lined drainage system

PIM - The DEA should discuss the Public Infrastructure Map (PIM) amendment adopted by Resolution 03-81, CD1 for the Kamokila Boulevard Extension.

Compliance with the 1992 General Plan – We confirm the project is in conformance with the policies of the General Plan that call for the Ewa region and Kapolei to become a secondary urban center and major center for population, employment, housing and commercial development over the next twenty (20) years.

Compliance with the Ewa Development Plan – The Ewa Development Plan, Chapter 4 Public Facilities and Infrastructure, calls for improved east-west and north-south roadways to facilitate regional movement and access. The extension of Kamokila Boulevard to Roosevelt Avenue will complete an important north-south link between two major regional destinations, City of Kapolei and Kalaeloa. This link also includes a bike path, which is consistent with the EWA DP requirement to incorporate bikeways in major roadways and throughout the Ewa region.

Urban Design - Page 2-3, the applicant notes the roadway will be constructed in accordance with City standards. The proposed roadway is not in accordance with City standards.

The applicant should clarify if the proposed roadway design is consistent with the existing right-of-way design and the Kapolei Urban Design Plan.

Traffic Review

1. The roadway cross-section of this section of Kamokila Boulevard should match the section makai of Kapolei Parkway. The back of the sidewalk should be constructed at the future property line or right-of-way of the street.
2. Underground conduits and pull boxes should be installed at the Kamokila Boulevard and Roosevelt Avenue intersection for future traffic signalization.
3. The right turn auxiliary lane from Roosevelt Avenue to Kamokila Boulevard should be constructed with this project to establish the future curb line and utility locations at this intersection.

Coordination may be needed with Traffic Review Branch of DPP and Costco (their consultant Mike Chu of LP&D Hawaii, 537-4674) who is considering developing the property to the west of the project.

Should you have any questions, please contact Hal Senter of our Development Plans and Zone Change Branch at 527-6028.

HE:mo
439436

cc: Office of Environmental Quality Control
✓Kimura International

DEPARTMENT OF TRANSPORTATION SERVICES

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 3RD FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 523-4529 • Fax: (808) 523-4730 • Internet: www.honolulu.gov

MUFI HANNEMANN
MAYOR

MELVIN N. KAKU
DIRECTOR

TPD06-00291

July 5, 2006

MEMORANDUM

TO: HENRY ENG, FAICP, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

FROM: MELVIN N. KAKU, DIRECTOR

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT
KAMOKILA BOULEVARD EXTENSION
KAPOLEI, EWA DISTRICT, ISLAND OF OAHU
TMK 11-9-1-16:32 (POR) AND 12 (POR)

Thank you for your memo dated April 7, 2006 regarding this project. The following are responses to your comments:

Pearl Harbor Historic Trail (PHHT) (May 2001)
The Final Environmental Assessment (EA) will discuss the project's proximity to the PHHT and any impacts to the PHHT Master Plan's goals.

Ordinance 04-46
The EA will mention Unilateral Agreement Condition 1.d. requiring the Kapolei Drainage Channel (being constructed by the Estate of James Campbell (EJC)) to be designed as a grass-lined drainage system. The channel on the east side of Kamokila Boulevard will be an open grassed trapezoidal channel. However, west of Kamokila Boulevard, the EJC is constructing a 30- by 9-foot box culvert.

PIM
The Final EA will discuss the Public Infrastructure Map amendment adopted by Resolution 03-81, CD1, for the Kamokila Boulevard Extension.

Compliance with 1992 General Plan
We acknowledge your confirmation that the project is in conformance with the

policies of the General Plan calling for the Ewa region and Kapolei to become a secondary urban center over the next 20 years.

Compliance with the Ewa Development Plan
We acknowledge your confirmation that the project complies with the Ewa Development Plan's Public Facilities and Infrastructure chapter.

Urban Design
The EJC has revised its portion of the Kamokila Boulevard Roadway extension to follow the 100-foot right-of-way (ROW) width as requested by DPP.

The road will be in compliance with the existing ROW design and the Kapolei Urban Design Plan.

Traffic Review

1. The EJC has revised its plans to match the road section proposed by the City. We are continuing to coordinate with the EJC engineers.

2. Underground conduits and pull boxes will be installed at the Kamokila Boulevard and Roosevelt Avenue intersection, as requested.

3. The State Department of Transportation, in a Draft EA comment letter dated April 12, 2006, has noted that it may require a right turn on Roosevelt Avenue's westbound approach to the intersection with Kamokila Boulevard. This will be mentioned in the Final EA.

As you have suggested, we will coordinate further with the Traffic Review Branch and Mr. Mike Chu, consultant for Costco.

Thank you for your interest in this project. Please feel free to call Brian Suzuki at Local 6880 if you have any additional comments or questions.

Melvin N. Kaku

MELVIN N. KAKU

cc: Kimura International, Inc.
Office of Environmental Quality Control

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU
801 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96813 - AREA CODE (808) 529-3111
http://www.honolulupd.org
www.honolulu.gov

MUFI HANNEMANN
MAYOR

BOISSE P. CORREA
CHIEF

GLEN R. KAJIYAMA
PAUL D. PUTZULU
DEPUTY CHIEFS

OUR REFERENCE BS-KP

March 16, 2006

RECEIVED MAR 21 2006

TO: MELVIN N. KAKU, ACTING DIRECTOR
DEPARTMENT OF TRANSPORTATION SERVICES

ATTENTION: BRIAN SUZUKI, REGIONAL PLANNING BRANCH

FROM: BOISSE P. CORREA, CHIEF OF POLICE
HONOLULU POLICE DEPARTMENT

SUBJECT: KAMOKILA BOULEVARD EXTENSION, KAPOLEI, EWA DISTRICT, OAHU, TAX MAP KEYS: 1-9-1-16: 32 (PORTION) AND 12 (PORTION)

Thank you for the opportunity to review and comment on the subject project.

This project should have no unanticipated impact on the facilities or operations of the Honolulu Police Department.

If there are any questions, please call Major Michael Tamashiro of District 8 at 692-4253 or Mr. Brandon Stone of the Executive Bureau at 529-3644.

BOISSE P. CORREA
Chief of Police

By
for KARL GODSEY
Assistant Chief of Police
Support Services Bureau

cc: Ms. Genevieve Salmonson
OEQC
Ms. Leslie Kurisaki
Kimura International, Inc.

Serving and Protecting with Aloha

DEPARTMENT OF TRANSPORTATION SERVICES

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 3RD FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 523-4529 • Fax: (808) 523-4730 • Internet: www.honolulu.gov

MUFI HANNEMANN
MAYOR

MELVIN N. KAKU
DIRECTOR

TPD06-00294

July 5, 2006

MEMORANDUM

TO: BOISSE P. CORREA, CHIEF
HONOLULU POLICE DEPARTMENT

FROM: MELVIN N. KAKU, DIRECTOR

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT
KAMOKILA BOULEVARD EXTENSION
KAPOLEI, EWA DISTRICT, ISLAND OF OAHU
TMK 11-9-1-16:32 (POR) AND 12 (POR)

Thank you for your memo dated March 16, 2006 regarding this project. We acknowledge your comment that the project should have no unanticipated impact on the facilities or operations of the Honolulu Police Department.

Please feel free to call Brian Suzuki at Local 6880 if you have any other comments or questions.

Melvin N. Kaku

MELVIN N. KAKU

cc: Kimura International, Inc.
Office of Environmental Quality Control

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

MUFI HANNEMANN, Mayor

RANDALL Y. S. CHUNG, Chairman
HERBERT S. K. KAOPUA, SR.
SAMUEL T. HATA
ALLY J. PARK

RODNEY K. HARAGA, Ex-Officio
LAVERNE T. HIGA, Ex-Officio

CLIFFORD P. LUM
Manager and Chief Engineer

DONNA FAY K. KIYOSAKI
Deputy Manager and Chief Engineer

March 13, 2006

RECEIVED MAR 15 2006

TO: BRIAN SUZUKI
DEPARTMENT OF TRANSPORTATION SERVICES

FROM: for KEITH S. SHIDA, PRINCIPAL EXECUTIVE
CUSTOMER CARE DIVISION

SUBJECT: YOUR LETTER OF MARCH 3, 2006 ON THE DRAFT ENVIRONMENTAL ASSESSMENT FOR KAMOKILA BOULEVARD EXTENSION, TMK: 9-1-16: POR. 32 AND POR. 12

Thank you for the opportunity to comment of the proposed project.

The construction drawings should be submitted for our approval.

The construction schedule should be coordinated to minimize impacts to the water system.

If you have any questions, please contact Robert Chun at 748-5443.

cc: Director, Office of Environmental Quality Control
Mr. Leslie Kurisaki, Kimura International

DEPARTMENT OF TRANSPORTATION SERVICES

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 3RD FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 523-4529 • Fax: (808) 523-4730 • Internet: www.honolulu.gov

MUFI HANNEMANN
MAYOR

MELVIN N. KAKU
DIRECTOR

TPD06-00296

July 5, 2006

MEMORANDUM

TO: CLIFFORD LUM, MANAGER
BOARD OF WATER SUPPLY

ATTN: KEITH SHIDA, PRINCIPAL EXECUTIVE
CUSTOMER CARE DIVISION

FROM: MELVIN N. KAKU, DIRECTOR

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT
KAMOKILA BOULEVARD EXTENSION
KAPOLEI, EWA DISTRICT, ISLAND OF OAHU
TMK 11-9-1-16:32 (POR) AND 12 (POR)

Thank you for your memo dated March 13, 2006 regarding this project. As requested, construction drawings will be submitted for your approval when the project is in design. The construction schedule will be coordinated with BWS to minimize impacts to the area water system.

Please feel free to call Brian Suzuki at Local 6880 if you have any comments or questions.

Melvin N. Kaku

MELVIN N. KAKU

cc: Kimura International, Inc.
Office of Environmental Quality Control

Hawaiian Electric Company, Inc. • PO Box 2750 • Honolulu, HI 96840-0001

GEN-6 (EIS/EA)

March 29, 2006

RECEIVED APR 03 2006

Mr. Brian Suzuki
Dept. of Transportation Services
City & County of Honolulu
650 S. King Street - 3rd Floor
Honolulu, HI 96813

Dear Mr. Suzuki:

Re: Draft Environmental Assessment (DEA)
Kamokila Boulevard Extension
Kapolei, Ewa District, Oahu
TMK: 1-9-1-16:32 (por) & 12 (por)

Thank you for the opportunity to comment on the DEA of the Kamokila Boulevard Extension project. We have reviewed the draft and have no objections at this time.

Proper clearances should be maintained between HECO's energized lines and other objects, including but not limited to street lights, pedestrians and buildings. In addition, we will need continued access to our existing easements and facilities on the subject property for maintenance purposes. In the event that our easements and facilities become affected, please forward two sets of plans for our review as soon as possible so that we may evaluate potential impacts.

Relocation or redesign of existing HECO infrastructure should be coordinated with us in the planning, design and construction phases. Please notify us at the earliest possible time by forwarding a written request to proceed. We will work with you so that construction may progress as safely as possible to minimize any delay or impact on the project schedule. Please note that costs may be associated with any relocation or redesign work by HECO, and may be borne by the requestor.

We would appreciate your continued effort to keep us informed as the project develops. Our point of contact for this project is Colin Chang, Engineer, Transmission & Distribution Division, Engineering Department. Please feel free to deal directly with Colin (543-5619) to coordinate HECO's continuing input in this project.

Sincerely,

Kirk S. Tomita
Senior Environmental Scientist

cc: OEQC
L. Kurisaki
C. Chang

WINNER OF THE EDISON AWARD
FOR DISTINGUISHED INDUSTRY LEADERSHIP

DEPARTMENT OF TRANSPORTATION SERVICES

CITY AND COUNTY OF HONOLULU

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MUFI HANNEMANN
MAYOR

MELVIN N. KAKU
DIRECTOR

TPD06-00301

July 5, 2006

Mr. Kirk S. Tomita
Senior Environmental Scientist
Hawaiian Electric Company, Inc.
P.O. Box 2750
Honolulu, Hawaii 96840-0001

Dear Mr. Tomita:

Subject: Draft Environmental Assessment
Kamokila Boulevard Extension
Kapolei, Ewa District, Island of Oahu
TMK 11-9-1-16:32 (Por) and 12 (Por)

Thank you for your comment letter dated March 29, 2006 regarding this project. In this letter, you stated that you have no objections to the project at this time. As requested, proper clearances will be maintained between HECO's energized lines and other objects, including street lights, pedestrians and buildings. Continued access to your easement will be maintained.

We will coordinate utility relocation with you during the planning, design, and construction phases, and will be in touch with Mr. Colin Chang as the project proceeds.

Please feel free to call Mr. Brian Suzuki at 527-6880 if you have any comments or questions.

Sincerely,

Melvin N. Kaku

MELVIN N. KAKU
Director

cc: Kimura International, Inc.
Office of Environmental Quality Control

Hawaiian Railway

March 28, 2006

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

Dear Ms. Salmonson:

Subject: COMMENTS ON KAMOKILA BOULEVARD EXTENSION ENVIRONMENTAL ASSESSMENT, FEBRUARY 2006, FOR THE HONOLULU DEPARTMENT OF TRANSPORTATION SERVICES, BY KIMURA INTERNATIONAL

1. Figure 2, Page 2.

We do not understand why the alignment of Kamokila Boulevard must cross both the main OR&L track and Jensen Siding. It would seem that moving the railroad crossing 250 feet west would avoid a double crossing and could link with the existing Boxer Road (Figure 9 is incorrect but Figure 10 has the correct alignment of Boxer Road yet does not have it named). The alignment of Kamokila Boulevard in the preferred alternative (B) seems to link up with a future road shown on Figure 16 from the draft Kalaeloa Master Plan. Linking Kamokila Boulevard Extension with the West Perimeter Road of Kalaeloa (sometimes called Saratoga Street) would make even more sense. Figure 16 of the HCDA Kalaeloa Master Plan Draft seems to ignore the major drainage structure which exists in the middle of parcel 1-0. This plan shows <u>four more future crossings</u> of the railroad track.

Every crossing of the railroad tracks causes the trains to have to slow and stop if there is no automated crossing guard. Thus, the historic asset is degraded.

HAWAIIAN RAILWAY SOCIETY
A Chapter of the National Railway Historical Society
P. O. Box 60369 • Ewa Station, Ewa Beach, Hawaii 96706 • Ph: (808) 681-5461 • Fax: (808) 681-4860

2. Page 3-3.

The total length of the OR&L tracks on the NRHP is closer to 12.5 miles than the 15 miles you state. This is not all contained in parcel 32. We maintain about 8 miles of track from Fort Weaver Road to the north side of Kahe Point.

Page 3-21.

We currently operate trains from Ewa to Kahe Point. Occasionally, we run a work train over Kaloi Stream to Fort Weaver Road. Our goal is to restore the bridges and track to Nanakuli at Lualualei Road.

Page 3-23.

County DTS indicated that a signalized railroad crossing would be installed in the Kapolei Parkway connection project but all we have are conduits for future equipment. Project cost-cutting measures could cause the same result here.

Moving the railway cars on Jensen Siding is easily done but we think that consideration should be given to moving Kamokila Boulevard further west to avoid the siding switch. A MOA between DOT, DTS, SHPD and HRS would be welcome but will probably take a long, long time.

Page 3-30.

The diesel locomotives operated by HRS are 1944 Whitcomb switching engines which had been owned by the Navy. In some cases, the diesel engines which power the electric traction motors are of a newer series but the locomotives are historic in their own right. We are also saving to acquire an operating steam engine. The term "re-vamped" should be replaced with the term "modified". Here the discussion of impacts says, "possibly electronically activated arms". Who is planning the new crossing equipment for Fort Barrette Road and Kalaeloa Boulevard? HDOT-HWY has declared these crossings "exempt" and thus the public pays no attention to the crossings which can be dangerous. The Kalaeloa Boulevard crossing is crossed at high speeds by vehicles of all sizes.

Page 3-43.

No adverse effect is anticipated relative to the OR&L railroad tracks listed on the NRHP. We believe that there is adverse effect in adding another railroad crossing on both the main line and the siding. In our experience, a MOA or Use and Occupancy Agreement from HDOT-HWY takes many years. Further, automated crossing guards are a convenient paper method of mitigation which have small chance of ever materializing because they will be the first thing cut if the project runs into funding complications.

Page 4-13.

The discussion in paragraph 4.4.3 about the possibility of a Navy Carrier Group requiring much of the former BPNAS lands for the aviation wing is very speculative. HDOT-A does not intend to give up Kalaeloa Airport and so far the Navy has indicated it would not want the airfield back, rather they would become a tenant. Perhaps your statement could be applied to the Navy-retained lands but you should not assume that the entire air wing would be at Kalaeloa. Certainly in that situation the vehicular traffic would increase and the railroad crossings would become even more dangerous but you have ignored the rest of the traffic equation. As Kapolei develops the traffic gets worse every week. Since July 1, 1999 when the Navy left most of BPNAS the traffic on Roosevelt Avenue has quadrupled. Further, the community has slight information on when Kapolei Boulevard or the proposed N-S Road might open to relieve some of the congestion. The small connector between Renton Road and Roosevelt Avenue (which is on HRS land) helps a little and was the only outlet recently during a fatal accident on Ft. Weaver Road. Your discussion of the ORTP on Page 4-10 does not even mention the proposed N-S Road.

Appendix G, NHRA Consultation, Pages 18-22 appear to be accurate relative to the OR&L and the Hawaiian Railway Society.

Appendix H, Traffic Analysis Report, on Page 4 makes reference to a 2003 State Highways Traffic Count on Ft. Barrette Road. It further says that a portion (14,400 vpd) of the traffic will be diverted to Kamokila Boulevard during the Ft. Barrette Road widening project. What is the total vehicle count at Ft. Barrette Road? It appears to be Level of Service F most of the weekend days. When is this State Project, which will involve a new railroad crossing, to be built?

In summary, we do see a negative impact to the value of the historic tracks by requiring another crossing and wonder why it cannot be moved further west especially when the Kalaeloa Master Plan is just a draft. We believe a MOA and mitigation in the form of automated crossing guards to be extremely difficult to accomplish.

Please contact Ben Schlapak at 836-6533 if you have any questions on these comments.

Sincerely,

Ben Schlapak
for ROBERT YATCHMENOFF
President

DEPARTMENT OF TRANSPORTATION SERVICES

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 3RD FLOOR
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MUFI HANNEMANN
MAYOR

MELVIN N. KAKU
DIRECTOR

TPD06-00319

July 5, 2006

Mr. Robert Yatchmenoff, President
Hawaiian Railway Society
P.O. Box 60369
Ewa Beach, Hawaii 96706

Dear Mr. Yatchmenoff:

Subject: Draft Environmental Assessment
Kamokila Boulevard Extension
Kapolei, Ewa District, Island of Oahu
TMK 11-9-1-16:32 (Por) and 12 (Por)

Thank you for your comment letter to the Office of Environmental Quality Control dated March 28, 2006 regarding this project. A meeting was held on May 23, 2006 to discuss the concerns raised in the letter and to identify appropriate mitigation. Those present at the meeting included Ben Schlapak and Larry Howard of the Hawaiian Railway Society (HRS), Brian Suzuki of the City Department of Transportation Services (DTS), Glenn Kimura of Kimura International, and David Shideler of Cultural Surveys Hawaii.

Based on the results of that meeting, we offer the following responses to your comments:

Figure 2, Page 2

You ask why the alignment of the Kamokila Boulevard extension must cross both the main OR&L track and Jensen siding, and suggest moving the crossing 250 feet west. As explained to Mr. Schlapak and Mr. Howard, the alignment of the Kamokila Boulevard Extension was already set by the Estate of James Campbell (EJC), which is constructing a 700-foot extension of Kamokila

Boulevard from its current terminus (at Kapolei Parkway) to the future Judiciary Complex. The EJC has obtained discretionary approvals and is planning to begin construction of its roadway extension shortly. The subject DTS project will continue the EJC-constructed road for another 200 feet, making the connection to Roosevelt Avenue.

Although we understand your concern about multiple crossings of the railroad tracks proposed for other roadways, this issue is beyond the control of DTS and this project.

Page 3-3

Thank you for the clarification. The information you provided will be incorporated into the Final Environmental Assessment (EA).

Page 3-21

The information you provided will be incorporated into the Final EA.

Page 3-23

At the May 23 meeting, a draft Memorandum of Agreement (MOA) between Hawaii Department of Transportation (HDOT), DTS, State Historic Preservation District (SHPD) and HRS was reviewed and discussed. Among the mitigations discussed was the construction of a temporary detour (or use of Jensen's siding as a temporary detour) to allow trains continuous access during construction and relocation of Jensen's siding and switch outside the project area.

Page 3-30

We will incorporate the information you provided about the diesel locomotives operated by HRS.

Based on a July 2005 meeting with HDOT, our understanding is that the new crossing equipment at Fort Barrette Road and Kalaeloa Boulevard is being planned by HDOT.

Page 3-43

The MOA being developed includes the construction of automatic crossing guards to control vehicular traffic.

Page 4-13

You state, "The discussion in paragraph 4.4.3 about the possibility of a Navy Carrier Group requiring much of the former BPNAS lands for the aviation wing is very speculative." The Department of Defense's Quadrennial Defense Review, prepared every four years is a long-term analysis of the nation's defense requirements. The most recent Quadrennial Defense Review was released in February 2006, after publication of the Kamokila Boulevard Extension Draft EA.

The Quadrennial Defense Review is unclear whether a new carrier group will or should be based in Hawaii, although it does state that the U.S. fleet will have a "greater presence" in the Pacific in years to come. Senator Daniel Inouye is on record as saying that he will "continue to advocate that we have an aircraft carrier group based in Hawaii...I remain convinced that having a carrier based in Hawaii will be crucial for our national security." (Honolulu Advertiser, February 4, 2006).

You are correct that there is no way of knowing if and when a carrier group would be based in Hawaii, and how much of the former NAS Barbers Point land would be needed for an aviation wing. However, a carrier group in Hawaii appears to remain a viable possibility and is supported by the Hawaii Congressional Delegation. The Final EA will be updated to reflect this information.

The discussion of the Oahu Regional Transportation Plan on Page 4-10 will be revised to mention the proposed North-South Road.

Appendix H, Traffic Analysis Report

You ask about the schedule for the proposed Fort Barrette Road Widening from Farrington Highway to Kalaeloa. This State project, which will also involve a new railroad crossing, is beyond the City's control. However, the project's schedule appears to have slipped since 2004. Right-of-way acquisition was scheduled for Fiscal Year (FY) 2005 in the Oahu Metropolitan Planning Organization (OMPO) 2004-2006 Transportation Improvement Plan (TIP). In

the 2006-2008 TIP approved last summer, right-of-way acquisition is shown in FY 2007. The latest revisions, approved March 23, moved it to FY 2008. The project status, from the TIP report dated July 28, 2005, is that the:

> *State DOT has been working with the City and County and a group of "Developers/ Builders" to keep this and other Kapolei (new city) projects moving.*

DLNR SHPO Comments

A March 24, 2006 letter to DTS from the DLNR SHPO (LOG NO. 2006.0820, DOC NO: 0603AJ19) concurs that appropriate mitigation measures *"be worked out in a Memorandum of Understanding (MOU) between all parties involved with the project."* In addition to the various State agencies and the HRS, the SHPO recommends that the Campbell Estate be included in the MOA.

The SHPO letter concludes that, *"While the proposed undertaking will result in some modification to the historic integrity of SIHP No. 5080-12-9714, appropriate mitigation will have an overall "net benefit" to the historic property."*

Based on the results of the May 23 meeting with HRS representatives, we have an understanding on certain conditions for an MOA. We believe that these stipulations address the concerns raised in your letter and that the project will have an overall "net benefit" to the historic property, as stated by the SHPO. We will continue to work with your organization to execute the MOA in a timely manner.

Thank you for your comments and your interest in this project. Please feel free to call Mr. Brian Suzuki at 527-6880 if you have additional comments or questions.

Sincerely,

Melvin N. Kaku

MELVIN N. KAKU
Director

cc: Kimura International, Inc.
Office of Environmental Quality Control

200 Akamainui Street
Mililani, Hawaii 96789-3999
Tel 808-625-2100
Fax 808-625-5888

RECEIVED APR 03 2006

OCEANIC TIME WARNER CABLE

March 30, 2006

City & County of Honolulu
Department of Transportation Services
650 S. King Street, 3rd Floor
Honolulu, Hawaii 96813

Attn: Mr. Brian Suzuki

Subject: Kamokila Boulevard Extension Project (P03268)
TMK: 9-1-016: 32 & 12
Draft Environmental Assessment – Review Comments

Dear Mr. Suzuki,

Thank you for the opportunity to review and comment on the Draft Environmental Assessment for the Kamokila Boulevard Extension Project.

Presently, Oceanic Time Warner Cable's facilities along the railroad tracks do not extend to the proposed location of the Kamokila Boulevard/ F. D. Roosevelt Avenue Intersection. Therefore, this project will have no impact on Oceanic's facilities in the area. However, Oceanic Time Warner Cable would like to be kept apprised of the progress of the project should its situation change in the future.

Should you have any questions, please call me at 625-8458.

Sincerely,

Darryl Osato
OSP Engineer

Cc: Director
Office of Environmental Quality Control

Leslie Kurisaki
Kimura International

DEPARTMENT OF TRANSPORTATION SERVICES

CITY AND COUNTY OF HONOLULU

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MUFI HANNEMANN
MAYOR

MELVIN N. KAKU
DIRECTOR

TPD06-00299

July 5, 2006

Mr. Darryl Osato, OSP Engineer
Oceanic Time Warner Cable
200 Akamainui Street
Mililani, Hawaii 96789

Dear Mr. Osato:

Subject: Draft Environmental Assessment
Kamokila Boulevard Extension
Kapolei, Ewa District, Island of Oahu
TMK 11-9-1-16:32 (Por) and 12 (Por)

Thank you for your comment letter dated March 30, 2006 regarding this project. In this letter, you stated that Oceanic Time Warner Cable's facilities along the railroad tracks do not extend to the project area, and that the project will have no impact on your facilities in the area. We will continue to keep you apprised of this project's progress, as requested.

Please feel free to call Mr. Brian Suzuki at 527-6880 if you have any comments or questions.

Sincerely,

Melvin N. Kaku

MELVIN N. KAKU
Director

cc: Kimura International, Inc.
Office of Environmental Quality Control

THE ESTATE OF JAMES CAMPBELL

April 6, 2006

RECEIVED APR 08 2006

Mr. Brian Suzuki
City and County of Honolulu
Department of Transportation Services
650 S. King Street, 3rd Floor
Honolulu, Hawaii 96813

Dear Mr. Suzuki:

Kamokila Boulevard Extension Project
TMK 1-9-1-16: 32 (por) and 12 (por)
Kapolei, Ewa District, Island of Oahu

We have reviewed the Draft Environmental Assessment (DEA) prepared for the Department of Transportation Services by Kimura International (February 2006) in connection with the above referenced project and have no comments.

Feel free to contact Brad Myers at 674-3121 if you have any questions.

Sincerely,

Bert L. Hatton
Executive Vice President,
Hawaii Land Management

shc:01033200\K12028

cc: Brad Myers
Craig Arakaki, Engineering Concepts, Inc.
Director, Office of Environmental Quality Control
Kimura International

1001 Kamokila Boulevard, Kapolei, Hawaii 96707 Phone (808) 674-6674 Facsimile (808) 674-3111 Website: www.kapolei.com

specifications for the Leeward bikeway. As such, it is difficult to address potential conflicts between bikeway users and Kamokila Boulevard extension users, or to suggest possible mitigation. During the project design phase, our design consultant will contact Hawaii Department of Transportation (HDOT) to check whether any preliminary plans have been developed and, if so, will coordinate with the bikeway planners.

The Kamokila Boulevard Extension will include sidewalks and bike lanes on both sides of the road. As such, we assure you that our plans for the OR&L crossing will follow federal standards and guidelines applicable to vehicles, pedestrians, and bicycles. No abrupt grade changes or other modifications to current conditions are anticipated.

Civil Division, Marvin Char

All sidewalks and crossings (including Kamokila Boulevard/Kapolei Parkway and Kamokila Boulevard/Franklin D. Roosevelt Avenue) will be ADA accessible.

Please feel free to call Brian Suzuki at Local 6880 if you have any comments or questions.

Melvin N. Kaku

MELVIN N. KAKU

cc: Kimura International, Inc.
Office of Environmental Quality Control

DEPARTMENT OF TRANSPORTATION SERVICES

CITY AND COUNTY OF HONOLULU

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MUFI HANNEMANN
MAYOR

MELVIN N. KAKU
DIRECTOR

TPD06-00303

July 5, 2006

Mr. Bert L. Hatton, Executive Vice President
Hawaii Land Management
The Estate of James Campbell
1001 Kamokila Boulevard
Kapolei, Hawaii 96707

Dear Mr. Hatton:

Subject: Draft Environmental Assessment
Kamokila Boulevard Extension
Kapolei, Ewa District, Island of Oahu
TMK 11-9-1-16:32 (Por) and 12 (Por)

Thank you for your letter dated April 6, 2006 regarding this project. In this letter, you stated that you have no comments at this time. We will continue to coordinate our roadway plans with Mr. Brad Myers and Engineering Concepts, Inc.

Please feel free to call Mr. Brian Suzuki at 527-6880 if you have any comments or questions.

Sincerely,

MELVIN N. KAKU
Director

cc: Kimura International, Inc.
Office of Environmental Quality Control

Appendix A

Geotechnical Consultation Letter Report
Pacific Geotechnical Engineers, Inc.
November 2, 2005

DRAFT ENVIRONMENTAL ASSESSMENT

KAMOKILA BOULEVARD
EXTENSION
KAPOLEI, EWA DISTRICT, OAHU

FINAL LETTER REPORT

GEOTECHNICAL CONSULTATION

PGE Job No. 8848-001

for

DURING ENVIRONMENTAL ASSESSMENT
KAMOKILA BOULEVARD EXTENSION
KAPOLEI, OAHU, HAWAII

November 2, 2005

Submitted by:

Pacific Geotechnical Engineers, Inc.
429-B Waiakamilo Road
Honolulu, Hawaii 96817

Pacific Geotechnical Engineers, Inc.
Soils & Foundation Engineering Consultants

429-B Waiakamilo Road
Honolulu, Hawaii 96817
Telephone: (808) 841-8024
Facsimile: (808) 848-5102
Email: pge@pacificgeotechnical.com

November 2, 2005
Job No. 8848-001

Kimura International, Inc.
1600 Kapiolani Boulevard, Suite 1610
Honolulu, Hawaii 96814

Attention: Mr. Glenn Kimura

Subject: Final Letter Report
Geotechnical Consultation
During Environmental Assessment
Kamokila Boulevard Extension
Kapolei, Oahu, Hawaii

Gentlemen:

1.0 INTRODUCTION

This letter report summarizes the results of a geotechnical consultation we performed for the proposed road extension for the above subject project. Our services were performed in general accordance with our June 10, 2005 revised proposal. We previously submitted a draft letter report dated September 16, 2005. This letter report addresses your comments regarding our draft letter report.

The approximate location of the site is shown on the Map of Area, Plate 1.

2.0 PROJECT CONSIDERATIONS

This project includes the planning and preparation of an Environmental Assessment (EA) for a section of the extension of Kamokila Boulevard from Kapolei Parkway to Franklin D. Roosevelt Avenue. We understand that the final end product of this study is a NEPA EA.

The total extension is estimated to be roughly 500 to 600 feet long. We understand that the study area is limited to a roughly 200-feet long section near the southern end of the alignment. We further understand that the design of the remainder of the extension will be performed by The Estate of James Campbell and their consultant. The proposed extension will consist of an asphaltic concrete (AC) paved road.

The revised study area is shown on Plate 2 and includes a section of the OR&L railroad tracks. Several above-ground and underground utility lines and a chain link fence are present at the site.

We understand that an approximately 30-foot wide box culvert (actual size unknown at the time this letter report was issued) will run in an east-west direction approximately 70 feet north of the study area. Exploring subsurface conditions and providing recommendations for the box culvert were not part of the scope of our services.

3.0 SCOPE OF SERVICES

Based on the considerations described herein, the following scope of services was performed:

1. *Review of Readily Available Data* – Readily available data on general subsurface and geologic conditions near the site were reviewed. The sources of our review included information in our files, previous reports by others, and other readily available information.

2. *Coordination with Kimura International, Inc. (KII), Street Usage and Excavation Permitting, and Utility Checking* – Prior to the start of the field work, we coordinated our work with KII. Readily available utility plans were reviewed to check the proposed boring location for possible underground utilities.

   Because our boring was located within a State of Hawaii, Department of Transportation right-of-way, we obtained a Permit to Perform Work Upon State Highways for the boring activity. During the permitting process, the boring was staked-out and toned using a metal detector. Various utility companies were contacted to check the proposed boring location for possible underground utilities.

3. *Field Exploration* – Subsurface conditions were preliminarily explored by drilling one soil test boring to a depth of 16.5 feet below the existing ground surface. A local driller was subcontracted to drill the boring. The boring was drilled using a truck-mounted drill rig with continuous flight augers.

   The field work was performed under the technical observation of our engineering personnel, who maintained a log of the subsurface materials and ground water encountered and obtained disturbed and relatively undisturbed soil samples for further examination and laboratory testing.

   After completion of the boring, the hole was backfilled with soil cuttings and on-site materials.

   The approximate location of the boring is shown on the Plot Plan, Plate 2. The location and elevation of the boring were estimated based on information shown on the project topographic plan and our field engineer's measurement using a tape.

The log of the boring is presented on Plate 3. The soils encountered in the boring were initially classified in the field according to American Society of Testing Materials (ASTM) D2488 procedures and the Unified Soil Classification System presented on Plates 4.1 and 4.2. Additional field data from our observation of the drilling process, soil cuttings, wash water color, drilling rate, and soil sampling were used to supplement our field classifications of the soils.

Our field classifications were later refined according to ASTM D2487 procedures based on the results of laboratory tests performed in selected soil samples. The rocks encountered were described according to the Calcareous Rock Classification System for Hawaii presented on Plate 5 and the Rock Description System presented on Plate 6.

4. *Laboratory Testing* – The soil and rock samples obtained from the boring were transported to our laboratory for further examination and testing. Our laboratory test program included moisture content and dry density determinations, Atterberg Limits tests, gradation analyses, a moisture-density relations test, and a California Bearing Ratio (CBR) test. The results of the moisture content and dry density determinations are shown on the Log of Boring, Plate 3, at the respective sample depths. The results of the Atterberg Limits tests are presented on Plate 7 and the results of the gradation tests are presented on Plate 8. The moisture-density relations test data are presented in Plate 9 and the laboratory CBR test results are shown on Plate 10.

5. *Engineering Analysis and Letter Report Preparation* – Based on the results of our data review, field exploration, and laboratory testing, engineering analysis was performed, and comments and initial feedback were developed regarding potential main geotechnical concerns and considerations for the proposed roadway extension. The results of this consultation, complete with field data and laboratory test results, are summarized in this letter report.

4.0 SITE CONDITIONS

4.1 GENERAL SITE GEOLOGY

The project site is located on the southwestern portion of the Ewa coastal plain. The Ewa coastal plan roughly encompasses the area from Pearl Harbor in the east to Kalaeloa in the west. This plain mainly consists of an emerged, ancient fringing coral reef that formed during periods of higher sea level. This emerged reef is primarily composed of consolidated marine calcareous sediments. It also consists of some layers of alluvium derived from the basaltic uplands to the north of the site. Based on our observations, surface soils at the site appear to consist mainly of alluvium and some fill.

A significant characteristic of the emerged reef is the presence of solution cavities. Solution cavities form as rain water percolates through the calcareous sediments, dissolving and removing part of the coral. The cavities can range in size from less than one foot to 10 feet or more in diameter and typically extend down to the ground water table. The cavities are commonly in-filled with soft alluvial silt and/or loose calcareous sand and gravel.

According to soil maps published by the United States Department of Agriculture Soil Conservation Service (SCS), the surface soils at the site are classified as Mamala stony silty clay loam (MnC), mainly consisting of reddish brown silty clay loam underlain by coral limestone and consolidated calcareous sediments.

4.2 SURFACE CONDITIONS

Topographically, the project site is relatively flat. According to a project topographic plan by ControlPoint Surveying received September 6, 2005, the ground surface elevation ranges from approximately +63 feet at the northern end of the project site to approximately +59 feet at the southern end. All elevations referenced in this letter report are based on Mean Sea Level datum.

A chain link fence and the OR&L railroad tracks run east-west across the proposed road alignment, roughly parallel to Frankin D. Roosevelt (FDR) Avenue. The AC pavement on FDR Avenue appeared to be in fair to good condition. Several overhead lines also run in an east-west direction between the railroad tracks and chain link fence.

Vegetation at the site generally consists of tall grass near the chain link fences, and trees of various sizes on both sides of the chain link fence. Shorter grass was present in the shoulder area of FDR Avenue.

4.3 SUBSURFACE CONDITIONS

Subsurface conditions encountered in Boring 1 generally consisted of approximately 1.5 feet of alluvial silty gravel at the surface underlain by a medium hard Type I coral ledge approximately 4 feet thick. The coral ledge was underlain by coral reef deposits consisting of very stiff sandy lean clay and medium dense silty sand to the bottom of the boring at 16.5 feet. Ground water was not encountered in the boring at the time of our field exploration.

Based on the geology of the area and available subsurface information, it is our opinion that voids or cavities may exist in the coral formation of the site. Although no apparent voids or cavities were encountered in the boring, voids and cavities are common in these formations and typically occur in the form of near-surface solution cavities. These near-surface cavities are often in-filled with soft or loose soils.

5.0 DISCUSSION

Based on the results of our data review, field exploration, laboratory testing, and engineering analysis, it is our initial opinion that the coral reef deposits below the surface alluvial silty gravel should provide sufficient support for the proposed road extension.

Preliminary potential main geotechnical concerns at this site include:

- *Presence of alluvial silty gravel at surface*. The surface silty gravel encountered in our boring contained a large amount of fines and had a relatively low bearing value after wetting. Based on these poor properties, it is recommended that this material be removed to the top of the coral ledge and replaced with properly compacted granular select borrow.

- *Potential presence of voids or cavities in the coral reef deposits.* Although no apparent voids or cavities were encountered in our boring, voids and cavities are common in these formations and typically occur in the form of near-surface solution cavities. Voids or cavities, if encountered, will need to be cleaned of soft or loose material and backfilled with properly compacted granular fill prior to constructing the pavements for the road extension.

- *Potential difficulty in excavating hard, well-cemented coral*. The near-surface coral ledge encountered in our boring was well-cemented and medium hard. Excavation of the coral, where needed for new underground utility lines, is anticipated to be difficult and will likely require a large backhoe equipped with a hydraulic hoe ram, rock breaker, or other suitable rock excavating equipment. Excavation of the coral will need to be done carefully, to reduce the amount of potential vibrations and potential disturbance to existing underground lines and utility poles.

- *Presence of existing underground utility lines.* According to the project topographic map prepared by CPS received September 6, 2005, two 8-inch diameter fuel lines, a 14-inch diameter water line, a 16-inch diameter water line, and a 36-inch diameter sewer line cross under the alignment of the proposed road extension. The as-built condition of these lines is unknown. Special treatment may be needed at the crossing locations to reduce the potential for damage to these lines.

More detailed discussions and preliminary recommendations regarding site preparation, anticipated excavation conditions, subgrade preparation, and preliminary recommendations for pavement sections are presented in the following letter report sections.

6.0 PRELIMINARY RECOMMENDATIONS

The comments and recommendations presented herein are preliminary in nature for the purposes of this EA and should not be used for final design. This consultation included only a limited subsurface exploration. Additional subsurface exploration will likely be needed for final design.

6.1 GENERAL SITE PREPARATION

1. The proposed road alignment should be prepared by stripping off all vegetation, topsoil, boulders, debris, and the top layer of silt down to the top of the coral ledge. The cleared and grubbed material should be hauled to a suitable disposal site off of the property. Because the top of coral may not be flat, localized areas of silty material may require special treatment for removal.

2. Any existing underground utilities and underground structures that may interfere with the proposed extension should be removed and/or relocated, if still in use. The remaining portions of any lines to be left in-place should be properly cut and plugged.

3. After stripping and grubbing the surface soils, the subgrade should be proof-rolled to check for cavities or voids using a smooth drum roller having an operating weight of at least 20 tons, passing at least 8 times. If cavities or voids are detected during the proof-rolling, they should be cleaned out to hard coral and backfilled with crushed rock conforming to No. 3B coarse basaltic gravel to a depth of 12 inches from the top of the coral. Finer No. 3B fine gravel should be placed on the coarse gravel to the top of the coral layer to act as a choke layer. Controlled Low Strength Material (CLSM) could also be used as backfill material in place of crushed rock.

   The amount of additional effort needed to treat cavities as described herein depends on the extent, size, and quantity of cavities, and the final grading concept. On other projects located in the Barbers Point and Campbell Industrial Park area, cavities covered roughly 5 to 20 percent or so of the subgrade area.

4. Stripping of the surface silty gravel, proof-rolling, and cavity treatment should be performed under the full-time observation of a qualified and experienced geotechnical engineer.

6.2 ANTICIPATED EXCAVATION CONDITIONS

1. Temporary excavations and dewatering that may be required for the construction of the proposed road extension are the Contractor's responsibility. All construction excavations and dewatering should be performed and supported in accordance with State, Federal, and local safety regulations including current OSHA excavation and trench safety standards.

2. Ground water was not encountered in our boring at the time of our field exploration. It is anticipated that dewatering will generally not be needed because of relatively shallow excavations anticipated for the road extension. However, the Contractor should consider having sump pumps or other appropriate dewatering equipment readily available at the site to remove any surface and/or ground water that may enter their excavations or trenches.

3. Excavation to the depths required for constructing the proposed road extension and appurtenant utilities is anticipated to generally encounter silty gravel, coral ledges, and coral reef deposits. It is anticipated that the gravel can generally be excavated with conventional earthwork equipment. Excavation and removal of hard, cemented coral ledges, where needed, will likely require special handling and use of a hydraulic hoe ram or other suitable rock excavating equipment. Blasting as a means of excavating rock is likely not feasible at this site because of its proximity to existing utility lines and roads.

4. The proposed 30-foot wide box culvert will be located approximately 70 feet north of the project limits. Subsurface conditions at the culvert location are unknown. We understand the culvert invert may be as deep as 30 feet below finish grades. The method that is to be used to excavate and construct the culvert is unknown. The box culvert will need to be carefully designed and constructed by The Estate of James Campbell and their designers and Contractor to reduce the potential for ground movements and distress to the nearby existing fuel, water, and sewer lines and the railroad tracks.

6.3 GENERAL FLEXIBLE PAVEMENTS CONSIDERATIONS

1. Based on information provided by KII's traffic consultant, we understand that traffic for the extension is anticipated to mainly consist of passenger vehicles, trucks, and buses, with trucks and buses comprising roughly 5 percent of total traffic volume. We understand that traffic in the year 2015 is preliminarily estimated to be approximately 6,000 vehicles per day, increasing an average of 3 percent per year after that, up to a maximum of 20,000 vehicles per day. We understand that this traffic data is very preliminary in nature. For the purpose of the EA, a traffic of 20,000 vehicles per day was assumed.

2. Based on the assumed traffic described above and an assumed subgrade CBR value of 25, the following preliminary pavement section is anticipated for the road extension:

   - 4 inches of asphaltic concrete
   - 8 inches of asphalt treated base course
   - 12 inches minimum select borrow for subbase
   - Proof-rolled and compacted subgrade

This section should not be used for final design without verification of the initial traffic data discussed herein.

3. The thickness of subbase should be increased if thicker amounts of silty gravel are encountered that need to be removed. The subbase layer should extend to the top of the coral ledge, but should not be less than 12 inches in thickness.

4. The asphalt treated base course for the new pavements should conform to Section 301 of the Hawaii Standard Specifications for Road and Bridge Construction, dated 1994. Subbase should conform to Section 30 of the City's Standard Specifications for Public Works Construction, dated September 1986.

5. The subbase and base course should be compacted to at least 95 percent relative compaction. Relative compaction in this letter report is defined as the dry unit weight of a compacted material expressed as a percentage of the maximum dry unit weight of the same material based on ASTM D1557-02 test methods.

6.4 SPECIAL CONSIDERATIONS

1. Special treatment will likely be needed for the portion of the new road extension that crosses the existing OR&L railroad tracks.

2. It is anticipated that subgrade treatment discussed herein (over excavation, proof-rolling, and cavity treatment) for the road pavement will likely be needed for the existing railroad tracks.

3. Preliminarily, it was assumed that suitable amounts of ballast material on the order of at least 18 inches or more in thickness would probably be needed for the railroad tracks.

4. For the purpose of the EA, it was assumed that a reinforced concrete section will be needed for the railroad crossing.

5. Ballast material should conform to gradation requirements presented in Chapter 6, Section 12 of the U.S. Army Corps of Engineers' Railroad Design and Rehabilitation (TI 850-02), dated March 1, 2000.

6. It was preliminarily assumed that subdrains may be needed at the railroad crossing as recommended in TI 850-02.

7.0 LIMITATIONS

This geotechnical consultation letter report has been prepared for the use of Kimura International, Inc. (KII) in accordance with generally accepted soils and foundation engineering practices. No warranty or guarantee, expressed or implied, or other representation is made as to the professional advice included in this consultation letter and none should be inferred.

This letter report has been developed for the use of KII for the proposed extension to Kamokila Boulevard to be constructed at Kapolei, Oahu, Hawaii. It does not contain sufficient information for the purposes of other parties or for other uses. This letter report includes preliminary comments and recommendations for the purpose of preparing an EA and should not be used for final design.

Ground water was not encountered in the boring at the time of our field work. However, fluctuations in the ground water level may occur due to variations in rainfall, temperature, irrigation, and other factors that may be different from the conditions that existed at the time of our measurements.

The comments and preliminary recommendations presented in this letter report are based on the anticipated construction described herein. Should the actual construction differ from that described in this letter report, we should be notified and retained to check if any modifications to the recommendations presented in this letter report are needed. The comments and recommendations presented in this letter report shall not be considered valid unless the changes are reviewed by us and the preliminary recommendations of this letter report verified or modified in writing.

The field exploration portion of this study may not have disclosed the presence of cavities or underground structures, such as cesspools, drywells, storage tanks, sumps, pits, buried debris and landfills, etc. that may be present at the site. Should these items be encountered during construction, the Contractor's Geotechnical Engineer should provide appropriate recommendations for their disposal and/or treatment. Assessment of the presence or absence of these structures was not included in the scope of this study.

Our scope of services for this project was limited to conventional geotechnical engineering services and did not include any environmental assessment or evaluations of potential subsurface and ground water contamination. Silence in this letter regarding any environmental aspects of the site subsurface and ground water conditions does not indicate the absence of potential environmental problems.

Our scope of services specifically excluded the investigation, detection, or assessment of the presence of Biological Pollutants in or around any existing or planned structure. Accordingly, this letter includes no interpretations, recommendations, findings, or conclusions for the purpose of detecting, preventing, assessing, or abating Biological Pollutants. The term "Biological Pollutants" includes, but is not limited to molds, fungi, spores, bacteria, and viruses, and/or any of their byproducts.

- o0o -

The following plates and references are attached and complete this letter report:

Plate 1	-	Map of Area
Plate 2	-	Plot Plan
Plate 3	-	Log of Boring, Boring 1
Plates 4.1 and 4.2	-	Unified Soil Classification System
Plate 5	-	Calcareous Rock Classification System for Hawaii
Plate 6	-	Rock Description System
Plate 7	-	Atterberg Limits
Plate 8	-	Gradation Curve
Plate 9	-	Compaction Test Data
Plate 10	-	Laboratory California Bearing Ratio (CBR) Test Results

References

GLEN Y.F. LAU
LICENSED PROFESSIONAL ENGINEER
No. 6095-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

EXP. April 30, 2006

Yours very truly,

PACIFIC GEOTECHNICAL ENGINEERS, INC.

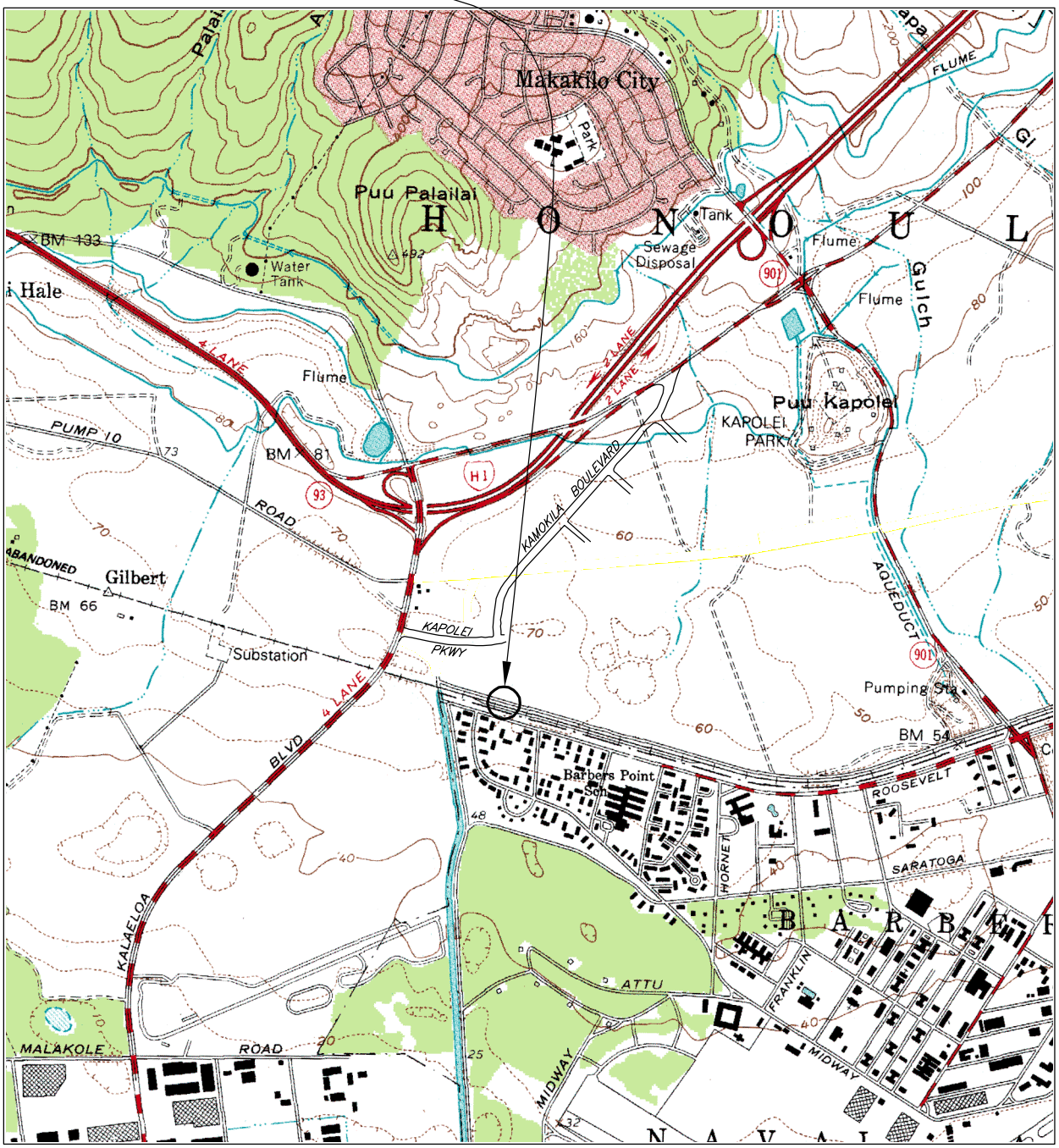
Glen Y.F. Lau, P.E.
President

GL/KAF(8848-001 final ltr rpt)
(One copy submitted)

cc: Hawaii Pacific Engineers, Inc.
Attn: Mr. Lester Fukuda

8848-001 moa.dwg (08-30-05)

General Location of Project Site



0 1000 2000 4000 6000 FEET

0 0.5 1 2 KILOMETER

N

Contour Interval 40 Feet
Datum is Mean Sea Level
Depth Curves in Feet - Datum is Mean Lower Low Water

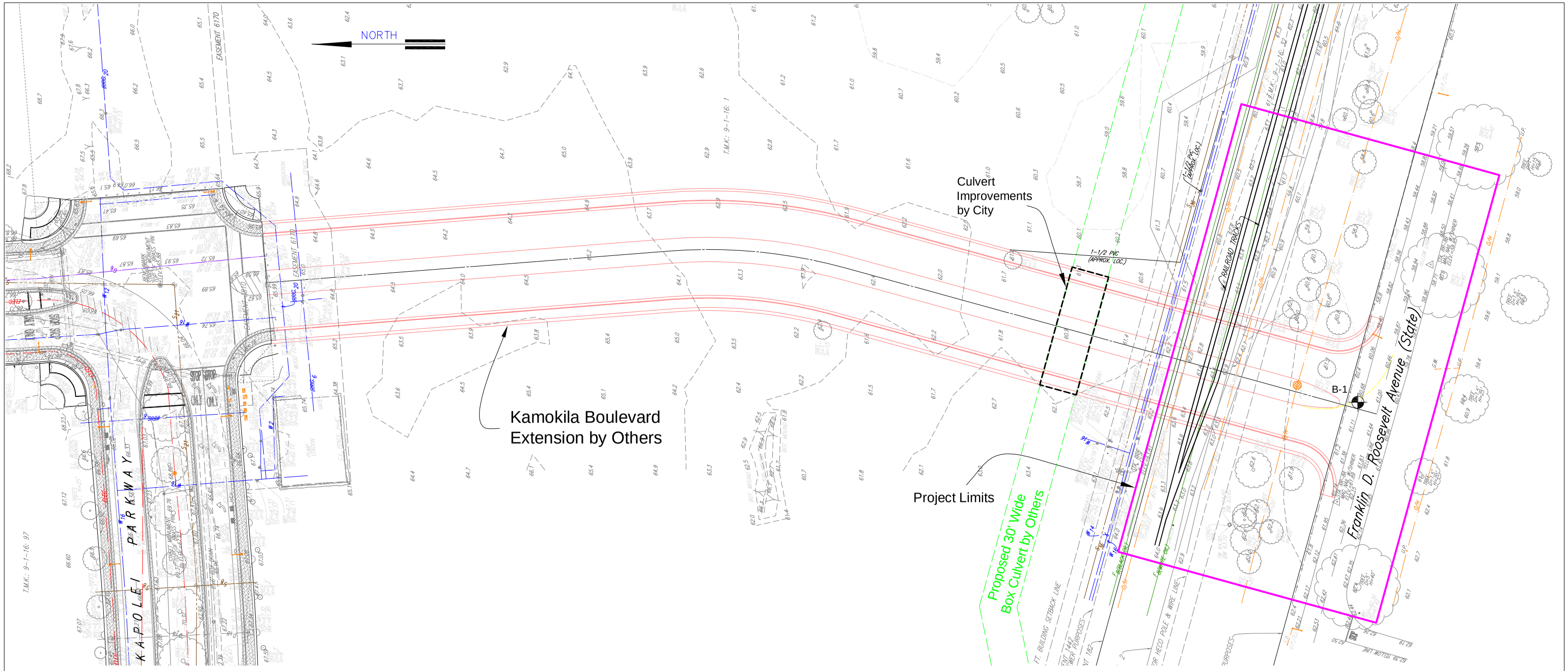
MAP OF AREA

References:
U.S.G.S. Topographic Map
Ewa, Oahu, Hawaii
Dated: 1983

Bryan's Sectional Maps
Edition: 1998

Pacific Geotechnical Engineers, Inc.

8848-001 \ hpe kmolila alt b \ 2005013-alternatives.dwg (02-15-06)



Legend:

B-1 PGE Boring Location and Number

PLOT PLAN

Kamokila Boulevard Extension
Kapolei, Oahu, Hawaii

Reference:
Plan Alternative B
From: Hawaii Pacific Engineers, Inc.
Received: October 24, 2005

Pacific Geotechnical Engineers, Inc.

PROJECT *Kamokila Boulevard Extension* JOB No. *8848-001*

LOCATION *Kapolei, Oahu, Hawaii* DRAWN BY *lml*

BORING 1 (Page 1 of 1)

SURFACE ELEVATION *+61* ± Feet

DATUM *Mean Sea Level*

LAB DATA		CORE INFO							
MOISTURE CONTENT %	DRY DENSITY (pcf)	CORE TYPE	RECOVERY %	RQD % or (RQI) %	BLOWS/FT.	DEPTH (feet)	SAMPLES	SOIL CLASS	DESCRIPTION
9	73				55			GM	Light reddish brown silty gravel, medium dense, with some coralline sand, damp (alluvium)
5					34/3"				Light grayish brown and white coral, medium hard (Type I coral)
7					22	5		CL	Light grayish brown and white sandy lean clay, very stiff, damp (coral reef deposit)
14	98				72/8"				
5					28	10		SM	Light grayish brown and white silty coralline sand, medium dense, weakly cemented, with coralline gravel, damp (coral reef deposit)
5	92				50	15			

Boring completed at 16.5 feet on 08-19-05.

Ground water not encountered.

NOTES:

- ■ – 3.3-inch outside diam. relatively undisturbed sample
- ☒ – Disturbed sample
- ☐ – Sample lost during extraction
- ◪ – 2-inch outside diam. standard penetration test sample (split-spoon sampler)
- I – Core run

DRIVING ENERGY: 140-lb. dropping 30 inches

LOG OF BORING

PGE Pacific Geotechnical Engineers, Inc.

PLATE 3

UNIFIED SOIL CLASSIFICATION SYSTEM – (ASTM D2487–00)

MAJOR DIVISIONS			LETTER SYMBOL	GRAPHIC SYMBOL	GROUP NAMES
COARSE–GRAINED SOILS MORE THAN 50% RETAINED ON NO. 200 SIEVE	GRAVELS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS LESS THAN 5% FINES	GW		WELL–GRADED GRAVEL, WELL–GRADED GRAVEL WITH SAND
			GP		POORLY–GRADED GRAVEL, POORLY–GRADED GRAVEL WITH SAND
		GRAVELS WITH MORE THAN 12% FINES	GM		SILTY GRAVEL, SILTY GRAVEL WITH SAND
			GC		CLAYEY GRAVEL, CLAYEY GRAVEL WITH SAND
	SANDS 50% OR MORE OF COARSE FRACTION PASSES NO. 4 SIEVE	CLEAN SAND LESS THAN 5% FINES	SW		WELL–GRADED SAND, WELL–GRADED SAND WITH GRAVEL
			SP		POORLY–GRADED SAND, POORLY–GRADED SAND WITH GRAVEL
		SANDS WITH MORE THAN 12% FINES	SM		SILTY SAND, SILTY SAND WITH GRAVEL
			SC		CLAYEY SAND, CLAYEY SAND WITH GRAVEL
FINE–GRAINED SOILS 50% OR MORE PASSES NO. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50		ML		SILT, SILT WITH SAND OR GRAVEL, SANDY OR GRAVELLY SILT
			CL		LEAN CLAY, LEAN CLAY WITH SAND OR GRAVEL, SANDY OR GRAVELLY LEAN CLAY
			OL		ORGANIC SILT OR CLAY, ORGANIC SILT OR CLAY WITH SAND OR GRAVEL, SANDY OR GRAVELLY ORGANIC SILT OR CLAY
	SILTS AND CLAYS LIQUID LIMIT 50 OR MORE		MH		ELASTIC SILT, ELASTIC SILT WITH SAND OR GRAVEL, SANDY OR GRAVELLY ELASTIC SILT
			CH		FAT CLAY, FAT CLAY WITH SAND OR GRAVEL, SANDY OR GRAVELLY FAT CLAY
			OH		ORGANIC SILT OR CLAY, ORGANIC SILT OR CLAY WITH SAND OR GRAVEL, SANDY OR GRAVELLY ORGANIC SILT OR CLAY
HIGHLY ORGANIC SOILS			PT		PEAT

NOTE:
DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE CLASSIFICATIONS.
REFER TO ASTM D2487 FOR BORDERLINE CLASSIFICATIONS GW–GM, GW–GC, GP–GM, GP–GC, SW–SM, SW–SC, SP–SM, AND SP–SC.

UNIFIED SOIL CLASSIFICATION SYSTEM

(SHEET 1 OF 2)

Pacific Geotechnical Engineers, Inc.

PLATE 4.1

CHECKED BY/DATE:

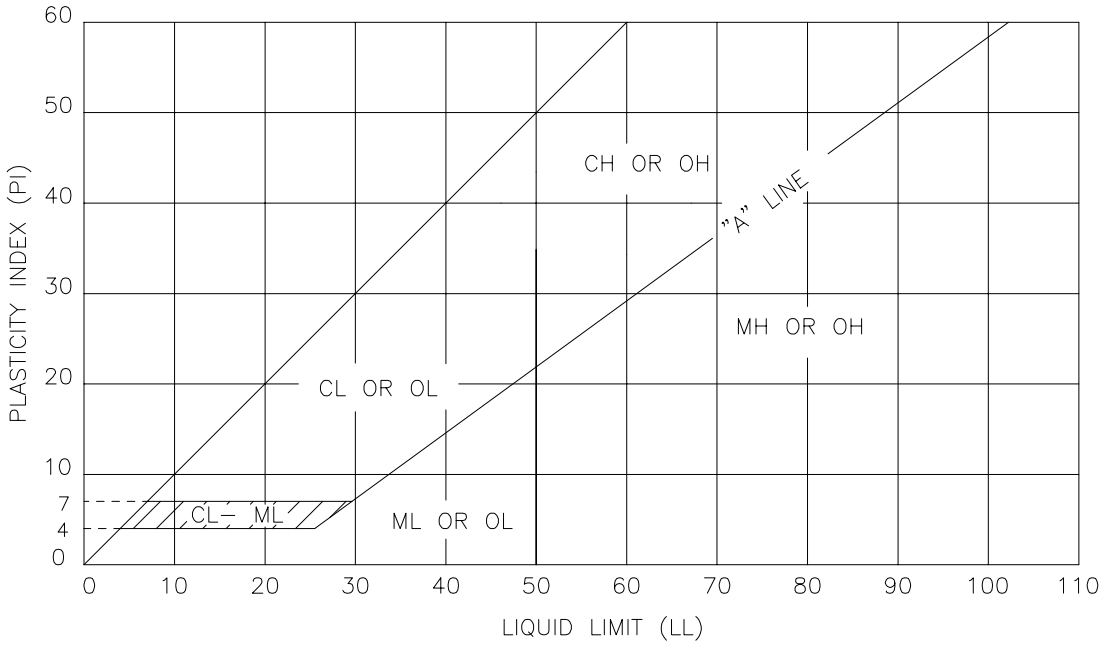
PGE JOB NO. 9011 USCS3.DWG

GRADATION CHART

MATERIAL SIZE	PARTICLE SIZE			
	LOWER LIMIT		UPPER LIMIT	
	MILLIMETERS	SIEVE SIZE **	MILLIMETERS	SIEVE SIZE **
SAND				
FINE	0.075	#200 **	0.425	#40 **
MEDIUM	0.425	#40 **	2.00	#10 **
COARSE	2.00	#10 **	4.75	#4 **
GRAVEL				
FINE	4.75	#4 **	19.0	3/4" *
COARSE	19.0	3/4" *	75.0	3" *
COBBLES	75.0	3" *	300	12" *
BOULDERS	300	12" *	---	---

** U.S. STANDARD SIEVE * SQUARE OPENINGS

PLASTICITY CHART



FOR CLASSIFICATION OF FINE-GRAINED SOILS
AND FINE-GRAINED FRACTION OF
COARSE-GRAINED SOILS

NOTE:
WHEN SHOWN ON THE BORING LOGS, THE FOLLOWING TERMS ARE USED TO DESCRIBE THE CONSISTENCY OF COHESIVE SOILS AND THE RELATIVE COMPACTNESS OF COHESIONLESS SOILS.

COHESIVE SOILS	APPROXIMATE SHEAR STRENGTH IN KSF	COHESIONLESS SOILS	
VERY SOFT	LESS THAN 0.25	VERY LOOSE	THESE ARE USUALLY
SOFT	0.25 TO 0.5	LOOSE	BASED ON AN EXAMINATION
MEDIUM STIFF	0.5 TO 1.0	MEDIUM DENSE	OF SOIL SAMPLES,
STIFF	1.0 TO 2.0	DENSE	PENETRATION RESISTANCE,
VERY STIFF	2.0 TO 4.0	VERY DENSE	AND SOIL DENSITY DATA.
HARD	GREATER THAN 4.0		

UNIFIED SOIL CLASSIFICATION SYSTEM

(SHEET 2 OF 2)

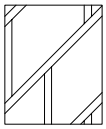
Pacific Geotechnical Engineers, Inc.

CHECKED BY/DATE: _____ ZU
PGE JOB NO. 9011 USCS4.DWG

ROCKDESCRIPTION/CALCAREOUS.dwg

CALCAREOUS ROCK CLASSIFICATION SYSTEM FOR HAWAII

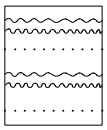
BASIC TYPES OF CALCAREOUS ROCK



TYPE I

REEF ROCK

Composed largely of undisturbed coralline skeletons. The skeletons are cemented together during accretion. The cementing agents are calcium compounds secreted by the marine organisms. The joined skeletons form a structural framework. Coralline and other calcareous debris commonly fill the framework interstices.



TYPE II

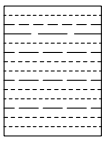
SECONDARY ROCK

Composed essentially of cemented fragments or coralline skeletons and/or calcareous shells. Cementation is believed to occur primarily after accretion is completed and the marine deposit begins to emerge above sea level. The common types of secondary rock are listed below.

1. Conglomerate - Cemented, non-uniform sand-and gravel- size particles of cemented coralline skeletons and/or calcareous shell. The skeletons and shells are originally deposited in near-shore waters. The cementing agent is calcium carbonate precipitated primarily from percolating ground water.

2. Shell Rock - Cemented shells and shell fragments that have accumulated in protected shallow sea water. The shells are often cemented in a clay-and silt-size matrix. Cementation develops from calcium carbonate deposited by ground water.

3. Dune Rock - Cemented dune sand. The cementing agent is generally calcium carbonate precipitated from percolating ground water. Dune rock generally has a relatively low density because the constituent sand grains are loosely packed and often poorly cemented.



TYPE III

CHALK

Poorly cemented mass of calcareous clay-and silt-size particles, believed to be precipitated from shallow sea water and associated with near-shore environments.

*The term coralline is used to indicate coral and/or other calcium compound secreting organisms.

Pacific Geotechnical Engineers, Inc.

ROCK DESCRIPTION SYSTEM

A. DEGREE OF WEATHERING

The following terms describe the chemical weathering of a rock:

Fresh: No visible sign of decomposition or discoloration. Rings under hammer impact.

Slightly Weathered: Slight discoloration inwards from open fractures, otherwise similar to Fresh.

Moderately Weathered: Discoloration throughout. Weaker minerals such as feldspar decomposed. Strength somewhat less than fresh rock but cores cannot be broken by hand or scraped by knife. Texture preserved.

Highly Weathered: Most minerals somewhat decomposed. Specimens can be broken by hand with effort or shaved with knife. Core stones present in rock mass. Texture becoming indistinct but fabric preserved.

Completely Weathered: Minerals decomposed to soil but fabric and structure preserved (Saprolite). Specimens easily crumbled or penetrated.

Residual Soil: Advanced state of decomposition resulting in plastic soils. Rock fabric and structure completely destroyed. Large volume change relative to fresh rock.

B. HARDNESS

The following terms describe the resistance of a rock to indentation or scratching:

Very Soft: Can be peeled with a knife, material crumbles under firm blows with the sharp end of a geologic pick.

Soft: Can just be scraped with a knife, indentations of 2 to 4 mm with firm blows of the pick point.

Medium Hard: Cannot be scraped or peeled with a knife but can be scratched with knife point. Hand held specimen breaks with firm blows of the pick.

Hard: Difficult to scratch with knife point, cannot break hand held specimen.

Very Hard: Cannot be scratched with pocket knife.

C. ROCK FRACTURE CHARACTERISTICS

The following terms describe general fracture spacing of a rock:

Crushed: Less than 5 microns (mechanical clay) to 0.1 foot.

Intensely Fractured: 0.05 to 0.1 foot (contains no clay).

Highly Fractured: 0.1 to 0.5 feet.

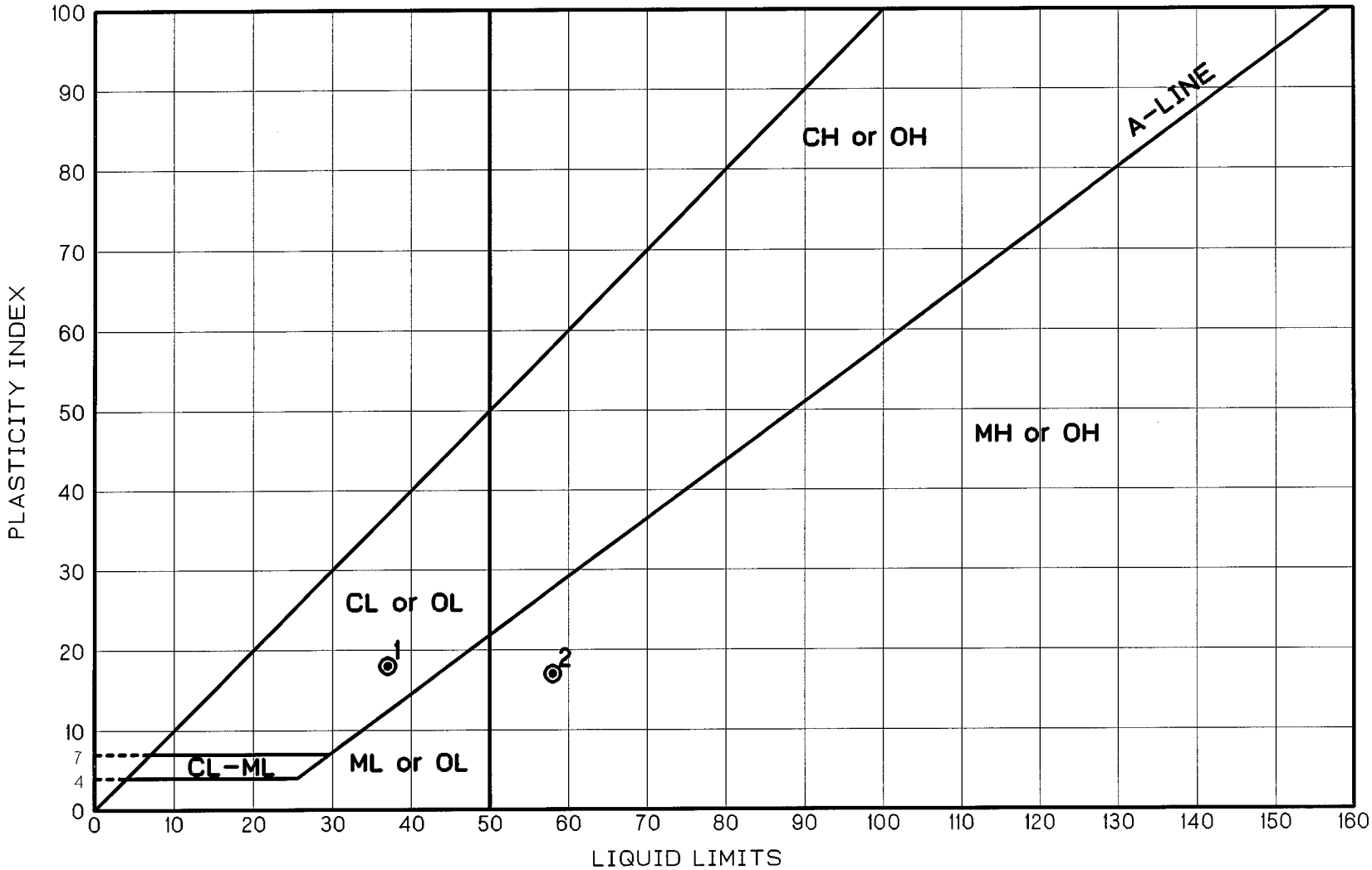
Moderately Fractured: 0.5 to 1.0 feet

Occasionally Fractured: 1.0 to 3.0 feet

Slightly Fractured: Greater than 3.0 feet.

PROJECT Kamokila Boulevard Extension JOB NUMBER 8848-001

LOCATION Kapolei, Oahu, Hawaii DRAWN BY lml DATE DRAWN 09-06-05

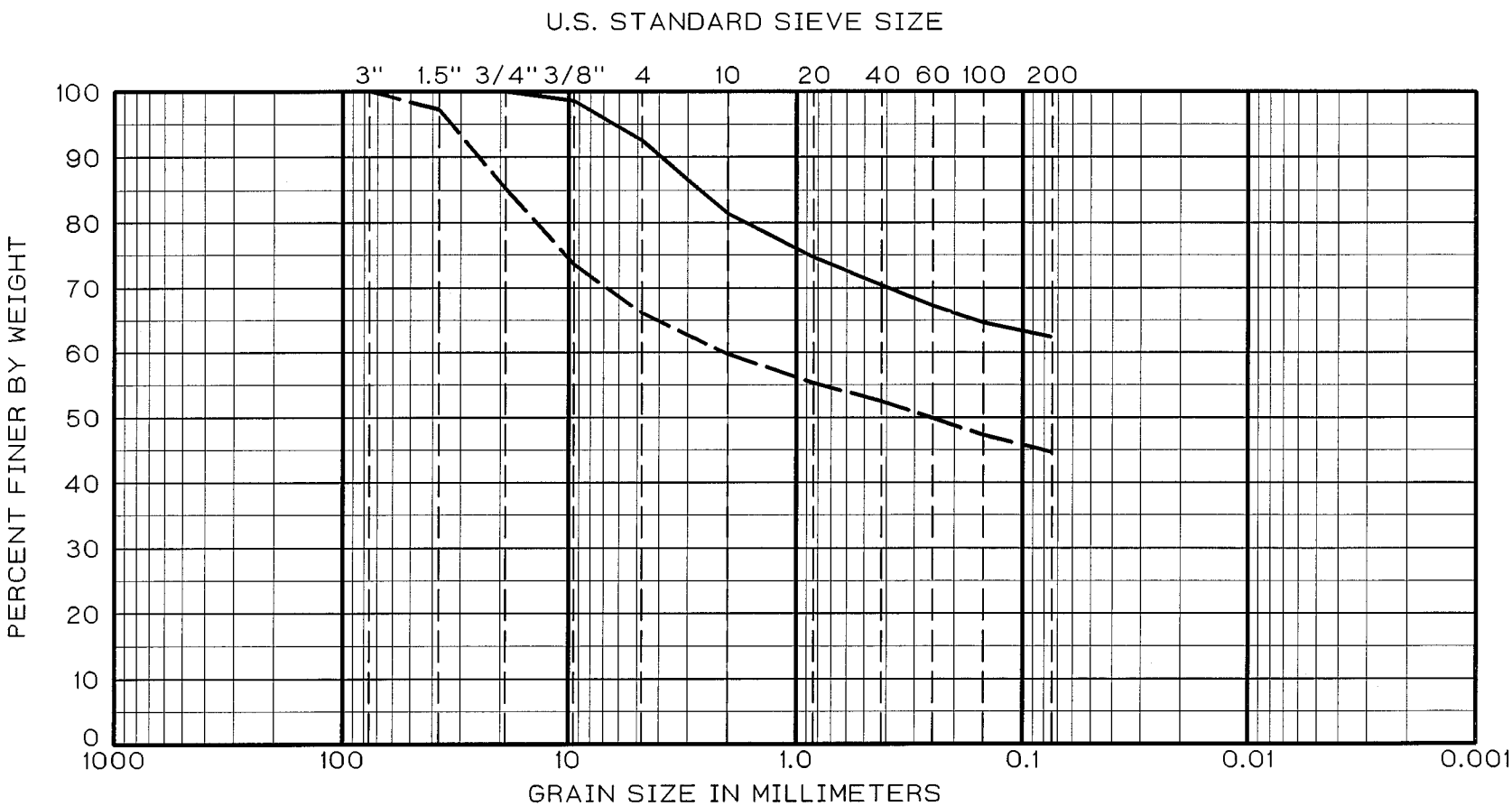


ATTERBERG LIMITS

KEY	LOCATION	SAMPLE DEPTH (ft)	LIQUID LIMIT	PLASTICITY INDEX
1	B-1	5.5 - 7.0	37	18
2	Bulk 1	0.5 - 1.5	58	17

PROJECT Kamokila Boulevard Extension JOB NUMBER 8848-001

LOCATION Kapolei, Oahu, Hawaii DRAWN BY lml DATE DRAWN 09-06-05



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

LOCATION	DEPTH (ft)	CLASSIFICATION		NAT. WC	LL	PL	PI	SYMBOL
Boring 1	5.5 – 7.0	CL	Light grayish brown and white sandy lean clay	10				———
Bulk 1	0.5 – 1.5	GM	Light reddish brown silty gravel with sand	11				— — — —

GRADATION CURVE

Pacific Geotechnical Engineers, Inc.

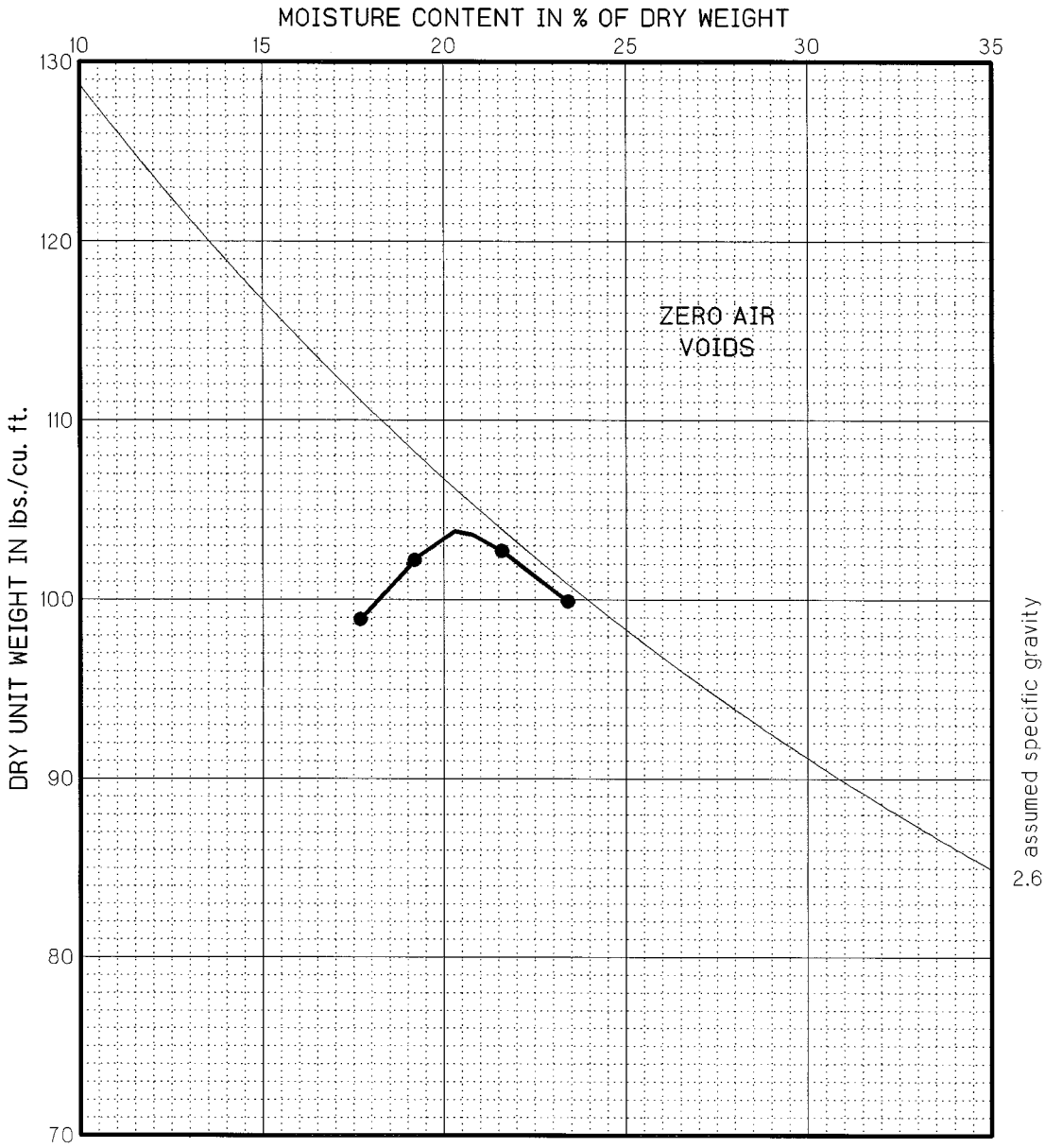
PLATE 8

SAMPLE DEPTH 0.5 - 1.5 ft.
ELEVATION +61 ft.±
SOIL Light reddish brown silty gravel with sand (GM)
COMPACTION METHOD ASTM D1557-02
OPTIMUM MOISTURE CONTENT 20.3 %
MAXIMUM DRY UNIT WEIGHT 103.8 pcf

JOB NUMBER: 8848-001
PROJECT: Kamokila Boulevard Extension
Kapolei, Oahu, Hawaii
DRAWN BY: lml (09/07/2005)

BULK 1

SAMPLE LOCATION: Near Boring 1

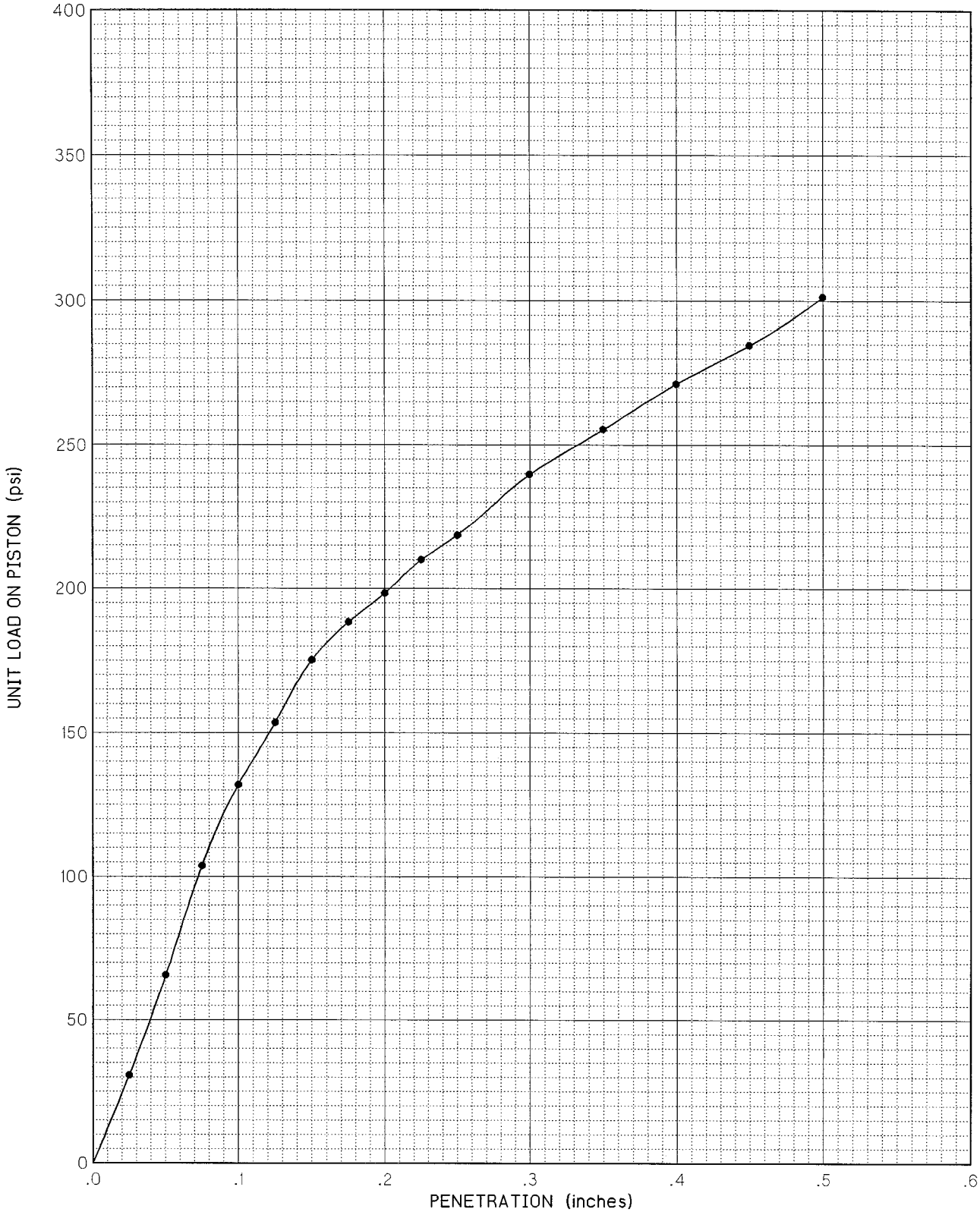


COMPACTION TEST DATA

Pacific Geotechnical Engineers, Inc.

PLATE 9

PROJECT Kamokila Boulevard Extension JOB NUMBER 8848-001 DATE 09-07-05 DRAWN BY lml



LABORATORY CALIFORNIA BEARING RATIO (CBR) TEST RESULTS

Bulk No.	Depth (ft)	Before Soaking		After Soaking			Laboratory CBR Value	
		Moisture Content (%)	Dry Unit Weight (pcf)	Moisture Content (%)	Dry Unit Weight (pcf)	% Swell	@ 0.1"	@ 0.2"
1	0.5 - 1.5	20.4	88.4	30.3	87.4	1.0	13	13

Soil Description (USCS) Light reddish brown silty gravel with sand (GM)

Test Method ASTM D 1883-99

Pacific Geotechnical Engineers, Inc.

Plate 10

REFERENCES

1. Pavement Design Manual, Revision March 2002, by Department of Transportation, Highways Division, Materials Testing and Research Branch, Soils Engineering and Pavement Design Section.

2. Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii, by the United States Department of Agriculture, Soil Conservation Service, August 1972.

3. Stearns, Harold T., Geologic Map and Guide of the Island of Oahu, Hawaii, Hawaii Division of Hydrography, Bulletin 2, 75 pp, colored geologic map, 1939.

4. U.S. Army Corps of Engineers, Railroad Design and Rehabilitation, TI 850-02, March 1, 2000.

AIR QUALITY IMPACT REPORT (AQIR)

KAMOKILA BOULEVARD EXTENSION
KAPOLEI, HAWAII

21 JANUARY 2006

PREPARED FOR:

Kimura International, Inc.

PREPARED BY:

J. W. MORROW
Environmental Management Consultant
1481 South King Street, Suite 548
Honolulu, Hawaii 96814

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2	Air Quality Data - Department of Health Monitoring Sites, 2004
3	Climatic Norms, Means and Extremes, Honolulu International Airport (HIA)
4	Annual Joint Frequency Distribution of Wind Speed and Direction Honolulu International Airport

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NUMBER	TITLE
1	Project Location
2	P.M. Peak-Hour Conditions, Kamokila Boulevard at Kapolei Parkway, 12 January 2006
3	A.M. Peak-Hour Conditions, Kamokila Boulevard at Kapolei Parkway, 13 January 2006
4	August Wind Rose - Honolulu International Airport
5	January Wind Rose - Honolulu International Airport
6	Estimates of Maximum 1-Hour and 8-Hour Carbon Monoxide Concentrations - Kamokila Boulevard at F. D. Roosevelt Avenue, 2010 - 2025

1. INTRODUCTION

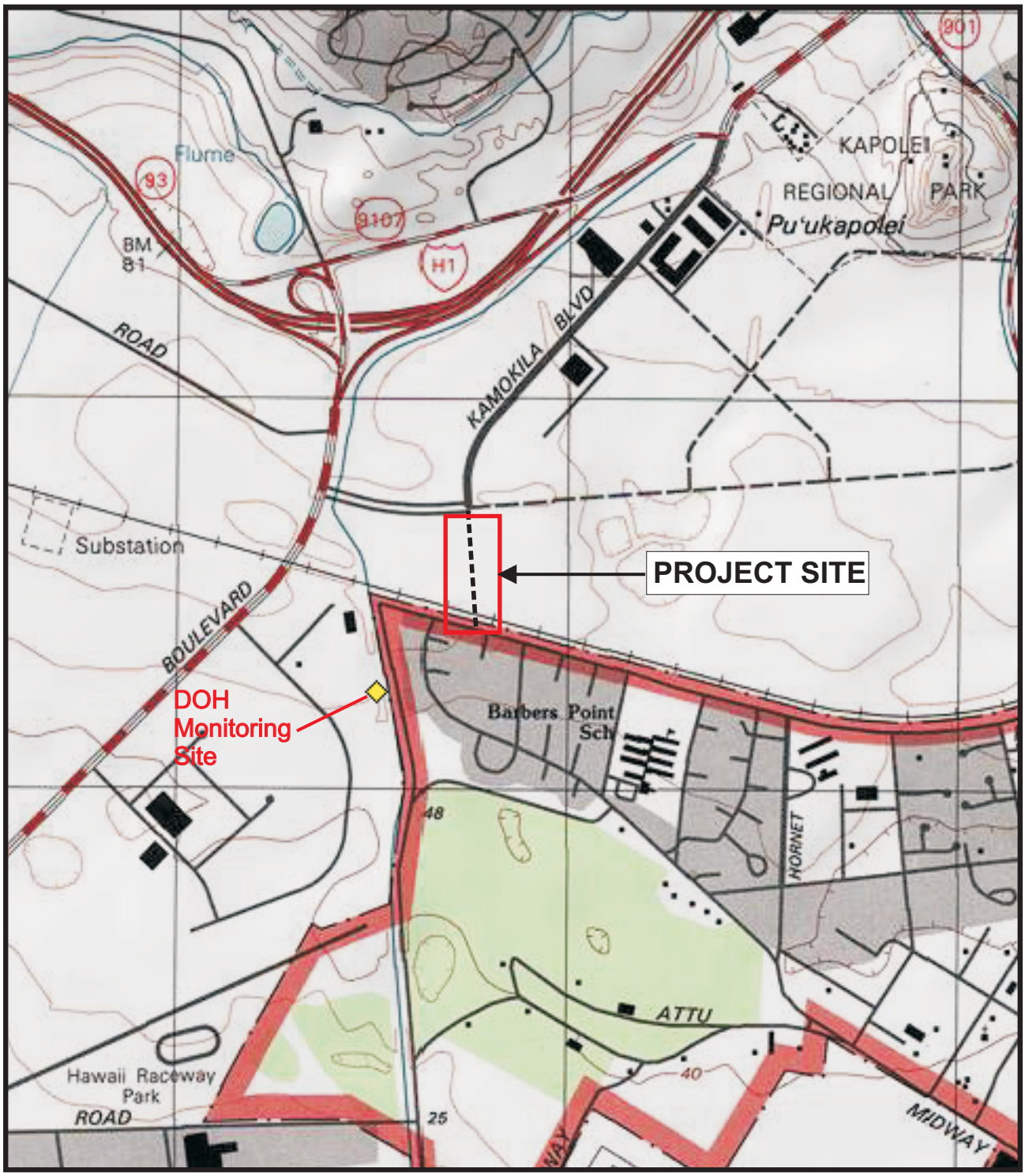
The landowner is proposing to extend the existing Kamokila Boulevard southward to connect with the existing 2-lane F. D. Roosevelt Avenue in the Kapolei area on the island of Oahu (Figure 1). The extended roadway will provide improved traffic connectivity in the area particularly during the widening of Fort Barrette Road (Barbers Point Access Road) and in later years when the substantial planned population growth has been realized.

The purpose of this report is to assess the short and long-term impacts of the proposed roadway extension on air quality. The project can be considered an "indirect source" of air pollution as defined in the federal Clean Air Act[1] since its primary association with air quality is its inherent attraction for mobile sources, i.e., motor vehicles. Much of the focus of this analysis, therefore, is on the project's ability to generate additional traffic in the project area with its resultant impact on air quality. Air quality impact was evaluated for near-term (2010) and long-term (2025) conditions with the proposed new roadway

.

Finally, during construction of the road air pollutant emissions will be generated both onsite and offsite by vehicular movement, grading, concrete and asphalt batching, and general dust-generating construction activities. These impacts have also been addressed.

FIGURE 1
PROJECT LOCATION



USGS Quad Ewa (1998)
1:24,000(NAD-83)

2. AIR QUALITY STANDARDS

A summary of State of Hawaii and national ambient air quality standards (NAAQS) is presented in Table 1.[2, 3, 4] Note that Hawaii's standards are not divided into primary and secondary standards as are the federal standards.

Primary standards are intended to protect public health with an adequate margin of safety while secondary standards are intended to protect public welfare through the prevention of damage to soils, water, vegetation, man-made materials, animals, wildlife, visibility, climate, and economic values [5]. Note that in the case of the principal automotive pollutants [CO, NO_2, and O_3], the primary and secondary standards are identical.

Some of Hawaii's standards (CO, NO_2, and O_3) are clearly more stringent than their federal counterparts and like their federal counterparts in the case of short-term standards, they may be exceeded once per year.

3. EXISTING AIR QUALITY

3.1 General. The state Department of Health (DOH) maintains a network of air monitoring stations around the state to gather data on the following regulated pollutants:

- particulate matter ≤ 10 microns (PM_{10})
- sulfur dioxide (SO_2)

- nitrogen dioxide (NO_2)
- carbon monoxide (CO)
- ozone (O_3)

In the case of PM_{10} , measurements are made on a 24-hour basis to correspond with the averaging period specified in state and federal standards. Depending on the sampling equipment and site, samples are collected either continuously or once every six days in accordance with U. S. Environmental Protection Agency (EPA) guidelines. Carbon monoxide, sulfur dioxide, and ozone, however, are measured on a continuous basis due to their short-term (1- and 3-, and 8-hour) standards. Nitrogen dioxide is also measured with continuous instruments and averaged over a full year to correspond to its annual standards. Lead sampling was discontinued in October 1997 with EPA approval. This was largely due to the elimination of lead in gasoline and the resulting reduction of ambient lead levels in Hawaii to essentially zero.

3.2 Department of Health Monitoring. The DOH operates an air monitoring station just a few hundred meters south southwest of the proposed Kamokila extension. A summary of the most recent published air quality data [7] from that site and from the Sand Island site (the only ozone monitoring site) is presented in Table 2. These data indicate the existing good air quality in the project area.

3.3 Onsite Carbon Monoxide Sampling. In conjunction with this project, air sampling was conducted in January 2006, at the existing terminus of Kamokila Boulevard. A continuous carbon monoxide (CO) instrument was set up and operated during the a.m. and p.m. peak traffic hours. An anemometer and vane were also installed to record onsite surface winds during the sampling period.

TABLE 1

SUMMARY OF STATE OF HAWAII AND FEDERAL AMBIENT AIR QUALITY STANDARDS

POLLUTANT	AVERAGING PERIOD	NAAQS PRIMARY	NAAQS SECONDARY	STATE STANDARDS
PM_{10}	Annual 24-hr	50 150	50 150	50 150
$PM_{2.5}$	Annual 24-hr	15 65	15 65	--- ---
SO_2	Annual 24-hr 3-hr	80 365 ---	--- --- 1,300	80 365 1,300
NO_2	Annual	100	100	70
CO	8-hr 1-hr	10 40	--- ---	5 10
O_3	1-hr 8-hr	235 156	235 156	100 ---
H_2S	1-hr	---	---	35
Pb	Calendar Quarter	1.5	1.5	1.5

KEY:
PM_{10} - particulate matter ≤ 10 microns
$PM_{2.5}$- particulate matter ≤ 2.5 microns
SO_2 - sulfur dioxide
NO_2 - nitrogen dioxide
CO - carbon monoxide
O_3 - ozone
H_2S - hydrogen sulfide
Pb - lead

All concentrations in micrograms per cubic meter ($\mu g/m^3$) except CO which is in milligrams per cubic meter.

A simultaneous manual count of traffic was performed. The variability of each of the parameters measured during the peak hours is clearly seen in Figures 2 and 3.

On Thursday, 12 January 2006, sampling equipment was set up on the southwest side of the intersection with Kapolei Boulevard. Weather conditions during the afternoon peak hour were characterized by partly cloudy skies (<15% sky cover) and brisk northeasterly trade winds averaging 15 mph. Carbon monoxide concentrations measured were very low, averaging 0.4 mg/m^3 for the 1-hour period. Total traffic volume entering the intersection was 1,145 vehicles between 4:10 and 5:10 p.m. Hawaiian Standard Time (HST).

On the morning of 13 January 2006, the equipment was set up at the same location. Sky conditions were again scattered clouds (< 10% sky cover) with trade winds averaging 10 mph. The total hourly traffic volume entering the intersection was 734 vehicles. The hourly mean CO level of 0.5 mg/m^3 reflected the low traffic volume and brisk winds and was again well below the regulatory standard.

4. CLIMATE AND METEOROLOGY

4.1 Climate. Climatic norms, means and extremes for Honolulu [8] are presented in Table 3. Analysis of the monthly temperature and rainfall data for the National Weather Service station at Honolulu International Airport in accordance with Thornwaite's scheme for climatic classification, yields a precipitation/evaporation (P/E) index of 26.6 which classifies the area as "semi-arid". [9]

TABLE 2

AIR QUALITY DATA
DEPARTMENT OF HEALTH MONITORING SITES
2004

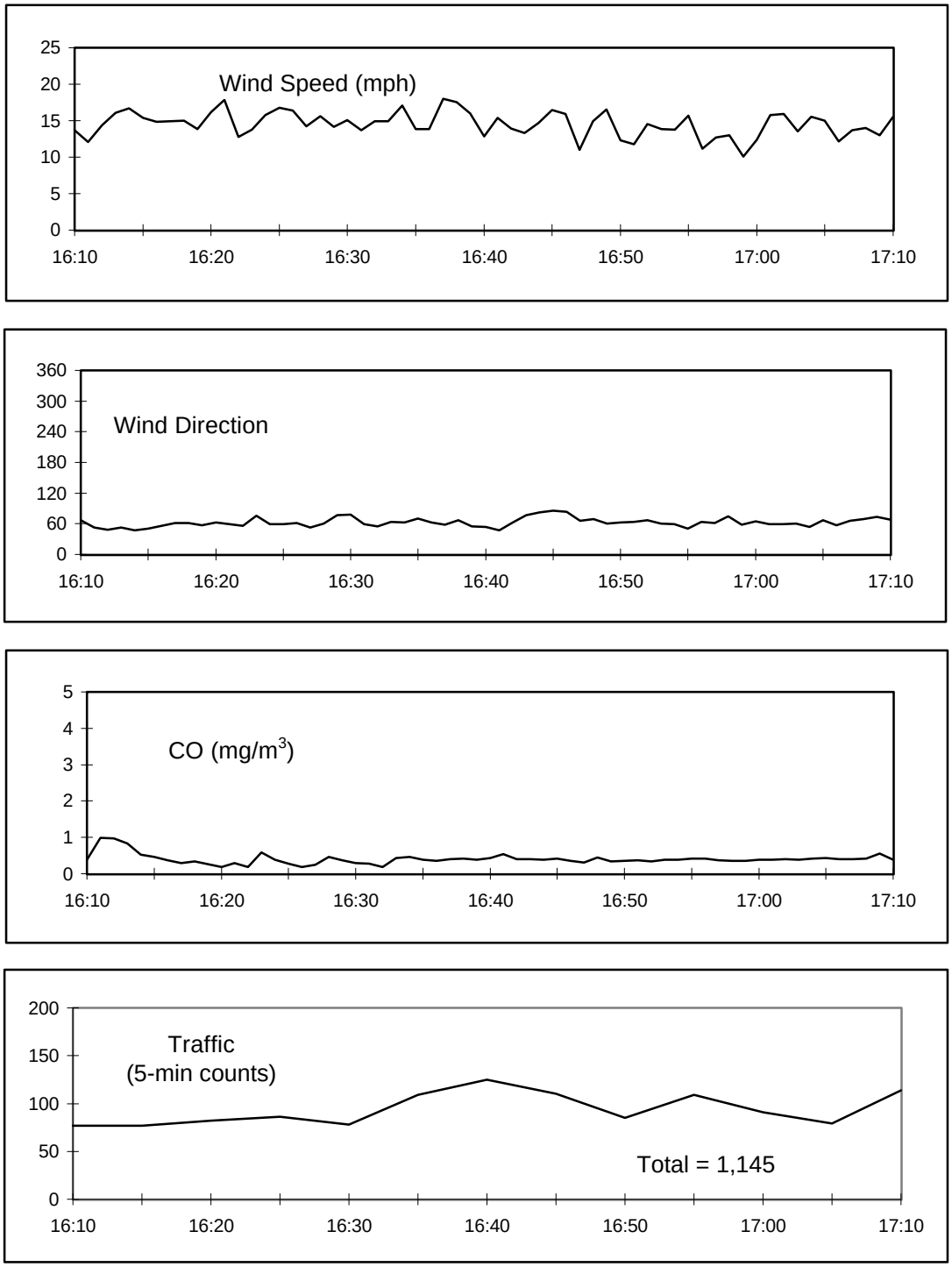
Pollutant	Concentration ($\mu g/m^3$)
Particulate matter (≤ 10 microns) (PM_{10}) 24-hr	53
Annual	13
Particulate matter (≤ 2.5 microns) ($PM_{2.5}$) 24-hr	7
Annual	3
Sulfur dioxide (SO_2) 3-hr	17
24-hr	7
Annual	1
Carbon monoxide (CO) 1-hr	2.4
8-hr	0.98
Ozone (O_3) 1-hr	118
8-hr	110
Annual	34
Nitrogen Dioxide (NO_2) Annual	9

Notes: 1. PM_{10} , CO, SO_2 and NO_2 data from the Kapolei site.
2. O_3 data are from the Sand Island site.
3. CO data are milligrams per cubic meter (mg/m^3)

Source: Hawaii Department of Health (Reference 7)

FIGURE 2

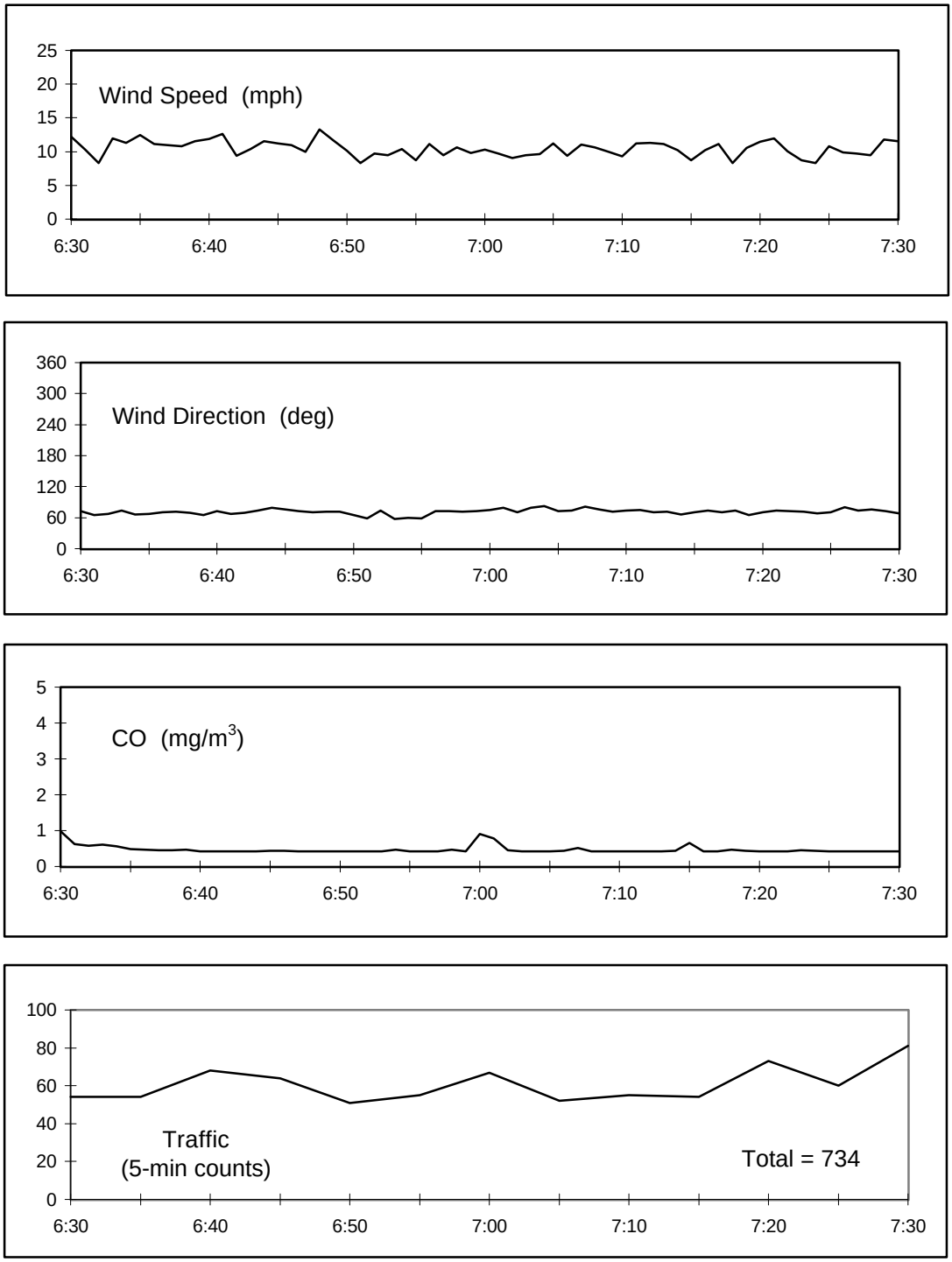
P.M. PEAK HOUR CONDITIONS
KAMOKILA BOULEVARD AT KAPOLEI PARKWAY
12 JANUARY 2006



Time of Day

FIGURE 3

A.M. PEAK HOUR CONDITIONS
KAMOKILA BOULEVARD AT KAPOLEI PARKWAY
13 JANUARY 2006



4.2 Surface Winds. Meteorological data records were reviewed from the Honolulu International Airport and Hickam Air Force Base. The annual prevalence of northeast trade winds is clearly shown in Table 4. A closer examination of the data, however, indicates that low velocities (less than 10 mph) occur frequently and that the normal northeasterly trade winds tend to break down in the Fall giving way to more light, variable wind conditions through the Winter and on into early Spring. It is during these times that Honolulu generally experiences elevated pollutant levels. This seasonal difference in wind conditions can be easily contrasted by comparing August and January wind roses (Figures 4 and 5). Of particular interest from an air pollution standpoint were the stability wind roses prepared for Hickam Air Force Base [10]. These data indicated that stable conditions, i.e., Pasquill-Gifford stability categories E and F [11], occur about 28% of the time on an annual basis and 36% of the time during the peak winter month (January). It is under such conditions that the greatest potential for air pollutant buildup from groundlevel sources, e.g., motor vehicles, exists.

5. SHORT-TERM IMPACTS

5.1 Onsite Impacts. The principal source of short-term air quality impact will be construction-related activity. Construction vehicle activity can at times increase automotive pollutant concentrations along adjoining existing streets as well as on the project site itself. Construction vehicle traffic on the existing roadway may at times cause a temporary reduction in average travel speeds with a concomitant increase in vehicle emissions due to the "stop and go" traffic conditions. The site preparation and earth moving will create particulate matter (PM) emissions as will construction of new buildings and roadways themselves. Construction vehicle movement on unpaved on-site areas will also generate PM

TABLE 3

CLIMATIC NORMS, MEANS AND EXTREMES
HONOLULU INTERNATIONAL AIRPORT (HIA)

Parameter	Descriptor	Honolulu International Airport
Temperature (deg F)	Daily maximum	84.4
	Daily minimum	70.0
	Annual mean	77.2
Precipitation (inches)	Maximum monthly	20.91
	Minimum monthly	trace
	Annual mean	22.02
Humidity (%)	Normal	68
Wind Speed (mph)	Mean	11.4
Sunshine	Percent of possible	71
Sky cover (mean # days)	Clear	90.0
	Partly cloudy	179.8
	Cloudy	92.0

Sources: National Climatic Data Center (NCDC) (Reference 8)

TABLE 4

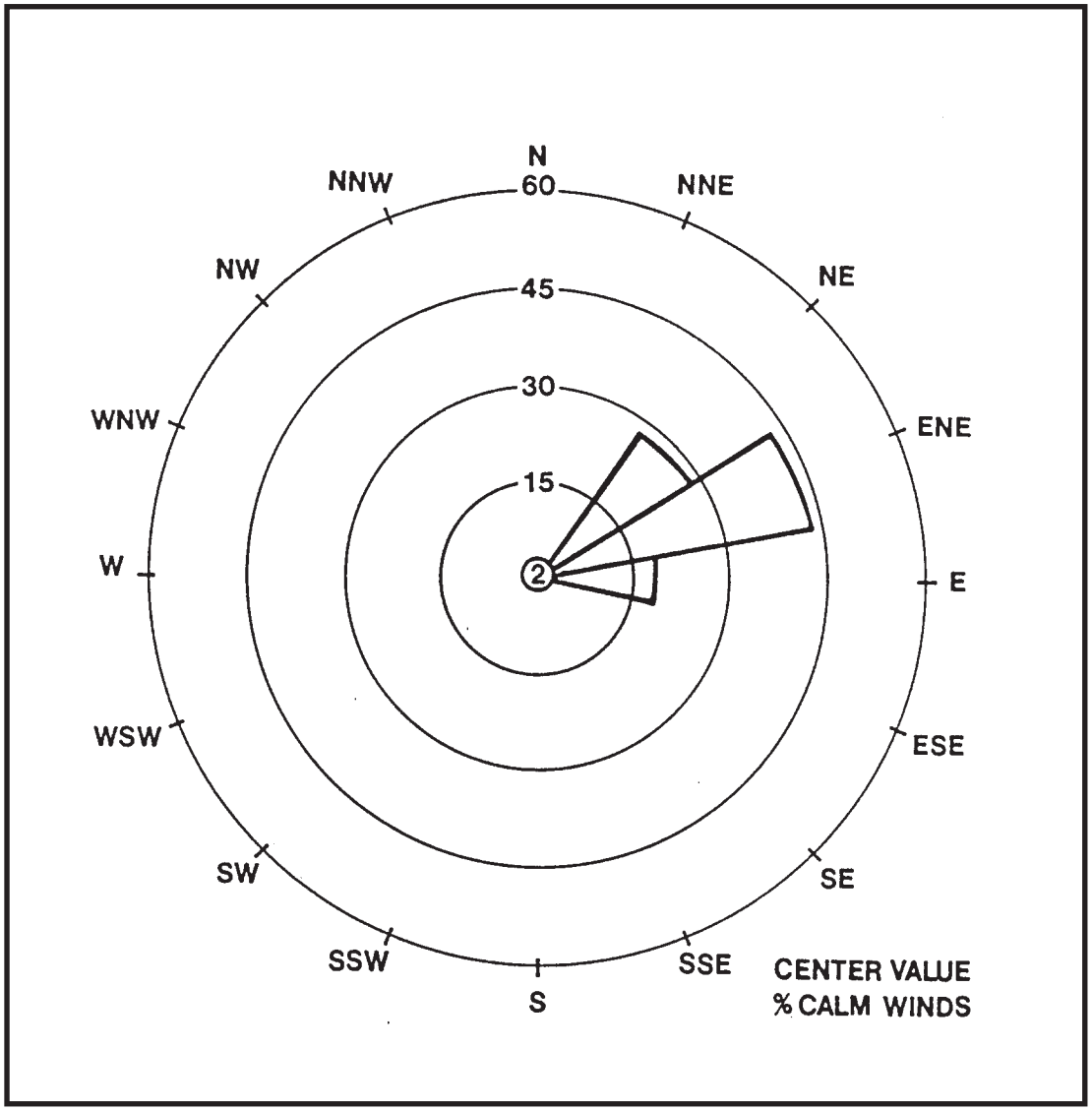
ANNUAL JOINT FREQUENCY DISTRIBUTION
OF WIND SPEED AND DIRECTION
HONOLULU INTERNATIONAL AIRPORT

	Wind Speed (m/sec)						
Dir (deg)	< 3.1	< 4.5	< 5.8	< 7.2	< 8.5	>/= 8.5	All
10	0.0065	0.0038	0.0023	0.0016	0.0009	0.0001	0.0151
20	0.0082	0.0041	0.0025	0.0023	0.0011	0.0001	0.0183
30	0.0100	0.0061	0.0051	0.0038	0.0028	0.0007	0.0286
40	0.0188	0.0157	0.0258	0.0222	0.0174	0.0040	**0.1039**
50	0.0268	0.0290	0.0449	0.0385	0.0307	0.0054	**0.1752**
60	0.0344	0.0289	0.0436	0.0273	0.0238	0.0041	**0.1621**
70	0.0250	0.0181	0.0197	0.0122	0.0096	0.0009	**0.0855**
80	0.0113	0.0081	0.0065	0.0039	0.0009	0.0003	0.0310
90	0.0073	0.0049	0.0040	0.0009	0.0008	0.0000	0.0179
100	0.0031	0.0016	0.0014	0.0006	0.0002	0.0000	0.0068
110	0.0027	0.0019	0.0010	0.0007	0.0005	0.0001	0.0069
120	0.0027	0.0013	0.0019	0.0009	0.0003	0.0003	0.0075
130	0.0022	0.0032	0.0018	0.0015	0.0007	0.0002	0.0096
140	0.0034	0.0033	0.0039	0.0018	0.0011	0.0006	0.0141
150	0.0022	0.0030	0.0019	0.0003	0.0002	0.0005	0.0081
160	0.0024	0.0033	0.0023	0.0010	0.0005	0.0000	0.0094
170	0.0031	0.0046	0.0023	0.0007	0.0003	0.0000	0.0109
180	0.0055	0.0042	0.0018	0.0008	0.0005	0.0000	0.0128
190	0.0065	0.0038	0.0013	0.0002	0.0000	0.0000	0.0117
200	0.0057	0.0032	0.0011	0.0001	0.0000	0.0000	0.0101
210	0.0076	0.0038	0.0016	0.0001	0.0000	0.0000	0.0131
220	0.0083	0.0077	0.0016	0.0001	0.0001	0.0000	0.0179
230	0.0076	0.0049	0.0014	0.0001	0.0001	0.0000	0.0141
240	0.0042	0.0016	0.0013	0.0000	0.0000	0.0000	0.0071
250	0.0040	0.0010	0.0003	0.0000	0.0000	0.0000	0.0054
260	0.0064	0.0023	0.0005	0.0000	0.0000	0.0000	0.0091
270	0.0065	0.0010	0.0005	0.0002	0.0000	0.0000	0.0082
280	0.0099	0.0005	0.0002	0.0000	0.0000	0.0000	0.0106
290	0.0123	0.0003	0.0002	0.0001	0.0000	0.0000	0.0130
300	0.0167	0.0018	0.0011	0.0000	0.0000	0.0000	0.0197
310	0.0235	0.0022	0.0015	0.0001	0.0000	0.0000	0.0272
320	0.0200	0.0022	0.0013	0.0006	0.0001	0.0000	0.0241
330	0.0121	0.0023	0.0011	0.0005	0.0000	0.0000	0.0159
340	0.0094	0.0010	0.0003	0.0001	0.0000	0.0000	0.0109
350	0.0082	0.0025	0.0016	0.0002	0.0000	0.0000	0.0125
360	0.0093	0.0027	0.0022	0.0006	0.0005	0.0001	0.0154
All	**0.3537**	0.1898	0.1917	0.1240	0.0932	0.0174	0.9698
						Calms:	0.0302

SOURCE: National Weather Service, 1992

FIGURE 4

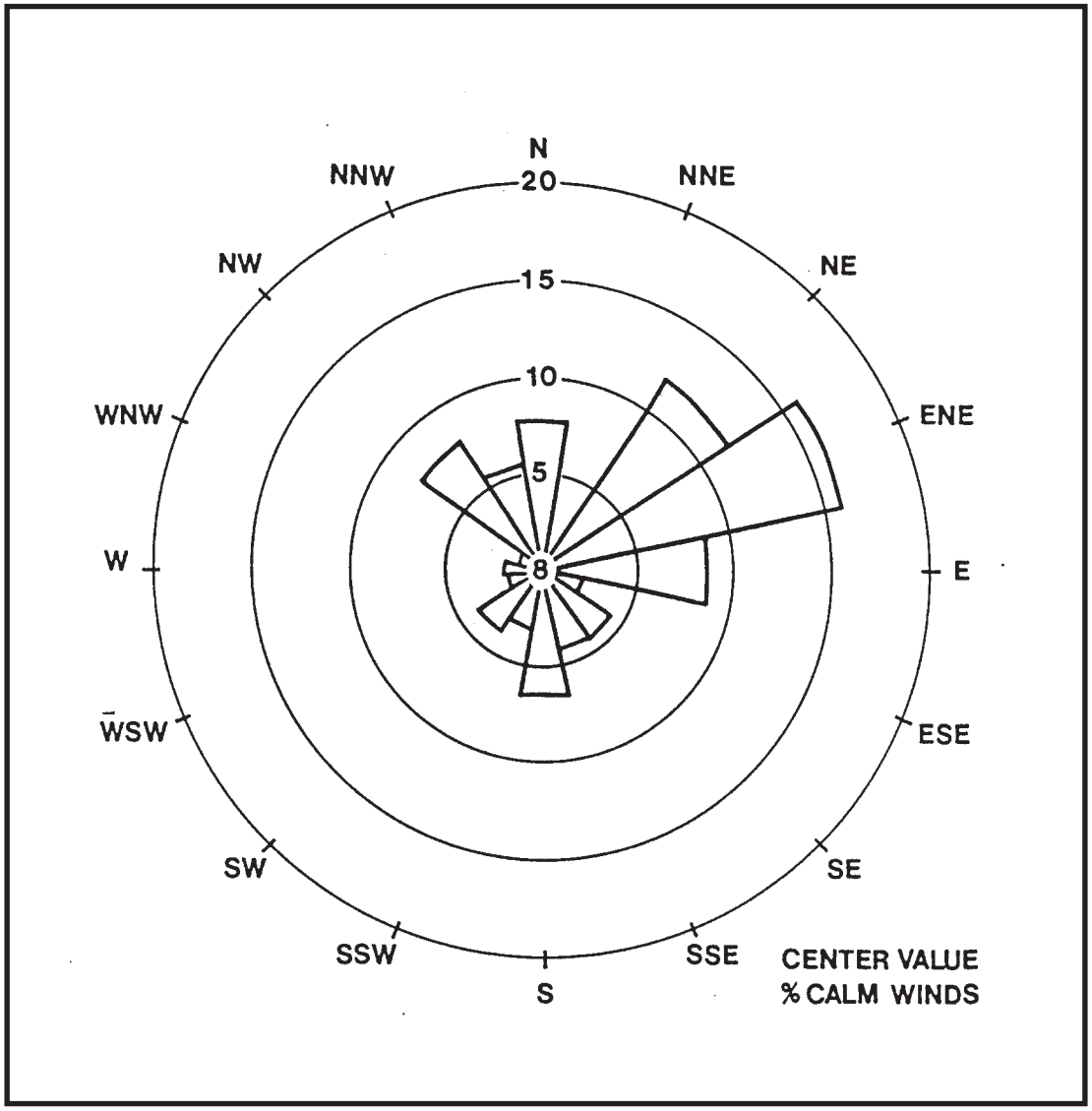
AUGUST WIND ROSE
HONOLULU INTENATIONAL AIRPORT



SOURCE: National Weather Service
Historical Records, 1940-57

FIGURE 5

JANUARY WIND ROSE
HONOLULU INTERNATIONAL AIRPORT



SOURCE: National Weather Service
Historical Records, 1940-57

emissions. EPA studies on fugitive dust emissions from construction sites indicate that about 1.2 tons/acre per month of activity may be expected under conditions of medium activity, moderate soil silt content (30%), and a precipitation/ evaporation (P/E) index of 50 [9, 12].

5.2 Offsite Impacts. In addition to the onsite impacts attributable to construction activity, there will also be offsite impacts due to the operation of concrete and asphalt batching plants needed for construction of buildings and parking areas. Such plants routinely emit particulate matter and other gaseous pollutants; however. it is too early to identify the specific facilities that will be providing these materials and thus the discussion of air quality impacts is necessarily generic. The batch plants which will be producing this concrete and asphalt must be permitted by the Department of Health Clean Air Branch pursuant to state regulations [6]. In order to obtain these permits they must demonstrate their ability to continuously comply with both emission [6] and ambient air quality [4] standards. Under the federal Title V operating permit requirements [13], now incorporated in Hawaii's rules [9], air pollution sources must regularly attest to their compliance with all applicable requirements. A typical concrete batch plant in Hawaii is equipped with fabric filters, i.e., "baghouses" for particulate matter (PM) control. Similarly, a typical asphalt plant is equipped with either a wet venturi scrubber or fabric filters. The efficiency of such controls is normally 95 - 99%.

6. MOBILE SOURCE IMPACTS

6.1 Mobile Source Activity. The traffic analysis report [14] prepared for the proposed project served as the basis for this mobile source impact analysis. Existing and projected future peak-hour traffic volumes for the principal road serving the project site were obtained from that report.

6.2 Emission Factors. Automotive emission factors for carbon monoxide (CO) were generated for calendar years 2010 and 2025 using EPA's Mobile Source Emissions Model (MOBILE-6.2)[15]. To localize the emission factors as much as possible, an age distribution for registered vehicles in the City & County of Honolulu [16] was used in lieu of national statistics. That same age distribution was the basis for the distribution of vehicle miles traveled as well.

6.3 Modeling Methodology. Mobile source air quality modeling has historically focused on estimating concentrations of non-reactive pollutants, primarily carbon monoxide (CO). This has been the case because CO is relatively stable in the atmosphere having a half-life on the order of about one (1) month,[17] and it comprises the largest fraction of automotive emissions. [15]

Using the traffic data provided, modeling was performed for the for the years 2010 and 2025 with and without the project. The EPA guideline model CAL3QHC [18, 19] as revised to allow for use of hourly meteorological data files [20] was employed to estimate near-intersection carbon monoxide concentrations. CO concentrations were estimated at an array of 60 receptor sites, spaced at a

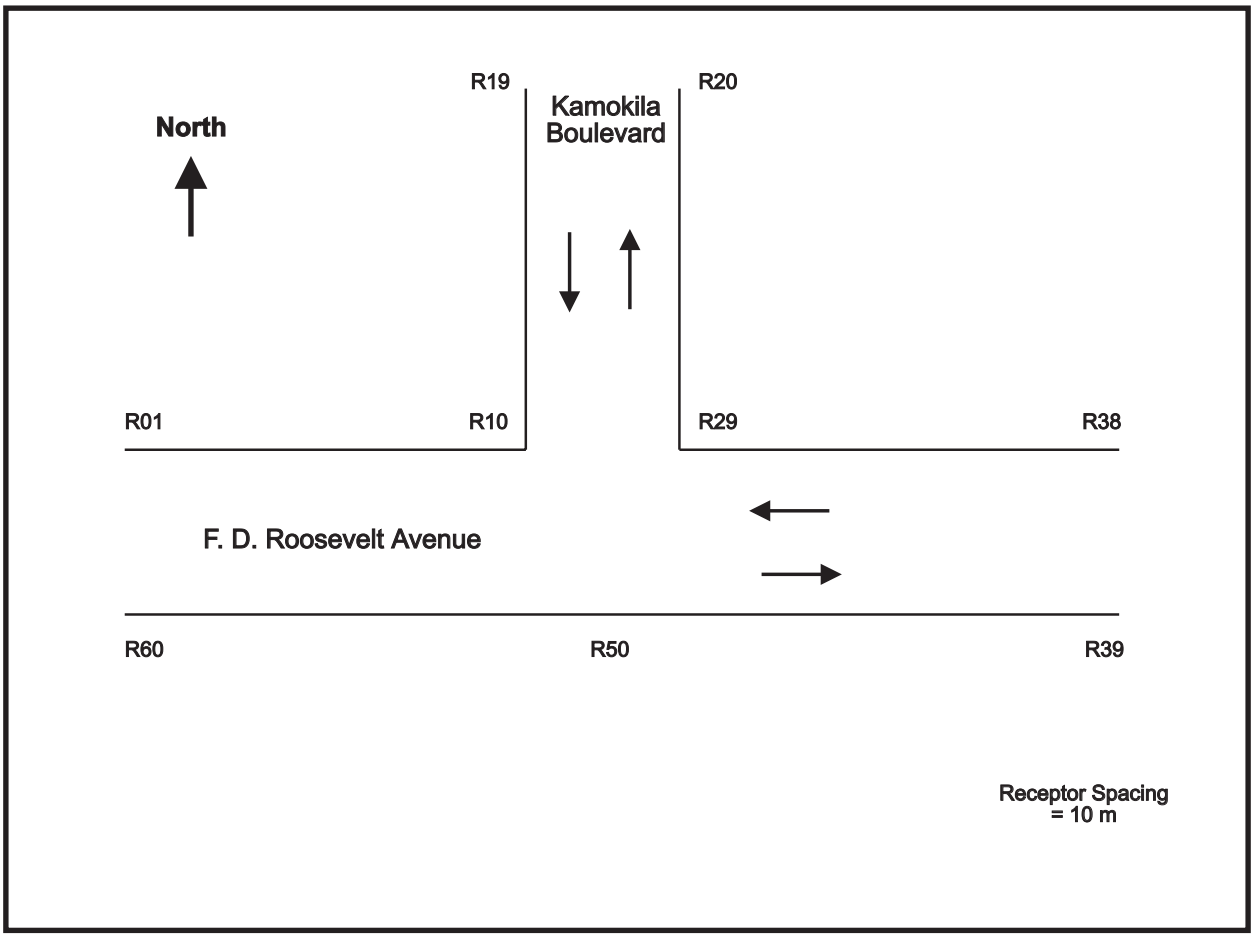
distance of 10 meters along each leg of the Kamokila Boulevard - F.D. Roosevelt Avenue intersection. A background concentration of 0.41 mg/m^3 from the Department of Health's 2004 monitoring data was also used as the background concentration in the modeling. Hourly meteorological data for a.m. and p.m. peak traffic hours used in the model were extracted from National Weather service data collected at the Honolulu International Airport [21] and preprocessed with EPA's PCRAMMET program. [22]

6.4 Results: 1-Hour CO Concentrations. The results of this modeling are summarized in Figure 6. Maximum estimated 1-hour CO concentrations in milligrams per cubic meter (mg/m^3) for each of the evaluated scenarios are presented along with the particular receptor location at which they were predicted. The results suggest that, under *worst case* conditions of meteorology and traffic, both the federal and state 1-hour CO standards would be met at receptor locations 10 meters and beyond the edge of roadways expected to be affected by project-related traffic. The changes in CO levels are insignificant due to the relatively small changes in projected traffic and also the offsetting effect of the federal motor vehicle emissions control program. Vehicle emissions standards for motor vehicles get progressively more stringent over time; thus, older, higher emitting vehicles lost by attrition, are replaced by newer, lower-emitting vehicles which comply with the more stringent standards.

6.5 Results: 8-Hour CO Concentrations. The 8-hour values presented in Figure 6 are very conservative estimates because they are based on averages of the worst case 1-hour values during a.m. and p.m. peak hour traffic and meteorology. Nevertheless, the results are similar to the 1-hour findings in that compliance with state and federal standards is indicated.

FIGURE 6

ESTIMATES OF MAXIMUM 1- AND 8-HOUR CARBON MONOXIDE CONCENTRATIONS
Kamokila Boulevard at Kapolei Parkway
Peak Traffic Hours
2010 - 2025



Estimated Maximum CO Concentrations
(mg/m^3)

Period	2010	2025	Receptors
A.M.	2.6	1.6	49
P.M.	1.1	1.3	49
8-Hr	1.2	1.7	n/a

7. CONCLUSIONS AND MITIGATION

7.1 Short-Term Impacts. Since, as noted in Section 4, the project area is considered to be "semi-arid" by Thornwaite's climatic classification system with a P/E index lower than that associated with the EPA fugitive dust emission factor, there appears to be an increased potential for fugitive dust. It will therefore be important to employ adequate dust control measures during the construction period, particularly during the drier summer months. Dust control could be accomplished through frequent watering of unpaved roadways and areas of exposed soil. The EPA estimates that twice daily watering can reduce fugitive dust emissions by as much as 50% [12]. The soonest possible paving of roadways and parking areas and landscaping of bare areas will also help.

Short-term air quality impacts due to offsite activities supporting the proposed development, i.e., concrete and asphalt production, appear to be *de minimus* due in large part to the high removal of control devices typically found on such production facilities. Furthermore, any emissions will be strictly regulated by the Department of Health permit which each batch plant must have in order to operate.

7.2 Mobile Source Impacts. As reported in Section 6, compliance with federal and state carbon monoxide standards is demonstrated under *worst case* conditions of meteorology and peak hour traffic; thus, no special mitigative measures are required.

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PHASE I
ENVIRONMENTAL SITE ASSESSMENT
KAMOKILA BOULEVARD EXTENSION
TMK: (1) 9-1-016: PORTIONS OF PARCELS 012 AND 032
KAPOLEI, HAWAII 96707

Prepared for:
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June 22, 2005

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ACRONYMS

AST	Aboveground Storage Tank
ASTM	American Society for Testing and Materials
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
CERCLIS	Comprehensive Environmental Response, Compensation and Liability Information System
CORRACTS	TSD facility subject to Corrective Action under RCRA
DLNR	Hawaii State Department of Land and Natural Resources
DOH	Hawaii State Department of Health
EPA	U.S. Environmental Protection Agency
ERNS	Emergency Response Notification System
ESA	Environmental Site Assessment
HWS	State Hazardous Waste Sites
HEER	DOH, Hazard Evaluation and Emergency Response Office
LUST	Leaking Underground Storage Tank
msl	mean sea level
NFRAP	No Further Remedial Action Planned
NGPC	Notice of General Permit Coverage
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
RCRA	Resource Conservation and Recovery Act
RCRIS	Resource Conservation and Recovery (RCRA) Information System
SHWB	DOH, Solid and Hazardous Waste Branch
TMK	Tax Map Key
TPH	Total Petroleum Hydrocarbons
TSD	Treatment, Storage and Disposal
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
UST	Underground Storage Tank

1.0 CERTIFICATIONS AND LIMITATIONS

The findings and conclusions presented in this report are professional opinions based solely upon limited visual observations of the properties and vicinity and upon the interpretation of the historical information and documents available to us and reviewed. This report is intended for the sole use of the City and County of Honolulu, Department of Transportation Services exclusively for the properties indicated. The scope of services performed in execution of this investigation may not be appropriate to satisfy the needs of other users, and any use of this report or the findings and conclusions presented herein is at the sole risk of said user.

Kimura International makes no guarantee or warranty; either expressed or implied, except that our services are consistent with good commercial or customary practices designed to conform to acceptable industry standards. It is impossible to dismiss absolutely the possibility that parts of the project area, or adjacent properties, may be adversely impacted by recognized environmental conditions. There is always a possibility that undisclosed contamination may exist from the improper handling or disposal of hazardous substances or petroleum products at the properties. No warranty or representation, either expressed or implied, is included or intended in its proposal, contracts or reports.

Opinions presented in this report apply only to the property as outlined and present the conditions present at the time of our investigation; they cannot necessarily apply to site changes that may occur after the completion of the site inspection.

Prepared By:

Bryce Hataoka
Project Manager

June 22, 2005
Date

2.0 EXECUTIVE SUMMARY

This report presents the results of Kimura International's Phase I Environmental Site Assessment (Phase I ESA), performed in conformance with the scope and limitations of the American Society for Testing and Materials (ASTM) Practice E 1527-00.

The following summarizes the independent conclusions representing Kimura International's best professional judgment based on information and data available. Information regarding operational conditions and data provided by the Client or their representatives have been assumed to be correct and complete. The conclusions presented are based on the conditions that existed at the time of the assessment.

The subject properties ("project area"), identified as portions of TMK: (1) 9-1-016 parcel 12 and (1) 9-1-16 parcel 32 are located in Kapolei, Hawaii, on the island of Oahu (Appendix B, Figure 1), at an elevation of approximately 60 feet above mean sea level (msl). The project area encompasses approximately 0.5 acre of land, which will extend Kamokila Boulevard to Franklin D. Roosevelt Avenue to the south (Appendix B, Figure 2).

TABLE 1: GENERAL SITE INFORMATION

TMK	9-1-016 parcel 12 (portion)	9-1-016 parcel 32 (portion)
Address	Kalaeloa Boulevard	Renton Road
Operator	None	The Hawaiian Railway
Land Owner	James Campbell Estate	State of Hawaii
Historic Operations	Sugar cultivation	Railroad
Area	4.737 acres	6.62 acres
Activities	Currently none	Railroad
Potential Hazardous Substances	Petroleum	None
Buildings/construction	Fuel pipeline easement	Railroad tracks

A database search was conducted for the subject properties and other parcels located around the project area. The database search identified areas in and around the properties that posed potential environmental concern. Files for the parcels identified in the database search were obtained from the appropriate Department of Health (DOH) offices. The files were reviewed and evaluated. The file review found that fuel pipelines connecting the Chevron refinery with the tank farm at Honolulu Harbor pass through and just north of the project area. A review of the DOH database indicates that there has not been any releases or spills associated with the pipelines at the project area. However, the project will cross over the pipelines and the location of the pipelines is essential for the project to be completed without incident. In addition, underground utilities associated with the roadway may impact upon the pipelines cathodic protection system. Coordination with Chevron Hawaii is essential.

Based on records review, site reconnaissance, and potential future use, Kimura International believes that the only potential for adverse environmental conditions based on the information gathered is with the fuel pipeline. No testing is recommended at this time. However, a survey of the project area must include the pipeline locations and the project work around the pipeline should proceed with caution.

3.0 INTRODUCTION

3.1 PURPOSE

Kimura International has completed a Phase I ESA of portions of parcels designated by Tax Map Key numbers 9-1-16:012 and 9-1-16:032. The parcels are owned by the Estate of James Campbell and the State of Hawaii, respectively. This Phase I ESA was prepared for the City and County of Honolulu, Department of Transportation Services for the purposes of extending Kamokila Boulevard to Franklin D. Roosevelt Avenue.

The purpose of this Phase I ESA was to identify whether surficial or historical evidence indicate the presence of recognized environmental conditions, as defined by ASTM E 1527, that may adversely impact the property and whether additional investigation is warranted.

3.2 SCOPE OF WORK

This Phase I ESA was conducted using the scope and limitations of ASTM E 1527. The information provided is assumed to be correct and complete, unless noted otherwise. The scope of work included the following:

- Purchased and reviewed a commercial third party report, which summarizes available regulatory information regarding the property and the surrounding area. Search distances and databases suggested in the ASTM standard were followed.
- Described the size of the parcels being assessed.
- Described the construction and size of all existing structures.
- Evaluated property history and land use, including aerial photographs and maps.
- Interviewed appropriate employees regarding past and current use of the properties.
- Contacted certain public officials regarding environmental conditions at the properties and in the vicinity of the properties.
- Conducted a site reconnaissance noting general housekeeping, waste handling and disposal practices.
- Prepared this report, which includes an opinion as to whether evidence indicates the presence of recognized environmental conditions that may impact the properties and whether additional investigations are recommended.

4.0 SITE DESCRIPTION

4.1 LOCATION AND DESCRIPTION

The project area (portions of TMK: 9-1-16:012 and 9-1-16:032) consists of approximately 0.5 acre of land in Kapolei on the southwestern end of the island of Oahu (Appendix B, Figure 1). The subject parcels are classified as unimproved residential and roadway. The project area is bounded by Kapolei Boulevard to the north, Kalaeloa Boulevard to the west, unimproved residentially zoned lands to the east, and by Franklin D. Roosevelt Avenue to the south (Appendix B, Figure 2).

The area is characterized by persistent northeasterly trade winds that result in an annual rainfall of less than 20 inches per year. The annual temperatures range from 62 to 90 degrees Fahrenheit (Atlas, 1998). The project area had previously been used for the cultivation of sugar cane by Ewa Plantation Company, Ewa Sugar Company, and Oahu Sugar Company, and the Oahu Railway & Land Company railroad. Railroad tracks that date back to early 1900's and currently used by The Hawaiian Railway Society cross through the project area just south of Renton Road. Jensen Siding is located in the project area. (Note: A "siding" is a short railroad track connected with the main track.)

4.2 SITE AND VICINITY GENERAL CHARACTERISTICS

4.2.1 SITE TOPOGRAPHY AND DRAINAGE

Topographic map coverage of the site vicinity is provided by 3-D TopoQuads from DeLorme, 1998. The elevation of the subject properties is approximately 60 feet above mean sea level. Generally, the gradient of the subject properties and immediate surrounding areas is only slightly to the south/southwest. The nearest body of water is the Pacific Ocean, located approximately 1.15 mile to the west. A large drainage culvert that leads to the ocean is located just southwest of the project area.

The Kapolei area is in the process of development and is composed of single-family dwellings and commercial businesses. The project area is undeveloped and is currently covered with grass and low-lying vegetation, which has recently been grubbed. Surface water drains to the south/southwest.

The project area is located on the Ewa plain in the southwestern end of Oahu. The Ewa plain is the result of thousands of years of ocean level changes and coral reef growth followed by alluvial run-on. The prevailing winds are northeast tradewinds. Rainfall over the area occurs only sporadically and the average annual rainfall is approximately 20 inches. The project area is designated as in the 500-year flood zone.

4.2.2 GEOLOGY

The island of Oahu is the third largest of the Hawaiian Islands. Oahu consists of the Waianae and Koolau mountain ranges, the Schofield plateau, and the coastal plains. The younger Koolau mountains to the east overlap the older Waianae mountains to the west forming a central (Schofield) plateau. The project area is located on the southwestern corner of the island over the southern coastal plain. The coastal plain is composed of fine-grained alluvial deposits interspersed with coral reefs built over the basalt core (Macdonald et al).

4.2.3 HYDROGEOLOGY

The primary drinking water in the Hawaiian Islands is drawn from basal groundwater. Basal groundwater is formed by rainwater percolating down through the residual soils and permeable volcanic rock. The water forms as a lens of drinking water floating on seawater (Macdonald et al).

There are two aquifers beneath the project area. The upper aquifer is listed as unconfined (the aquifer is not confined under pressure beneath relatively impermeable rocks or soil), and sedimentary-type aquifer (non-volcanic lithology). The groundwater in this upper aquifer is currently in use, considered replaceable, moderately saline, highly vulnerable to contamination, and neither of drinking water quality nor ecologically important. The lower, deep aquifer is listed as confined within flank-structured (horizontal) basalts. This lower groundwater is of low salinity, considered neither of drinking water quality nor ecologically important, but currently in use. The deep aquifer is irreplaceable, but of low vulnerability to contamination (Mink and Lau). The project area is located close to the ocean and there are no drinking water wells near or down gradient of the project area. However, a demonstration Desalination Plant is located approximately 1200 feet to the west. The Desalination Plant is not currently in operation, but drew water from the upper aquifer.

4.2.4 SOILS

The project area rests on land along the coastal plain of Oahu with soil that is coralline. The United States Department of Agriculture (USDA) classifies the soil as Mamala stony silty clay loam (coral limestone and calcareous sand with alluvium). The soil type is derived as alluvium from igneous rock and is deposited from upper elevations onto the coastal plain as the sea level recedes.

The Mamala series soil is well-drained and found at nearly level to moderately sloping lands. Stones, mostly coral rock fragments, are common in the surface layer and in the profile (USDA).

5.0 RECORDS REVIEWED

5.1 STANDARD ENVIRONMENTAL RECORD SOURCES

To obtain information concerning recognized environmental conditions at or near the project area, Kimura International contracted Environmental Data Resources, Inc. (EDR) to conduct an environmental database search. EDR is a company that specializes in the review of public regulatory environmental databases in accordance with ASTM E 1527. Lists were reviewed for incidents and releases listed at the project area and at sites according to or exceeding the ASTM recommended search distances (Table 2). The complete EDR report is located in Appendix A.

TABLE 2: ASTM STANDARD ENVIRONMENTAL RECORD SOURCES AND RECOMMENDED SEARCH DISTANCES

Environmental Database Sources*	ASTM Standard Search Distances (miles)
Federal NPL Site List	1.0
Proposed NPL	1.0
Federal CERCLIS List	0.5
Federal CERCLIS NFRAP Site List	0.25
Federal RCRA CORRACTS Facilities List	1.0
Federal RCRA non-CORRACTS TSD Facilities List	0.5
Federal RCRA Generators List	0.25
Federal ERNS List**	Property only
State-Equivalent NPL	1.0
State-Equivalent CERCLIS	0.5
State landfill and/or Solid Waste Disposal Site Lists	0.5
State Leaking UST	0.5
State registered UST List	0.25

*See acronyms list for definitions.

**Hawaii DOH does not typically submit information into the ERNS system. See Section 5.2.3 below for related information that DOH HEER compiles in lieu of ERNS.

5.1.1 FEDERAL NPL

The National Priorities List (NPL) is a subset of the CERCLIS or the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Information System (CERCLIS). The NPL lists over 1,150 of the nation's most dangerous uncontrolled or hazardous waste sites requiring cleanup. There are no NPL sites identified within a one-mile radius of the project area.

5.1.2 FEDERAL CERCLIS

CERCLIS is a Federal database maintaining national information on over 15,000 sites identified as hazardous or potentially hazardous, which may require action. These sites are currently being investigated or an investigation has been completed regarding the release of hazardous substances. The most serious of this list as ranked by the Hazard Ranking System are eligible for listing on the NPL. There is only one site identified within a one-half mile radius of the project area: The Barbers Point Naval Air Station is listed on CERCLIS and a Preliminary Assessment and Site Inspection have been conducted on the facility in 1980 and 1989, respectively. Since that time the naval base has undergone base closure activities. The majority of the lands have been transferred to the State of Hawaii after investigation and cleanup have been completed.

5.1.3 FEDERAL RCRIS

The Resource Conservation and Recovery Act (RCRA) Information System (RCRIS) is a national system used to track events and activities that fall under the jurisdiction of RCRA. There are three significant subsets to RCRIS:

- RCRA treatment, storage, and disposal facilities (TSDs). Includes facilities that treat, store, dispose, or incinerate hazardous waste.
- RCRA generators. Includes hazardous waste generators, which create more than 100 kilograms of hazardous waste per month or meet other RCRA requirements.
- RCRA Corrective Action Sites (CORRACTS). Includes sites with reported corrective actions.

The database search identified no RCRA TSD, RCRA generator, or CORRACTS within a quarter mile of the project area.

5.1.4 FEDERAL ERNS

The Emergency Response Notification System (ERNS) is a national database, which contains information on specific notifications of releases of oil and hazardous substances into the environment. The system stores data regarding the site of the spill, the material released, and the medium into which it occurred. The database search identified no ERNS data within a quarter-mile radius of the project area.

5.1.5 STATE EQUIVALENT NPL AND CERCLIS

The State of Hawaii lists all of their sites where known or suspected contamination may exist on their Quick Lookup table. The table contains sites that have either been investigated or are currently under investigation by the HDOH for the release, or

threatened release of hazardous substances. Once a site is placed into their database, it may be subjected to several levels of review and evaluation, and ultimately placed on CERCLIS and the NPL. A review of Quick Lookup table found two sites within 0.5 mile of the project area.

TABLE 3: QUICK LOOKUP TABLE SEARCH

File	Location	Substance	Status
NA	Kapolei Fire Station, 2020 Lauwiliwili Ave.	NA	NA
HEPCRA	Aloha 7-Eleven Kapolei, 1000 Kamokila Blvd.	Gasoline	NA

NA = Not available

The Hawaii Emergency Planning and Community Right to Know Act (HEPCRA) database lists all of the facilities that store chemicals above reportable quantities and the 7-Eleven Kapolei store is a HEPCRA facility. The Kapolei Fire Station is listed on the Quick Lookup table but no files were found. None of these facilities is expected to have an impact upon the project area.

5.1.6 STATE LANDFILL AND/OR SOLID WASTE DISPOSAL SITE LISTS

The DOH, Solid and Hazardous Waste Branch (SHWB) has on record, facilities that have received a solid waste management permit, including solid waste landfills, transfer stations, and incinerators. The database search identified no such facilities within one-mile of the project area.

5.1.7 STATE USTS

Certain underground storage tanks (USTs) are required to be registered by federal or state regulations. For regulated USTs, notifications must be filed for existing USTs, USTs closed in place, and new USTs. There is one (1) UST listed on the State's database within a quarter-mile of the project area. The Barbers Point Central Office is mapped out in the colorized EDR report in Appendix A. The EDR report also identified the 7-Eleven store located at 1000 Kamokila Boulevard. However, the 7-Eleven store is approximately 0.5 mile away. The USTs are listed in Table 3 below.

TABLE 4: USTS WITHIN A QUARTER MILE RADIUS OF THE PROJECT AREA

Facility ID	Name	Address	Tank Size (gallons)	Contents	Installed	Status
9-203295	Barbers Point Central Office	FD Roosevelt and Copahee	550	Diesel	5/1/87	IU
9-203179	7-Eleven Kapolei, Aloha Petroleum	1000 Kamokila Blvd.	10,000 10,000	Gasoline Gasoline	2/2/96 2/2/96	IU IU

IU = In Use

The database also indicates that there are no other USTs within a quarter mile radius of the project area.

5.1.8 STATE LUSTS

The DOH maintains a database on leaking underground storage tanks (LUSTs). The database is a comprehensive listing of reported LUSTs in Hawaii. The database indicates that there is no LUST within a half-mile radius of the project area.

5.2 ADDITIONAL ENVIRONMENTAL RECORD SOURCES

5.2.1 CITY AND COUNTY OF HONOLULU BUILDING DEPARTMENT RECORDS

The City and County of Honolulu, Building Department keeps current building permits on file. Old building plans are not kept on file and there are no new building plans on file for the project area.

5.2.2 HEER RELEASES LIST

Kimura International reviewed the DOH HEER Releases List for the project area. There are eight (8) records within a radius of the project area that could be an impact.

TABLE 5: SPILLS AND RELEASES NEAR THE PROJECT AREA

Release ID	Date	Location	Substance	Status
19900219-1	2/19/90	0.25 mile mauka of Kalaeloa Blvd.	Incinerator ash from H-Power	NFA
19920909-7	9/9/92	Kalaeloa Blvd., Chevron White Oil Pipeline	Gasoline, jet fuel	NFA
19991214	12/14/99	Kalaeloa Blvd. and Lauwiliwili, truck fuel tank	Diesel	NFA
19960129-2117	1/29/96	Kapolei area, unknown gas odor/smell	Unknown	NFA
19930114	1/14/93	Kapolei Pipeline fuel spill, Kamokila Blvd.	Jet fuel	NFA
20000912-1330	9/12/00	Off Renton Road, abandoned 2 X 55 gallon drums	UST pipe rinsate	NA

TABLE 5 CONTINUED

Release ID	Date	Location	Substance	Status
20000912-1315	9/12/00	Off Renton Road, abandoned 31 X 5-gallon white buckets	Not available	NA
19970711-1300	7/11/97	Renton Road, drum	Black liquid	NA

NFA = No further action
NA = Not available

None of these reported releases is expected to have any impacts upon the project area.

5.2.3 NPDES

The National Pollutant Discharge Elimination System (NPDES) program regulates discharges associated with industrial activities to surface water. Currently, the project area does not have an NPDES permit. An NPDES permit is not required by the current operations at the project area.

5.3 AERIAL PHOTOGRAPHS AND HISTORIC MAPS SOURCES

Aerial photographs and maps are not available at the University of Hawaii, Hamilton Library Map Collection since the December 2004 flooding. Kimura International obtained aerial photographs and topographic maps from EDR. Topograhic maps of the project area were obtained for the years 1962, 1968, 1983 and 1998 (Appendix B, Figures 4, 5, 6 & 7).

Aerial photos were available and they were for the years: 1974, 1985, and 1992. All photos covered a large area, and were difficult to distinguish details of the project area (Appendix B, Figure 8, 9, and 10). Aerial photographs and maps were reviewed to identify historic uses of the property and surrounding areas (EDR).

The 1962 topographic map shows the Barbers Point Naval Air Station, Honokai Hale, and Campbell Industrial Park in the surrounding area. The project area is under sugar cane cultivation. By 1968, Makakilo City is under development. The project area is still agricultural. The 1974 aerial photograph shows most of the surrounding area to be under agricultural use. In the 1983 map, Makakilo City, Honokai Hale, and Campbell Industrial Park are all expanding. The project area is no longer under active agriculture, but is still undeveloped. The 1985 aerial photograph still shows vegetation. The 1992 aerial photograph shows the beginning of the Kapolei development to the north. By 1998, Kapolei is further developed and Kamokila Boulevard is present. The surrounding development has encroached upon the project area.

A review of the University of Hawaii, Hamilton Library found no Sanborn maps for this area.

5.4 OWNERSHIP HISTORY INFORMATION

Review of property records revealed that the land identified as TMK (1) 9-1-016 Parcel 012 has been under the ownership of the James Campbell Trust Estate since the 1800's. The property identified as TMK: (1) 9-1-16 Parcel 032 had been under the ownership of Oahu Railway & Land Co. prior to 1942 as part of the railway that served the sugar plantations.

TABLE 6: OWNERSHIP/LESSEE HISTORY 9-1-016:005

Date	Landowner	Lessee	Activity
1942	James Campbell Trust Estate	Ewa Plantation Company	32.816 acres
For 1954			0.092 acre subdivided to 9116-11; 4.737 acres subdivided to 9116-12; 27.987 acres

TABLE 7: OWNERSHIP/LESSEE HISTORY 9-1-016:012

Date	Landowner	Lessee	Activity
1954	James Campbell Trust Estate	Ewa Plantation Co.	4.737 acres from 9-1-16:05.
5/21/68		Ewa Sugar Co., Inc.	Cert./merger
4/9/70		Oahu Sugar Company, Ltd.	Assignment of lease

In 1954, 4.737 acres was subdivided from the 32.816 acres of parcel 5 into a new parcel 12. James Campbell Trust Estate owns both parcels. Parcel 12 continued to be leased to Ewa Plantation. It is not clear whether parcel 12 was actively used for sugar cane cultivation. The 1974 aerial photograph of the area does show sugar cane on the parcel. In 1968, Ewa Plantation merged to Ewa Sugar Company, Inc. In 1970, it merged with Oahu Sugar Company of Waipahu. The surrounding area continued in sugar cane production. The only potential hazardous substance that may be associated with agricultural usage is the application of herbicides. However, the pesticide storage and mixing area for the plantation is located approximately 3 miles to the northeast. Based on previous investigations, including the Village Park study conducted by the Hawaii Department of Health, the residual levels of pesticides found in soil from legal application after many years of remaining fallow are levels of non-detection or well below any health based standards. Therefore, any pesticide that may have been applied

during the time of sugar cultivation has degraded to levels that will not pose a health threat.

TABLE 8: OWNERSHIP/LESSEE HISTORY 9-1-016:03

Date	Landowner	Lessee	Activity
1942	Oahu Railway & Land Co.		14.37 ac
3/16/51	United State of America		Deed from OR&L 14.37 ac
11/4/63			Grant of easement to Ewa Plantation Co. over 40 feet wide (easement)
6/5/80	State of Hawaii, Dept. of Transportation		From USA. 7.63 ac to 9916-31 (new); 6.62 ac to 9916-32 (new) 0.12

TABLE 9: OWNERSHIP/LESSEE HISTORY 9-1-016:032

Date	Landowner	Lessee	Activity
1942	Oahu Railway & Land Co.		Railroad tracks. 14.37 acres under TMK: 9-1-16:003.
3/16/51	United States of America		Acquired from OR&L Co. 14.37 acres
11/4/63			Easement granted to Ewa Plantation.
1981	United States of America		TMK: 9-1-16:032, 6.62 acres from 9-1-16:003.
6/5/80	State of Hawaii		Railway transferred to State of Hawaii, Dept. of Transportation.

Parcel 32 was used by the Oahu Railway & Land (OR&L) Company as part of their railroad tracks. OR&L operated from 1890 to 1947. The railroad tracks are still used today by the Hawaiian Railway Society. The Hawaiian Railway Society formed in 1970. The parcel does not have any known hazardous substance usage. In the past, used oil has been applied to railroad tracks and to dirt roads to keep weeds and dust down. This practice, however, was mainly along heavily used areas and not in agricultural areas. More recently, pesticides may have been applied for weed control. However, the railroad was not in operations between 1947 to sometime after 1970. It is unlikely that used oil or pesticides were applied to the railway due to the location and time of operations. Any oil or pesticides that may have been used would have degraded to levels that do not pose a health threat. Herbicides used today have short half-lives and degrade quickly.

In 1972, the state facilitated the development of an energy corridor through the project area. The energy corridor allowed for the installation of fuel pipelines to be set underground and transports fuel from the refineries in Campbell Industrial Park to tank farms and distribution centers in Honolulu. The pipelines are located on both sides of the railroad tracks. Petroleum products such as gasoline, jet fuel, diesel, and fuel oil have

been sent through the energy corridor over the years. There have been spills and leaks associated with the pipelines, but none are reported in or near the project area. The pipelines have cathodic protection to prevent corrosion, routine maintenance and periodic testing.

The parcels had been owned or leased to two small groups of related land users over the years. They are the sugar companies and government agencies. Currently, the project area is in the process of being acquired by the City and County of Honolulu for the development of the Kamokila Boulevard extension.

6.0 SITE RECONNAISSANCE

6.1 CHEMICALS, HAZARDOUS MATERIALS, AND HAZARDOUS WASTES

Kimura International performed a site reconnaissance of the project area on June 15, 2005 in order to complete a visual survey of the area. At the time of the site reconnaissance, the area was open and a walk through of the project area was conducted. There were no visible signs of any spills or releases of hazardous substances. The area from Renton Road to the fence along Franklin D. Roosevelt Avenue has been cleared of vegetation and leveled.

Signage for Chevron's fuel pipelines are located approximately 75 feet west of the project area. Signs are located on both sides of the railroad tracks. The exact location of the fuel pipelines is not clear. Phone numbers are posted for information on the pipelines and in cases of emergency. There is also a large metal pole for the power lines that appears to be located in the middle of the project area.

6.2 LEAD AND ASBESTOS-CONTAINING MATERIALS

A lead or asbestos survey was not included as part of the scope of work for this Phase I ESA. There are no buildings or structures to inspect for lead-based paints or asbestos.

6.3 DIELECTRIC FLUID CONTAINING EQUIPMENT

A visual inspection for electrical equipment that may use fluid containing Poly-Chlorinated Biphenyls (PCBs) was conducted. No transformers were observed in the project area.

6.4 SANITARY WASTEWATER AND STORMWATER

There is no wastewater derived from the project area. There is no NPDES permit currently issued for this project. The project area is not located within the Tsunami Evacuation Zone. The topography of the project area is graded slightly to the south and runoff drainage is towards Franklin D. Roosevelt Avenue. Sewer lines and water lines are located just north of the project area on the adjacent property.

7.0 INTERVIEWS

An interview with a person familiar with the Property and surrounding area was also conducted to obtain information about the facility. The following individual was interviewed by Kimura International to obtain information related to use of the property and surrounding area:

Ms. Mary Emerson, James Campbell Trust Estate

Ms. Emerson works for the Campbell Estate and provided information regarding the property. She provided Kimura International with the following information:

- The property does not have a history of being leased or used by anyone for any purpose.
- The energy corridor passes through the area and Chevron's pipelines are located there. Coordination for the project work must be done with Chevron.

Mr. Wilson Rivera, Pipeline Specialist, Chevron Hawaii

Mr. Rivera is the pipeline specialist for Chevron Hawaii. He provided information regarding the general location of the pipelines. He provided Kimura International with the following information:

- Mr. Rivera informed Kimura International that there are pipelines along both sides of the railway tracks. Pipes are located mauka of the tracks under Renton Road and pipes are also located approximately 10 feet makai of the railroad tracks.
- Chevron has guidelines for any work done above or near the pipelines due to potential for accidents.
- Chevron will also mark the location of the pipes if the project area could be surveyed. The depth of the pipes would also be provided.

8.0 CONCLUSIONS & RECOMMENDATIONS

Kimura International has completed a Phase I ESA in conformance with the scope and limitations of ASTM E 1527 of the Site located on the western portions of parcels designated by Tax Map Key numbers 9-1-16:012 and 9-1-16:032, Kapolei, Hawaii. Based upon the interview, records review, and the site reconnaissance, it is Kimura International's opinion that there are no adverse environmental hazards on the subject property. However, the presence of the fuel pipeline poses a potential problem and work must proceed with close coordination between the City, project contractors and Chevron.

9.0 REFERENCES

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Appendix **A**

ENVIRONMENTAL DATA RESOURCES REPORT

The EDR Radius Map™ Report

Kamokila Extension
Kamokila Boulevard
Kapolei, HI 96707

Inquiry Number: 01243783.1r

August 04, 2004

EDR™ Environmental Data Resources Inc

The Standard in Environmental Risk Management Information

440 Wheelers Farms Road
Milford, Connecticut 06460

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

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GEOCHECK ADDENDUM

GeoCheck - Not Requested

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc. (EDR). The report meets the government records search requirements of ASTM Standard Practice for Environmental Site Assessments, E 1527-00. Search distances are per ASTM standard or custom distances requested by the user.

TARGET PROPERTY INFORMATION

ADDRESS

KAMOKILA BOULEVARD
KAPOLEI, HI 96707

COORDINATES

Latitude (North):	21.327100 - 21˚ 19' 37.6"
Longitude (West):	158.086700 - 158˚ 5' 12.1"
Universal Tranverse Mercator:	Zone 4
UTM X (Meters):	594714.3
UTM Y (Meters):	2358485.0
Elevation:	66 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property:	21158-C1 EWA, HI
Source:	USGS 7.5 min quad index

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the ASTM E 1527-00 search radius around the target property for the following databases:

FEDERAL ASTM STANDARD

NPL..... National Priority List
Proposed NPL..... Proposed National Priority List Sites
CERCLIS..... Comprehensive Environmental Response, Compensation, and Liability Information System
CERC-NFRAP..... CERCLIS No Further Remedial Action Planned
CORRACTS..... Corrective Action Report
RCRIS-TSD..... Resource Conservation and Recovery Information System
RCRIS-LQG..... Resource Conservation and Recovery Information System
RCRIS-SQG..... Resource Conservation and Recovery Information System
ERNS..... Emergency Response Notification System

STATE ASTM STANDARD

SWF/LF..... Permitted Landfills in the State of Hawaii

EXECUTIVE SUMMARY

LUST ..... Leaking Underground Storage Tank Database
VCP ..... Voluntary Response Program Sites

FEDERAL ASTM SUPPLEMENTAL

CONSENT ..... Superfund (CERCLA) Consent Decrees
ROD ..... Records Of Decision
Delisted NPL ..... National Priority List Deletions
FINDS ..... Facility Index System/Facility Identification Initiative Program Summary Report
HMIRS ..... Hazardous Materials Information Reporting System
MLTS ..... Material Licensing Tracking System
MINES ..... Mines Master Index File
NPL Liens ..... Federal Superfund Liens
PADS ..... PCB Activity Database System
UMTRA ..... Uranium Mill Tailings Sites
FUDS ..... Formerly Used Defense Sites
INDIAN RESERV ..... Indian Reservations
US BROWNFIELDS ..... A Listing of Brownfields Sites
RAATS ..... RCRA Administrative Action Tracking System
TRIS ..... Toxic Chemical Release Inventory System
TSCA ..... Toxic Substances Control Act
SSTS ..... Section 7 Tracking Systems
FTTS INSP ..... FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

STATE OR LOCAL ASTM SUPPLEMENTAL

SPILLS ..... Release Notifications

EDR PROPRIETARY HISTORICAL DATABASES

Coal Gas ..... Former Manufactured Gas (Coal Gas) Sites

BROWNFIELDS DATABASES

US BROWNFIELDS ..... A Listing of Brownfields Sites
BROWNFIELDS ..... Brownfields Sites
VCP ..... Voluntary Response Program Sites

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

STATE ASTM STANDARD

SHWS: The State Hazardous Waste Sites records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. The data come from the Department of Health.

A review of the SHWS list, as provided by EDR, and dated 07/12/2001 has revealed that there is 1 SHWS site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
CAMPBELL INDUSTRIAL PARK 06/24	1001 KAMUKILA BOULEVARD	1/8 - 1/4 N	A1	6

UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the Department of Health's Listing of Underground Storage Tanks.

A review of the UST list, as provided by EDR, and dated 05/01/2004 has revealed that there is 1 UST site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
7-11 KAPOLEI	1000 KAMOKILA BLVD	1/8 - 1/4 N	A2	7

FEDERAL ASTM SUPPLEMENTAL

Federal Lands: Consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

A review of the DOD list, as provided by EDR, and dated 10/01/2003 has revealed that there is 1 DOD site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
BARBERS POINT NAVAL AIR STATIO		0 - 1/8 SSW	0	6

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped:

Site Name	Database(s)
CHEMWOOD TREATMENT CO, INC.	SHWS
HAWAII PROJECT MANAGEMENT (HPM)/HAW	SHWS
HANUA STREET FUGITIVE OIL	SHWS, SPILLS
TEXACO MALAKOLE STREET PIPELINE EXC	SHWS, SPILLS
DEEP DRAFT HARBOR PIER 5 CRUDE OIL	SHWS
SINGLE BUOY MOORING BARBERS POINT H	SHWS
HAWAII METAL RECYCLING CO	CERCLIS, RCRIS-SQG, FINDS
KANEOHE BAY OIL DIESEL SIGHTED ALON	SWF/LF, SPILLS
WAIMANALO GULCH LANDFILL, EWA	SWF/LF
PACNAVFACENGCOM BARBERS POINT (BRAC)	RCRIS-SQG, FINDS
DIP LEG 2 THE GAS COMPANY	RCRIS-SQG, FINDS
BARBERS POINT HARBOR	RCRIS-SQG, FINDS
KAMOKILA PARK WHITE POWDER ON GROUND	FINDS

OVERVIEW MAP - 01243783.1r - Kimura International

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Coal Gasification Sites
- National Priority List Sites
- Landfill Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- Federal Wetlands

TARGET PROPERTY:	Kamokila Extension	CUSTOMER:	Kimura International
ADDRESS:	Kamokila Boulevard	CONTACT:	Bryce Hataoka
CITY/STATE/ZIP:	Kapolei HI 96707	INQUIRY #:	01243783.1r
LAT/LONG:	21.3271 / 158.0867	DATE:	August 04, 2004 8:16 pm

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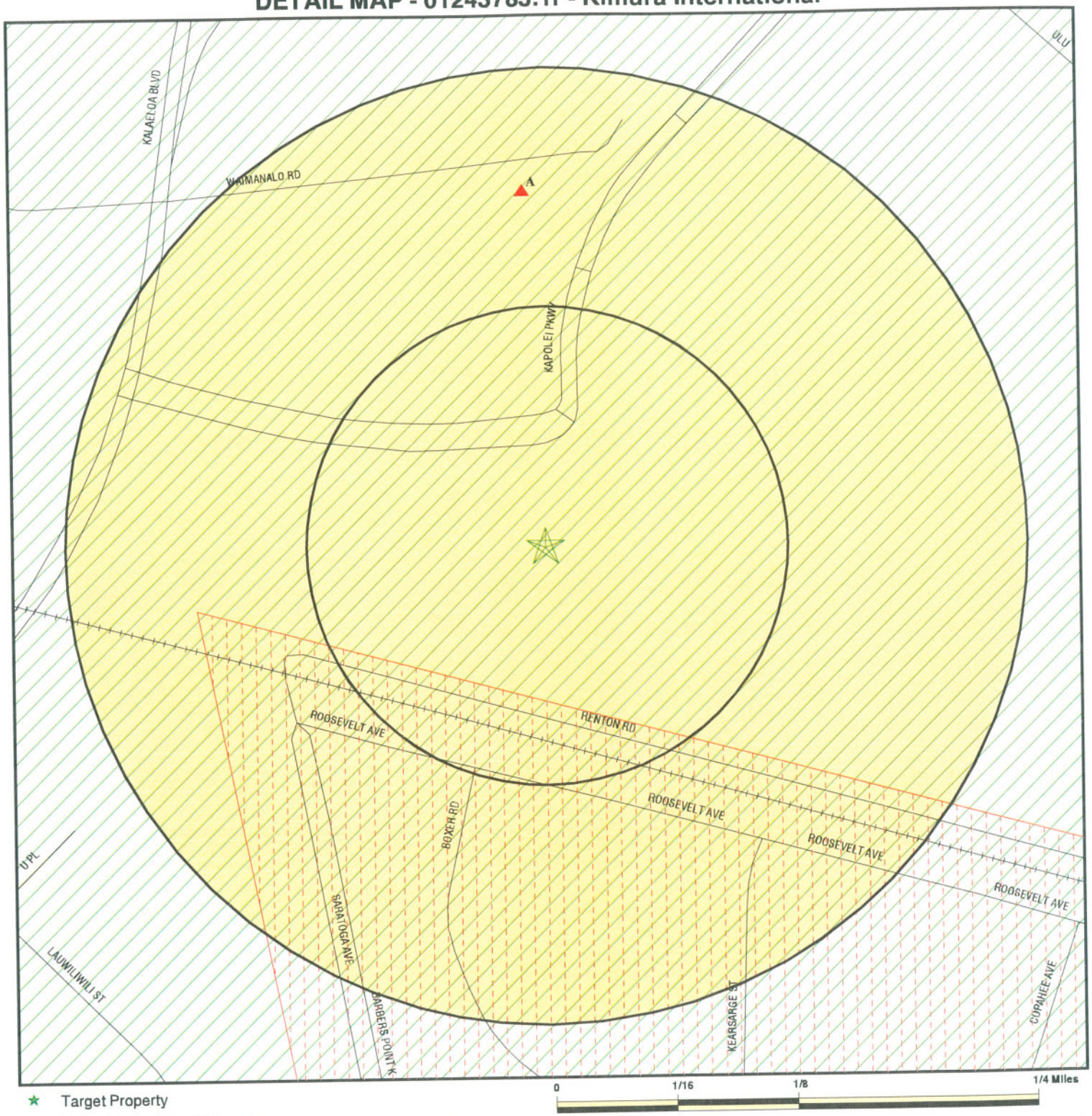
DETAIL MAP - 01243783.1r - Kimura International



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- Coal Gasification Sites
- Sensitive Receptors
- National Priority List Sites
- Landfill Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone

TARGET PROPERTY:	Kamokila Extension	CUSTOMER:	Kimura International
ADDRESS:	Kamokila Boulevard	CONTACT:	Bryce Hataoka
CITY/STATE/ZIP:	Kapolei HI 96707	INQUIRY #:	01243783.1r
LAT/LONG:	21.3271 / 158.0867	DATE:	August 04, 2004 8:16 pm

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MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
FEDERAL ASTM STANDARD								
NPL		1.000	0	0	0	0	NR	0
Proposed NPL		1.000	0	0	0	0	NR	0
CERCLIS		0.500	0	0	0	NR	NR	0
CERC-NFRAP		0.250	0	0	NR	NR	NR	0
CORRACTS		1.000	0	0	0	0	NR	0
RCRIS-TSD		0.500	0	0	0	NR	NR	0
RCRIS Lg. Quan. Gen.		0.250	0	0	NR	NR	NR	0
RCRIS Sm. Quan. Gen.		0.250	0	0	NR	NR	NR	0
ERNS		TP	NR	NR	NR	NR	NR	0
STATE ASTM STANDARD								
SHWS		1.000	0	1	0	0	NR	1
State Landfill		0.500	0	0	0	NR	NR	0
LUST		0.500	0	0	0	NR	NR	0
UST		0.250	0	1	NR	NR	NR	1
VCP		0.500	0	0	0	NR	NR	0
FEDERAL ASTM SUPPLEMENTAL								
CONSENT		1.000	0	0	0	0	NR	0
ROD		1.000	0	0	0	0	NR	0
Delisted NPL		1.000	0	0	0	0	NR	0
FINDS		TP	NR	NR	NR	NR	NR	0
HMIRS		TP	NR	NR	NR	NR	NR	0
MLTS		TP	NR	NR	NR	NR	NR	0
MINES		0.250	0	0	NR	NR	NR	0
NPL Liens		TP	NR	NR	NR	NR	NR	0
PADS		TP	NR	NR	NR	NR	NR	0
UMTRA		0.500	0	0	0	NR	NR	0
FUDS		1.000	0	0	0	0	NR	0
INDIAN RESERV		1.000	0	0	0	0	NR	0
US BROWNFIELDS		0.500	0	0	0	NR	NR	0
DOD		1.000	1	0	0	0	NR	1
RAATS		TP	NR	NR	NR	NR	NR	0
TRIS		TP	NR	NR	NR	NR	NR	0
TSCA		TP	NR	NR	NR	NR	NR	0
SSTS		TP	NR	NR	NR	NR	NR	0
FTTS		TP	NR	NR	NR	NR	NR	0
STATE OR LOCAL ASTM SUPPLEMENTAL								
SPILLS		TP	NR	NR	NR	NR	NR	0
EDR PROPRIETARY HISTORICAL DATABASES								
Coal Gas		1.000	0	0	0	0	NR	0

Coal Gas Site Search: No site was found in a search of Real Property Scan's ENVIROHAZ database.

DOD | **BARBERS POINT NAVAL AIR STATION (CLOSED)** | **DOD** | **CDOD048409**
Region SSW | **HONOLULU (County), HI** | **N/A**
< 1/8
416 ft.

FEDERAL LANDS:

Feature 1:	Navy DOD
Feature 2:	Not reported
Feature 3:	Not reported
Agency:	DOD
URL:	Not reported
Name 1:	Barbers Point Naval Air Station (Closed)
Name 2:	Not reported
Name 3:	Not reported
State:	HI

A1 | **CAMPBELL INDUSTRIAL PARK 06/24/94 A** | **SHWS** | **S104657404**
North | **1001 KAMUKILA BOULEVARD** | **N/A**
1/8-1/4 | **KAPOLEI, HI 96707**
983 ft.

Site 1 of 2 in cluster A

Relative: Higher

Actual: 69 ft.

SHWS:

File Section :	Central
Type :	Private
Department 1 :	Not reported
Department 2 :	Not reported
Department 3 :	Not reported
Table :	Sitelist
Island :	Oahu
Zip :	Not reported
Discovery Assesment and Remediation :	Not reported
Initial Site Screening Team Lead :	Not reported
ISST Assigned :	Not reported
ISST Date :	Not reported
ISST Priority :	Not reported
ISST Letter :	Not reported
Env Justice Eligible :	Not reported
Preliminary Assesment :	Not reported
PA Lead :	Not reported
PA Date :	Not reported
PA Result :	Not reported
Site Investigation :	Not reported
SI Lead :	Not reported
SI Date :	Not reported
SI Result :	Not reported
Remediation Action Planned :	Not reported
VRP :	Not reported
Brownfields :	Not reported
Agreement :	Not reported
Remedial Investigation :	Not reported
RAA :	Not reported
Response Action Memo :	Not reported
REM Lead :	Not reported
REM Date :	Not reported
REM Last Update :	3/12/97

CAMPBELL INDUSTRIAL PARK 06/24/94 A (Continued) **S104657404**

Input By :	TDao
Case :	Not reported
Fed Id :	Not reported
UST :	Not reported
Permits :	Not reported
RCRA :	Not reported
Program :	Not reported
Priority :	Not reported
Lat/Long :	Not reported
Cost :	Not reported
CU QNTY Site :	Not reported
Enforcement :	Not reported
CU Method :	Not reported
Ownership :	Not reported
Tax Map Key :	Not reported
Form :	Not reported
EPCRA :	Not reported
EPCRA FIL :	Not reported
Pathways :	Not reported
Targets :	Not reported
Manager :	Not reported
REM Result :	Not reported
Identifier :	Not reported
Site Code :	Not reported
Event :	Not reported
Event Type :	Not reported
Notes :	Final EPA file copy of Site Inspection Report dated 6/24/94 (for 5 sites at CIP: Hawn Western Steel, Ltd., Hwn. Western Steel Dump, Hw Metals Recycling Co., Leeward Auto Wreckers, & Brewer Envi. Indus. Inc.
Site :	Not reported
Site_ :	Not reported
Operator :	Not reported
Current :	Not reported
Compounds :	Not reported
Oname :	Not reported

A2 **7-11 KAPOLEI** **UST** **U003402908**
North **1000 KAMOKILA BLVD** **N/A**
1/8-1/4 **KAPOLEI, HI 96707**
983 ft.

Site 2 of 2 in cluster A

Relative: Higher

Actual: 69 ft.

UST:

Facility ID:	9-203179	Tank ID:	87
Tank Status:	Currently In Use		
Tank Capacity:	Not reported	Installed:	2/2/1996
Date Closed:	Not reported	Substance:	Gasoline
Owner:	ALOHA PETROLEUM, LTD. 1132 BISHOP STREET, SUITE 1700 Kapolei, HI 96707		

Facility ID:	9-203179	Tank ID:	92
Tank Status:	Currently In Use		
Tank Capacity:	Not reported	Installed:	2/2/1996
Date Closed:	Not reported	Substance:	Gasoline
Owner:	ALOHA PETROLEUM, LTD. 1132 BISHOP STREET, SUITE 1700 Kapolei, HI 96707		

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
EWA BEACH	S104534114	CHEMWOOD TREATMENT CO, INC.	91-476 KOMOHANA ST, CAMPBELL INDUS	96707	SHWS
HONOLULU	S104657421	HAWAII PROJECT MANAGEMENT (HPM)/HAW	KAOMI LOOP	96707	SHWS
HONOLULU COUNTY	S103763651	KANEOHE BAY OIL DIESEL SIGHTED ALON	KANEOHE BAY		SWF/LF, SPILLS
KALAELOA	1006806721	PACNAVFACENGCOM BARBERS POINT (BRAC)	FORMER NAS BARBERS POINT BRAC	96707	RCRIS-SQG, FINDS
KAPOLEI	1001024212	DIP LEG 2 THE GAS COMPANY	CRNR OF KALAELOA BLVD AND	96707	RCRIS-SQG, FINDS
KAPOLEI	1000860458	HAWAII METAL RECYCLING CO	91 056 HANUA ST CAMPBELL IND	96707	CERCLIS, RCRIS-SQG, FINDS
KAPOLEI	S104534170	HANUA STREET FUGITIVE OIL	HANUA ST	96707	SHWS, SPILLS
KAPOLEI	1006820795	KAMOKILA PARK WHITE POWDER ON GROUND	LAALOA ST	96707	FINDS
KAPOLEI	S104657515	TEXACO MALAKOLE STREET PIPELINE EXC	MALAKOLE ST	96707	SHWS, SPILLS
KAPOLEI	S104657409	DEEP DRAFT HARBOR PIER 5 CRUDE OIL	PIER 5 BARBORS POINT DEEP DRAFT HAR	96707	SHWS
KAPOLEI	1000906750	BARBERS POINT HARBOR	PIERS FIRST 5 6 BARBERS POINT	96707	RCRIS-SQG, FINDS
KAPOLEI	S104657510	SINGLE BUOY MOORING BARBERS POINT H	SINGLE BUOY MOORING BARBERS POINT H	96707	SHWS
WAIMANALO GULCH, OAH	S106401346	WAIMANALO GULCH LANDFILL, EWA	94-460 FARRINGTON HWY	96707	SWF/LF

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Elapsed ASTM days: Provides confirmation that this EDR report meets or exceeds the 90-day updating requirement of the ASTM standard.

FEDERAL ASTM STANDARD RECORDS

NPL: National Priority List
Source: EPA
Telephone: N/A
National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 04/27/04
Date Made Active at EDR: 05/21/04
Database Release Frequency: Semi-Annually

Date of Data Arrival at EDR: 05/04/04
Elapsed ASTM days: 17
Date of Last EDR Contact: 05/04/04

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 3
Telephone 215-814-5418

EPA Region 4
Telephone 404-562-8033

EPA Region 6
Telephone: 214-655-6659

EPA Region 8
Telephone: 303-312-6774

Proposed NPL: Proposed National Priority List Sites
Source: EPA
Telephone: N/A

Date of Government Version: 04/27/04
Date Made Active at EDR: 05/21/04
Database Release Frequency: Semi-Annually

Date of Data Arrival at EDR: 05/04/04
Elapsed ASTM days: 17
Date of Last EDR Contact: 05/04/04

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System
Source: EPA
Telephone: 703-413-0223
CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 02/26/04
Date Made Active at EDR: 04/02/04
Database Release Frequency: Quarterly

Date of Data Arrival at EDR: 03/22/04
Elapsed ASTM days: 11
Date of Last EDR Contact: 06/23/04

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned
Source: EPA
Telephone: 703-413-0223
As of February 1995, CERCLIS sites designated "No Further Remedial Action Planned" (NFRAP) have been removed from CERCLIS. NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the need for the site to be placed on the NPL, or the contamination was not serious enough to require Federal Superfund action or NPL consideration. EPA has removed approximately 25,000 NFRAP sites to lift the unintended barriers to the redevelopment of these properties and has archived them as historical records so EPA does not needlessly repeat the investigations in the future. This policy change is part of the EPA's Brownfields Redevelopment Program to help cities, states, private investors and affected citizens to promote economic redevelopment of unproductive urban sites.

Date of Government Version: 02/26/04
Date Made Active at EDR: 04/02/04
Database Release Frequency: Quarterly

Date of Data Arrival at EDR: 03/22/04
Elapsed ASTM days: 11
Date of Last EDR Contact: 06/23/04

CORRACTS: Corrective Action Report
Source: EPA
Telephone: 800-424-9346
CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/15/04
Date Made Active at EDR: 04/15/04
Database Release Frequency: Semi-Annually

Date of Data Arrival at EDR: 03/25/04
Elapsed ASTM days: 21
Date of Last EDR Contact: 06/07/04

RCRIS: Resource Conservation and Recovery Information System
Source: EPA
Telephone: 800-424-9346
Resource Conservation and Recovery Information System. RCRIS includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs): generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs): generate between 100 kg and 1,000 kg of hazardous waste per month. Large quantity generators (LQGs): generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month. Transporters are individuals or entities that move hazardous waste from the generator off-site to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 06/15/04
Date Made Active at EDR: 07/20/04
Database Release Frequency: Varies

Date of Data Arrival at EDR: 06/23/04
Elapsed ASTM days: 27
Date of Last EDR Contact: 06/23/04

ERNS: Emergency Response Notification System
Source: National Response Center, United States Coast Guard
Telephone: 202-260-2342
Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/03
Date Made Active at EDR: 03/12/04
Database Release Frequency: Annually

Date of Data Arrival at EDR: 01/26/04
Elapsed ASTM days: 46
Date of Last EDR Contact: 07/26/04

FEDERAL ASTM SUPPLEMENTAL RECORDS

BRS: Biennial Reporting System
Source: EPA/NTIS
Telephone: 800-424-9346
The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/01/01
Database Release Frequency: Biennially

Date of Last EDR Contact: 06/22/04
Date of Next Scheduled EDR Contact: 09/13/04

CONSENT: Superfund (CERCLA) Consent Decrees
Source: EPA Regional Offices
Telephone: Varies
Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: N/A
Database Release Frequency: Varies

Date of Last EDR Contact: N/A
Date of Next Scheduled EDR Contact: N/A

ROD: Records Of Decision
Source: EPA
Telephone: 703-416-0223
Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 04/08/04
Database Release Frequency: Annually
Date of Last EDR Contact: 07/07/04
Date of Next Scheduled EDR Contact: 10/04/04

DELISTED NPL: National Priority List Deletions
Source: EPA
Telephone: N/A
The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 04/27/04
Database Release Frequency: Quarterly
Date of Last EDR Contact: 05/04/04
Date of Next Scheduled EDR Contact: 08/02/04

FINDS: Facility Index System/Facility Identification Initiative Program Summary Report
Source: EPA
Telephone: N/A
Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 04/08/04
Database Release Frequency: Quarterly
Date of Last EDR Contact: 07/06/04
Date of Next Scheduled EDR Contact: 10/04/04

HMIRS: Hazardous Materials Information Reporting System
Source: U.S. Department of Transportation
Telephone: 202-366-4555
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 02/17/04
Database Release Frequency: Annually
Date of Last EDR Contact: 04/20/04
Date of Next Scheduled EDR Contact: 07/19/04

MLTS: Material Licensing Tracking System
Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/19/04
Database Release Frequency: Quarterly
Date of Last EDR Contact: 07/06/04
Date of Next Scheduled EDR Contact: 10/04/04

MINES: Mines Master Index File
Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959

Date of Government Version: 03/05/04
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 06/30/04
Date of Next Scheduled EDR Contact: 09/27/04

NPL LIENS: Federal Superfund Liens
Source: EPA
Telephone: 202-564-4267
Federal Superfund Liens. Under the authority granted the USEPA by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner receives notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/91
Database Release Frequency: No Update Planned

Date of Last EDR Contact: 05/24/04
Date of Next Scheduled EDR Contact: 08/23/04

PADS: PCB Activity Database System
Source: EPA
Telephone: 202-564-3887
PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 03/30/04
Database Release Frequency: Annually

Date of Last EDR Contact: 05/12/04
Date of Next Scheduled EDR Contact: 08/09/04

DOD: Department of Defense Sites
Source: USGS
Telephone: 703-692-8801
This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 10/01/03
Database Release Frequency: Semi-Annually

Date of Last EDR Contact: 05/14/04
Date of Next Scheduled EDR Contact: 08/09/04

STORMWATER: Storm Water General Permits
Source: Environmental Protection Agency
Telephone: 202 564-0746
A listing of all facilities with Storm Water General Permits.

Date of Government Version: N/A
Database Release Frequency: Quarterly

Date of Last EDR Contact: N/A
Date of Next Scheduled EDR Contact: N/A

INDIAN RESERV: Indian Reservations
Source: USGS
Telephone: 202-208-3710
This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 10/01/03
Database Release Frequency: Semi-Annually

Date of Last EDR Contact: 05/14/04
Date of Next Scheduled EDR Contact: 08/09/04

US BROWNFIELDS: A Listing of Brownfields Sites
Source: Environmental Protection Agency
Telephone: 202-566-2777
Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assessment Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients-States, political subdivisions, territories, and Indian tribes become BCRLF cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

Date of Government Version: 04/14/04
Database Release Frequency: Semi-Annually

Date of Last EDR Contact: 06/14/04
Date of Next Scheduled EDR Contact: 09/13/04

RMP: Risk Management Plans
Source: Environmental Protection Agency
Telephone: 202-564-8600
When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: N/A
Database Release Frequency: N/A
Date of Last EDR Contact: N/A
Date of Next Scheduled EDR Contact: N/A

FUDS: Formerly Used Defense Sites
Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 10/01/03
Database Release Frequency: Varies
Date of Last EDR Contact: 07/06/04
Date of Next Scheduled EDR Contact: 10/04/04

UMTRA: Uranium Mill Tailings Sites
Source: Department of Energy
Telephone: 505-845-0011
Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized. In 1978, 24 inactive uranium mill tailings sites in Oregon, Idaho, Wyoming, Utah, Colorado, New Mexico, Texas, North Dakota, South Dakota, Pennsylvania, and on Navajo and Hopi tribal lands, were targeted for cleanup by the Department of Energy.

Date of Government Version: 04/22/04
Database Release Frequency: Varies
Date of Last EDR Contact: 06/21/04
Date of Next Scheduled EDR Contact: 09/20/04

RAATS: RCRA Administrative Action Tracking System
Source: EPA
Telephone: 202-564-4104
RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/95
Database Release Frequency: No Update Planned
Date of Last EDR Contact: 06/07/04
Date of Next Scheduled EDR Contact: 09/06/04

TRIS: Toxic Chemical Release Inventory System
Source: EPA
Telephone: 202-566-0250
Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/01
Database Release Frequency: Annually
Date of Last EDR Contact: 06/22/04
Date of Next Scheduled EDR Contact: 09/20/04

TSCA: Toxic Substances Control Act
Source: EPA
Telephone: 202-260-5521
Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/02
Database Release Frequency: Every 4 Years
Date of Last EDR Contact: 06/07/04
Date of Next Scheduled EDR Contact: 09/06/04

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
Source: EPA
Telephone: 202-564-2501

Date of Government Version: 04/13/04
Database Release Frequency: Quarterly

Date of Last EDR Contact: 06/21/04
Date of Next Scheduled EDR Contact: 09/20/04

SSTS: Section 7 Tracking Systems
Source: EPA
Telephone: 202-564-5008
Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/01
Database Release Frequency: Annually

Date of Last EDR Contact: 07/20/04
Date of Next Scheduled EDR Contact: 10/18/04

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-564-2501
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/13/04
Database Release Frequency: Quarterly

Date of Last EDR Contact: 06/21/04
Date of Next Scheduled EDR Contact: 09/20/04

STATE OF HAWAII ASTM STANDARD RECORDS

SHWS: Sites List
Source: Department of Health
Telephone: 808-586-4249
Facilities, sites or areas in which the Office of Hazard Evaluation and Emergency Response has an interest, has investigated or may investigate under HRS 128D (includes CERCLIS sites).

Date of Government Version: 07/12/01
Date Made Active at EDR: 10/16/01
Database Release Frequency: Semi-Annually

Date of Data Arrival at EDR: 09/24/01
Elapsed ASTM days: 22
Date of Last EDR Contact: 06/23/04

SWF/LF: Permitted Landfills in the State of Hawaii
Source: Department of Health
Telephone: 808-586-4245
Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 05/19/04
Date Made Active at EDR: 06/22/04
Database Release Frequency: Varies

Date of Data Arrival at EDR: 05/20/04
Elapsed ASTM days: 33
Date of Last EDR Contact: 07/26/04

LUST: Leaking Underground Storage Tank Database
Source: Department of Health
Telephone: 808-586-4228
Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 05/01/04
Date Made Active at EDR: 07/29/04
Database Release Frequency: Semi-Annually

Date of Data Arrival at EDR: 06/30/04
Elapsed ASTM days: 29
Date of Last EDR Contact: 06/30/04

UST: Underground Storage Tank Database
Source: Department of Health
Telephone: 808-586-4228
Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 05/01/04
Date Made Active at EDR: 07/29/04
Database Release Frequency: Semi-Annually
Date of Data Arrival at EDR: 06/30/04
Elapsed ASTM days: 29
Date of Last EDR Contact: 06/30/04

VCP: Voluntary Response Program Sites
Source: Department of Health
Telephone: 808-586-4249

Date of Government Version: 10/10/03
Date Made Active at EDR: 10/21/03
Database Release Frequency: Varies
Date of Data Arrival at EDR: 10/13/03
Elapsed ASTM days: 8
Date of Last EDR Contact: 06/25/04

STATE OF HAWAII ASTM SUPPLEMENTAL RECORDS

SPILLS: Release Notifications
Source: Department of Health
Telephone: 808-586-4249
Releases of hazardous substances to the environment reported to the Office of Hazard Evaluation and Emergency Response since 1988.

Date of Government Version: 09/01/00
Database Release Frequency: Varies
Date of Last EDR Contact: 06/23/04
Date of Next Scheduled EDR Contact: 09/20/04

EDR PROPRIETARY HISTORICAL DATABASES

Former Manufactured Gas (Coal Gas) Sites: The existence and location of Coal Gas sites is provided exclusively to EDR by Real Property Scan, Inc. ©Copyright 1993 Real Property Scan, Inc. For a technical description of the types of hazards which may be found at such sites, contact your EDR customer service representative.

Disclaimer Provided by Real Property Scan, Inc.

The information contained in this report has predominantly been obtained from publicly available sources produced by entities other than Real Property Scan. While reasonable steps have been taken to insure the accuracy of this report, Real Property Scan does not guarantee the accuracy of this report. Any liability on the part of Real Property Scan is strictly limited to a refund of the amount paid. No claim is made for the actual existence of toxins at any site. This report does not constitute a legal opinion.

BROWNFIELDS DATABASES

BROWNFIELDS: Brownfields Sites
Source: Department of Health
Telephone: 808-586-4249

Date of Government Version: 10/10/03
Database Release Frequency: Varies
Date of Last EDR Contact: 06/25/04
Date of Next Scheduled EDR Contact: 09/20/04

VCP: Voluntary Response Program Sites
Source: Department of Health
Telephone: 808-586-4249

Date of Government Version: 10/04/03
Database Release Frequency: Varies

Date of Last EDR Contact: 06/25/04
Date of Next Scheduled EDR Contact: 09/20/04

US BROWNFIELDS: A Listing of Brownfields Sites
Source: Environmental Protection Agency
Telephone: 202-566-2777
Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assessment Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients-States, political subdivisions, territories, and Indian tribes become BCRLF cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

Date of Government Version: N/A
Database Release Frequency: Semi-Annually

Date of Last EDR Contact: N/A
Date of Next Scheduled EDR Contact: N/A

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data
Source: PennWell Corporation
Telephone: (800) 823-6277
This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 from the U.S. Fish and Wildlife Service.

STREET AND ADDRESS INFORMATION

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Appendix B

FIGURES

FIGURE 1

SITE LOCATION MAP

Kamokila Boulevard
Extension Project
Kapolei, Hawaii

KIMURA INTERNATIONAL, INC.

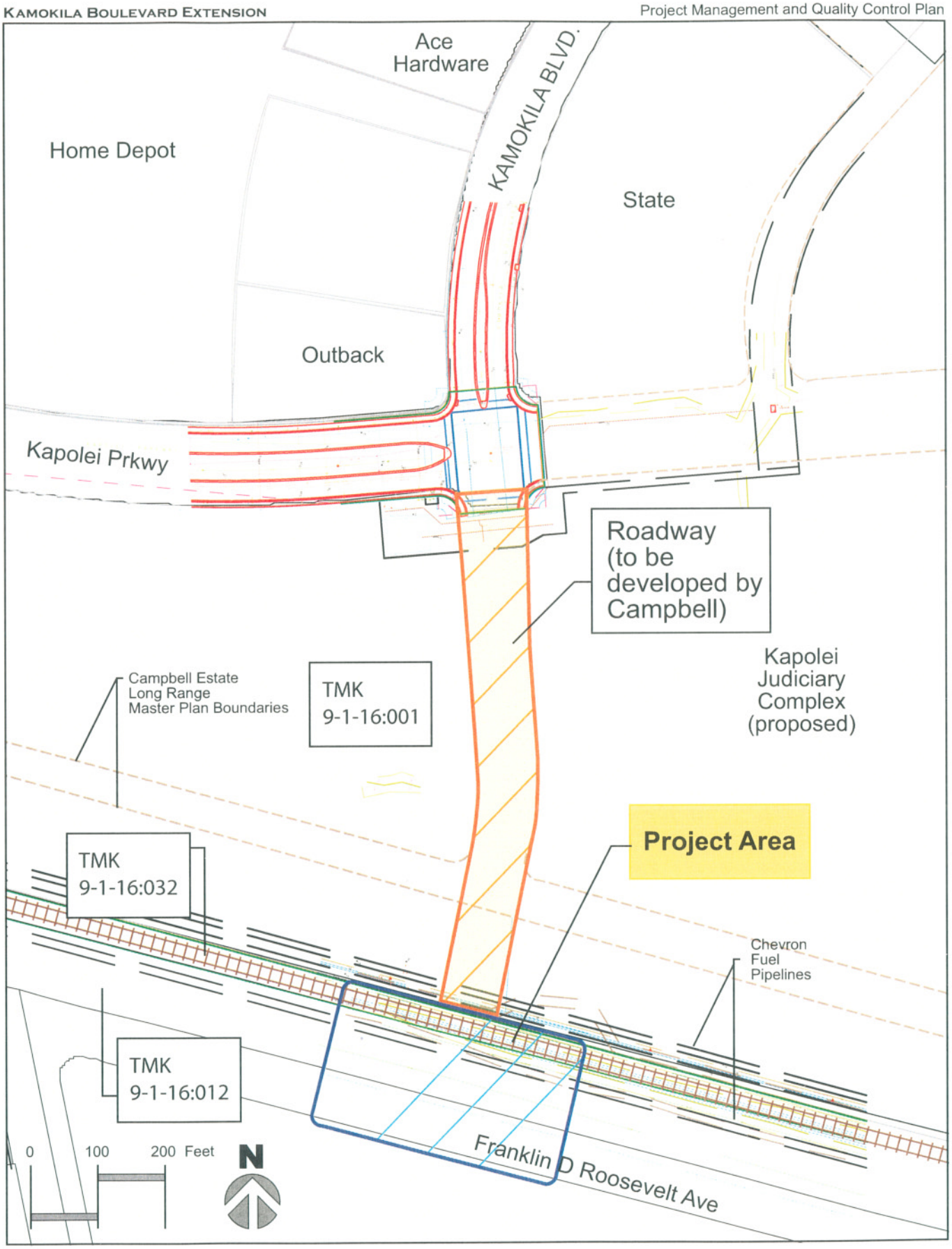
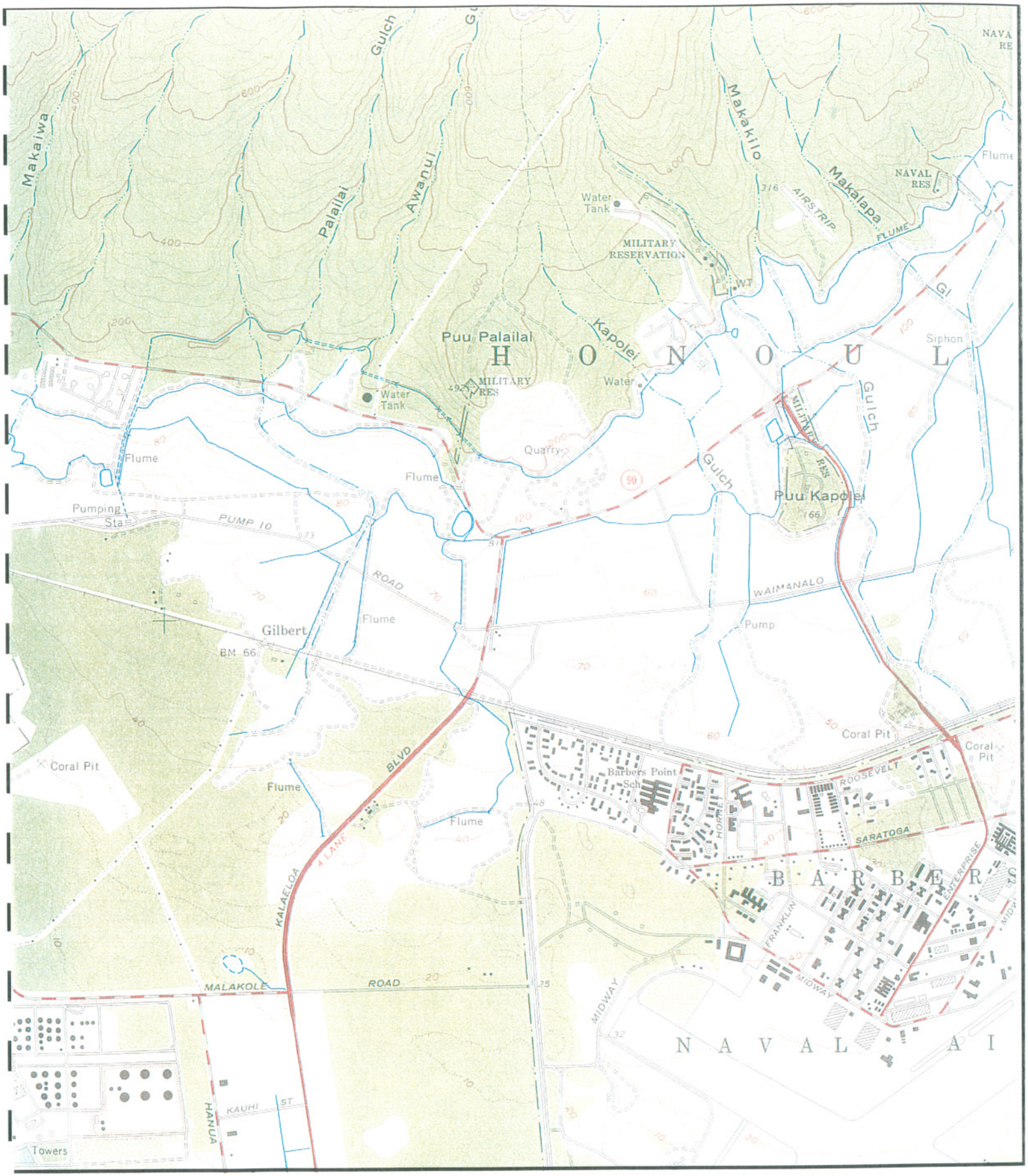


FIGURE 2

PROJECT AREA MAP

Kamokila Boulevard Extension Project
Kapolei, Hawaii

KIMURA INTERNATIONAL, INC.



KIMURA INTERNATIONAL, INC.

FIGURE 3

1962 Topograhic Map

Kamokila Boulevard
Extension Project
Kapolei, Hawaii

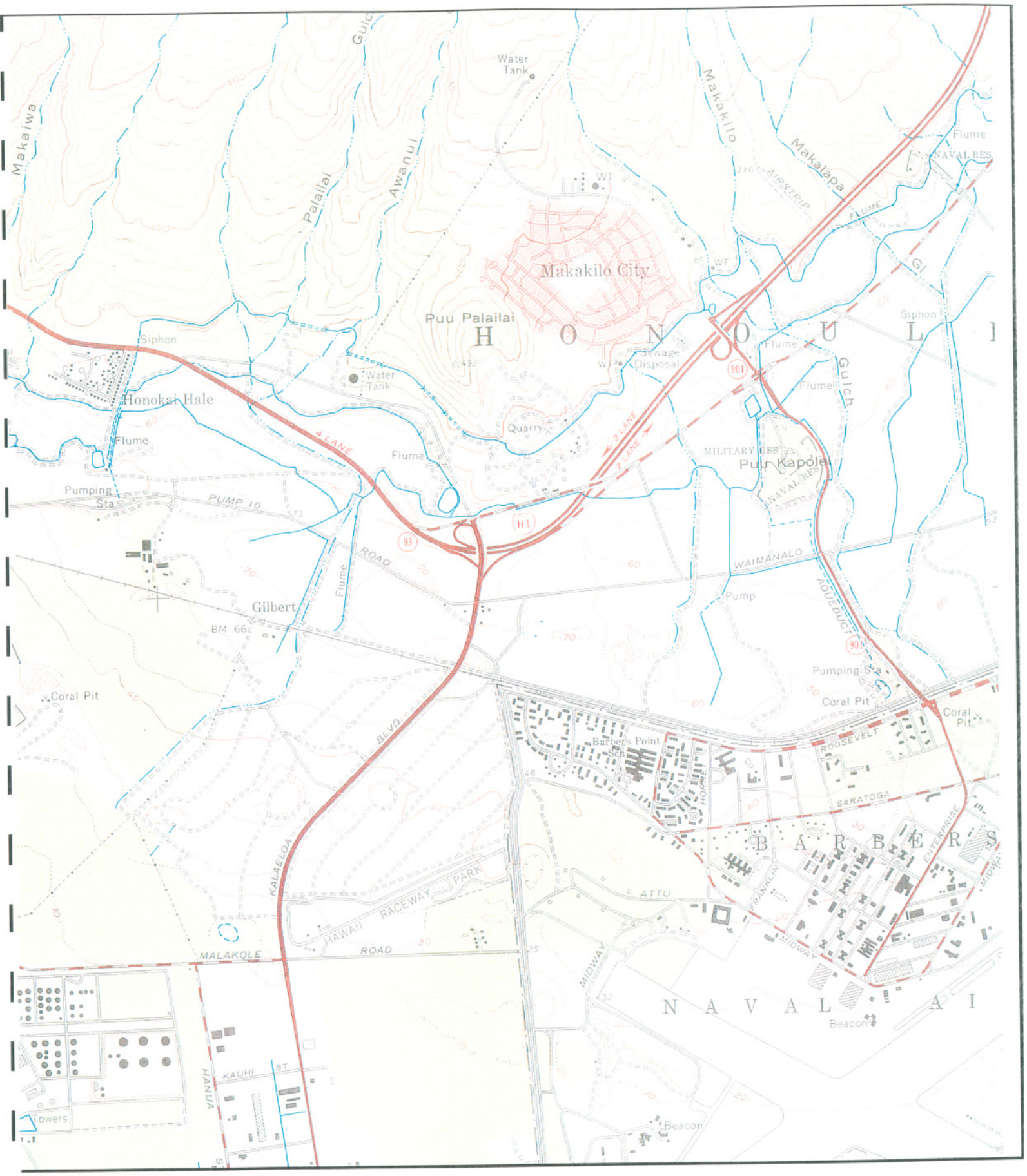
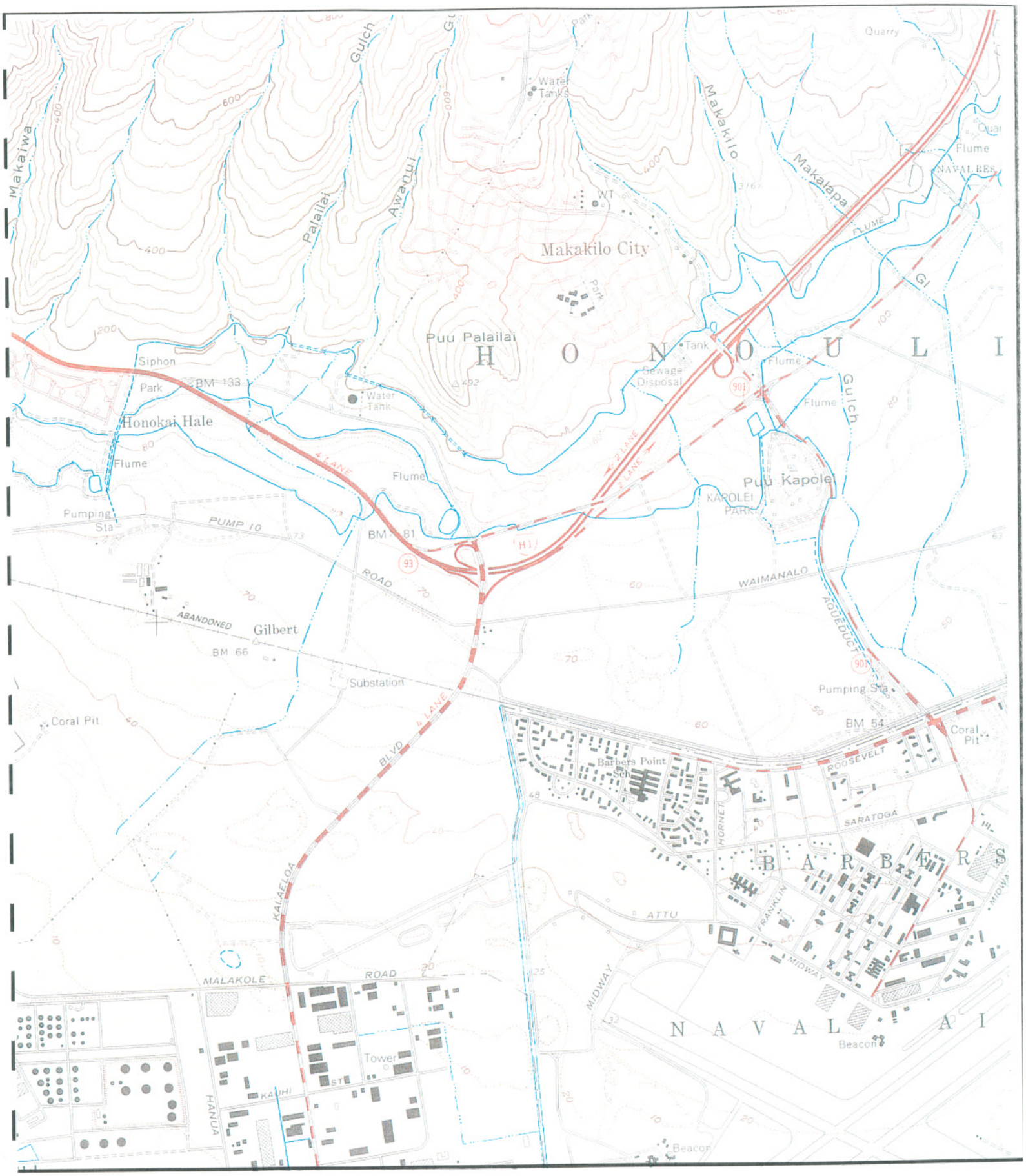


FIGURE 4

1968 Topograhic Map

Kamokila Boulevard
Extension Project
Kapolei, Hawaii

KIMURA INTERNATIONAL, INC.

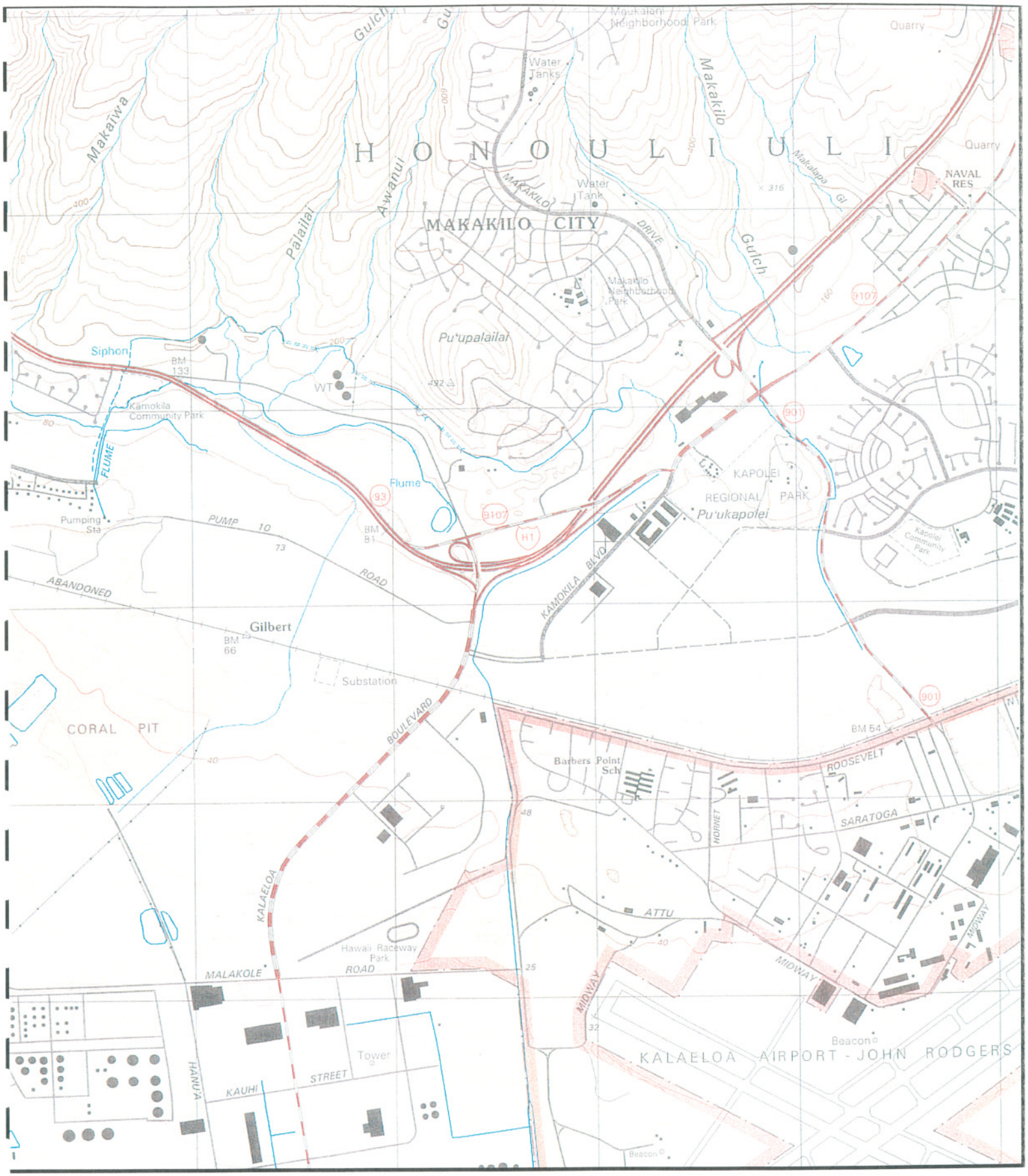


KIMURA INTERNATIONAL, INC.

FIGURE 5

1983 Topograhic Map

Kamokila Boulevard
Extension Project
Kapolei, Hawaii



KIMURA INTERNATIONAL, INC.

FIGURE 6

1998 Topograhic Map

Kamokila Boulevard
Extension Project
Kapolei, Hawaii

KIMURA INTERNATIONAL, INC.

FIGURE 7

1974 Aerial Photograph

Kamokila Boulevard
Extension Project
Kapolei, Hawaii

KIMURA INTERNATIONAL, INC.

FIGURE 8

1985 Aerial Photograph

Kamokila Boulevard
Extension Project
Kapolei, Hawaii

KIMURA INTERNATIONAL, INC.

FIGURE 9

1992 Aerial Photograph

Kamokila Boulevard
Extension Project
Kapolei, Hawaii

Appendix **C**

PHOTOGRAPHIC DOCUMENTATION

Photo 7: Signage indicating the presence of Chevron's fuel pipelines located on the mauka side of the tracks.

Photo 8: Signage on the makai side of the tracks. The signs are located approximately 100 feet west of the project area.

Photo 9: Franklin D. Roosevelt Avenue will be joined to Kamokila Boulevard along this section of the roadway.

PHOTOGRAPHIC DOCUMENTATION

Kamokila Boulevard Expension Project
June 2005

KIMURA INTERNATIONAL, INC.

Appendix **D**

INTERVIEWS AND FILE SEARCHES

Environmental Assessment Questionnaire

Facility questions:

1. Name of employee/interviewee: Nathan Yuen and Andy Keith
   Company: Hawaiian Electric Company
   Date: April 18, 2005
   Phone number: (808) 543-4523

2. How long has the facility been operating here? *Corridor established in 1972 and the fuel line was recently installed.*

3. What kinds of activities/operations took place there? *Fuel pipeline*

4. Are there any HECO fuel pipelines that pass through the project area? *Yes, there is a fuel pipeline recently installed by HECO. The pipeline provides fuel to the Waiau Powerplant. The pipeline is along Kalaeloa Boulevard with the TESORO and GAS Company lines.*

Environmental Assessment Questionnaire

Facility questions:

1. Name of employee/interviewee: Mary Emerson
   Company: Campbell Estate
   Date: June 21, 2005
   Phone number: (808) 674-3219

2. Was the property ever leased or used by anyone? *The parcel was never used by anyone based on Campbell's file record.*

3. Was the property used for any purpose? *The parcel does not appear to have been used in the past.*

   Ms. Emerson is aware that Chevron's fuel pipelines pass through the project area and agrees that coordination with Chevron will be necessary.

Release Notification

20-Apr-05

Case No: **19970711-1300**

Filing Information: **DateReported:** 7/11/1997 **Time Reported:** 1:00:00 PM **Table:** EP&R

Section: Single
Island: Oahu
Areawide Name:
Type:
File Under:
Facility/Site Name: Renton Road, drum

Address of the Facility/Site:

Address Line One: Renton Rd
Address Line Two:
City: Ewa Beach ***Zip Code:*** 96706
Island: Oahu

Confirmation Number:

Release Name: Renton Rd, drum

Incident: On May 7, 1997 a drum was located at the west end of Renton Road near the access gate to DOT property. Some black liquid had seeped onto the ground in the area of the drum. The drum is on its side.

Substances Involved:

Media: Soil

Associated NRC #:
Uniform Hazardous Waste Manifest Number:

Notification

Does this release exceed the RQ and qualify as a release to the environment?
Is this fugitive dumping or can a PRP be identified for purposes of followup? Fugitive
Is the reporter calling for the RP? No
Was initial notification given immediately following discovery of the incident?
Date of the Written Followup:
Will this require follow up for notification? **Initial:** **Written:**

Reported By

Reporter's Name: Ross Kuge
Reporter's Affiliation: DOH HEER SDA

Release Date: **Release Time:** **Duration:**

Initial:

Activity History

Response	7/11/1997 Liz Galvez

Notices

Input By: Marsha Graf **Date Input:** 7/11/97 **ER:**

Report:

Release Notification *20-Apr-05* Case No: 20000912-1315

Filing Information: **DateReported:** 9/12/2000 **Time Reported:** 1:15:00 PM **Table:** EP&R

Section: Single
Island: Oahu
Areawide Name:
Type:
File Under:
Facility/Site Name: Off Renton Road, Abandoned 31 x 5 gallon white buckets

Address of the Facility/Site:

Address Line One: Renton Rd
Address Line Two:
City: Ewa Beach ***Zip Code:*** 96706
Island: Oahu

Confirmation Number:

Release Name: Abandoned 31 x 5-gallon white buckets

Incident: 100 yards before Ewa Villages Golf Course maintenance facility building.

Substances Involved:

Media:

Associated NRC #:

Uniform Hazardous Waste Manifest Number:

Notification

Does this release exceed the RQ and qualify as a release to the environment?

Is this fugitive dumping or can a PRP be identified for purposes of followup?

Is the reporter calling for the RP?

Was initial notification given immediately following discovery of the incident?

Date of the Written Followup:

Will this require follow up for notification? **Initial:** **Written:**

Reported By

Reporter's Name: Ruben Sabog
Reporter's Affiliation:

Release Date: **Release Time:** **Duration:**

Initial: Site visit.

Activity History ***Notices***

Response	9/12/2000	Terry Corpus

Input By: **Date Input:** 9/14/00 5:15:08 PM **ER:** Site Visit

Report: Leland Nakai of Honolulu Civil Defense was also notified by a person named Tim (685-5219) who in turn notified Bill Perry.

Release Notification *20-Apr-05* Case No: 19960129-2120

Filing Information: **DateReported:** 1/29/1996 **Time Reported:** 9:20:00 PM **Table:** EP&R

Section: Single
Island: Oahu
Areawide Name:
Type:
File Under:
Facility/Site Name: Kapolei area, gas odor/smell

Address of the Facility/Site:

Address Line One:
Address Line Two:
City: Kapolei ***Zip Code:*** 96707
Island: Oahu

Confirmation Number:

Release Name: Kapolei area, gas odor/smell

Incident: Odor

Substances Involved:

Media: Air

Associated NRC #:

Uniform Hazardous Waste Manifest Number:

Notification

Does this release exceed the RQ and qualify as a release to the environment? Odor

Is this fugitive dumping or can a PRP be identified for purposes of followup? RP

Is the reporter calling for the RP?

Was initial notification given immediately following discovery of the incident?

Date of the Written Followup:

Will this require follow up for notification? **Initial:** **Written:**

Reported By

Reporter's Name: Norman Hong
Reporter's Affiliation:

Release Date: 01/29/96 **Release Time:** 9:20 pm **Duration:**

Initial:

Activity History ***Notices***

Response	1/29/1996 Terry Corpus	NFA

Input By: TN **Date Input:** 02/22/96 **ER:** No

Report:

State of Hawaii HEER Office Public Record
State Response and Superfund Program Sites
Ongoing and Planned Activities for the Federal Fiscal Year 2005

As of 02/15/2005

Island: Oahu
Site Name: **Hawaii Army National Guard Waiawa Gulch**
Site Address: 96-120 Waihona St 96782, Pearl City Industrial Park Installation 15080
Locality Name: Pearl City
Agreement/Program: PA/SI
Activity Type: SI1

Project Manager Contact: Melody Calisay
Tax Map Key 196004020

Island: Oahu
Site Name: **Home Depot**
Site Address: 421 Alakawa St 96817
Locality Name: Honolulu
Agreement/Program: VRP
Activity Type: O&M

Project Manager Contact: Mark Sutterfield
Tax Map Key 115012005 115012007

Island: Oahu
Site Name: **Honolulu Wood Treating Company, Ltd**
Site Address: 91-291 Hanua St 96707
Locality Name: Kapolei
Agreement/Program: VRP
Activity Type: Site Assessment

Project Manager Contact: Mark Sutterfield

Island: Oahu
Site Name: **Honsador Lumber Corp**
Site Address: 91-151 Malakole Rd 96707
Locality Name: Kapolei
Agreement/Program: VRP
Activity Type: Remedial

Project Manager Contact: Mark Sutterfield

State of Hawaii HEER Office Public Record
State Response and Superfund Program Sites
Completed Activities for the Federal Fiscal Year 2004

October 1, 2003 to September 30, 2004

Island:	Oahu	*Project Manager Contact:* Melody Calisay
Site Name:	**East Kapolei**	
Site Address:	Renton Rd 96706, East Kapolei/Ewa area	
Locality Name:	Kapolei	*Tax Map Key* 191016008
Agreement/Program:	Brownfields	191017071
Activity Type:	Phase I	191017086
Activity Completetion Date:	9/30/2004	191017088
Result:	Phase II Recommended	191018005
Is this Site Available for Unrestricted Use?	This site is under evaluation for use restriction.	
Identify the Institutional Controls Relied upon in the Remedy.		

Island:	Oahu	*Project Manager Contact:* Mark Sutterfield
Site Name:	**Evershine X**	
Site Address:	1230 Kapiolani Blvd 96814	
Locality Name:	Honolulu	*Tax Map Key* 123010055
Agreement/Program:	VRP	123010054
Activity Type:	Site Assessment	123010053
Activity Completetion Date:	8/18/2004	123010048
Result:	Letter of Completion (LOC)-Cleanup Goals Achieved	123010028
Is this Site Available for Unrestricted Use?	This site is available for unrestricted use.	123010050 123010052
Identify the Institutional Controls Relied upon in the Remedy.	No institutional controls.	123010056

D. L. ADAMS ASSOCIATES, LTD.
Consultants in Acoustics and Performing Arts Technologies

Environmental Noise Assessment Report
Kamokila Boulevard Extension
Kapolei, O'ahu, Hawaii

January 30, 2006

DLAA Project No. 05-27

Prepared for:
Kimura International
Honolulu, Hawaii

970 N. KALAHEO AVE. • SUITE A311 • KAILUA, HAWAII 96734
808/254-3318 • FAX 808/254-5295
www.dlaa.com • hawaii@dlaa.com

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Appendix A Acoustic Terminology.

1.0 EXECUTIVE SUMMARY

1.1 The proposed extension of Kamokila Boulevard will connect existing Kamokila Boulevard to F.D. Roosevelt Avenue. Part of the road extension project will be completed by the landowner, and the remaining connection to F. D. Roosevelt Avenue will be completed by the City and County of Honolulu.

1.2 Long-term ambient noise measurements were conducted at the project site. Noise levels generally range from 45 dBA at night to around 60 dBA during the day. The Day-Night Level, L_{dn}, was calculated to be 57 dBA. These noise levels are below the EPA noise design goal of $L_{dn} \leq 65$ dBA. However, noise levels are slightly above the EPA future noise design goal of $L_{dn} \leq 55$ dBA.

1.3 During the project construction, the dominant noise sources will probably be earth moving equipment, such as bulldozers, pavers, and diesel powered trucks. Noise from construction activities will occur on the project site. Noise from construction activities should be short term and must comply with State of Hawaii Community Noise Control Rules and a construction noise permit issued by the Department of Health.

1.4 The results of the vehicular traffic noise analyses show increases in traffic noise levels due to the project. However, these increases are less than 15 dB, and not considered to be substantial over the existing noise levels. In addition, all existing and future traffic noise levels are expected to be below the FHWA/HDOT maximum noise limit of 67 dBA. Therefore, a significant impact due to vehicular traffic noise was not found.

2.0 PROJECT DESCRIPTION

The proposed Kamokila Boulevard extension is designed to provide the final connection between Kamokila Boulevard at Kapolei Parkway to F. D. Roosevelt Avenue. The landowner will construct a portion of Kamokila Boulevard beginning at Kapolei Parkway. The City and County of Honolulu has proposed to make the final connection to F. D. Roosevelt Avenue. Figure 1 shows the project location.

3.0 NOISE STANDARDS

Various local and federal agencies have established guidelines and standards for assessing environmental noise impacts and set noise limits as a function of land use. A brief description of common acoustic terminology used in these guidelines and standards is presented in Appendix A.

3.1 State of Hawaii, Community Noise Control

The State of Hawaii Community Noise Control Rule [Reference 1] defines three classes of zoning districts and specifies corresponding maximum permissible sound levels due to *stationary* noise sources such as air-conditioning units, exhaust systems, generators, compressors, pumps, etc. The Community Noise Control Rule does not specifically address most *moving* sources, such as vehicular traffic noise, air traffic noise, or rail traffic noise. However, the Community Noise Control Rule does regulate noise related to agricultural, construction, and industrial activities, which may not be stationary.

The maximum permissible noise levels are enforced by the State Department of Health (DOH) for any location at or beyond the property line and shall not be exceeded for more than 10% of the time during any 20-minute period. The specified noise limits which apply are a function of the zoning and time of day as shown in Figure 2. With respect to mixed zoning districts, the rule specifies that the primary land use designation shall be used to determine the applicable zoning district class and the maximum permissible sound level. In determining the maximum permissible sound level, the background noise level is taken into account by the DOH.

3.2 U.S. Federal Highway Administration (FHWA)

The FHWA defines four land use categories and assigns corresponding maximum hourly equivalent sound levels, $L_{eq(h)}$, for traffic noise exposure [Reference 2], which are listed in Figure 3. For example, Category B, defined as picnic and recreation areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals, has a corresponding maximum exterior L_{eq} of 67dBA and a maximum interior L_{eq} of 52 dBA. These limits are viewed as design goals, and all projects meeting these limits are deemed in conformance with FHWA noise standards. Calculation of traffic noise levels should be conducted using a Federal Highway Administration traffic noise model [Reference 3].

3.3 Hawaii Department of Transportation (HDOT)

HDOT has adopted FHWA's design goals for traffic noise exposure in its noise analysis and abatement policy [Reference 4]. According to the policy, a traffic noise impact occurs when the predicted traffic noise levels "approach" or exceed FHWA's design goals or when the predicted traffic noise levels "substantially exceed the existing noise levels." The policy also states that "approach" means at least 1 dB less than FHWA's design goals and "substantially exceed the existing noise levels" means an increase of at least 15 dB.

3.4 U.S. Environmental Protection Agency (EPA)

The U.S. EPA has identified a range of yearly day-night equivalent sound levels, L_{dn}, sufficient to protect public health and welfare from the effects of environmental noise [Reference 5]. The EPA has established a goal to reduce exterior environmental noise to an L_{dn} not exceeding 65 dBA and a future goal to further reduce exterior environmental noise to an L_{dn} not exceeding 55 dBA. Additionally, the EPA states that these goals are not intended as regulations as it has no authority to regulate noise levels, but rather they are intended to be viewed as levels below which the general population will not be at risk from any of the identified effects of noise.

4.0 EXISTING ACOUSTICAL ENVIRONMENT

Noise measurements were conducted to assess the existing acoustical environment in the vicinity of the project location. The noise measurements consisted of continuous long-term ambient noise level measurements (Location 1), as shown in Figure 4. The noise measurements were conducted between January 19, 2006 and January 24, 2006.

4.1 Noise Measurement Procedure

Continuous, hourly, statistical sound levels were recorded for approximately 5 days. The measurements were taken using a Larson-Davis Laboratories, Model 820, Type-1 Sound Level Meter together with a Larson-Davis, Model 2560 Type-1 Microphone. Calibration was checked before and after the measurements with a Larson-Davis Model CAL200 calibrator. Both the sound level meter and the calibrator have been certified by the manufacturer within the recommended calibration period.

The microphone was mounted on a tripod, approximately 6 feet above grade. A windscreen covered the microphone during the entire measurement period. The sound level meter was secured in a weather resistant case.

4.2 Noise Measurement Locations

Location 1: Positioned near the proposed intersection of Kamokila Boulevard and F. D. Roosevelt Avenue, approximately 20 feet south of the existing railroad tracks.

4.3 Long-Term Noise Measurement Results

The measured long-term sound levels vary with the time of day. The hourly equivalent sound levels, $L_{eq,}$ at Location 1 generally ranged from 45 dBA during the nighttime and early morning hours to approximately 60 dBA during the daytime hours. The Average Day-Night Level, L_{dn}, was calculated from the measured noise levels to be 57 dBA. Figure 5 shows the results of the long-term noise measurements.

The dominant and secondary noise sources are described below:

Noise Sources

Dominant: Traffic on nearby Kamokila Boulevard and Kapolei Parkway, aircraft noise from jet airplanes landing at the Honolulu International Airport.

Secondary: Distant construction noise, birds, wind, etc.

5.0 POTENTIAL NOISE IMPACTS DUE TO THE PROJECT

5.1 Project Construction Noise

Development of project area will involve excavation, grading, paving 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. Typical ranges of construction equipment noise are shown in Figure 6. Earthmoving equipment, e.g., bulldozers and diesel-powered trucks, will probably be the loudest equipment used during construction.

5.2 Compliance with FHWA/HDOT Noise Limits

A vehicular traffic noise analysis was completed for the existing traffic, future year 2010 traffic projections and future year 2025 traffic projections. Noise predictions were analyzed at two locations, Location A and Location B (see Figure 4). The results are shown in Table 1. Traffic projections due to the project were provided by Julian Ng, Inc [Reference 6].

5.2.1 Vehicular Traffic Noise Impacts on the Surrounding Community

Noise levels predicted at Locations A and B are below the FHWA/HDOT maximum noise limit of 67 dBA. However, traffic noise will increase along F.D. Roosevelt Avenue when the Kamokila Boulevard extension is open. Although the increase in noise level will be noticeable, it is less than a 15 dB increase over the existing traffic noise levels. HDOT considers an increase of 15 dB or more a “substantial” increase. In addition, the existing traffic noise on F.D. Roosevelt Avenue only makes

up a small portion of the ambient noise along this road, because the existing traffic is very light. Other noises, such as aircrafts landing at Honolulu International Airport and other more busy roads in the vicinity comprise more of the ambient noise.

A significant noise impact on the surrounding community due to project generated traffic noise is not expected, because the predicted traffic noise levels are less than the 67 dBA limit and the noise increases caused by the new traffic will be less than 15 dB.

5.3 Compliance with EPA Noise Guidelines

The result from the long-term noise measurements conducted at the proposed project site show a calculated Day-Night Level, L_{dn}, of 57 dBA. Therefore, the noise levels in the vicinity of the new Kamokila Boulevard extension project are below the current EPA design goals but exceed future EPA design goals. It is important to note that the EPA noise guidelines are design goals and are not enforceable regulations. However, these guidelines and design goals are useful tools for assessing the noise environment.

6.0 NOISE IMPACT MITIGATION

6.1 Mitigation of Construction Noise

In cases where construction noise exceeds, or is expected to exceed the State's "maximum permissible" property line noise levels [Reference 1], 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.

In order for the State DOH to issue a construction noise permit, the Contractor must submit a noise permit application to the DOH, which describes the construction activities for the project. Prior to issuing the noise permit, the State DOH may require action by the Contractor to incorporate noise mitigation into the construction plan. The DOH may also require the Contractor to conduct noise monitoring or community meetings inviting the neighboring residents and business owners to discuss construction noise. The Contractor should use reasonable and standard practices to mitigate noise, such as using mufflers on diesel and gasoline engines, using properly tuned and balanced machines, etc. However, the State DOH may require additional noise mitigation, such as temporary noise barriers, or time of day usage limits for certain kinds of construction activities.

Specific permit restrictions for construction activities [Reference 1] are:

> "No permit shall allow any construction activities which emit noise in excess of the maximum permissible sound levels ... before 7:00 a.m. and after 6:00 p.m. of the same day, Monday through Friday."

> "No permit shall allow any construction activities which emit noise in excess of the maximum permissible sound levels... before 9:00 a.m. and after 6:00 p.m. on Saturday."
>
> "No permit shall allow any construction activities which emit noise in excess of the maximum permissible sound levels on Sundays and on holidays."

The use of hoe rams and jack hammers 25 lbs. or larger, high pressure sprayers, chain saws, and pile drivers are restricted to 9:00 a.m. to 5:30 p.m., Monday through Friday. In addition, construction equipment and on-site vehicles or devices whose operations involve the exhausting of gas or air, excluding pile hammers and pneumatic hand tools weighing less than 15 pounds, must be equipped with mufflers [Reference 1].

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.

6.2 Mitigation of Vehicular Traffic Noise

The traffic noise analysis shows no significant noise impacts to the surrounding community due to the Kamokila Boulevard extension. Therefore, noise mitigation for vehicular traffic noise is not required.

REFERENCES

1. Chapter 46, *Community Noise Control*, Department of Health, State of Hawaii, Administrative Rules, Title 11, September 23, 1996.

2. *Department of Transportation, Federal Highway Administration Procedures for Abatement of Highway Traffic Noise*, Title 23, CFR, Chapter 1, Subchapter J, Part 772, 38 FR 15953, June 19, 1973; Revised at 47 FR 29654, July 8, 1982.

3. *Federal Highway Administration's Traffic Noise Model*, FHWA-RD-77-108; U.S. Department of Transportation, December 1978.

4. *Noise Analysis and Abatement Policy*, Department of Transportation, Highways Division, State of Hawaii, June 1977.

5. *Toward a National Strategy for Noise Control*, U.S. Environmental Protection Agency, April 1977.

6. *Traffic Assessment for Kamokila Boulevard Extension,* Julian Ng, Inc., January, 2006.

TABLE 1
Predicted Traffic Noise Levels Due to the Project[+]

Noise levels shown in the table are based on peak-hour traffic volumes, and are expressed in A-weighted decibels (dBA).

	Location A		**Location B**	
	AM	**PM**	**AM**	**PM**
Existing (Calculated)	56.6	53.6	47.5	49.2
Future With Project (2010)	56.3	53.6	61.5	61.3
Future With Project (2025)	56.3	53.6	60.2	60.6
Future Increase (2009)	-0.3	0.0	14.0	12.1
Future Increase (2009)	-0.3	0.0	12.7	11.3

[+] The noise level calculations were based on the traffic study provided by the Traffic Consultant [Reference 6].

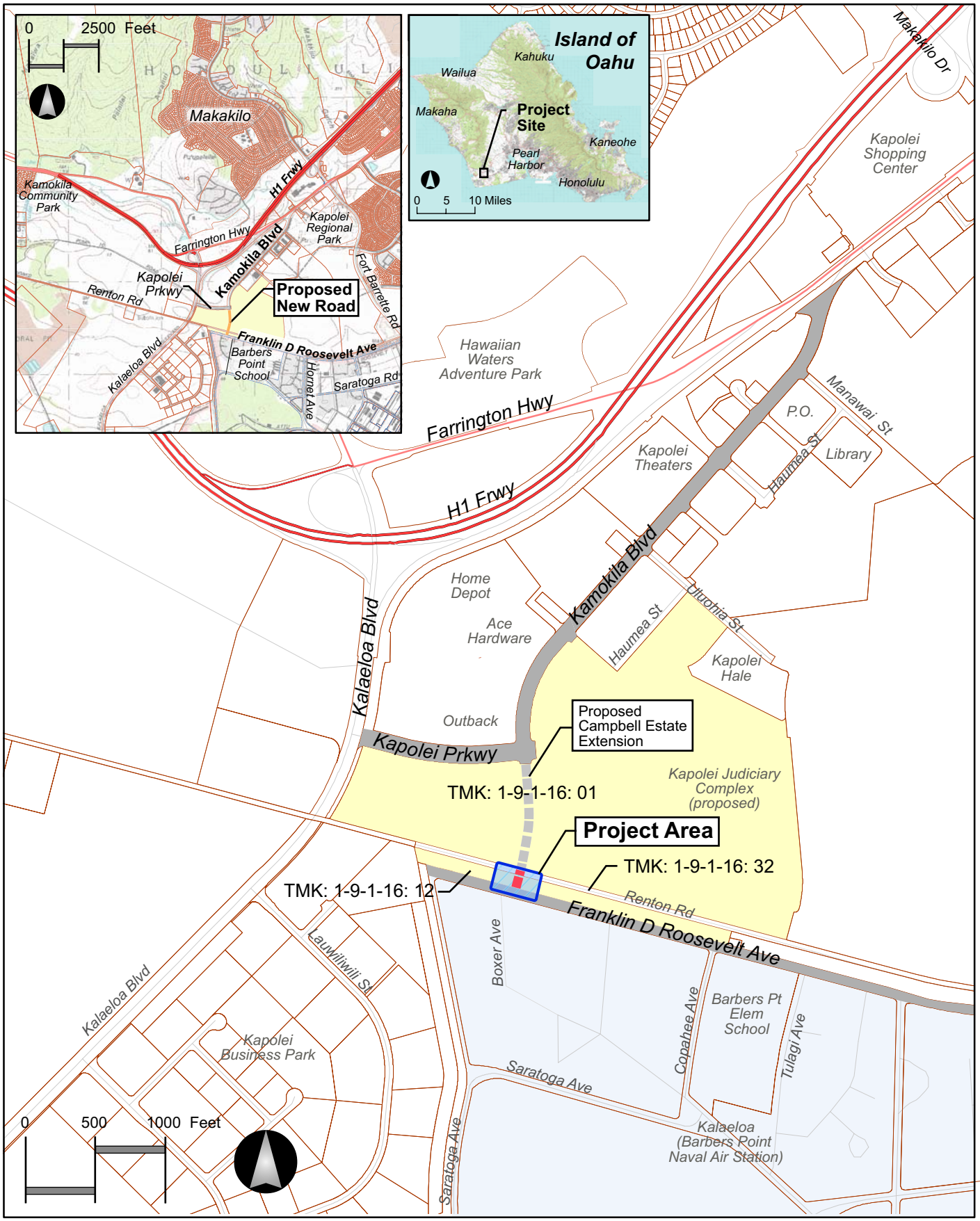
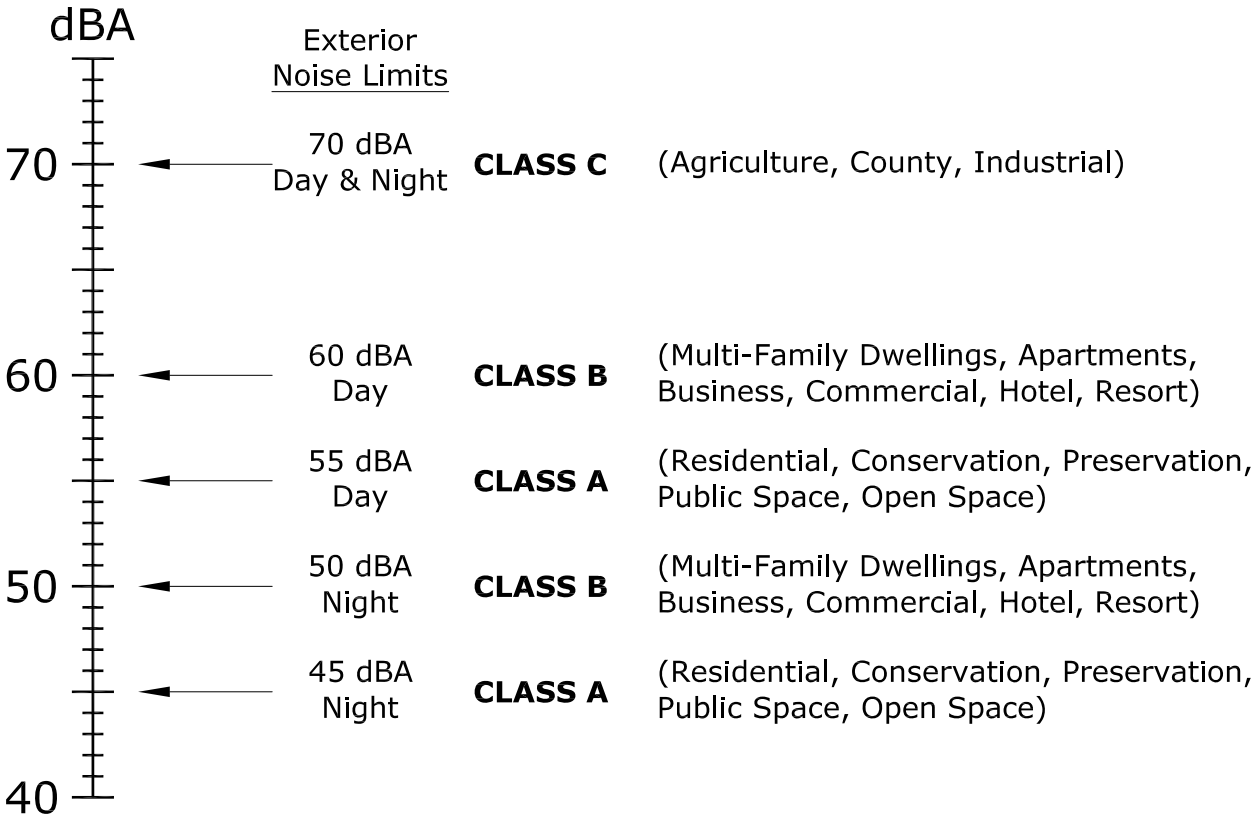


Figure 1
Project Location

Zoning District	Day Hours (7 AM to 10 PM)	Night Hours (10 PM to 7 AM)
CLASS A Residential, Conservation, Preservation, Public Space, Open Space	55 dBA (Exterior)	45 dBA (Exterior)
CLASS B Multi-Family Dwellings, Apartments, Business, Commercial, Hotel, Resort	60 dBA (Exterior)	50 dBA (Exterior)
CLASS C Agriculture, County, Industrial	70 dBA (Exterior)	70 dBA (Exterior)



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Hawaii Maximum Permissible Sound Levels for Various Zoning Districts

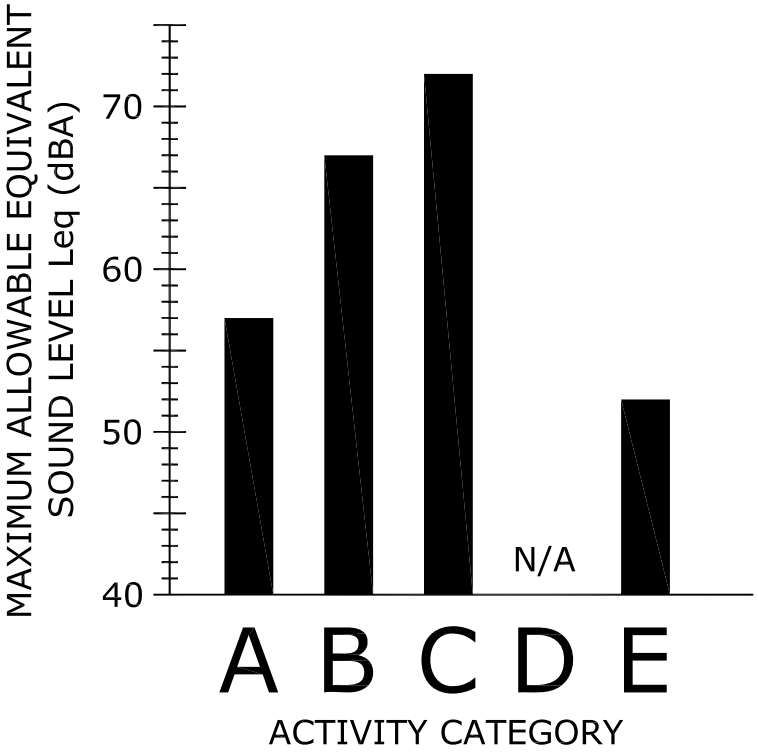
Kamokila Blvd Extension

Not to Scale

Date	Project No.	Drawn By
January 2006	05-27	TRB

Figure No 2

ACTIVITY CATEGORY	ACTIVITY CATEGORY DESCRIPTION	MAXIMUM EQUIVALENT SOUND LEVEL $L_{eq(h)}$
A	LANDS ON WHICH SERENITY AND QUIET ARE OF EXTRAORDINARY SIGNIFICANCE AND SERVE AN IMPORTANT PUBLIC NEED AND WHERE THE PRESERVATION OF THOSE QUALITIES IS ESSENTIAL IF THE AREA IS TO CONTINUE TO SERVE ITS INTENDED PURPOSE.	57 dBA (EXTERIOR)
B	PICNIC AREAS, RECREATION AREAS, PLAYGROUNDS, ACTIVE SPORT AREAS, PARKS, RESIDENCES, MOTELS, HOTELS, ACHOOLS, CHURCHES, LIBRARIES, AND HOSPITALS.	67 dBA (EXTERIOR)
C	DEVELOPED LANDS, PROPERTIES, OR ACTIVITIES NOT INCLUDED IN ACTIVITY CATEGORIES A OR B ABOVE.	72 dBA (EXTERIOR)
D	UNDEVELOPED LAND	N/A
E	RESIDENCES, MOTELS, HOTELS, PUBLIC MEETING ROOMS, SCHOOLS, CHURCHES, LIBRARIES, HOSPITALS, AND AUDITORIUMS.	52 dBA (INTERIOR)



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Federal Highways Administration Recommended Equivalent Hourly Sound Levels Based on Land Use

Kamokila Blvd Extension

Not to Scale

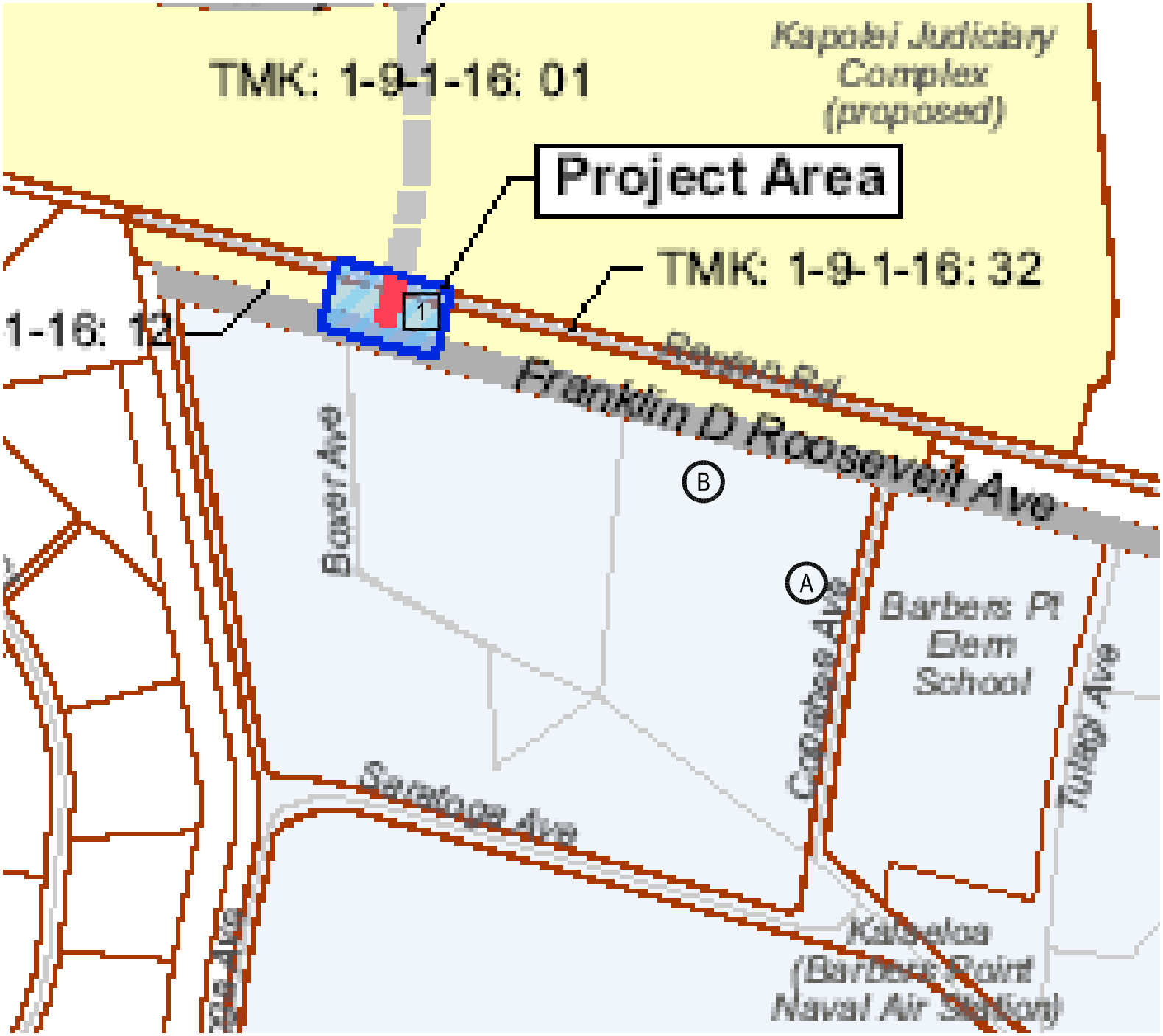
Date	Project No.	Drawn By
January 2006	05-27	TRB

Figure No 3

LEGEND

1 Long Term Noise Measurement Location

A Noise Prediction Locations



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Noise Measurement/Prediction Locations

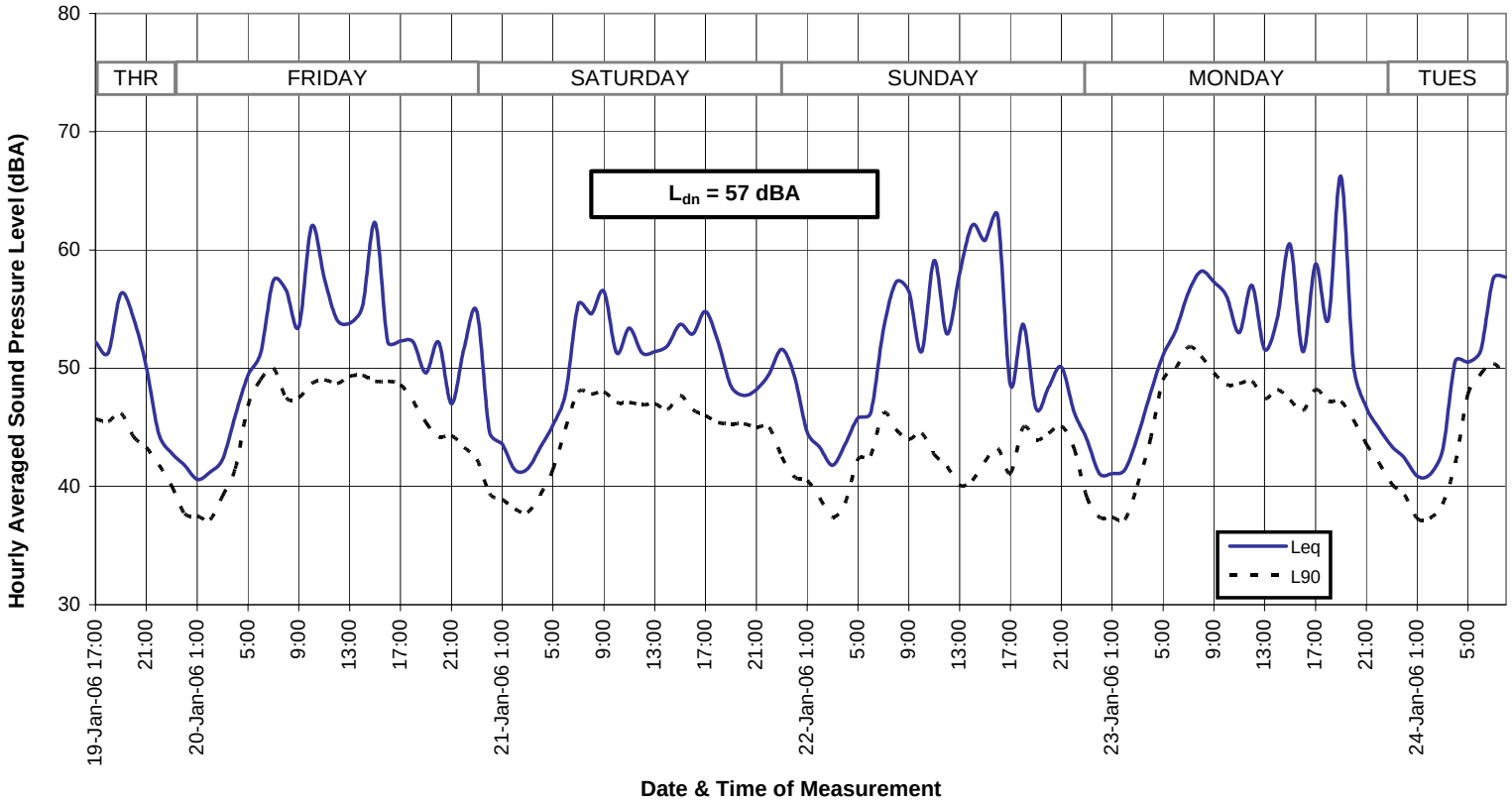
Kamokila Blvd Extension

Not to Scale

Date	Project No.	Drawn By
January 2006	05-27	TRB

Figure No

4



Long Term Noise Measurement Results

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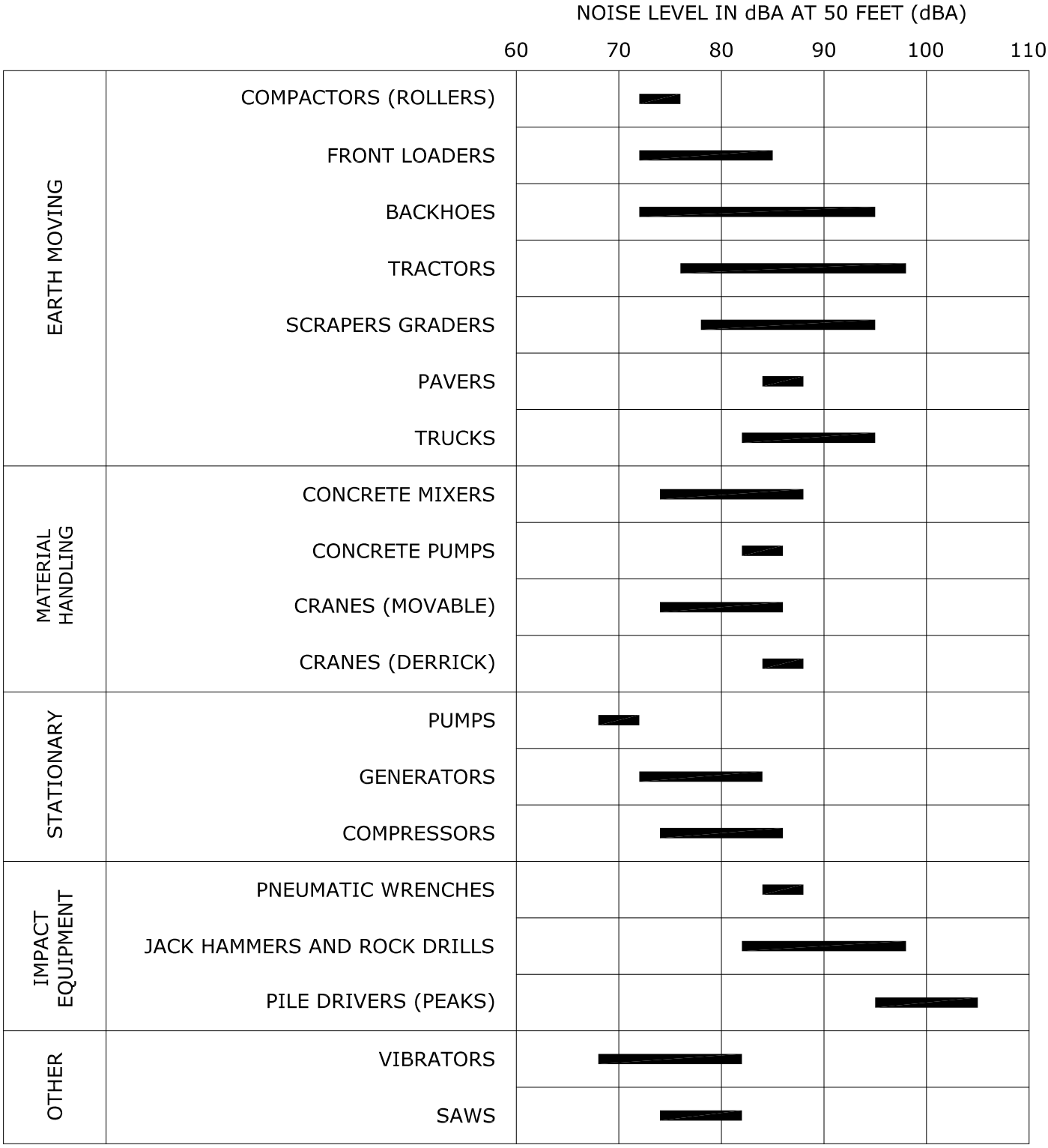
Kamokila Blvd Extension

Not to Scale

Date	Project No.	Drawn By
January 2006	05-27	TRB

Figure No

5



NOTE: BASED ON LIMITED AVAILABLE DATA SAMPLES

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Typical Sound Levels from Construction Equipment

Kamokila Blvd Extension

Not to Scale

Date	Project No.	Drawn By
January 2006	05-27	TRB

Figure No

6

APPENDIX A

Acoustic Terminology

Acoustic Terminology

Sound Pressure Level

Sound, or noise, is the term given to variations in air pressure that are capable of being detected by the human ear. Small fluctuations in atmospheric pressure (sound pressure) constitute the physical property measured with a sound pressure level meter. Because the human ear can detect variations in atmospheric pressure over such a large range of magnitudes, sound pressure is expressed on a logarithmic scale in units called decibels (dB). Noise is defined as "unwanted" sound.

Technically, sound pressure level (SPL) is defined as:

$$SPL = 20 \log (P/P_{ref}) \text{ dB}$$

where P is the sound pressure fluctuation (above or below atmospheric pressure) and P_{ref} is the reference pressure, 20 µPa, which is approximately the lowest sound pressure that can be detected by the human ear. For example:

If P = 20 µPa, then SPL = 0 dB
If P = 200 µPa, then SPL = 20 dB
If P = 2000 µPa, then SPL = 40 dB

The sound pressure level that results from a combination of noise sources is not the arithmetic sum of the individual sound sources, but rather the logarithmic sum. For example, two sound levels of 50 dB produce a combined sound level of 53 dB, not 100 dB. Two sound levels of 40 and 50 dB produce a combined level of 50.4 dB.

Human sensitivity to changes in sound pressure level is highly individualized. Sensitivity to sound depends on frequency content, time of occurrence, duration, and psychological factors such as emotions and expectations. However, in general, a change of 1 or 2 dB in the level of sound is difficult for most people to detect. A 3 dB change is commonly taken as the smallest perceptible change and a 6 dB change corresponds to a noticeable change in loudness. A 10 dB increase or decrease in sound level corresponds to an approximate doubling or halving of loudness, respectively.

A-Weighted Sound Level

Studies have shown conclusively that at equal sound pressure levels, people are generally more sensitive to certain higher frequency sounds (such as made by speech, horns, and whistles) than most lower frequency sounds (such as made by motors and engines)[1] at the same level. To address this preferential response to frequency, the A-weighted scale was developed. The A-weighted scale adjusts the sound level in each frequency band in much the same manner that the

[1] D.W. Robinson and R.S. Dadson, "A Re-Determination of the Equal-Loudness Relations for Pure Tones," *British Journal of Applied Physics*, vol. 7, pp. 166 - 181, 1956. (Adopted by the International Standards Organization as Recommendation R-226.

human auditory system does. Thus the A-weighted sound level (read as "dBA") becomes a single number that defines the level of a sound and has some correlation with the sensitivity of the human ear to that sound. Different sounds with the same A-weighted sound level are perceived as being equally loud. The A-weighted noise level is commonly used today in environmental noise analysis and in noise regulations. Typical values of the A-weighted sound level of various noise sources are shown in Figure A-1.

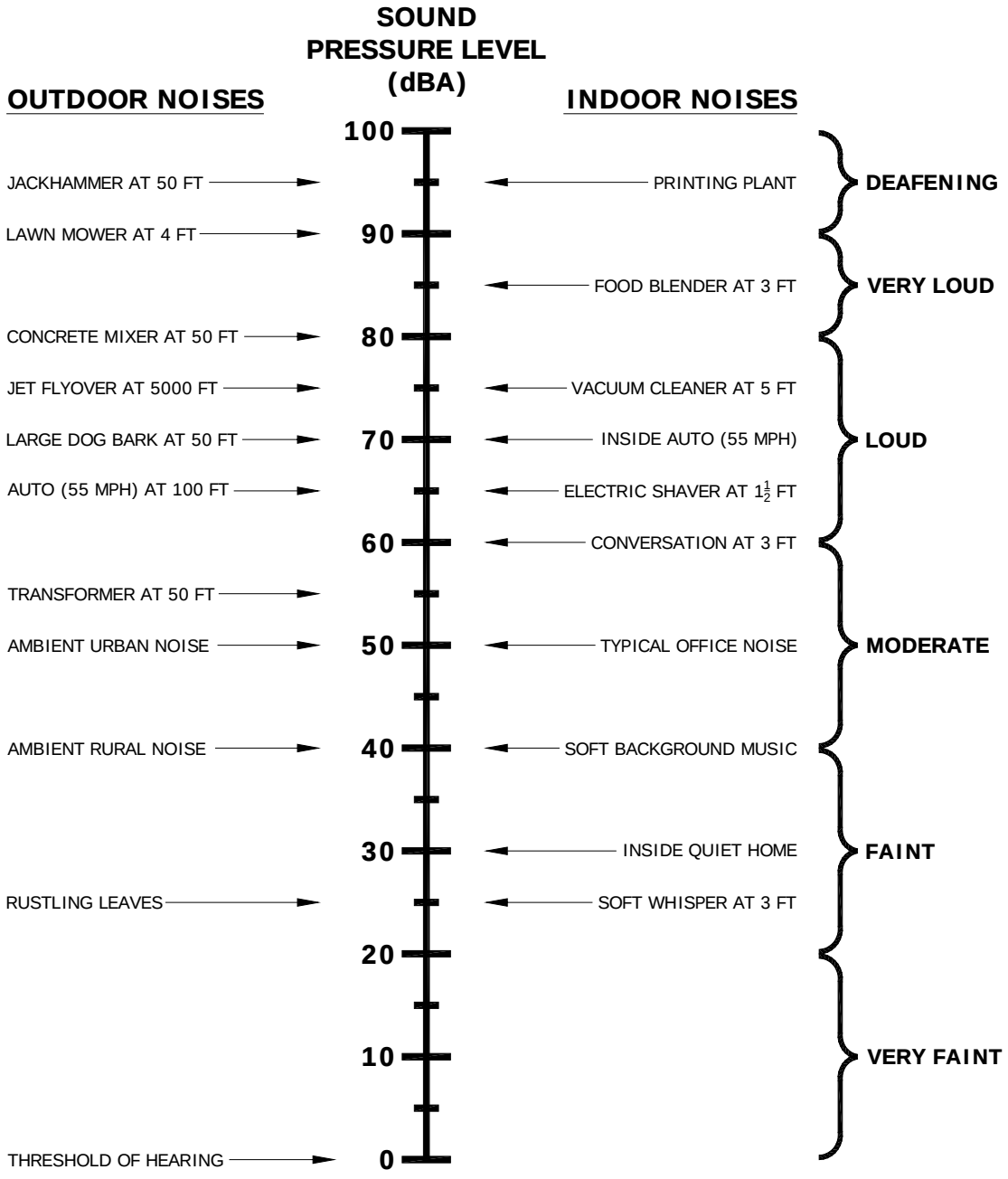

Figure A-1. Common Outdoor/Indoor Sound Levels

Equivalent Sound Level

The Equivalent Sound Level (L_{eq}) is a type of average which represents the steady level that, integrated over a time period, would produce the same energy as the actual signal. The actual *instantaneous* noise levels typically fluctuate above and below the measured L_{eq} during the measurement period. The A-weighted L_{eq} is a common index for measuring environmental noise. A graphical description of the equivalent sound level is shown in Figure A-2.

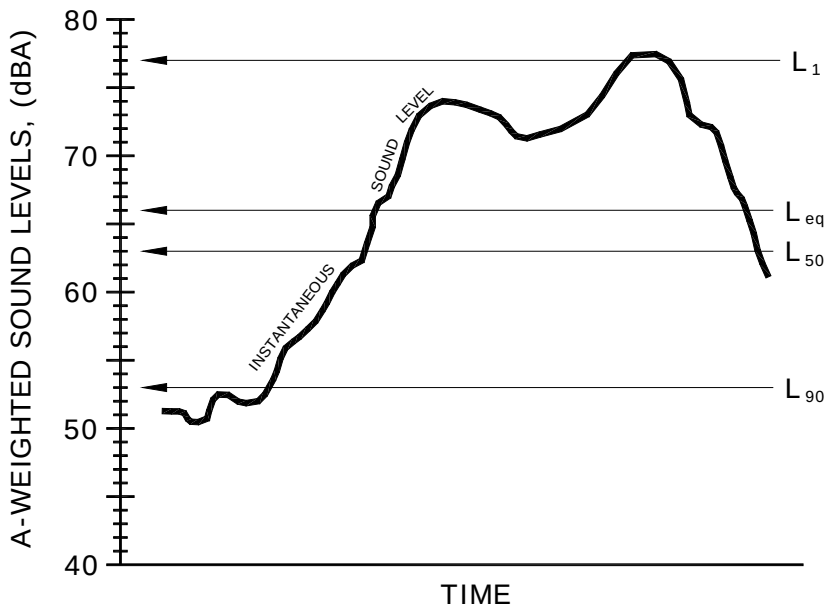

Figure A-2. Example Graph of Equivalent and Statistical Sound Levels

Statistical Sound Level

The sound levels of long-term noise producing activities such as traffic movement, aircraft operations, etc., can vary considerably with time. In order to obtain a single number rating of such a noise source, a statistically-based method of expressing sound or noise levels has been developed. It is known as the Exceedence Level, L_n. The L_n represents the sound level that is exceeded for n% of the measurement time period. For example, L_{10} = 60 dBA indicates that for the duration of the measurement period, the sound level exceeded 60 dBA 10% of the time. Typically, in noise regulations and standards, the specified time period is one hour. Commonly used Exceedence Levels include L_{01}, L_{10}, L_{50}, and L_{90}, which are widely used to assess community and environmental noise. A graphical description of the equivalent sound level is shown in Figure A-2.

Day-Night Equivalent Sound Level

The Day-Night Equivalent Sound Level, L_{dn}, is the Equivalent Sound Level, L_{eq}, measured over a 24-hour period. However, a 10 dB penalty is added to the noise levels recorded between 10 p.m. and 7 a.m. to account for people's higher sensitivity to noise at night when the background noise level is typically lower. The L_{dn} is a commonly used noise descriptor in assessing land use compatibility, and is widely used by federal and local agencies and standards organizations.

Morden & Associates

Botanical and Environmental Consultants

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6 October 2005

Mr. Glenn Kimura
Kimura International, Inc.
1600 Kapiolani Blvd. Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura,

An Environmental Assessment (EA) of the botanical resources was carried out on the proposed expansion of Kamokila Blvd between the OR&L ROW and Roosevelt Avenue. The Kapolei area in general is a rapidly growing center on the Island of Oahu, and the area under consideration here is planned for future development, and in particular the continuation of Kamokila Blvd through to Roosevelt Avenue. The site was visited on 23 June 2005 to carry out the botanical assessment of the property, in particular looking for threatened or endangered species. There are several known endangered species in the vicinity of Kapolei that could potentially have been at this site. The principal species include *Abutilon menziesii*, *Chamaesyce skottsbergii* var. *skottsbergii*, and *Achryanthes splendens* var. *rotundata*.

The soil for this community is primarily weathered coralline substrate that is prevalent throughout the Ewa Plains. The general topography of this site is flat with no significant grade. As such, drainage of the site could be a problem if significant rains occur, but the soil substrate is porous and would absorb much of the water.

The habitat at this site may be characterized as an open grassland with intermittent herbaceous vegetation and localized woodlands. There was evidence that the area under consideration had been recently mowed and some of the larger trees cleared up to the fence line that parallels Roosevelt Avenue. However, plant were still present and identifiable.

No threatened or endangered species were found during the course of this survey. Two native Hawaiian species were found at the site: *'ilima* (*Sida fallax*) and *'uhaloa* (*Waltheria indica*). Both of these species are indigenous to the Hawaiian Islands and are common in this habitat. A number of weeds common to this habitat (xeric coastal plains with coralline soils) were present. A list of the species found is appended to this letter.

The predominant vegetation throughout the site was *kiawe* (*Prosopis pallida*) in wooded areas and buffelgrass in the understory of the trees and throughout the open areas. The wooded areas with canopy vegetation is located between the railroad tracks and the fence line paralleling Roosevelt Avenue. The larger *kiawe* trees are 30 to 35 feet tall although juvenile and middle size trees were present throughout, Other smaller trees include *koa haole* (*Leucaena leucocephala*) and a single young *'opiuma* (*Pithecellobium dulce*) were present primarily along the fence.

The area along the fence line on the Roosevelt Avenue side was dominated by bufflegrass (*Cenchrus ciliaris*) with occasional koa haole, kiawe, and a single *'opiuma* trees found there. Occasional other herbs (ie, lion's ear and currant tomato) or vines (hairy merremia) were found growing with the grass or on the fence, but in general it was very heavy growth and impenetrable by most other species. Some species such as the currant tomato were found only as dried leaf material. These plants are annuals and completed their growing cycle earlier in the year, following which they plants withered.

Other species that are known to become dominant species in other habitats but were not here include Guinea grass (Panicum maximum) and koa haole (*Leucaena leucocephala*) and sourbush (*Pluchea symphytifolia*). The limitations to the growth of these species could be due to a less suitable soil substrate for their growth, drier climatic conditions limiting their growing season, or a combination of the two. Sourbush in particular is known to require much wetter conditions to for it to become a dominant vegetation, and is found in such situations in neighboring plant communities with higher moisture content.

Other alien species found growing at the site are common weedy species to dry, coastal areas. None of these others are known to become dominant vegetation under these conditions.

Please feel free to contact me if other information is needed regarding the plants and vegetation community at the Kamokila Boulevard expansion location.

Sincerely,

Clifford W. Morden
Botanist

Species List for Proposed Kamokila Blvd Expansion, Kapolei, Oahu.

Species status is listed as native to the Hawaiian islands being either endemic (only found in Hawaii), indigenous (found naturally in Hawaii and elsewhere), of Polynesian introduction, or of recent introduction by human vectors and having naturalized in Hawaii.

Species	Common Name	Status	Site Abundance
Acanthaceae			
Asystasia gangetica	Chinese violet	naturalized	occasional
Amaranthaceae			
Amaranthus spinosus	spiny amaranth	naturalized	occasional
Asteraceae			
Pluchea symphytifolia	sourbush	naturalized	occasional
Tridax procumbens	coat buttons	naturalized	occasional
Verbecina encelioides	golden crown-beard	naturalized	locally common
Chenopodiaceae			
Atriplex semibaccata	Australian saltbush	naturalized	locally common
Convolvulaceae			
Ipomoea cairica	ivy-leaved morning glory	naturalized	occasional
Merremia aegyptia	hairy merremia	naturalized	locally common
Cucurbitaceae			
Momordica charantia	bitter melon	naturalized	occasional
Euphorbiaceae			
Chamaesyce hirta	hairy spurge	naturalized	common
Chamaesyce hypericifolia	graceful spurge	naturalized	common
Chamaesyce prostrata	prostrate spurge	naturalized	common
Ricinus communis	castor bean	naturalized	occasional
Fabaceae			
Leucaena leucocephala	*koa haole*	naturalized	common
Pithecellobium dulce	*'opiuma*	naturalized	one
Prosopis pallida	*kiawe*	naturalized	common
Lamiaceae			
Leonotis nepetifolia	lion's ear	naturalized	locally common
Malvaceae			
Abutilon grandifolium	hairy abutilon	naturalized	occasional
Sida fallax	*'ilima*	indigenous	common
Passifloraceae			
Passiflora foetida	love-in-a-mist	naturalized	locally common

Poaceae			
Cenchrus cililaris	bufflegrass	naturalized	abundant
Panicum maximum	Guinea grass	naturalized	rare
Solanceae			
Lycopersicon pimpinellifolium	currant tomato	indigenous	locally common
Sterculiaceae			
Waltheria indica	*'uhaloa*	ind	occasional

The following photographs were taken at the survey site on 23 June 2005. Photographs illustrate the habitat and the more common species present. It is clear from these photographs that the survey site had been cleared of much of the vegetation.

Fig. 1. Vegetation at job site recently cut back.

Fig. 2 Trees near fence line trimmed and vegetation refuse in large pile.

Fig. 3. Bulldozed vegetation

Fig. 4. Vegetation along Roosevelt Ave. dominated by buffelgrass. Small *'opiuma* (left) and *koa haole* (center and right) trees across fence.

Fig. 5. Vegetation cover along Roosevelt Ave showing nearly complete cover of buffelgrass. Vines of *Passiflora foetida* and *Merremia aegyptia* growing on fence.

Fig. 6. Kiawe thicket. Buffelgrass in foreground

Fig. 7 Mowed buffelgrass

Fig. 10. *Abutilon grandifolium* (hairy abutilon), naturalized species.

Fig. 8. *Sida fallax* (‘*ilima*), indigenous species found commonly at the site. Buffelgrass is prevalent throughoug and young kiawe tree in background.

Fig. 11. *Asystasia gangetica* (Chinese violet), naturalized species.

Fig. 9. *Waltheria indica* (*‘uhaloa*), indigenous species found occasional throughout the site.

Fig. 12. *Atriplex semibaccata* (Australian saltbush), naturalized.

Fig. 13. *Cenchrus ciliaris* (buffelgrass), naturalized and invasive species. This is the dominant vegetation of understory and open habitats.

Fig. 16. *Merremia aegyptia* (hairy merremia), naturalized species. Vine growing on fence and over other vegetation.

Fig. 14. *Chamaesyce hypericifolia* (graceful spurge), naturalized species.

Fig. 17. *Momordica charantia* (bitter melon), naturalized species.

Fig. 15. *Ipomoea cairica* (ivy-leaved morning glory), naturalized species.

Fig. 18. *Panicum maximum* (Guinea grass), naturalized species.

Fig. 19. *Passiflora foetida* (love-in-a-mist), naturalized species.

Fig. 21. *Tridax procumbens* (coat buttons), naturalized species.

Fig. 20. *Ricinus communis* (castor bean), naturalized species.

Fig. 22. *Verbisina encelioides* (golden crown-beard), naturalized species.

A Survey of Avian and Terrestrial Mammalian Species of the Kamokila Boulevard Extension Project Site, ‘Ewa District, O‘ahu, Hawai‘i.

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February 2006

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Introduction

This report summarizes the findings of a faunal survey conducted on an approximately 450-foot by 200-foot parcel of land identified as a portion of TMK: 9-1-016:01, 32 and 12 located in Kapolei, 'Ewa District, Island of O'ahu (Figure 1). The State of Hawai'i, Department of Transportation, Highways Division (HDOT) is proposing to extend Kamokila Boulevard between the Campbell Estate's planned Kamokila Boulevard extension and the existing Franklin D. Roosevelt Avenue (Figure 2).

The primary purpose of the survey was to determine if there were any federally or State of Hawai'i listed endangered, threatened, proposed, or candidate avian or mammalian species on, or in the immediate vicinity of the site. In addition, to the study we assessed the probability of any usage of the site by listed avian and mammalian species given the habitat currently found within the site. Federal and State of Hawai'i listed species status follows species identified in the following referenced documents (DLNR, 1998, Federal Register, 1999a, 1999b, 2001, 2002, 2004). Fieldwork was conducted on August 26th, 2005.

Avian phylogenetic order and nomenclature follows *The American Ornithologists' Union Checklist of North American Birds 7th Edition* (American Ornithologists' Union 1998), and the 42nd through the 45th supplements to *Check-list of North American Birds* (American Ornithologists' Union 2000; Banks et al. 2002, 2003, 2004). Mammal scientific names follow *Mammals in Hawaii* (Tomich 1986). Plant names follow *Manual of the Flowering Plants of Hawai'i* (Wagner et al. 1990, 1999). Place names follow *Place Names of Hawaii* (Pukui et al. 1974).

Hawaiian and scientific names are italicized in the text. A glossary of technical terms and acronyms used in the document, which may be unfamiliar to the reader, are included at the end of the narrative text on (Page 9).

General Site Description

The site is located approximately 700-feet south of the of the intersection of Kamokila Boulevard and Kapolei Parkway, at an elevation of approximately 59-feet above mean sea level (Figure 1 & 2). The site is relatively level and is bound to the north by the OR&L right-of-way and to the south by Franklin D. Roosevelt Avenue (Figure 2).

The vegetation present on the site is dominated by alien species almost to the exclusion of native ones. The dominant species include bufflegrass (*Cenchrus ciliaris*), *kiawe* (*Prosopis pallida*) and *koa haole* (*Leucaena leucocephala*) and several other weedy species commonly associated with ruderal areas in the 'Ewa plains of O'ahu. Much of the

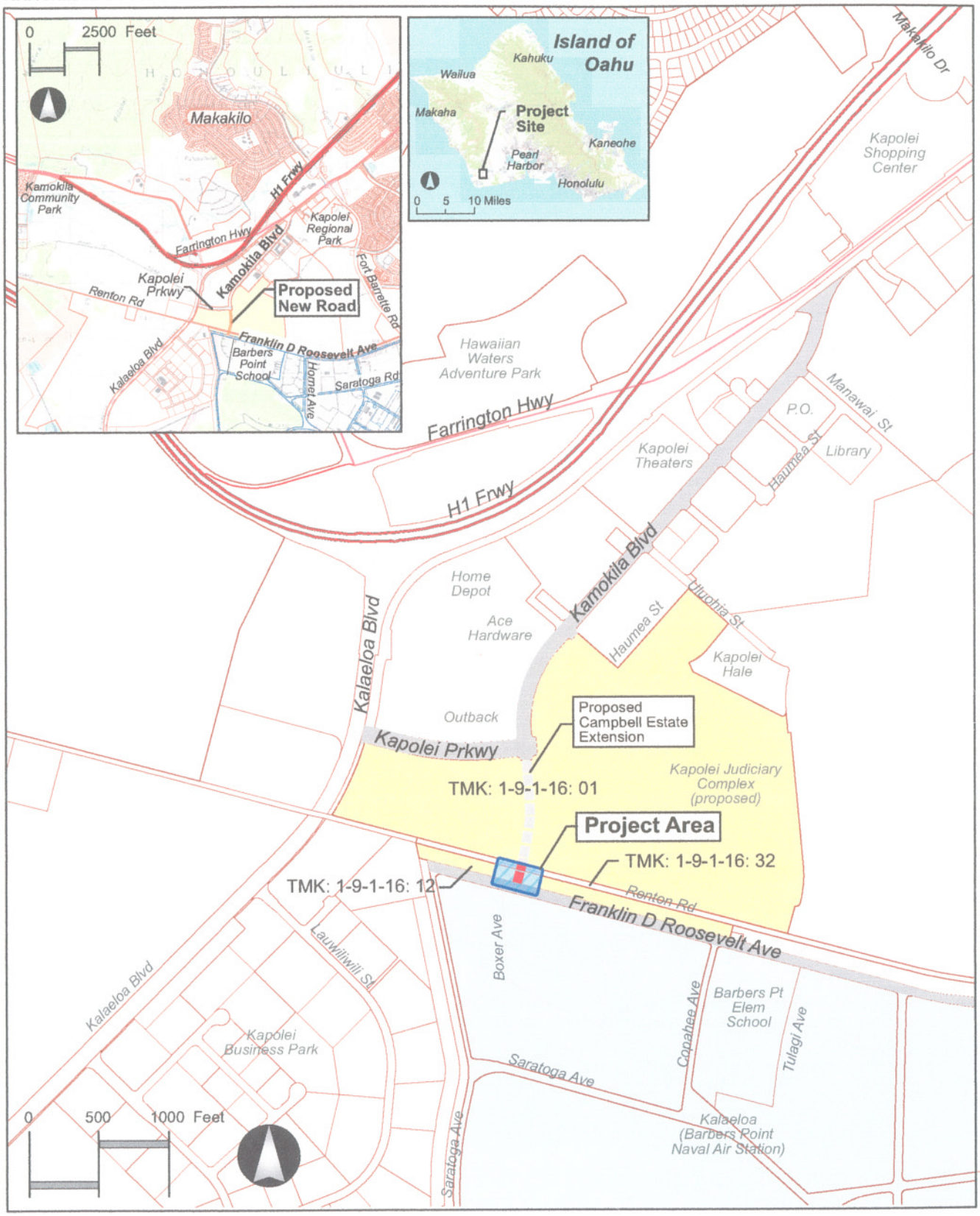

Figure 1
Project Location

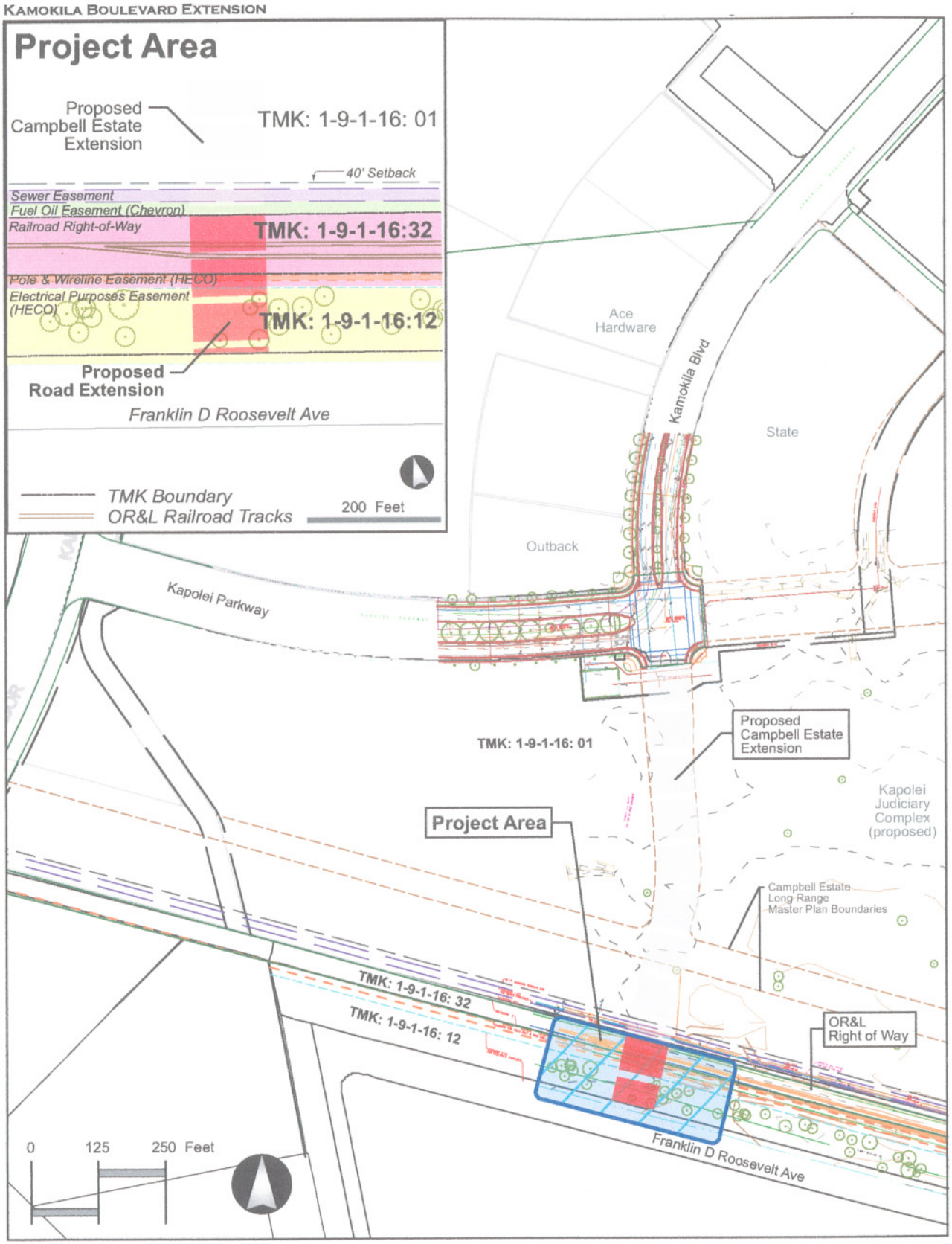

Figure 2
Study Area

site has recently been cleared and signs of herbicide application are evident along the railroad tracks, Franklin D. Roosevelt Avenue and the former Barber's Point Naval Air Station perimeter fence.

Mammalian Survey Methods

All observations of mammalian species were of an incidental nature. With the exception of the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), or *'ōpe'ape'a* as it is known locally, all terrestrial mammals currently found on the Island of O'ahu are alien species, most are ubiquitous. No trapping program was proposed or undertaken to quantify the use of the area by alien mammalian species. The survey of mammals was limited to visual and auditory detection, coupled with visual observation of scat, tracks, and other animal sign. A running tally was kept of all vertebrate species observed and heard within the study area.

Mammalian Survey Results

Two mammalian species; domestic dog (*Canis f. familiaris*), and small Indian mongoose (*Herpestes a. auropunctatus*) were detected within the study site. Neither of these species were seen, however, scat, tracks and sign of both species was encountered within the site. Both of these introduced mammalian species are deleterious to native avian species.

Avian Survey Methods

One avian count station were sited in the middle of the study site. Two six-minute point counts were conducted one at 6:30 a.m. and the second at 7:45 a.m. at this station. Field observations were made with the aid of Leitz 10 X 42 binoculars and by listening for vocalizations. Counts were concentrated between 07:00 a.m. and 9:00 a.m., the peak of daily bird activity. Time not spent counting was used to search the area for species and habitats not detected during count sessions.

Avian Survey Results

Forty-one individual birds of nine different avian species, representing eight separate families were recorded during the course of this survey (Table 1). One species, the Pacific Golden-Plover (*Pluvialis fulva*) is an indigenous migratory species. This shorebird spends the winter months in Hawai'i, leaving for it's breeding grounds in the high Arctic in late April each year. The remaining eight species detected during the course of this survey are considered to be alien to the Hawaiian Islands (Table 1).

Table 1

Avian Species Detected Kamokila Boulevard Extension Project

Common Name	*Scientific Name*	*ST*	*RA*
	PHASIANIDAE - Pheasants & Partridges		
	Phasianinae - Pheasants & Allies		
Grey Francolin	*Francolinus pondserianus*	A	0.5
	CHARADRIIFORMES		
	CHARADRIIDAE – Lapwings & Plovers		
Pacific Golden-Plover	*Pluvialis fulva*	IM	0.5
	COLUMBIFORMES		
	COLUMBIDAE – Pigeons & Doves		
Spotted Dove	*Streptopelia chinensis*	A	2.5
Zebra Dove	*Geopelia striata*	A	5.0
	PASSERIFORMES		
	PYCNONOTIDAE - Bulbuls		
Red-vented Bulbul	*Pycnonotus cafer*	A	1.5
	ZOSTEROPIDAE – White-Eyes		
Japanese White-eye	*Zosterops japonicus*	A	2.0
	STURNIDAE - Starlings		
Common Myna	*Acridotheres tristis*	A	2.5
	FRINGILLIDAE – Fringilline and Carduleline Finches & Allies		
	Carduelinae - Carduline Finches		
House Finch	*Carpodacus mexicanus*	A	3.0
	ESTRILDIDAE – Estrildid Finches		
	Estrildinae - Estrildine Finches		
Common Waxbill	*Estrilda astrild*	A	3.0

KEY TO TABLE 1

ST Status
IM Indigenous Migrant – a native migratory species that winters in Hawai'i but breeds elsewhere
A Alien – introduced to the Hawaiian Islands by humans
RA Relative Abundance – Number of birds detected divided by the number of count stations (2)

Avian diversity and densities were low, not surprising given the xeric conditions, coupled with the highly disturbed nature of this semi-industrial site. Zebra Doves (*Geopilia striata*) were the most numerous species bird recorded, accounting for slightly more than 24% of the total number of individual birds recorded during station counts. No avian species currently listed by either the U.S. Fish and Wildlife Service under the Endangered Species Act of 1973, as amended, or by the State of Hawai'i under it's endangered species program were detected within the study area (DLNR 1998, Federal Register 1999a, 1999b, 2001, 2002, 2004).

Discussion

A one-time survey cannot provide a total picture of the wildlife using any given area. Certain species will not be detected for one reason or another. Seasonal variations in populations, coupled with seasonal availability and use of resources, will cause different use patterns throughout a year and, in fact, over a number of years.

The findings of the mammalian survey are consistent with the findings of several others faunal surveys conducted on lands in the general vicinity of the subject property in the recent past (David, 2000, 2001, 2004, 2005). The xeric nature of the site coupled with it's lack of cover makes the site rather unattractive to most of the mammalian species currently established on the Island of O'ahu.

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, especially given the generally proximity of several restaurants to the site. Without conducting a trapping program, it is difficult to assess the population densities of these often hard-to-see mammals. All of these introduced rodents are deleterious to remaining native ecosystems and the native floral and faunal species that are dependant on them for their survival.

The findings of the avian survey are consistent with the findings of several other recent surveys conducted in the low lying areas in the 'Ewa District in the recent past (David, 2000, 2001, 2004, 2005). With the exception of the one Pacific Golden-Plover detected flying over the site, all other avian species recorded are considered to be alien to the Hawaiian Islands. Pacific Golden-Plover is one the three more frequently encountered indigenous migratory shorebirds found in Hawai'i during the late summer and winter months.

Conclusion

It is not expected that the modification of the habitat currently found on the site or the construction of the planned road improvements will have a negative impact on any avian or mammalian species currently listed as endangered, threatened, proposed, or as a candidate for listing under either federal or State of Hawai'i endangered species statutes.

Glossary

Alien - Introduced to Hawai'i by humans.
Domesticated – Feral species, not considered established in the wild on the Island of O'ahu
Endangered – Listed and protected under the ESA as an endangered species.
Endemic – Native and unique to the Hawaiian Islands
Indigenous - Native to the Hawaiian Islands, but also found elsewhere naturally.
Mauka – Upslope, towards the mountains
Ruderal – Disturbed, rocky, rubbishy areas, such as old agricultural fields and rock piles
Threatened - Listed and protected under the ESA as a threatened species.
Xeric – Extremely dry conditions or habitat.

DLNR – Hawaii State Department of Land & Natural resources.

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TPD06-00040

February 9, 2006

Ms. Gina Shultz, Acting Field Supervisor
U.S. Fish and Wildlife Service
Pacific Islands Office
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P.O. Box 50088
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Dear Ms. Shultz:

Subject: Section 7, ESA Consultation
Kamokila Boulevard Extension, Kapolei, Honouliuli Ahupua'a
Ewa District, Oahu, TMK (1) 9-1—16: 012, 032

The City and County of Honolulu Department of Transportation Services (DTS), on behalf of the U.S. Department of Transportation, Federal Highway Administration (FHWA), would like to notify you of its determination of "no effect" for the above referenced project.

The DTS proposes to construct approximately 200 linear feet of roadway to extend Kamokila Boulevard. The project site is the City of Kapolei, located in the Ewa plain on the southwestern end of the island of Oahu. The project includes federal funding, and as such, we are conducting consultation in accordance with Section 7 of the Endangered Species Act.

The Estate of James Campbell (EJC), a major landowner in the area, is currently in final design to construct a 1,000 foot extension of Kamokila Boulevard from its current terminus near Kapolei Parkway. The EJC improvements are entirely privately-funded. The DTS project will continue the Kamokila Boulevard extension from that point, and connect to Franklin D. Roosevelt Avenue. This last segment is a critical component in improving roadway connectivity in the Kapolei region (Figure 1 & 2).

FEB 10 2006

Botanical Resources

An assessment of the botanical resources on site was conducted in July 2005 (Morden & Associates). A copy of the letter report is attached for your information. The objective of the study was to describe the existing vegetation, and to identify the presence of threatened or endangered species.

The habitat at the site is characterized by open grassland with intermittent herbaceous vegetation and localized woodlands. A number of weeds common to this habitat (xeric coastal plains with coralline soils) were present. Two native Hawaiian species were found at the site: 'ilima (*Sida fallax*) and 'uhaloa (*Waltheria indica*). Both of these species are indigenous to the Hawaiian Islands and are common in this habitat.

Although several known endangered plant species are known to exist in the Ewa region *(Abutilon menziesii, Chamaesyce skottsbergii var skottsbergii*, and *Achyranthes splendens var. rotundata),* none of these species were found during the survey.

Terrestrial Wildlife and Avian Resources

A survey of avian and terrestrial mammalian species in the project area was conducted in August 2005 (Rana Productions, Ltd. 2005), and is attached for your information. The primary purpose of the survey was to determine if there were any federally or State listed endangered, threatened, proposed, or candidate avian or mammalian species on, or in the immediate vicinity of the site.

The findings of the mammalian survey are consistent with the findings of several other faunal surveys conducted on lands in the general vicinity. The xeric nature of the site coupled with its lack of cover makes it unattractive to most of the mammalian species currently established on Oahu. No threatened or endangered species were identified in the area.

No avian species currently listed by either the U.S. Fish and Wildlife Service (USFWS) under the Endangered Species Act of 1973 or the State of Hawaii's endangered species program were detected.

No Effect Determination

Based on the results of these studies, the DTS has determined that this project will have no effect on any rare, threatened or endangered species, or designated critical habitat.

We request your written concurrence with this determination.

If you have any questions, please contact Mr. Brian Suzuki at 527-6880.

Sincerely,

MELVIN N. KAKU
Acting Director

Attachments

Archaeological Assessment and Cultural Impact Evaluation for the Kamōkila Boulevard Extension Project at Kapolei, Honouliuli Ahupuaʻa, ʻEwa District Oʻahu

TMK: (1) 9-1-016:001, 012, 032

Prepared for

Kimura International, Inc.

Prepared by

Constance R. O'Hare, B.A.

David W. Shideler, M.A.,

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Cultural Surveys Hawaiʻi, Inc.

Kailua, Hawaiʻi

(Job Code: KAPO 10)

February 2006

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Management Summary

Reference	Archaeological Assessment and Cultural Impact Evaluation for the Kamōkila Boulevard Extension Project at Kapolei, Honouliuli Ahupua‘a, ‘Ewa District O‘ahu
Date	February 2006
Project Number (s)	Cultural Surveys Hawai‘i Inc. (CSH) Job Code: KAPO 10
Investigation Permit Number	Fieldwork was performed under CSH’s annual archaeological research permit, No. 0508, issued by DLNR / SHPD
Project Location	Kapolei, Honouliuli Ahupua‘a, ‘Ewa District O‘ahu, TMK: (1) 9-1-016:001, 012, 032
Land Jurisdiction	State of Hawai‘i Department of Transportation (DOT)
Agencies	State of Hawai‘i Department of Land and Natural Resources / State Historic Preservation Division (DLNR / SHPD); Hawai‘i Railway Society; Hawai‘i State DOT
Project Description	The State Department of Transportation (DOT) is planning to construct an extension of Kamōkila Blvd. from the present southern termination (at its junction with the Kapolei Parkway) south to Franklin D. Roosevelt Ave. The current project area consists of Area B of this extension, which extends from the OR&L right-of-way south to Franklin D. Roosevelt Ave.
Project Acreage	Rectangular area 350 by 200 feet (107 by 61 meters)
Historic Preservation Regulatory Context	The CSH study was conducted to fulfill HAR 13-276 and 13-284
Fieldwork Effort	Field work was accomplished on October 19, 2005 by Constance R. O’Hare, B.A.
Number of Historic Properties Identified	Previously Identified Site 50-80-12-9714, the Oahu Railway and Land Co (OR&L) right-of-way. This right-of-way has an original main line track, a siding, and two railway cars on the siding owned by the Hawai‘i Railway Society. The railroad cars are outside the project area.
Historic Properties Recommended Eligible to the Hawai‘i Register of Historic Places (Hawai‘i Register)	Site 50-80-12-9714 was placed on the National Register of Historic Places on December 1, 1975.
Historic Properties Recommended Ineligible to the Hawai‘i Register	None.
Area of Potential Effect (APE) and Survey Acreage	For this archaeological assessment and cultural impact evaluation, the project’s APE is defined as the entire project area, the adjacent main line track, siding, and railroad cars.
Mitigation Recommendation	It is recommended that mitigation measures be worked out in a Memorandum of Understanding that would include as parties 1) the State Historic Preservation Division, 2) the State of Hawaii Department of Transportation (understood as the land owner of the right-of-way), 3) the City and County of Honolulu, and 4) the Hawaiian Railway Society.

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Section 1 Introduction

1.1 Project Background

Cultural Surveys Hawai‘i. Inc. has recently conducted an archaeological assessment and cultural impact evaluation for the Kamōkila Boulevard Extension Project at Kapolei, Honouliuli Ahupua‘a, ‘Ewa District, O‘ahu (TMK:1-9-1-016:002, 004, 032) (Figure 1 and Figure 2). Area A of the extension crosses Campbell Estate Lands and runs from the present termination of Kamōkila Blvd. to the OR&L Right-of-Way. Area B for the project is a 350 ft (feet) by 200 ft, or 107 m (meters) by 61 m, rectangular area, extending from the OR&L Right-of-Way to Franklin D. Roosevelt Avenue. The current project concerns only Area B of this proposed extension of Kamōkila Blvd.; Area B is owned by the State of Hawai‘i.

One historic site, a portion of the historic OR&L rail lines (Site 50-80-12-9714) is within the project area. Our preliminary research indicates all of the project area has been formally evaluated and determined to be free of all other historic resources by the Department of Land and Natural Resources/State Historic Preservation Division (DLNR/SHPD). Regarding the cultural impact evaluation for the proposed project, there seems to be little likelihood that the undertaking will impact any ongoing cultural practices. No traditional Hawaiian sites have been previously reported on the project area, and no new traditional Hawaiian or post-contact sites were found during a recent field check; thus, this report is considered an archaeological assessment, not an inventory survey.

No formal interviews were conducted for this report. This does not meet the standards set up by the State of Hawaii Office of Environmental Quality Control (OEQC) for cultural impact assessments, but the level of work is regarded as sufficient to address the potential of cultural practices (or lack thereof) specific to the project area.

1.2 Scope of Work

This combined field assessment and cultural impact evaluation details research and field inspection methods and presents a summary of all findings. This report assesses both the potential for significant historic properties (archaeological/historical potential) and potential impacts to cultural practices.

The scope of work for the combined assessment includes:

1) Historical and previous archaeological background research to include study of archival sources, historic maps, Land Commission Awards and previous archaeological reports to construct a history of land use and to determine if archaeological sites have been recorded on or near this property.

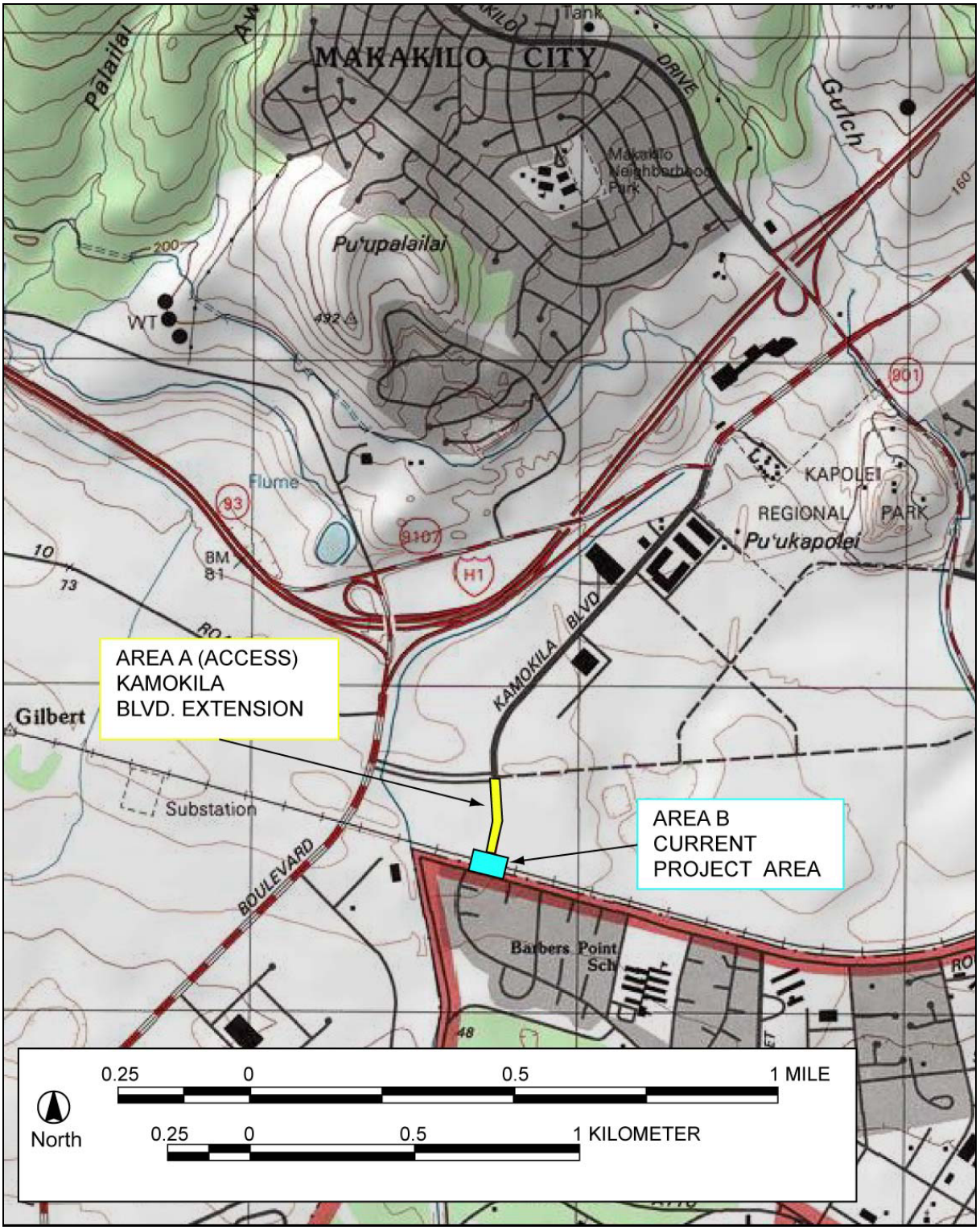

Figure 1. US Geological Survey (1998), Barbers Point Quad, showing project area (Area B: blue box) and proposed Kamōkila Blvd. Extension (Area A: yellow box)

Figure 2. Tax Map Key 9-1-016, showing project area (Area B of Kamōkila Blvd. Extension)

2) Field inspection of the project area to identify any surface archaeological features and to investigate and assess the potential for impact to such sites. This assessment will identify any sensitive areas that may require further investigation or mitigation before the project proceeds.

3) Limited consultation with knowledgeable parties in the community.

4) Preparation of a report to include the results of the historical research and the fieldwork with an assessment of archaeological potential based on that research, with recommendations for further archaeological work, if appropriate. It also provides mitigation recommendations if there are archaeologically sensitive areas that need to be taken into consideration.

The report assesses the likelihood that the proposed project will impact cultural practices. This assessment is based on the background research, the review of land use within the vicinity of the project area, and limited consultation. No formal interviews were conducted, but informal consultations were undertaken and reported.

1.3 Environmental Setting

1.3.1 Natural Environment

Honouliuli Ahupua‘a is the largest traditional land unit on O‘ahu, extending from the West Loch of Pearl Harbor in the east, to the border of Nānākuli Ahupua‘a at Pili o Kahe in the west. Honouliuli Ahupua‘a includes approximately 19 km (kilometers), or 12 mi (miles) of open coastline from One‘ula westward to Pili o Kahe. The *ahupua‘a* extends *mauka* (inland) from West Loch nearly to Schofield Barracks in Wahiawā; the western boundary is the Wai‘anae Mountain crest running north as far as Pu‘u Hāpapa (or to the top of Ka‘ala Mountain, according to some).

Lying in the lee of the Wai‘anae mountain range, the project area is one of the driest areas of O‘ahu, with most of the area averaging about 18 inches of rainfall annually (Juvik and Juvik 1998:56). Temperatures range between 60° to 90° through the year; the highest temperatures are in August and September (Armstrong 1973). Elevation in the project area is less than 20 ft (6 m) AMSL (above mean sea level). The project area is located on the ‘Ewa Plain, which is a Pleistocene (>38,000 years old) reef platform overlain by alluvium from the southern end of the Wai‘anae Mountain Range. This alluvium supported commercial sugar cane cultivation for over a century. The soil in this area is from the Mamala Series (MnC, Mamala stony silty clay loam, 0 to 12 percent slopes), shallow, well-drained soils along the coastal plains, which formed in alluvium deposited over coral limestone and consolidated calcareous sand. Stones, mostly coral rock fragments, are common in the surface layer and in the profile. These soils are usually used for sugarcane, truck crops, orchards, and pasture. The natural vegetation consists of *kiawe* (*Prosopis pallida*), *koa haole* (*Leucaena glauca*), bristly foxtail (*Setaria verticillata*), and swollen fingergrass (*Chloris inflata*).

In pre-contact Hawai‘i the project area would have been mostly lowland dry shrub and grassland, dominated by species such as *wiliwili* (*Erythrina sandwicensis*), *lama* (*Diospyros*

ferrea), sandalwood (*Santalum* sp.), *‘a‘ali‘i* (*Dodonea eriocarpa*), scrub *‘ōhi‘a* (*Metrosideros collina*) and *pili* grass (*Heteropogon contortus*). Today the vegetated portion of the project area is dominated by introduced species such as *kiawe* and *koa haole*. Understory plants include *‘ilima ku kula* (*Sida cordifola*), cayenne vervain (*Stachytarpheta urticaefolia*), *ko‘oko‘olau* (*Bidens pilosa*), and morning glory (*Ipomoea indica*) (Moore and Kennedy 2002:3). The vast majority of the project area is a graded, level area covered with low grass.

1.3.2 Built Environment

In the post-contact period the project area has been mainly used as pastureland and for sugar cane irrigation and cultivation. A portion of the project area is within the Oahu Railway and Land Company right-of-way.

Section 2 Methods

Background research included a review of previous archaeological studies on file at the State Historic Preservation Division, and a review of geology and cultural history documents at Hamilton Library at the University of Hawai‘i, the Hawai‘i State Archives, the Hawai‘i Public Library, and the Archives of the Bishop Museum. Further research included a study of historic photographs at the Archives of the Bishop Museum and a study of historic maps at the Survey Office of the Department of Accounting and General Services.

2.1 Field Methods

The field assessment of the project area was conducted on December 15, 2005 by CSH staff archaeologist, Constance R. O’Hare, B.A., under the general direction of Hallett H. Hammatt, Ph.D. Photographs of the area and of the two railroad cars on the O.R.& L railroad were taken. A personal (not charged to client) trip was also made on the Hawai‘i Railway Society’s tourist train trip from Ewa Station to Kahe Point on December 18, 2005. This train ride passes through the project area.

Section 3 Background Research

3.1 Mythological and Traditional Accounts

The traditions of Honouliuli Ahupua‘a have been compiled by several authors, in studies by Sterling and Summers (1978), Hammatt and Folk (1981), Kelly (1991), Charvet-Pond and Davis (1992), Maly (1992), and Tuggle and Tomonari-Tuggle (1997). Some of the traditional themes associated with this area include connections with Kahiki, the traditional homeland of Hawaiians in central Polynesia. There are several versions of the chief Kaha‘i leaving from Kalaeloa for a trip to Kahiki; on his return to the Hawaiian Islands he brought back the first breadfruit (Kamakau 1991a:110) and planted it at Pu‘uloa, near Pearl Harbor in ‘Ewa (Beckwith 1940:97). Several stories associate places in Honouliuli to the gods Kāne and Kanaloa, with the Hawaiian pig god Kamapua‘a and the Hina family, and with the sisters of Pele, the Hawaiian volcano goddess, all of who have strong connections with Kahiki (Kamakau 1991a:111; Pukui et al. 1974:200). The locations of traditional places names for Honouliuli are illustrated in Figure 3.

3.1.1 The Naming of ‘Ewa and Honouliuli

Honouliuli is the largest *ahupua‘a* in the *moku* (district) of ‘Ewa. One translation of the name for this district is given as “unequal” (*Saturday Press* Aug. 11, 1883). Others translate the word as “strayed” and associate it with the legends of the gods, Kāne and Kanaloa.

> When Kane and Kanaloa were surveying the islands they came to Oahu and when they reached Red Hill saw below them the broad plains of what is now Ewa. To mark boundaries of the land they would throw a stone and where the stone fell would be the boundary line. When they saw the beautiful land lying below them, it was their thought to include as much of the flat level land as possible. They hurled the stone as far as the Waianae range and it landed somewhere, in the Waimanalo section. When they went to find it, they could not locate the spot where it fell. So Ewa (strayed) became known by the name. The stone that strayed [Told to E.S. by Simeon Nawaa, March 22, 1954; cited in Sterling and Summers 1978:1].

Honouliuli means “dark water,” “dark bay,” or “blue harbor” and was named for the waters of Pearl Harbor (Jarrett 1930:22), which marks the eastern boundary of the *ahupua‘a*. The Hawaiians called Pearl Harbor, Pu‘uloa (*lit*. long hill). Another explanation for the names comes from the “Legend of Lepeamoa”, the chicken-girl of Pālama. In this legend, Honouliuli is the name of the husband of the chiefess Kapālama and grandfather of Lepeamoa (Thrum 1923:164-184). “Her grandfather gave his name, Honouliuli to a land district west of Honolulu . . .” (Thrum 1923:170). Westervelt (1963:209) gives an almost identical account.

It seems 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:

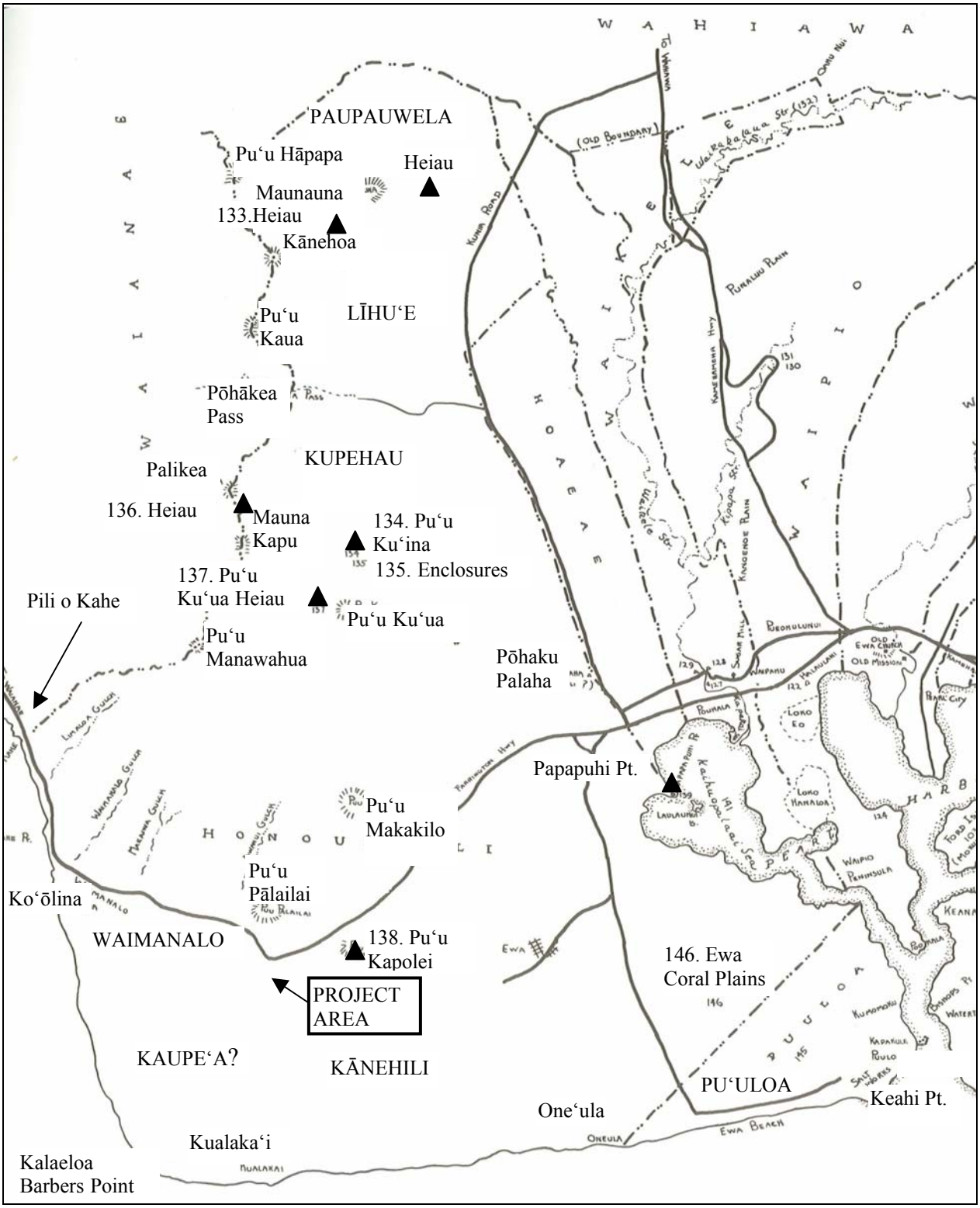

Figure 3. Place Names of Honouliuli; triangles mark *heiau* locations (map adapted from Sterling and Summers 1978)

> Eventually the stone was found at Pili o Kahe. This is a spot where two small hills of the Wai‘anae Range come down parallel on the boundary between Honouliuli and Nānākuli (‘Ewa and Wai‘anae). The ancient Hawaiians said the hill on the ‘Ewa side was the male and the hill on the Wai‘anae side was female. The stone was found on the Waianae side hill and the place is known as Pili o Kahe.
>
> (Pili=cling to, Kahe=flow). The name refers, therefore, to the female or Waianae side hill. And that is where the boundary between the two districts runs [Told to E.S. by Simeon Nawaa, March 22, 1954; cited in Sterling and Summers 1978:1].

3.1.2 Pu‘u o Kapolei and the Ewa Plains

Pu‘uokapolei is a prominent hill at the *mauka* edge of the coastal ‘Ewa Plains and was the primary landmark for travelers on the trail that ran from Pearl Harbor west to Wai‘anae (‘Ī‘ī 1959:27, 29; Nakuina 1992:54; E.M. Nakuina 1904, in Sterling and Summers 1978:34).

3.1.2.1 Pu‘u o Kapolei, Astronomical Marker and Heiau

Pu‘u means hill and Kapolei means “beloved Kapo,” a reference to the sister of the Hawaiian volcano goddess, Pele. Samuel Kamakau (1976:14) says that ancient Hawaiians used Pu‘uokapolei as an astronomical marker to designate the seasons. Samuel Kamakau (1870 *Mo‘olelo Hawai‘i* Vol. I, Chap. 2, p. 23) relates:

> . . . the people of O‘ahu reckoned from the time when the sun set over Pu‘uokapolei until it set in the hollow of Mahinaona and called this period Kau [summer], and when it moved south again from Pu‘uokapolei and it grew cold and the time came when young sprouts started, the season was called from their germination (‘*ōilo*) the season of Ho‘oilo [winter, rainy, season].

A *heiau* was once on Pu‘uokapolei, but had been destroyed by McAllister’s (1933:108) survey of the island in the early 1930s. The hill was used as a point of solar reference or as an observation place for such observations (Fornander 1919, Vol. VI, Part 2:292). Pu‘uokapolei may have been regarded as the gate of the setting sun, just as the eastern gate of Kumukahi in Puna is regarded as the rising sun; both places are associated with the Hawaiian goddess Kapo (Emerson 1915:41). This somewhat contradicts some Hawaiian cosmologies, in which Kū was the god of the rising sun, and Hina, the mother of Kamapua‘a was associated with the setting sun. Fornander (Fornander 1919, Vol. VI, Part 2:292) states that Pu‘uokapolei may have been a jumping off place (also connected with the setting sun) and associated with the wandering souls who roamed the plains of Kaupe‘a and Kāne-hili, *makai* of the hill.

3.1.2.2 Pu‘u Kapolei and Kamapua‘a

Pu‘uokapolei’s was the home of Kamapua‘a’s grandmother, Kamaunuaniho, who was one of the three migrants from Kahiki that were ancestors to the people of O‘ahu (Fornander 1919, Vol. V, Part 2:318; Kahiolo 1978:81, 107). Kamapua‘a, the Hawaiian pig god once lived in Kaluanui on the windward side, but escaped to ‘Ewa when he was pursued by the chief Olopana.

> Kamapua‘a subsequently conquered most of the island of O‘ahu, and, installing his grandmother [Kamaunuaniho] as queen, took her to Pu‘uokapolei, the lesser of the two hillocks forming the southeastern spur of the Wai‘anae Mountain Range, and made her establish her court there. This was to compel the people who were to pay tribute to bring all the necessities of life from a distance, to show his absolute power over all [Nakuina 1904:50-51].

Emma Nakuina goes on to note: “A very short time ago [prior to 1904] the foundations of Kamaunuaniho’s house could still be seen at Pu‘uokapolei.” Another account (*Ka Loea Kālai‘āina* January 13, 1900, from Sterling and Summers 1978:34) speaks of Kekeleaiku, the older brother of Kamapua‘a, who also lived on Pu‘uokapolei.

3.1.2.3 The Strife at Honouliuli; Kūali‘i unites Hawai‘i nei (*Mo‘olelo o Kūali‘i*)

The celebrated chief, Kūali‘i, is said to have led an army of twelve thousand (‘*ekolu mano*) against the chiefs of Ko‘olauloa with an army of twelve hundred (‘*ekolu lau*) upon the plains of Keahumoa (Fornander 1917 Vol. IV, Part 2:364-401). Perhaps because the odds were so skewed the battle was called off and the *ali‘i* of Ko‘olau ceded (*ha‘awi a‘e*) the districts of Ko‘olauloa, Ko‘olaupoko, Waialua and Wai‘anae to Kūali‘i. When the *ali‘i* of Kaua‘i heard of this victory at Honouliuli they gave Kaua‘i to Kūali‘i as well and thus he became possessed of all the islands (*a lilo a‘e la nā moku a pau ia Kūali‘i mai Hawai‘i a Ni‘ihau*). The strife at Honouliuli was the occasion of the recitation of a song for Kūali‘i by a certain Kapa‘ahulani (*Ka Pule Ana a Kapa‘ahulani*). This *mele* compares the king to certain places and objects in the islands, in this instance to the first breadfruit planted by Kahai at Pu‘uloa, and a pig and a woman on Pu‘u Kapolei, possibly a reference to Kamapua‘a and his grandmother.

Not like these art thou, Ku.	*Aole I like Ku*.
Not like the pig	*Aole I like i ka puaa,*
Discerning the progeny of the god;	*I ka weke lao a ke akua*,
[Or] The breadfruit planted by Kahai.	*Ka ulu kanu a Kahai*;
Truly, have you not known	*Oi ole ka oe i ike,*
The woman with the dyed garment,	*Ka wahine pau mao*
On the top of Puuokapolei?	*I ka luna o Puuokapolei-la*?
[Fornander 1917, Vol. IV, Part 2:392-393].	

A later section of this *mele* also refers to Pu‘u o Kapolei and makes mention of the famous blue poi of Honouliuli.

O Kawelo! Say, Kawelo!	*O Kawelo-e, e Kawelo-e*,
Kawelokiki, the sharp-pointed hill,	*O Kaweloiki puu oioi*,
Hill of Kapolei.	*Puu of Kapolei-e-*
Blue is the poi which appeases	*Uliuli ka poi e piha nei-o Honouliuli*;
[the hunger] of Honouliuli.	
[Fornander 1917, Vol. IV, Part 2:400-401].	

3.1.2.4 Pu‘u Kapolei and the Plains of Kaupe‘a and Kānehili

There are several places on the ‘Ewa coastal plain that are associated with *ao kuewa*, the realm of the homeless souls. Samuel Kamakau (1991b:47-49) explains the Hawaiian beliefs in the afterlife:

> . . . There were three realms (*ao*) for the spirits of the dead . . . There were, first, the realm of the homeless souls, the *ao kuewa*; second, the realm of the ancestral spirits, the *ao ‘aumakua*; and third, the ream of Milu, *ke ao o Milu* . . .
>
> The *ao kuewa*, the realm of homeless souls, was also called the *ao ‘auwana*, the realm of wandering souls. When a man who had no rightful place in the ‘*aumakua* realm (*kanaka kuleana ‘ole*) died, his soul would wander about and stray amongst the underbrush on the plain of Kama‘oma‘o on Maui, or in the *wiliwili* grove of Kaupe‘a on Oahu. If his soul came to Leilono [in Halawa, ‘Ewa near Red Hill], there he would find the breadfruit tree of Leiwalo, *ka‘ulu o Leiwalo*. If it was not found by an ‘*aumakua* soul who knew it (*i ma‘a mau iaia*), or one who would help it, the soul would leap upon the decayed branch of the breadfruit tree and fall down into endless night, *the pō pau ‘olo o Milu*. Or, a soul that had no rightful place in the ‘*aumakua* realm, or who had no relative or friend (*makamaka*) there who would watch out for it and welcome it, would slip over the flat lands like a wind, until it came to a leaping place of souls, a *leina a ka ‘uhane* . . . [Kamakau 1991b:47].
>
> On the plain of Kaupe‘a beside Pu‘uloa [Pearl Harbor], wandering souls could go to catch moths (*pulelehua*) and spiders (*nanana*). However, wandering souls could not go far in the places mentioned earlier before they would be found catching spiders by ‘aumakua souls, and be helped to escape. . . . [Kamakau 1991b:49].

The breadfruit tree, Leilono, was said to have been located on the ‘Ewa-Kona border, above Āliamanu. In another section of his account of the dead, Kamakau calls the plain of wandering souls the “plain at Pu‘uokapolei.”

> There are many who have died and have returned to say that they had no claim to an ‘aumakua [realm] (*kuleana‘ole*). These are the souls, it is said, who only wander upon the plain of Kama‘oma‘o on Maui or on the plain at Pu‘uokapolei on Oahu. Spiders and moths are their food [Kamakau 1991b:29].

This association of Pu‘u Kapolei and Kānehili with wandering souls is also illustrated in a lament on the death of Kahahana, the paramount chief of O‘ahu, who was killed by his father, Kahekili, after Kahahana became treacherous and killed the high priest Kaopulupulu.

Go carefully lest you fall dead in the sun,	*E newa ai o hea make i ka la,*
The god that dwells on Kapolei hill.	*Akua noho la i Puuokapolei.*
The sun is wailing on account of the women of Kamao,	*E hanehane mai ana ka la i na wahine o Kamao,*

A hiding god, blossoming ohai of the banks,	*Akua pee, pua ohai o ke kaha*,
Contented among the stones-	*I walea wale i ke a-*
Among the breadfruit planted by Kahai.	*I ka ulu kanu a Kahai.*
Thou wast spoken of by the oo-	*Haina oe e ka oo-*
By the bird of Kanehili.	*E ka manu o Kanehili*.

[Fornander 1919, Vol. VI, Part 2:297]

Fornander provides some notes on this lament. The god dwelling at Kapolei is the god Kahahana, stating that this is where his soul has gone. Kamao is one of the names of the door to the underworld. This lament draws an association with wandering souls and the place where the first breadfruit tree was planted by Kahai at Pu‘uloa (Fornander 1919, Vol. VI, Part 2:304).

Pukui (1983:180) offers this Hawaiian saying, which places the wandering souls in a *wiliwili* grove at Kaupe‘a.

The wiliwili grove of Kaupe‘a *Ka wiliwili of Kaupe‘a*.
In ‘Ewa, O‘ahu. Said to be where homeless ghosts wander among the trees.
[Pukui 1983:#1666].

Beckwith (1940:154) has stressed that “the worst fate that could befall a soul was to be abandoned by its ‘*aumakua* and left to stray, a wandering spirit (*kuewa*) in some barren and desolate place.” These wandering spirits were often malicious, so the places that they wandered were avoided.

In a chant by Hi‘iaka, the sister of the Hawaiian volcano goddess, Pele, several place names in ‘Ewa are mentioned as Hi‘iaka travels from Pu‘uokapolei towards the ‘Ewa coast. In the chant, Hi‘iaka is moving downhill from Kaupe‘a, probably the plains adjacent to Pu‘uokapolei, toward the coast, to the plains of Kānehili. The chant also refers to Pe‘e-kaua, which may be a variation of Kau-pe‘e or Kaupe‘a. Hi‘iaka sang this bitter chant addressed to Lohi‘au and Wahine-oma‘o, and it uses the association of the Plains of Kaupe‘a as a place for the wandering of lost souls. The name Kānehili also refers to wandering, as the word *hili* means “to go astray” (Emerson 1915:162).

Ku‘u aikana i ke awa lau o Pu‘uloa,
Mai ke kula o Pe‘e-kaua, ke noho oe,
E noho kaua e kui, e lei i ka pua o ke kauno‘a,
I ka pua o ke akuli-kuli, o ka wili-wili;
O ka iho‘na o Kau-pe‘e i Kane-hili,
Ua hili au; akahi no ka hili o ka la pomaika‘i;
E Lohiau ipo, e Wahine-oma‘o,
Hoe ‘a mai ka wa‘a i a‘e aku au.

We meet at Ewa’s leaf-shaped lagoon, friends;
Let us sit, if you will on this lea
And bedeck us with wreaths of Kauno‘a,
Of akuli-kuli and wili-wili,
My soul went astray in this solitude;
It lost the track for once, in spite of luck,

> As I came down the road to Kau-pe‘a.
> No nightmare dream was that which tricked my soul.
> This way, dear friends; turn the canoe this way;
> Paddle hither and let me embark
> [Emerson 1915:162-163].

3.1.2.5 The Mo‘o Pukaua

The Hawaiian language newspaper *Ka Loea Kālai‘āina*, (January 13, 1900) relates that near Pu‘uokapolei, on the plain of Pukaua, on the *mauka* side of the road, there was a large rock. This legend suggests that the plain around Pu‘u o Kapolei was called Pukaua. The legend is as follows:

> If a traveler should go by the government road to Waianae, after leaving the village of gold, Honouliuli, he will first come to the plain of Puu-ainako and when that is passed, Ke-one-ae. Then there is a straight climb up to Puu-o-Kapolei and there look seaward from the government road to a small hill, That is Puu-Kapolei. . . . You go down some small inclines, then to a plain. This plain is Pukaua and on the mauka side of the road, you will see a large rock standing on the plain. . . . There were two supernatural old women or rather peculiar women with strange powers and Puukaua belonged to them. While they were down fishing at Kualaka‘i [near Barber’s Point] in the evening, they caught these things, *‘a‘ama* crabs, *pipipi* shellfish, and whatever they could get with their hands. As they were returning to the plain from the shore and thinking of getting home while it was yet dark, they failed for they met a one-eyed person [bad omen]. It became light as they came near to the plain, so that passing people were distinguishable. They were still below the road and became frightened lest they be seen by men. They began to run - running, leaping, falling, sprawling, rising up and running on, without a thought of the *‘a‘ama* crabs and seaweeds that dropped on the way, so long as they would reach the upper side of the road. They did not go far for by then it was broad daylight. One woman said to the other, “Let us hide lest people see us,” and so they hid. Their bodies turned into stone and that is one of the famous things on this plain to this day, the stone body. This is the end of these strange women. When one visits the plain, it will do no harm to glance on the upper side of the road and see them standing on the plain [*Ka Loea Kālai‘āina*, January 13, 1900, translation in Sterling and Summers 1978:39].

In another version of this story, the two women met Hi‘iaka as she journeyed toward the ‘Ewa coast. The women were *mo‘o* (supernatural beings) and were afraid that Hi‘iaka would kill them, so they changed into their lizard form. One of the lizards hid in a little space on a stone beside the coastal trail, and the other hid nearby (*Ka Hōkū o Hawai‘i*, February 15, 1927, translated in Maly 1997:19). From that time on the stone was known as *pe‘e-kāua*, meaning “we two hidden.” Hi‘iaka greeted the two women but did not harm them, and passed on.

When she reached Pu‘uokapolei, she also greeted two old women who lived at a ‘*ohai* grove on the hill. These women were named Pu‘uokapolei and Nāwaineokama‘oma‘o (*Ka Hōkū o*

Hawai‘i, February 22, 1927, translated in Maly 1997:19). As she continued her travels, she looked to the ocean and saw the canoe carrying Lohi‘au.

My man on the many harbored sea of Pu‘uloa	*Ku‘u kāne i ke awa lau o Pu‘uloa*
As seen from the plain of Pe‘ekāua	*Mai ke kula o Pe‘ekāua ke noho*
Let us dwell upon the ‘ōhai covered shore	*E noho kāua i ke kaha o ka ‘ōhai*
Where the noni blossoms are twisted together	*I ka wiliwili i ka pua o ka lau noni*
Descending along Kānehili	*O ka ihona i Kānehili la*
I am winding along	*Ua hili ho‘i au-e*

[*Ka Hōkū o Hawai‘i,* February 22, 1927, translated in Maly 1997:20].

3.2 Historic Background

3.2.1 Pre-Contact and Early Post-Contact Period

By ca. A.D. 1320, ‘Ewa, along with Kona, and Ko‘olaupoko were the dominant polities, ruled by the sons of a chief named Māweke (Cordy 2002:21). ‘Ewa at this time included the traditional districts of ‘Ewa, Wai‘anae, and Waialua (Fornander 1880:48). Around A.D. 1400, the entire island was ruled by King La‘akona; chiefs within his line, the Māweke-Kumuhonua line, reigned until about A.D. 1520-1540, with their major royal center in Līhu‘e, in ‘Ewa. (Cordy 2002:24). Haka was the last chief of the Māweke-Kumuhonua line; he was slain by his men at the fortress of Waewae near Līhu‘e (Kamakau 1991a:54-54; Fornander 1880:88). Power shifted between the chiefs of different districts from the 1500s until the early 1700s, when Kūali‘i achieved control of all of O‘ahu by defeating the Kona chiefs, then the ‘Ewa chiefs, and then expanding his control on windward Kaua‘i. Peleiholani, the heir of Kūali‘i, gained control of O‘ahu ca. 1740, and later conquered parts of Moloka‘i. He was ruler of O‘ahu until his death in ca. 1778 when Kahahana, of the ‘Ewa line of chiefs was selected as the ruler of O‘ahu (Cordy 2002:24-41).

After Kamehameha’s O‘ahu victory, he gave the *ahupua‘a* of Honouliuli to Kalanimōkū as part of the *panalā‘au*, or conquered lands, with the right to pass the land on to his heirs rather than having it revert to Kamehameha (Kame‘eleihiwa 1992:58, 112). Kalanimōkū subsequently gave the *ahupua‘a* to his sister, Wahinepi‘o.

Various Hawaiian legends and early historical accounts indicate that the *ahupua‘a* (land division) of Honouliuli was once widely inhabited by pre-Contact populations, including the Hawaiian *ali‘i* (chiefly class). This would be attributable for the most part to the plentiful marine and estuarine resources available at the coast, along which several sites interpreted as permanent habitations and fishing shrines have been located. Other attractive subsistence-related features of the *ahupua‘a* include irrigated lowlands suitable for wetland taro cultivation, as well as the lower forest area of the mountain slopes for the procurement of forest resources. Handy and Handy (1972:429) report:

> The lowlands, bisected by ample streams, were ideal terrain for the cultivation of irrigated taro. The hinterland consisted of deep valleys running far back into the Ko‘olau range. Between the valleys were ridges, with steep sides, but a very

> gradual increase of altitude. The lower part of the valley sides were excellent for the cultivation of yams and bananas. Farther inland grew the ‘awa for which the area was famous.

In addition, breadfruit, coconuts, *wauke*, bananas, and *olona* and other plants were grown in the interior. ‘Ewa was known as one of the best areas to grow gourds and was famous for its *mamaki*. It was also famous for a rare taro called the *kai o ‘Ewa*, which was grown in mounds in marshy locations (Handy and Handy 1972:471). The cultivation of this prized and delicious taro led to the saying:

> He has eaten the Kāī-koi taro of ‘Ewa. *Ua ‘ai i ke kāī-koi o ‘Ewa*.
> Kāī is O‘ahu’s best eating taro; one who has eaten it will always like it. Said of a youth of a maiden of ‘Ewa, who, like the Kāī taro, is not easily forgotten [Pukui 1983:#2770].

The lochs of Pearl Harbor were ideal for the construction fishponds and fishtraps. Forest resources along the slopes of the Wai‘anae Range probably acted as a viable subsistence alternative during times of famine and/or low rainfall (Handy 1940:211; Handy and Handy 1972:469-470). The upper valley slopes may have also been a resource for sporadic quarrying of basalt used in the manufacturing of stone tools. At least one probable quarrying site (SIHP site 50-80-12-4322) is present in Maka‘īwa Gulch at 152 m (500 ft) above mean sea level (Hammatt, Robins, et al. 1990).

John Papa ‘Ī‘ī describes a network of Leeward O‘ahu trails (Figure 4), which in historic times encircled and crossed the Wai‘anae Range, allowing passage from Lualualei to Honouliuli by three different trails (‘Ī‘ī 1959:96-98). The coastal trail skirted Pearl Harbor, passing by Pu‘u o Kapolei; this would have been the nearest of three Honouliuli trails to the current project area. Following ‘Ī‘ī's description, a portion of this trail network would have passed close to the existing Farrington Highway, near the north border of the project area, as seen in an 1825 map (Figure 5) map of the south coast of O‘ahu by Charles Malden of the British ship the *Blonde*.

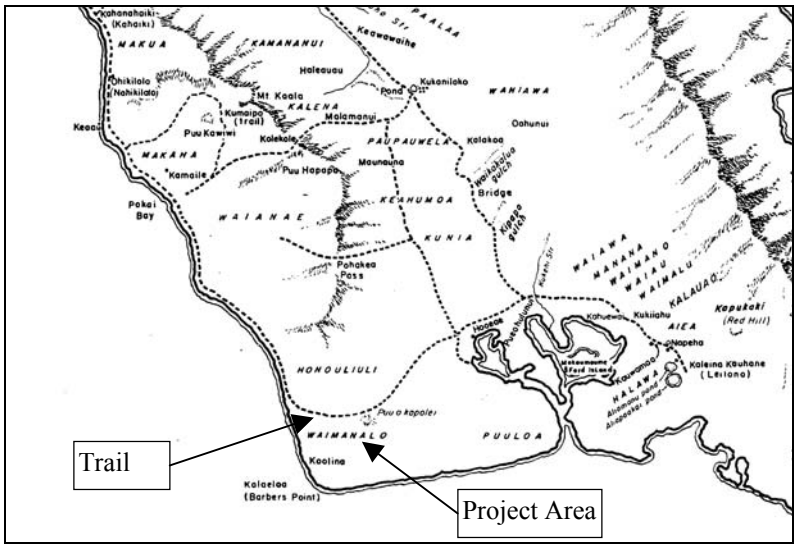

Figure 4. Trails of Leeward Oahu. Map by Paul Rockwood. (‘Ī‘ī 1959:96) Mid- to late-1800s

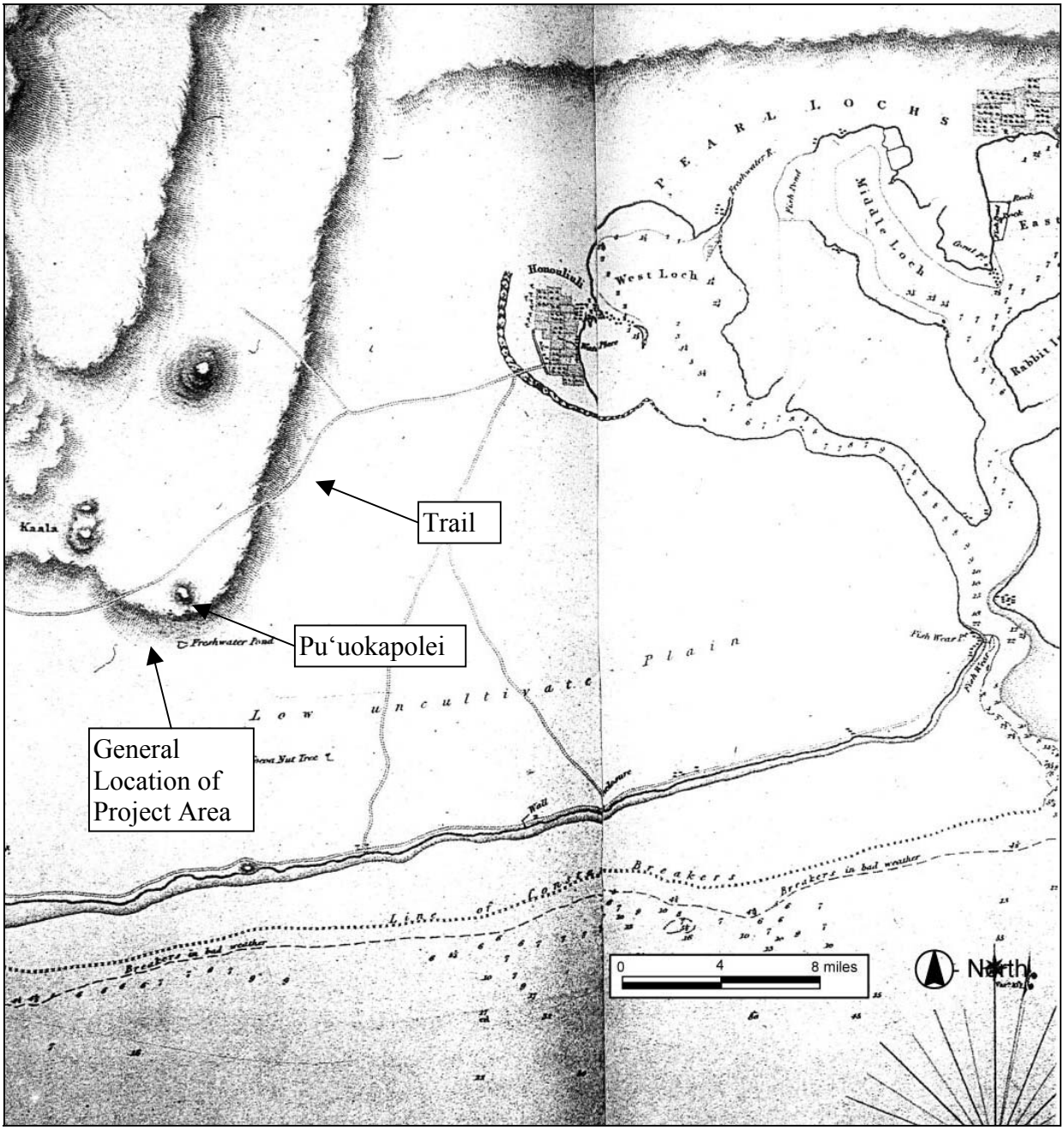

Figure 5. Portion of 1825 Map of the South Coast of Woahoo (O‘ahu) and Honolulu by Lieut. Charles R. Malden from the British ship the *Blonde*

The trail is described by ‘Ī‘ī as:

> The trail went down to the stream and up again, then went above the taro patches of Waiau, up to a *makai* field, to Waimano, to Manana, and to Waiawa; then to the stream of Kukehi and up to two other *maika* fields, Pueohulunui and Haupuu. At Pueohulunui was the place where a trail branched off to go Waialua and down to Honouliuli and on to Waianae. As mentioned before, there were three trails to Waianae, one by way of Pu‘u o Kapolei, another by way of Pohakea, and the third by way of Kolekole [‘Ī‘ī 1959:97].

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, indicate that prehistoric and early historic populations also adapted to less inviting areas, despite the environmental hardships.

3.3 Observations of Early Explorers and Foreign Residents

Captain Vancouver sailed by Kalaeloa (Barbers Point) in 1792, and recorded his impression of the small coastal village of Kualaka‘i and the arid Honouliuli coast.

> The point is low flat land, with a reef round it. . . Not far from the S.W. point is a small grove of shabby cocoa-nut trees, and along these shores are a few struggling fishermen’s huts [Vancouver 1798, Vol. I:167].

> . . . from the commencement of the high land to the westward of Opooroah [Pu‘uloa], was composed of one very barren rocky waste, nearly destitute of verdure, cultivation or inhabitants, with little variation all the way to the west point of the island . . . [Vancouver 1798, Vol. II:217].

> . . . This tract of land was of some extent but did not seem to be populous, nor to possess any great degree of fertility; although we were told that at a little distance from the sea, the soil is rich, and all necessaries of life are abundantly produced . . . [Vancouver 1798, Vol. III:361-363].

Archibald Campbell, an English seamen who was given some land in Waimano Ahupua‘a by King Kamehameha in 1809, described his land around Pearl Harbor:

> In the month of November the king was pleased to grant me about sixty acres of land, situated upon the Wymummee [traditional Hawaiian name for Pearl River], or Pearl-water, an inlet of the sea about twelve miles to the west of Hanaroora [Honolulu]. . . . We passed by footpaths, winding through an extensive and fertile plain, the whole of which is in the highest state of cultivation. Every stream was carefully embanked, to supply water for the taro beds. Where there was not water, the land was under crops of yams and sweet potatoes [Campbell 1967:103-104].

> Pearl and mother of-pearl shells are found here in considerable quantity. Since the king has learned of their value, he has kept the fishing to himself, and employs divers for the purpose [Campbell 1967:114-115].

Subsequent to western contact in the area, 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 cattle ranch in Wai‘anae by at least 1840 (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 logging of sandalwood forest and eroded by animal grazing. Within the current project area, the majority of the vegetation is comprised of introduced species, mainly grasses.

At contact, the most populous *ahupua‘a* on the island was Honouliuli, with the majority of the population centered on Pearl Harbor. In 1832, a missionary census of Honouliuli recorded the population as 1,026. Within four years the population was down to 870 (Schmitt 1973:19, 22). In 1835, there were eight to ten deaths for every birth (Kelly 1991:157-158). Between 1848 and 1853, there was a series of epidemics of measles, influenza, and whooping cough that often wiped out whole villages. In 1853, the population of ‘Ewa and Wai‘anae combined was 2,451 people. In 1872, it was 1,671 (Schmitt 1968:71). The inland area of ‘Ewa was probably abandoned by the mid-nineteenth, due to population decline and consolidation of the remaining people in the town of Honouliuli (at Papapuhi Point, northeast of the project area). A detailed discussion of the historic population counts in the ‘Ewa District has been presented by Charvet-Pond and Davis (1992).

The first mission station in Ewa was established in 1834 at Kalua‘aha near Pearl Harbor. Charles Wilkes, of the U.S. Exploring Expedition visited the missionary enclave at Honouliuli town in 1840.

> At Ewa, Mr. Bishop has a large congregation. The village comprises about fifty houses, and the country around is dotted with them. . . . The natives have made some advance in the arts of civilized life; there is a sugar-mill which, in the season, makes two hundred pounds of sugar a day. . . . In 1840, the church contained nine hundred members, seven hundred and sixty of whom belonged to Ewa, the remainder to Waianae; but the Catholics have now established themselves at both these places, and it is understood are drawing off many from their attendance on Mr. Bishop’s church [Wilkes 1970:80-81].

The earliest detailed map of the area (Alexander 1873) shows no habitation closer than the western edge of West Loch in the vicinity of Papapuhi Point. A Monsarrat survey map of 1878 documents substantial settlement at the “Honouliuli Taro Land” in the Pāpapuhi Point area, and it seems clear that in early historic times, this was the focus of the population of Honouliuli. The amenities of the area - including fishponds, taro *lo‘i*, abundant shellfish, and salt pans - would have focused population there in pre-Contact times as well.

3.4 Mid-Nineteenth Century and the Māhele

The Organic Acts of 1845 and 1846 initiated the process of the *māhele* - the division of Hawaiian lands, which introduced private property into Hawaiian society. In 1848 the crown and the *ali‘i* (chiefly class) received their land titles. The common people received their *kuleana* (individual parcels) in 1850.

During the *Māhele* of 1848, 72 individual land claims in the *ahupua‘a* of Honouliuli were registered and awarded by King Kamehameha III (Tuggle and Tomonari-Tuggle 1997:34). The 72 *kuleana* awards were almost all made adjacent to Honouliuli Gulch, which contained fishponds and irrigated taro fields. Kepa Maly (1997, Table 3: 38-42) provides a table recording information on each award, including awardee, *‘ili*, and land use of the *‘āpana* (lot). A summary of the information on houses, fields, and boundary landmarks noted for each *‘ili* is given below in Table 1.

Table 1. Summary of land use and boundary landmarks recorded in Honouliuli LCA awards

‘Ili	**Land Use and Boundary Landmarks**
Hiwalalo	*kou* trees
Ka‘aumakua	houselots, *kalo* (taro) patches; *kula* (pasture/dryland agriculture), two fishponds called Mokumeha; landmarks - *kula ālialia* (salt plains), land division wall, Pānāhāhā *loko* (fishpond), Kalahu fishpond, Naholowaa pond, Honouliuli Stream (called stream of Makai‘i), or *‘aka‘akai* (bulrush growth) of Kamo‘okahi
Kaihuopala‘ai	*mo‘i* (arable land in a long strip); on lot bounded by *‘auwai* (irrigation ditch) called Panaenui
Ka‘ilikahi	houselot and *kalo* patches; landmarks – highway, Kauhipuna cliff, *lapalapa* (panax) thickets, meeting house
Kamilomilo	houselot and *kalo* patches
Kamoku	fenced *mo‘o kalo, lo‘i* (irrigated fields) *kalo*, houselot; landmarks – Kauhipuna *pali*
Kamo‘okahi	bulrushes
Kapāpahi	houselots, *kalo* patches; bounded by ponds of Healani
Kapapapūhi	houselots, vineyard, *kula*, pond, trails, hog pens, and salt beds
Ka‘ula‘ula	*mo‘o* next to Kaulaula (cliff) with a houselot and a wall
Loloulu	*kalo* patches, 1/3 of a fishpond (in land of Kahakuli‘ili‘i), *hala* grove, pig pens, breadfruit, bulrushes
Maka‘u	houselot and *kalo* patches
Maui	*kalo* patches, *kula*, houselots, bounded by *pā‘āina a ke Aupini* (land division wall of the government)
Mokumeha	2 fishponds, salt beds (western one called Kohumakahou)
Niuke‘e	*kalo* patches, *kula*, potato field, houselots; landmarks - *loko kalo* (taro/ fishpond) of Nihola, Loko‘eli pond, Kehewanakawalu pond, Kalokoiki pond, *pali* of Kihewamakawela; Ka‘akau pali; Ka‘akau community, meeting house, prison plot, cattle fences

‘Ili	**Land Use and Boundary Landmarks**
Polapola	*kalo* patches; houselots, school house, prison plot; some bounded by *pā‘āina a ke Aupini,* or high road from the sea, or Catholic Chapel yard
Pō‘ohilo	*kula*, *kalo* patches, *loko kalo*, houselots; landmarks - *pā‘āina,* Ka‘aimanō fishpond, *kula* of Kahakai, *loko kalo* of Kalokoloa, Aimea Pond, Waianu pond, Kahui pond, Ka‘aimano fishpond, *pupulu* cave (wet cave?), prison plot, Makaakua pali, Puehuehu Stream, Puehuehu road
Pua‘alu‘u	*lo‘i*, houselot
Pu‘uloa	houselots; boundaries include the sea, a *kula* called Waioipu, and the plain of Kaluanohu

3.4.1 Honouliuli Māhele Awards to *Ali‘i*

In 1855 the Land Commission awarded all of the unclaimed lands in Honouliuli, 43,250 acres, to Miriam Ke‘ahikuni Kekau‘ōnohi (Royal Patent #6971 in 1877; Parcel #1069 in the Land Court office), a granddaughter of Kamehameha I, and the heir of Kalanimōkū, who had been given the land by Kamehameha after the conquest of O‘ahu (Indices of Awards 1929; Kame‘eleihiwa 1992). Kekau‘ōnohi was also awarded the *ahupua‘a* of Pu‘uloa, but she sold this land in 1849 to a man named Isaac Montgomery, a British lawyer.

Kekau‘ōnohi was one of Liholiho’s (Kamehameha II’s) wives, and after his death, she lived with her half-brother, Luanu‘u Kahalai‘a, who was governor of Kaua‘i (Hammatt and Shideler 1990:19-20:20). Subsequently, Kekau‘ōnohi ran away with Queen Ka‘ahumanu’s stepson, Keli‘iahonui, 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. A lawsuit (Civil Court Case No. 348) was brought by Ha‘alelea in 1858, to reclaim the fishing rights of the Pu‘uloa fisheries from Isaac Montgomery, and the court ruled in Ha‘alaea’s favor. In 1863, the owners of the *kuleana* lands deeded their lands back to Ha‘alelea to pay off debts owed to him (Frierson 1972:12). In 1864, Ha‘alelea died, and his second wife, Anadelia Amoe, transferred ownership of the land to her sister’s husband John Coney (Yoklavich et al 1995:16). Early Ranching in on the ‘Ewa Plain

John Coney rented the land to James Dowsett and John Meek in 1871; they used the land for cattle grazing. In 1877, the land, except for the ‘*ili* of Pu‘uloa, was sold to James Campbell. He drove off 32,237 head of stock belonging to Dowsett and Meek and to James Robinson and constructed a fence around the outer boundary of his property (Bordner and Silva 1983:C-12). He let the land rest for one year and then began to restock the ranch, so that he had a head of 5,500 head after a few years (Dillingham 1885, cited in Frierson 1972:14)

In 1880-81, the Honouliuli ranch was described as:

> . . . Acreage, 43,250, all in pasture, but possessing fertile soils suitable for agriculture; affords grazing for such valuable stock. The length of this estate is no less than 18 miles. It extends to within less than a mile of the sea coast, to the westward of the Pearl River inlet. . . . There are valuable fisheries attached to this estate . . . [Bowser 1880:489].

> From Mr. Campbell's veranda, looking eastward, you have one of the most splendid sights imaginable. Below the house there are two lochs, or lagoons, covered with water fowl, and celebrated for their plentiful supply of fish, chiefly mullet. . . . Besides Mr. Campbell's residence, which is pleasantly situated and surrounded with ornamental and shade trees, there are at Honouliuli two churches and a school house, with a little village of native huts [Bowser 1880:495].

Most of Campbell's lands in Honouliuli were used exclusively for cattle ranching. At that time, one planter remarked "the country was so dry and full of bottomless cracks and fissures that water would all be lost and irrigation impracticable" (Ewa Plantation Co. 1923:6-7). In 1879, Campbell brought in a well-driller from California to search the ‘Ewa plains for water, and the well, drilled to a depth of 240 feet near Campbell's home in ‘Ewa, resulted in ". . . a sheet of pure water flowing like a dome of glass from all sides of the well casing" (The Legacy of James Campbell n.d., cited in Pagliaro 1987:3). Following this discovery, plantation developers and ranchers drilled numerous wells in search of the valuable resource. A Hawai‘i Visitor Bureau, marker, located in the southwestern portion of the project area, bears the inscription "Site of First Artesian Well in the Hawaiian Islands drilled by James Ashley for James Campbell owner of Honouliuli Ranch brought in on Sept. 22, 1879." Kuykendall (1967:III, 67) states that this well was "near Campbell's ranch house" but Campbell's ranch house, which is shown on Monsarrat's 1878 map, was located outside the project area.

3.4.2 History of the Ewa Sugar Plantation and the OR&L

3.4.2.1 General History of the Plantation

In 1886, Campbell and B. F. Dillingham put together the "Great Land Colonization Scheme," which was an attempt to sell Honouliuli land to homesteaders (Thrum 1886:74). This homestead idea failed; two factors for the failure were the lack of water and the other was the distance from Ewa to Honolulu. The water problem was solved by the drilling of artesian wells, and Dillingham decided that the area could be used instead for large-scale cultivation (Pagliaro 1987:4). The transportation problem was to be solved by the construction of a railroad, which B. Franklin Dillingham soon began to finance under the company name of the Oahu Railway and Land Company (OR&L).

During the last decade of the nineteenth century, the railroad would reach from Honolulu to Pearl City in 1890, to Wai‘anae in 1895, to Waialua Plantation in 1898, and to Kahuku in 1899 (Kuykendall 1967:100). This railroad line eventually ran across the center of the ‘Ewa Plain at the lower boundary of the sugar fields.

To attract business to his new railroad system, Dillingham subleased all land below 200 ft elevation to William Castle, who in turn sublet the area to the newly-formed Ewa Plantation Company (Frierson 1972:15). Dillingham's Honouliuli lands above the 200 ft elevation that were suitable for sugar cane cultivation were sublet to the Oahu Sugar Company. 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).

The Ewa Plantation Company (Figure 6 and Figure 7) was incorporated in 1890 for sugar cane cultivation. The first crop, 2,849 tons of sugar, was harvested in 1892 at the Ewa Plantation. Ewa was the first all-artesian plantation, and it gave an impressive demonstration of the part artesian wells were to play in the later history of the Hawaiian sugar industry (Kuykendall 1967:69). As a means to generate soil deposition on the coral plain and increase arable land in the lowlands, the Ewa Plantation Company installed ditches running from the lower slopes of the mountain range to the lowlands. When the rainy season began, they plowed ground perpendicular to the slope so that soil would be carried down the drainage ditches into the lower coral plain. After a few years, about 373 acres of coral wasteland were reclaimed in this manner (Immisch 1964). It is uncertain if there was also a deliberate effort to induce erosion on the scarp (called Evans Bluff by the Campbell Estate), near the eastern boundary of the project area, but it would have been easy to do and probably very effective. By the 1920s, Ewa Plantation was generating large profits and was the "richest sugar plantation in the world" (*Paradise of the Pacific,* Dec. 1902:19-22, cited in Kelly 1985:171).

Just north of ‘Ewa Plantation was the equally sprawling O‘ahu Sugar Company which "covered some 20 square miles . . . ranging in elevation from 10 feet at the Waipio Peninsula . . . to 700 feet at the Waiahole Ditch" (Condé and Best 1973:313). The Oahu Sugar Company was incorporated in 1897. Prior to commercial sugar cultivation, the lands occupied by the Oahu Sugar Company were described as being "of near desert proportion until water was supplied from drilled artesian wells and the Waiahole Water project" (Condé and Best 1973:313). The Oahu Sugar Company took control of the Ewa Plantation lands in 1970 and continued operations until 1995, when they decided to shut down sugar cane production in the combined plantation area (Dorrance and Morgan 2000:45, 50).

Operations at the OR&L began to slow down in the 1920s, when electric streetcars were built for public transportation within the city of Honolulu and automobiles began to be used by families for transportation outside the city (Chiddix & Simpson (2004:185). The build-up to World War II turned this decline around, as the US military utilized the OR&L lines to transport materials to build defense projects around the island. Historians have noted that one of the most serious mistakes made by the Japanese in their 1941 attack on Pearl Harbor was their decision not to bomb the railway infrastructure. Soon after the attack, the OR&L operated 24 hours a day, transporting war materials and troops from Honolulu to the new and expanded army, naval, and air bases. The huge navy base at Pearl Harbor had its own rail lines that connected to the OR& L rail lines (Figure 8).

In August of 1945, the war ended, and so did OR&L's heyday as a military transport line.

> She had served her country well and proudly during the war, but operating round-the-clock on what little maintenance could be squeezed in, had taken a prodigious hit on the locomotives and track. Traffic stayed steady for a short time, but soon dropped precipitously as soldiers and sailors went home, military posts were shrunk or razed, and civilians could again get tires, gasoline and new cars [Chiddix and Simpson 2004:257].

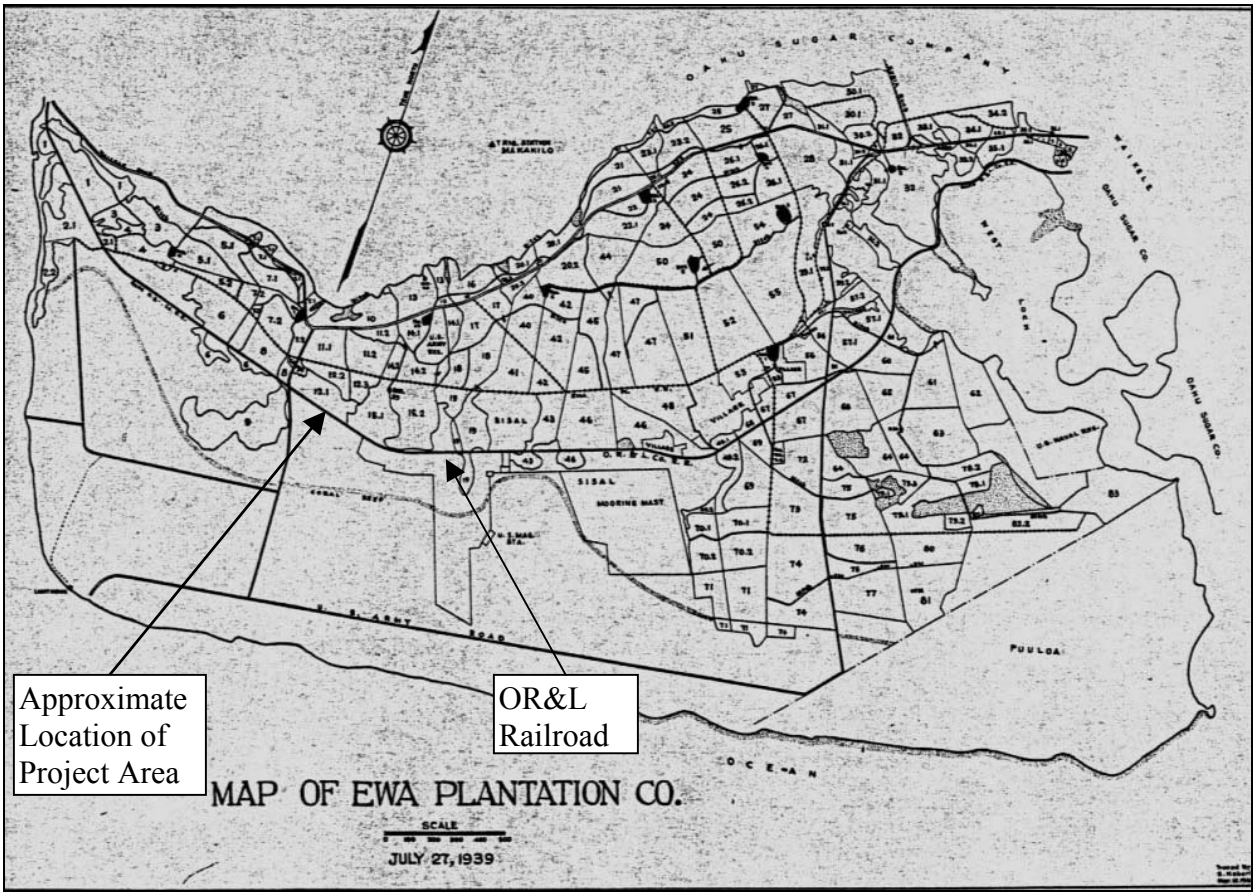

Figure 6. 1939 map of the Ewa Plantation Co. lands, showing approximate location of project area and alignment of railroad (map from Condé and Best 1973:285)

Figure 7. Ewa Plantation Co. (E.P. Co.) sugar cane train (tinted photo in Chiddix and Simpson 2004:105)

Figure 8. Pearl Harbor train yards during World War II (photo from Chiddix and Simpson 2004:243)

There was no choice but to abandon the OR&L mainline, and in 1946 Water F. Dillingham, son of B.F. Dillingham, wrote:

> The sudden termination of the war with Japan changed not only the character of our transportation, but cut the freight tonnage to a third and the passenger business to a little above the pre-war level. With the increased cost of labor and material and the shrinkage in freight tonnage and passenger travel, it was definite that the road could not be operated as a common carrier. With no prospect of increased tonnage, and the impossibility of increasing rates against truck competition, your management has applied to the Interstate Commerce for authority to abandon its mainline [Walter Dillingham, cited in Chiddix and Simpson 2004:257].

After the war, most of the 150+ miles of OR&L track were pried up, locomotives were sold to businesses on the US mainland, and railway cars were scraped. In 1947, the U.S. Navy took over a section of the OR&L track for their own use, to transport bombs, ammunition, and torpedoes from the ammunition magazines at Lualualei, West Loch in Pearl Harbor, and Waikele on

OR&L’s Wahiawā Branch to Pearl Harbor Naval Base (Treiber 2005:25-26). The track to Waipahu was abandoned in the 1950s, but the line from the magazines in Laulualei to the wharves in West Loch at Peal Harbor remained open until 1968.

In 1970, the Hawaiian Railway Society was formed to save and restore the remaining Hawaiian railway tracks and stock. The federal government donated the tracks and right-of-way to the State of Hawaii in 1974, and the Society was able to place the Navy’s Lualualei-Pearl Harbor track on the National Register of Historic Places on December 1, 1975. The Highway Railway Society has currently restored about 6.5 miles of this track, on which they run weekly tourist train rides from Ewa Station to Nānākuli, pulled by restored OR&L locomotives (Chiddix and Simpson 2004:273). Their stock (operational and unrestored) includes four diesel-electric locomotives, four steam locomotives, three passenger cars, 37 freight cars, and two hand cars/speeders. Included in this rolling stock, are two –ex-military cars, tank car No. 64-00024, made by the American Car and Foundry Company in 1945, and flatcar No. 91868, also used by the U.S. Navy (Chiddix and Simpson 2004:279). These two cars have not been restored and are currently on a siding of the Hawaiian Railway Society’s track. This siding and the two cars are near the current project area.

Section 4 Previous Archaeological Research

4.1 Early Archaeological Surveys

All archaeological projects conducted in Honouliuli and Pu‘uloa are listed in Table 1. Two archaeological features, a boundary *pōhaku* or rock and a *hōlua*, or sledding site, are recorded only in the Boundary Commission Reports establishing the division lines between the *ahupua‘a* of Honouliuli and Hō‘ae‘ae (to the east). The surveyor wrote of the southern point of this boundary:

> In regard to Hoaeae . . . the point of commencement is Pōhaku Palahalaha, a well known rock, now marked by an arrow and the name “Honouliuli” on one side and “Hoaeae” on the other, which I have made the initial point of the survey . . . [Boundary Commission Vol. 1:243].

This rock is shown on the Sterling and Summer map (see Figure 3) as Pōhaku Palaha. In another boundary survey, the *pōhaku* is called a “large, flat rock” (Boundary Commission Vol. 1:249), which may indicate the origin of the name from the Hawaiian word *pālaha*, which means “flattened, wide” (Pukui and Elbert 1986:307). As the surveyor continued to walk the Honouliuli/Hō‘ae‘ae boundary, he marked the northern point of the division as:

> The Kamaaaina took me to the corner of Pauhala (?)-Hoaeae and Honouliuli – there is an ancient holua or sleding [*sic*] place near this – which is agreed for the ancient corner . . . [Boundary Commission Vol. 1:243].

The earliest attempt to record archaeological remains in Honouliuli Ahupua‘a was made by Thrum (1906:46). He reported the existence of a *heiau* located on Pu‘uokapolei, west of the present study area. In a second monograph on *heiau*, Thrum (1917) called this *heiau* Palole‘i (Kapolei). Emory mapped and photographed these structures in 1933 (field notes), but they were dismantled and destroyed sometime before McAllister’s survey of the islands in the 1930s. According to legend, Pu‘uokapolei was the location on which Kamapua‘a, the pig-god, resided with his grandmother, Kamaunuahihio (McAllister 1933:108).

In his surface survey of the 1930s, archaeologist J. Gilbert McAllister recorded the specific locations of important sites, and the general locations of less important sites (at least at Honouliuli). McAllister recorded seven specific sites at Honouliuli (numbered 133-139; McAllister 1933:107-108) (see Figure 3), and these became the first seven sites in the Bishop Museum's Site Numbering System (OA-B6-1 through OA-B6-7).

The first six sites are in the upland section of Honouliuli, *mauka* of the ‘Ewa coral plain and Pu‘uokapolei. Site 133 is a possible *heiau*, a small enclosure at the foot of Pu‘u Kānehoa. It was still standing during McAllister’s day, and local residents informed him of its sacred nature. Site 134 is Pu‘u Kuina Heiau, located in a gulch at the foot of Mauna Kapu. Only traces of a large terrace remained. Site 135 is a series of enclosures *makai* of Pu‘u Kuina Heiau. McAllister believed that the walls marked *kuleana* lots. Site 136 is a small platform near Mauna Kapu, a sacred site, possibly an altar. Site 137 is Pu‘u Ku‘ua Heiau, plotted on a ridge near Pu‘u Ku‘ua; it

Table 2. Previous archaeological work in Honouliuli and Pu‘uloa

Author	Report Type	Location
Thrum 1906	Heiau study	Hawaiian Islands
McAllister 1933	All island survey	O‘ahu Island
Kikuchi 1959	Site letter report	Barbers Point
Bowen and Soehren 1962	Burial Discovery	Barbers Point
Soehren 1964	Site letter report	Waimanalo Gulch
Lewis 1970	Reconnaissance survey	Barbers Point (harbor area)
McCoy 1972	Survey	Pu‘uloa Elementary School Site
Hommon 1973	Survey and Excavations	Honouliuli
Barrera 1975	Reconnaissance survey	Barbers Point (harbor area)
Clark and Connolly 1975	Reconnaissance survey	Barbers Point (harbor area)
Oshima 1975	Reconnaissance survey	Barbers Point
Sinoto 1976	Cultural resources survey	Barbers Point (harbor area)
Bordner 1977a	Reconnaissance survey	Kalo‘i Gulch
Bordner 1977b	Reconnaissance survey	Makaiwa Gulch
Clark 1977	Reconnaissance survey	Puu O Kapolei
Connolly and Clark 1977	Reconnaissance survey	Puu O Kapolei
Davis 1978	Scholarly paper	Barbers Point (harbor area)
Davis and Griffin 1978	Archaeological Survey	Barbers Point (harbor area)
Hawai‘i Marine Research Inc. 1978	Geoarchaeological reconnaissance	Barbers Point (harbor area)
Kirch 1978	Land snail study	Barbers Point (harbor area)
Sinoto 1978a	Reconnaissance Survey and Burial Salvage	NAVMAG -West Loch
Sinoto 1978b	Archaeological & Paleontological salvage	Barbers Point (harbor area)
Barrera 1979	Archaeological Survey	West Beach
Clark 1979	Reconnaissance survey	Barbers Point (harbor area)
Cleghorn 1979	Reconnaissance survey	Barbers Point
Davis 1979a	Emergency excavations	Barbers Point (harbor area)
Davis 1979b	Emergency excavations	Barbers Point (harbor area)
Davis 1979c	Emergency excavations	Barbers Point (harbor area)
Jourdane 1979	Reconnaissance Survey	‘Ewa Marina Community
Komori and Dye 1979	Archaeological testing	West Beach
Sinoto 1979	Cultural resources survey	Barbers Point (harbor area)
Ahlo 1980	Reconnaissance survey	Solid Waste Processing Facility
Davis 1980	Research design	Barbers Point
Kirch and Christensen 1980	Land snail study	Barbers Point (harbor area)
Christensen and Kirch 1981	Land snail study	Barbers Point (harbor area)
Hammatt and Folk 1981	Archaeological and Paleontological	Barbers Point (harbor area)
Davis 1982	Academic paper	Barbers Point
McCoy et al. 1982	Proposal for investigations	Barbers Point (harbor area)
Neller 1982	Scholarly study	Barber’s Point
Ahlo and Hommon 1983	Reconnaissance survey	Barber’s Point (harbor area)
Bordner and Silva 1983	Reconnaissance survey	Waimānalo Gulch
Davis 1983	Archaeological & Paleontological Excavations	Barber's Point
Ahlo and Hommon 1984	Test excavations	Barbers Point (harbor area)

Author	Report Type	Location
Hammatt 1984a	Reconnaissance survey	Kahe Point
Hammatt 1984b	Reconnaissance survey	Ewa Marina Community
Haun and Kelly 1984	Research resign	Naval Air Station
Tuggle 1984	Survey report	Naval Air Station
Barrera 1985	Survey report	West Beach
Neller 1985	Review and evaluation	West Beach
Barrera 1986	Archaeological Investigations	West Beach
Davis and Haun 1986	Intensive survey and test excavations	West Beach
Davis et al. 1986a, b	Research design	West Beach
Haun 1986a	Reconnaissance survey	Kapolei Town
Haun 1986b	Reconnaissance survey	Kapolei Town
Athens & Pietrusewsky 1987	Burial documentation	Iroquois Point
Davis and Haun 1987	Intensive survey & test excavations	West Beach
Dicks et al. 1987	Reconnaissance survey	West Loch
Rosendahl 1987a	Reconnaissance survey	Kapolei Town
Rosendahl 1987b	Reconnaissance survey	Ko Olina Resort
Rosendahl 1987c	Reconnaissance survey	West Loch
Rosendahl 1987d	Reconnaissance survey	Kapolei Golf Course
Welch 1987	Reconnaissance survey	Naval Air Station
Davis 1988a	Subsurface Survey	‘Ewa Gentry
Davis 1988b	Reconnaissance survey	Barbers Point HECO
Kennedy 1988a	Reconnaissance survey	‘Ewa Gentry
Kennedy 1988b	Field Report	Waiau-Campbell Industrial Park
Rosendahl 1988	Reconnaissance survey	Camp Malakole
Sinoto 1988a	Reconnaissance survey	‘Ewa Golf Course
Sinoto 1988b	Reconnaissance survey	Makakilo Golf Course
Bath 1989a	Petroglyph study	Waimānalo Gulch
Bath 1989b	Burial documentation	Kahe
Bath 1989c	Burial documentation	West Loch – Hō‘ae‘ae Point
Burgett and Rosendahl 1989	Subsurface archaeological testing	North of O.R.&L.
Hammatt and Shideler 1989a	Archaeological assessment	Barbers Point (harbor area)
Hammatt and Shideler 1989b	Reconnaissance survey	Kahe Point
Carlson and Rosendahl 1990	Inventory survey	Kaomi Loop Subdivision
Cleghorn and Davis 1990	Archaeological and paleontological	Barbers Point (harbor area)
Collin and Kennedy 1990	Burial documentation	Pu‘uloa Golf Course
Davis 1990a	Archaeological and paleontological study	Barbers Point (harbor area)
Davis 1990b	Archaeological and paleontological	Barbers Point (HECO area)
Davis et al. 1990	Survey and Test Excavations	Ewa Marina Community
Hammatt and Shideler 1990	Inventory survey	West Loch Bluffs
Hammatt, Robins, et al. 1990	Inventory survey	Makaiwa Hills
Hammatt, Shideler, et al. 1990	Inventory Survey	‘Ewa Villages
Kawachi 1990	Inadvertent Burial find	Campbell Industrial Park
Miller 1990	Inadvertent Burial find	Barber's Point, Nimitz Beach
Rosendahl 1990a	Letter report	Kapolei Golf Course
Rosendahl 1990b	Archaeological Survey and Test Excavations	‘Ewa Marina Community
Davis and Burtchard 1991	Inventory Survey	NAVMAG-West Loch
Dunn et al. 1991	Inventory Survey and Test Excavations	‘Ewa Marina Community

Author	Report Type	Location
Folk 1991	Reconnaissance Survey	Kapolei Town
Goodman and Cleghorn 1991	Surface Survey	Laulani Fairways Housing
Kennedy 1991	Subsurface testing	Pu‘u o Kapolei
Hammatt 1991	Reconnaissance Survey	Honouliuli Livestock Park
Hammatt and Shideler 1991a	Archaeological assessment	Barbers Point (harbor area)
Hammatt and Shideler 1991b	Inventory Survey	St. Francis Medical Center West
Haun et al. 1991	Survey report	Naval Air Station
Burgett and Rosendahl 1992	Inventory survey	Barbers Point (harbor area)
Charvet-Pond and Davis 1992	Data Recovery	West Beach
Cleghorn and Anderson 1992	Inventory survey	Kahe Point
Hammatt and Folk 1992	Subsurface testing	Barbers Point (harbor area)
Erkelens 1992	Archaeological survey	Naval Air Station
Folk 1992	Subsurface Testing	Barbers Point
Hammatt 1992	Inventory Survey	Palikea
Jayatilaka et al. 1992	Survey and Test Excavations	Hawai‘i Prince Golf Course
Kennedy et al. 1992	Inventory Survey	Pu‘uloa Golf Course
Shideler et al. 1992	Assessment	Kahe Point
Trembly et al. 1992	Burial documentation	West Beach
Davis 1993	Archaeological and paleontological	Barbers Point (harbor area)
Glidden et al. 1993	Data recovery excavations	Paradise Cove
Goodman et al. 1993	Reconnaissance Survey	20-acre Commercial Project
Jones 1993	Fossil coral reefs study (Ph.D. dissertation)	Hawaiian Islands
Landrum and Schilz 1993	Reconnaissance and subsurface testing	Naval Air Station
Miller et al. 1993	Data recovery	Barbers Point (harbor area)
Nakamura et al. 1993	Inventory survey	Makakilo
Pantaleo and Sinoto 1993	Inventory survey	Ewa Gentry
Hammatt and Shideler 1994	Archaeological assessment	Barbers Point (harbor area)
Hammatt et al. 1994	Inventory survey	Barbers Point (harbor area)
Tuggle 1994	Inventory survey	Barbers Point
Davis et al. 1995	Archaeological & Paleontological Investigations	Barbers Point (harbor area)
Dye 1995	Burial documentation	Barbers Point
Franklin 1995	Data Recovery	Ewa Marina Community
Hammatt and Shideler 1995	Data recovery plan	Barbers Point (harbor area)
Jourdane 1995	Burial documentation	Paradise Cove
Yoklavich et al. 1995	CRM Overview	Barbers Point
Corbin et al. 1996	Reconnaissance Survey	Laulaunui Island
O’Hare et al. 1996	Intensive survey and testing	Naval Air Station
Spear 1996	Archaeological Survey	Honouliuli Treatment Plant
Athens et al. 1997	Cultural resources, paleoenvironmental	‘Ewa Plain:Naval Air Station
Schilz and Landrum 1996	Test Excavations	Barbers Point
Spear 1996	Reconnaissance Survey	Kapolei Town
Borthwick 1997	Assessment	Palehua, Honouliuli
Hammatt 1997	Inventory survey	Pu‘uloa
Hammatt and Chiogioji 1997	Reconnaissance Survey	Corridor in Honouliuli
Jensen and Head 1997	Reconnaissance Survey	NAVMAG-West Loch
Tuggle 1997a	Cultural resource inventory	Naval Air Station
Tuggle 1997b	Synthesis	‘Ewa Plain

Author	Report Type	Location
Tuggle and Tomonari 1997a,b	Cultural resource inventory survey	Naval Air Station
Wickler and Tuggle 1997	Cultural resources, Inventory Survey	Naval Air Station
Wolforth and Wulzen 1997	Data Recovery	West Loch Estates
Wulzen and Rosendahl 1997	Data Recovery	Barbers Point Nimitz Beach
Goodfellow et al.	1998	West Loch
Hammatt and Shideler 1999	Inventory survey	Waimanalo Gulch
Magnuson 1999	Reconnaissance Survey	Farrington Hwy.
McDermott et al. 2000	Data recovery	Barbers Point (harbor area)
Elmore et al. 2001	Honouliuli	Pu‘u Kapolei/Fort Barrette
Ostroff *et al*. 2001	Inventory survey	Pu‘uokapolei
Tulchin et al. 2001	Inventory survey	‘Ewa Shaft Renovation
McIntosh and Cleghorn 2003	Inventory survey	‘Ewa Gentry Makai
Cordy and Hammatt 2003	Archaeological assessment	Barbers Point, North of O.R.&L.
O'Hare et al. 2005	Field Check	Kapolei Property
O‘Hare et al. 2004	Documentation of Plantation Infrastructure	North of O.R.&L.
Terry et al. 2004	Archaeological Inventory Survey of Two	North of O.R.&L.
Hoffman et al. 2004	Archaeological inventory Survey	Between OR&L and Barbers Point

had been modified for use as a cattle pen; some areas had been cleared for pineapple cultivation or planted with ironwoods. Site 138 is Pu‘uokapolei Heiau, which had been on the *makai* side of the hill before it was destroyed. The stones of the structure had been crushed in a nearby rock crusher. McAllister was also told that there was once a cave on the hill, in which Kamapua‘a and his grandmother lived (McAllister 1933:107-108).

The remaining eight sites recorded by McAllister are adjacent to Pearl Harbor or the coast. Site 139 is Kalanamaihiki Ko‘a (fishing shrine) at Kapapapuhi Point. McAllister described it as “two large rough stones about 2.5 feet in size, with six or seven smooth stones averaging 1 foot in size in a small pile adjoining the larger stones.” Site 140 is a 4-5 acre fishpond on Laulaunui Island in West Loch, opposite Kapapapuhi Point. McAllister recorded the entire West Loch of Pearl Harbor as Site 141, Kaihuopala‘ai. Although some versions of the legend of the traveling mullet say that there was a fishpond called Kaihuopala‘ai, McAllister recorded that local informants said there was never a fishpond by that name here; rather it is the name for the loch. Site 142 is Kapamuku, or Pamoku fishpond, a 3-acre fishpond, located opposite the tip of Waipi‘o peninsula. Site 143 is ‘Oki‘okiolepe fishpond, south of Loko Pamoku. The walls of this 6-acre fishpond were made of coral.

McAllister recorded Site 144 as the location of fish traps and a fishing shrine described by Stokes in his study of the fishtraps of Pearl Harbor. This is the location of the fishtraps Kapākule (Pākule) and Kepo‘okala, as described by Samuel Kamakau (1976:88). McAllister listed Site 145 as Pu‘uloa, a legendary site where the first breadfruit was planted. It is not known whether Pu‘uloa referred to is the ‘*ili* of Pu‘uloa or the harbor of Pu‘uloa, or an area within the ‘*ili* near the harbor. Site 146 covers the entire ‘Ewa coral plain. This includes historic features, such as cattle walls and the walls near the Pu‘uloa Salt Works, pre-Contact sites such as habitation, agricultural, and fishpond sites recorded by early European explorers, and paleontological sites, where in recent years many fossil bird bones have been discovered (McAllister 1933:108-110).

Between McAllister's 1930s study and the flurry of work that began in 1969, there are only a few sporadic pieces of research, which are not well documented. In 1933, Dr. Kenneth P. Emory recorded a well-preserved house site and a possible *heiau* (later destroyed by sugar cane cultivation) in the western part of the coral plains (Sinoto 1976:1). In 1959, William Kikuchi removed a number of burials from a burial cave site (Bishop Museum Site OA-B6-10) at the Standard Oil Refinery, which was subsequently destroyed (Barrera 1975:1). Kikuchi recovered 12-16 incomplete primary and/or secondary burials cached in a sinkhole or crevice exposed during construction activities near the big bend in Malakole Road (Kikuchi 1959; Davis 1990b: 146, 147): In 1960, Yoshi Sinoto and Elspeth Sterling visited a house site (BPBM. Site OA-B6-8) within ‘Ēkaha Nui Gulch. “Around this elevation (1200 feet), along the sides of the stream, were seen remains of many terraces and some house sites” (Sterling and Summers 1978:37). In 1962, Lloyd Soehren recorded another secondary human burial in a sinkhole at the Barber's Point Naval Air Station (Davis 1990a:147). In 1966, Lloyd Soehren carried out salvage excavations at a possible fishing shrine (BPBM. Site # 50-OA-B6-13). The site was reported as destroyed by construction (Barrera 1975:1), but Davis relocated the shrine and performed additional excavations in 1982 (Davis 1990a:148).

4.1.1 Previous Archaeological Research In the Vicinity of the Present Project Area

The two most germane archaeological studies for the current project area two reports by Alan Haun of the archaeological firm Paul H. Rosendahl, Inc. (PHRI) (Figure 9). The first is a letter report entitled *Preliminary Archaeological Reconnaissance Survey for Environmental Assessment (EA) ‘Ewa Town Center/ Secondary Urban Center, Land of Honouliuli, ‘Ewa, Island of Oahu (TMK: 9-1-15: Por. 4, 5, 17; 9-1-16:1, Por. 4, 6, 9, 16, 18, 24, 30: 9-2-19: Por. 1)* (Haun 1986a). This study covered a petition area of approximately 1,400 acres, including both Areas A and B of the Kamōkila Blvd. Extension project area. The second is *Preliminary Archaeological Reconnaissance Survey for Environmental Assessment (EA) ‘Ewa Town Center/ Secondary Urban Center, Land of Honouliuli, ‘Ewa, Island of Oahu* (*TMK: 9-1-15: Por., 5, 17; 9-1-16:Por. 9)* (Haun 1986b). This study covered a petition area of approximately 200 acres (see Figure 9).

The Haun studies note the extensive modification for sugarcane cultivation and concludes that only two sites had been previously reported in the vicinity: the OR&L alignment (Site 50-80-12-9714) on the southern border of the study area and the *heiau* and large rock shelter recorded by McAllister (1933) on Pu‘uokapolei (Site 50-80-12-138). Pu‘uokapolei was outside of the Haun study area and was not checked by him during his field survey. The Haun study identified two new sites: an irrigation ditch north of the H-1 and a WWII military structure on Pu‘u Palailai, but both lie outside the present area of concern and both were regarded as of minimal significance. The Haun study (1987:4) concluded that “no further archaeological work is recommended.”

Since the Bishop Museum studies, several other surveys have been conducted within or overlapping the 1986 Haun study areas (Figure 10). In 1990, CSH (Hammatt et al. 1991) conducted an inventory survey of the 1,915-acre Makaīwa Hills project area, located between the towns of Makakilo and Waimanalo Gulch and extended from Farrington Highway on the south (*makai*) boundary and to Pālehua Road on the north (*mauka* boundary). The *makai* border of this project area is shown in Figure 10. A total of 34 sites were recorded during this survey.

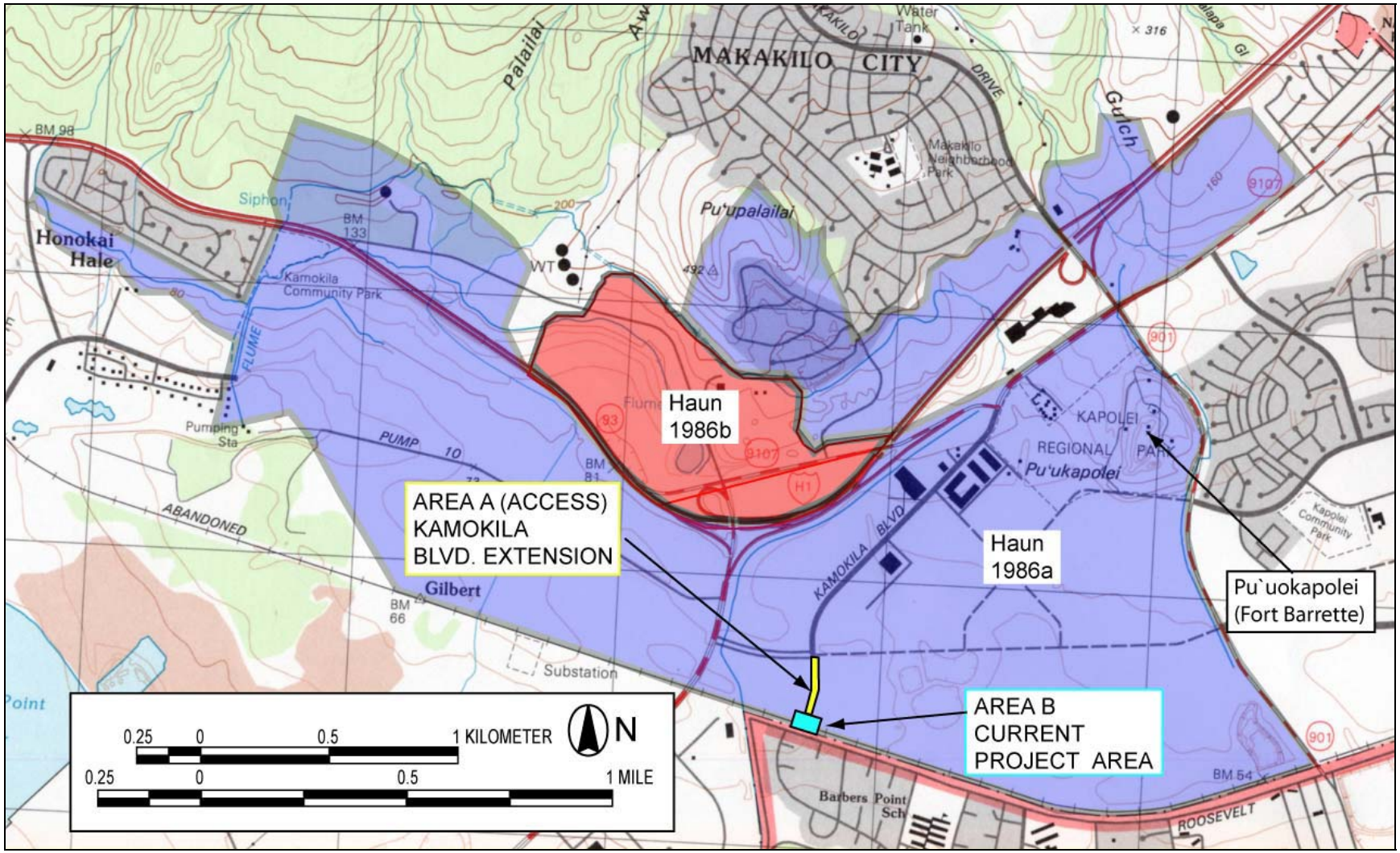

Figure 9. Previous archaeological near the project area; blue-shaded area=Ewa Town Center/Secondary Urban Center 1,400-acre study area (Haun 1986a); red-shaded area =Haun (1986b) Ewa Town Center/ Secondary Urban Center 200-acre study area

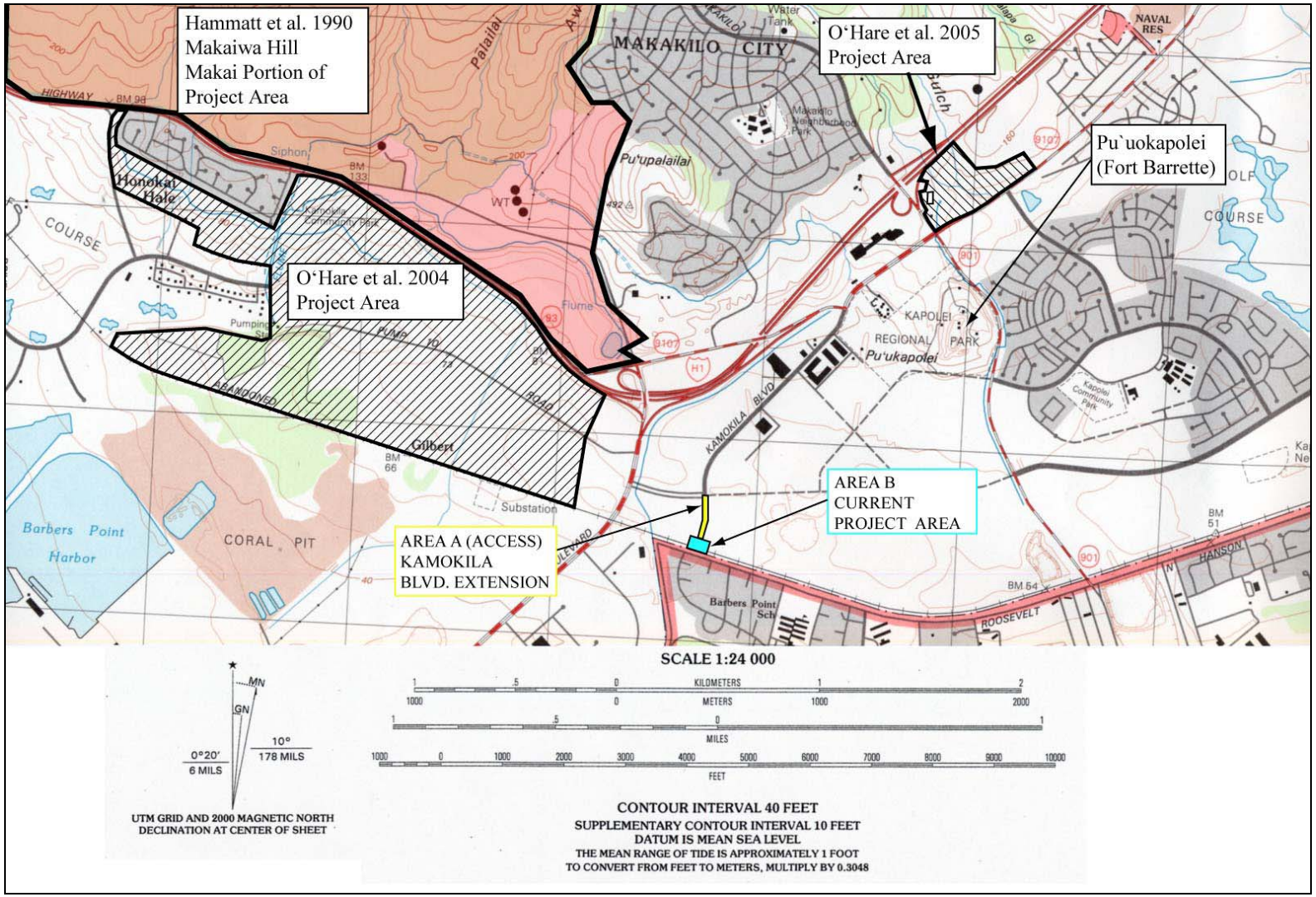

Figure 10. US Geological Survey Map (1998 series) showing current project area (blue dashed line) and project areas for O’Hare et al. 2004, 2005 (hatched areas) and *makai* section of the Makaīwa Hills Project (pink shaded area in upper left corner of figure)

Pu‘uokapolei/Fort Barrette has been the subject of four separate archaeological investigations. The first was by Clark (1977) who conducted an archaeological reconnaissance survey. Clark and colleagues surveyed the entire property and noted the extensive modification from the military development. They did not find any evidence of prehistoric use of the area. Clark concluded that no further archaeological work was necessary within the project area.

Kennedy (1991) conducted a surface survey as well as subsurface testing with a backhoe. The surface survey did not reveal any evidence of prehistoric use of the site. The surface survey did record the military structures associated with Battery Hatch discussed above. Twelve backhoe trenches varying in length from 10 m to 44 m were excavated. The total trench length was 312 m. No prehistoric cultural remains were discovered in any of the trenches. Modern trash was found in a few of the trenches. Like Clark (1977), Kennedy (1991) recommended that no further archaeological work was necessary.

Ostroff et al. (2001) completed a full-scale inventory survey of Pu‘uokapolei/Fort Barrette. The inventory survey included a complete surface survey, the excavation of 21 trenches with a backhoe, and the excavation of four controlled test units. Two sites were recorded during the investigations: 50-80-12-5918 and 50-80-12-5919. Site 50-80-12-5918 includes a stone mound and a petroglyph of questionable age. Because Fort Barrette had become more than fifty years old at the time of the study it was assigned state sight number 50-80-12-5919. Site 50-80-12-5919 includes 40 separate features, which are the various buildings throughout the property. Ostroff *et al*. concluded that site 50-80-12-5918 would need further investigation if any construction activities were going to take place that might impact the site. The authors also concluded that Fort Barrette (50-80-12-5919) was “an excellent candidate for placement on the National Register of Historic Places” (Ostroff et al. 2001:i).

CSH (O’Leary and Hammatt 2005) conducted a literature search and a brief field inspection for the proposed project to widen Fort Barrette Road. During the field inspection two features were recorded, one large concrete pipe (Feature 1) and a rock wall (Feature 2). No site number was assigned to these features.

None of the four previous studies (Clark 1977, Kennedy 1991, Ostroff *et al*. 2001; O’Leary and Hammatt 2004) found any evidence of the *heiau* or rock shelter (Site -138) originally mentioned by McAllister (1933).

Also pertinent to this project is a recent report (O’Hare et al. 2004) on the documentation of existing sugar plantation infrastructure still present in a 474-acre parcel of land (TMK (1) 9-1-015:004) northwest of the current study area (see Figure 10). This report contains a detailed history of the Ewa Plantation Company, focusing on the changing irrigation technologies used for sugar cane cultivation, and the types of irrigation features, such as ditches, pipes, channels, and flumes that would be expected to be found still in the project area. A field survey was conducted by CSH in this parcel and all historic features relating to sugar cane cultivation, especially irrigation features, were documented and photographed. Two sites were recorded: Site 50-80-12-6679, an earthen ditch possibly constructed around World War II; and, Site 50-80-12-6678, a complex of above ground irrigation features, such as concrete canals and basins, and metal pipes and flumes (Features A-E). Neither site was recommended for preservation of for additional archaeological work.

This same site number for plantation infrastructure (50-80-12-6678) used for the O'Hare et al. 2004 parcel was also used for four features (Features F-I of site -6678) found during a recent field assessment (O'Hare et al. 2005) of a project area northeast of the current project area (see Figure 10), within the northeastern corner of the Haun study area (see Figure 9).

4.1.2 State Historic Preservation Division Reviews of the Present Project Lands

As noted above, and supported by Figure 9, the 1986a archaeological study by Alan Haun covered the entirety of both Areas A and B of the Kamōkila Blvd. Extension area. The potential historic preservation concerns for these lands have been evaluated a number of times previously by the State Historic Preservation Division (SHPD). The first SHPD determination appears to have been in a letter from Ralston H. Nagata to Roger C. Evans dated January 28, 1987 entitled *Environmental Review – Secondary Urban Center in Ewa Oahu. Honouliuli, Ewa, Oahu TMK: 9-1-15, por. 4, 5, 17, 9-1-16, 1, por 4, 6, 9, 16, 18, 24, 30; 9-2-19: por. 1*:

> The majority of this area has long been under sugarcane cultivation. The remaining portions have recently had reconnaissance-level archaeological survey (Haun, for PHRI). No significant sites were recorded. We believe therefore that there will be "no effect" on significant historic sites. (Nagata to Evans, January 28, 1987).

This was basically the same wording used in subsequent SHPD evaluations of an LUC boundary petition for the secondary urban center (Ralston H. Nagata to Roger C. Evans dated August 26, 1987), for the Final EIS for the Kapolei Town Center (William W. Patty to Donald Clegg, July 6, 1988), and for an LUC motion for incremental districting of Kapolei City (Don Hibbard to Roger C. Evans, February 17, 1993).

An SHPD response to a "City and County of Honolulu Information Request Regarding an LUC boundary petition . . . " (Ralston H. Nagata to Roger C. Evans, August 26, 1987) specifically addressed lands including in the later Haun (1986b) study. The SHPD response to the information request noted:

> The property involved in this petition has been archaeologically surveyed, and a copy of the report is included in the document. No significant historic sites were located during the survey, Therefore we believe that this project will have "no effect" on significant historic sites. . . . (Nagata to Evans, August 26, 1987).

Thus it appears that all lands of concern in the present request for status clarification have been covered in previous archaeological studies (Haun 1986a, 1986b) and that the issue of development of all these lands have been previously evaluated by the SHPD as having "no effect" on significant historic sites.

Because some time had elapsed since formal SHPD consideration of these lands, Cultural Surveys Hawai‘i recently requested a statement from the SHPD regarding any historic preservation concerns for several parcels in this area. The SHPD review letter of November 26 2003 (Log No 2003.2440, Doc No. 0311EJ38) concludes: "that: development of the lands covered in this status clarification will have 'no effect' on significant historic sites."

4.1.3 State Historic Preservation Division Letters involving Haun 1986a, 1986b Study Areas

5) Ralston H. Nagata to Roger C. Evans dated January 28, 1987 entitled: Environmental Review – Secondary Urban Center in Ewa Oahu. Honouliuli, Ewa, Oahu TMK: 9-1-15, por. 4, 5, 17, 9-1-16, 1, por 4, 6, 9, 16, 18, 24, 30; 9-2-19: por. 1.

6) Ralston H. Nagata to Roger C. Evans dated August 26, 1987 entitled: LUC Boundary Petition 87-613, Campbell Estate, Ag. to Urban, Implementation of Honolulu General Plan Policy for Secondary Urban Center Honouliuli, Ewa, Oahu TMK: 9-1-15, por. 4, 9-1-16, 1, por 4, 6, por. 9, 16, 18, 24, and 30; 9-2-03: por. 2; 9-2-19: por. 1.

7) William W. Patty to Donald Clegg, dated July 6, 1988 entitled: Final EIS, Kapolei Town Center Honouliuli, Ewa, Oahu TMK: 9-1-16, various; 9-2-19: 1; 9-2-03: 2 and 12

8) Don Hibbard to Roger C. Evans, February 17, 1993 entitled: LUC Docket No. A87-613: Motion for Incremental Districting (Kapolei City) by the Estate of James Campbell (File No. 93-384) Honouliuli, Ewa, Oahu TMK: 9-1-15: por. 4; 9-1-16 por. 1, por. 4, 5, 6, por. 9, 12, 13, por. 16, 18, por. 24, 30; ; 9-2-3: por. 2, 12; 9-2-19: por. 1).

9) Ralston H. Nagata to Roger C. Evans, August 26, 1987 entitled: City and County of Honolulu Information Request Regarding an LUC boundary petition 87-613, Campbell Estate Honouliuli, Ewa, Oahu TMK: 9-1-15: por. 4; 9-1-16: 1, por. 4, 6, por. 9, 16, 18, 24, and 30; ; 9-2-3: por. 2; 9-2-19: por. 1).

10) Holly McEldowney to David Shideler, November 26, 2003 entitled Chapter 6E-42 Historic Preservation Review – Request for Written Status Clarification on Lands in Kapolei Area of Honouliuli Ahupua‘a Honouliuli, ‘Ewa, O‘ahu.

4.2 Background Summary and Predictive Model

4.2.1 Honouliuli Settlement Patterns

The *ahupua‘a* of Honouliuli is the largest traditional land unit on the island of O‘ahu. Honouliuli includes all the land from the western boundary of Pearl Harbor (West Loch) westward to the ‘Ewa/Wai‘anae District Boundary with the exception of the west side of the harbor entrance, which is in the *ahupua‘a* of Pu‘uloa (the ‘Ewa Beach/Iroquois Point area). This comprises approximately 12 miles of open coastline from One‘ula westward to Pili O Kahe. The *ahupua‘a* extends *mauka* (almost pie-shaped) from West Loch nearly to Schofield Barracks, and the western boundary is the Wai‘anae Mountain crest running *makai* to the east ridge of Nānākuli Valley.

Not only is there a long coastline fronting the normally calm waters of leeward O‘ahu, but there are also four miles of waterfront along West Loch. The land immediately *mauka* of the Pacific coast consists of a flat karstic raised limestone reef forming a level nearly featureless “desert” plain marked in pre-Contact times (previous to alluviation caused by sugar cultivation) by a thin or non-existent soil mantle. The microtopography is notable in containing countless sinkholes in some areas caused by chemical weathering (dissolution) of the limestone shelf.

Along the eastern flank of the Wai‘anae Mountains, numerous gulches have contributed to the alluvial deposits over the coastal limestone shelf. The largest of the gulches is Honouliuli Gulch, which drains into West Loch. The gulches are generally steep-sided in the uplands and generally of a high gradient until they emerge onto the flat ‘Ewa plain. The alluvium they have carried has spread out in delta fashion over the *mauka* portions of the plain, which comprises a dramatic depositional environment at the stream gradient change. These gulches are generally dry, but during seasonal Kona storms carry immense quantities of runoff onto the plain and into the ocean. As typical drainages in arid slopes they are either raging uncontrollably, or are dry and, as such, do not form stable water sources for traditional agriculture in their upper reaches. The Honouliuli gulches generally do not have valleys suitable for extensive irrigated agriculture; however, this lack is more than compensated for by the rich watered lowlands near West Loch.

Honouliuli Ahupua‘a, as a traditional land unit, had abundant and varied resources available for exploitation by early Hawaiians. The “karstic desert” and marginal characterization of the limestone plain, which is the most readily visible terrain, does not do justice to the *ahupua‘a* as a whole. The richness of this land unit is marked by the following available resources:

11) 12 miles of coastline with continuous shallow fringing reef, which offered rich marine resources.

12) Four miles of frontage on the waters of West Loch, which offered extensive fisheries (mullet, *awa*, shellfish), as well as frontage suitable for development of fishponds.

13) The lower portion of Honouliuli Valley in the ‘Ewa plain offered rich level alluvial soils with plentiful water for irrigation from the stream as well as abundant springs. This land would have stretched well up the valley.

14) A broad limestone plain, which because of innumerable limestone sinkholes, offered a nesting home for a large population of avifauna. This resource may have been one of the early attractions to human settlement.

15) An extensive upland forest zone extending as much as 12 miles inland from the edge to the coastal plain. As Handy and Handy (1972:469) have pointed out, the forest was much more distant from the lowlands here than it was on the windward side, but on the leeward side was more extensive. Much of the upper reaches of the *ahupua‘a* would have had species-diverse forest with *kukui*, *‘ōhia*, sandalwood, *hau*, *ti*, banana, etc.

Within this natural setting, archaeological and traditional sources show a general pattern of three main areas of settlement within the *ahupua‘a*: a coastal zone, the Honouliuli taro lands, and inland settlement at Pu‘u Ku‘ua.

4.2.2 The Coastal Zone - Kalaeloa (Barber's Point), Ko‘olina (West Beach)

Kalaeloa (Barber's Point)

Archaeological research at Barber's Point has focused on the areas in and around the newly constructed Deep Draft Harbor (Barrera 1975; Davis and Griffin, 1978; Hammatt and Folk, 1981, McDermott et al. 2000). Series of small clustered shelters, enclosures and platforms show

limited but recurrent use at the shoreline zone for marine-oriented exploitation. This settlement covers much of the shoreline with more concentrated features around small marshes and wet sinks. Immediately behind the shoreline, under a linear dune deposit, is a buried cultural layer believed to contain some of the earliest habitation evidence in the area.

The attraction of the area to early Hawaiians was the plentiful and easily exploited bird population. Particular evidence for taking of petrels occurs at Site -2763 (Hammatt and Folk, 197:213). Initial heavy exploitation of nesting seabirds and other species in conjunction with habitat destruction probably led to early extinction. There is some indication of limited agriculture in mulched sinkholes and limited soil areas. Considering rainfall, this activity would have been limited, but probably involved tree crops and roots (sweet potatoes). The archaeological content of the sites indicates a major focus on marine resources.

Davis and Griffin (1978) distinguish functional classes of sites, based on surface area size and argues that the Barber’s Point settlement consists of functionally integrated multi-household residence groups. Density contours of midden (by weight) and artifacts (by numbers) plotted for residence sites by Hammatt and Folk (1981) generally indicate narrowly defined spatial foci of discard, possibly indicating continuous use, or at least with no refurbishing or additions to the structures through time (Hammatt and Folk 1981). The focus is small habitation sites, typically lacking the full range of features found in large permanent residence complexes such as high platforms, complex enclosures, and ceremonial sites.

Ko‘ōlina (West Beach)

There are three available studies on the Ko‘ōlina project area (Davis et a. 1986a; Davis et al. 1986b; and Davis and Haun 1987).

Davis documents around 180 component features at 48 sites and site complexes consisting of habitation sites, gardening areas, and human burials. Chronologically the occupation covers the entire span of Hawaiian settlement, in what Davis and Haun describe as “one of the longest local sequences in Hawaiian prehistory” (Davis and Haun 1987:37). The earliest part of the sequence relates to the discovery of an inland marsh, and early dates were also obtained for the beachfront site and an inland rock shelter.

4.2.3 Honouliuli Taro Lands

Centered around the west side of Pearl Harbor at Honouliuli Stream and its broad outlet into the West Loch are the rich irrigated lands of the *‘ili* of Honouliuli, which give the *ahupua‘a* its name. The major archaeological reference to this area is Dicks, Haun, and Rosendahl (1987) who documented remnants of a once-widespread wetland system (*lo‘i* and fishponds) as well as dryland cultivation of the adjacent slopes. The current study area is within this environmental zone.

The area bordering West Loch was clearly a major focus of population within the Hawaiian Islands, and this was a logical response to the abundance of fish and shellfish resources in close proximity to a wide expanse of well-irrigated bottomland suitable for wetland taro cultivation. The earliest detailed map (Malden 1825) shows all the roads of southwest O‘ahu coalescing and descending the *pali* (cliff) as they funnel into the locality (i.e. Honouliuli Village). Dicks et al. (1987:78-79) conclude, on the basis of 19 carbon isotope dates and 3 volcanic glass dates that

“Agricultural use of the area spans over 1,000 years.” Undoubtedly, Honouliuli was a locus of habitation for thousands of Hawaiians. Pre-Contact population estimates are a matter of some debate but it is worth pointing out that in the earliest mission census (Schmitt 1973:19) 1831-1832, the land (*‘āina*) of Honouliuli contained 1026 men, women, and children. It is not clear whether this population relates to Honouliuli Village or the entire *ahupua‘a,* but the village probably contained the vast majority of the district’s population. The nature of the reported population structure for Honouliuli (less than 20% children under 12 years of age) and the fact that the population decreased more than 15% in the next 4 years (Schmitt 1973:22) suggests that the prehistoric population of Honouliuli Village may well have been significantly greater than it was in 1831-1832. A conservative estimate would be that tens of thousands of Hawaiians lived and died at Honouliuli Village.

4.2.4 Pu‘uku‘ua: Inland Settlement

Documentation of inland settlement in Honouliuli Ahupua‘a is more problematic in that there are relatively few documented archaeological sources. However, it is probable that the area around Pu‘uku‘ua, on the east side of the Wai‘anae Ridge seven miles inland of the coast, was a Hawaiian place of some importance.

In 1899, Hawaiian Newspaper *Ka Loea Kālai‘āina* relates a story of Pu‘uku‘ua as “a place where chiefs lived in ancient times” and a “battle field,” “thickly populated.” The article summarizes:

> There were two important things concerning this place. (1) This place was entirely deserted and left uninhabited and it seems that this happened before the coming of righteousness to Hawai‘i Nei. Not an inhabitant is left. (2) The descendants of the people of this place were so mixed that they were all of one class. Here the gods became tired and returned to Kahiki [*Ka Loea Kālai‘āina*, July 8, 1899, translated in Sterling and Summers 1978:33].

McAllister recorded three sites in this area, two *heiau* (134, 137) (Pu‘u Kuina and Pu‘uku‘ua, both destroyed) and a series of enclosures in Kukuilua which he called “kuleana sites” (McAllister 1933). On the opposite side of the Wai‘anae range, along the trail to Pōhākea Pass, Cordy (2002:36) states “Kākuihihewa was said to have built (or rebuilt) Nōi‘ula, a *pō‘okanaka heiau* (1,300 sq. m.) in Hālona in upper Lualualei, along the trail to Pōhākea Pass leading into ‘Ewa, ca. A.D. 1640-1660” (Cordy 2002:36). There is no direct archaeological evidence available to the authors’ knowledge that intensive Hawaiian settlement occurred here, but it is considered as a place of high probability, based on the above indications. John Papa ‘Ī‘ī (1959) described a journey that Liholiho took which led him and an entourage through inland Honouliuli and over Pōhākea Pass. Geographically, the area receives sufficient quantities of water and would have had abundant locally available forest resources.

4.2.5 Summary

On the basis of archaeological studies, informed by historic records, the following may be concluded:

1) There are three areas of Hawaiian settlement in the *ahupua‘a*; two are well-documented and one is problematic:

    a. the extensive limestone plain with recurrent use habitations for fishermen and gatherers and sometime gardeners;

    b. the rich cultivated lands of Honouliuli ‘ili for extensive wetland taro and clearly the *ahupua‘a* population center; and,

    c. the uplands around Pu‘uku‘ua associated with *kauwā* residence but probably used for agriculture and forest resources.

2) Honouliuli is designed as a unit to contain all the geographic elements of a typical Hawaiian valley *ahupua‘a*, except they are arranged geomorphically in an atypical relationship. The *ahupua‘a* is not organized around a single drainage network but shares the west portions of Waikele drainage in its upper reaches. A typical and highly advantageous characteristic for human subsistence is included in a vast coastline and fringing reef, an extensive limestone plain which would support only limited agriculture but would be excellent for bird catching in early times, and a huge expanse of sloping forest land. The richest forest land for foraging for wood, birds, feathers, etc. would have been the east slope of the Wai‘anae Range. The surveys by Bordner (1983) and Hammatt and Shideler (1999) at Waimānalo Gulch indicated no evidence of Hawaiian occupation, but the gulch has been impacted in modern times (Bordner 1983).

3) The *makai* slope was not a major thoroughfare. We can see some very limited evidence of part-time agriculture in and around gulches and two foci of sparse habitation. The first is limited to *makai* portions of gulches and lava flats. This habitation is considered a *mauka* component or continuing of the Ko‘ōlina coastal settlement rather than an independent focus. The second focus, separated from the first by a barren zone, is generally above the 800-foot elevation. This *mauk*a habitation which could have been supported by seasonal dry land planting and forest foraging may be the lower portion of a thinly scattered, but widespread zone of settlement which stretches eastward and northeast along the east Wai‘anae Range slopes and may increase in intensity along the more watered lands forming the *mauka* western boundary of Honouliuli.

4) There is to date no archaeological evidence of high status residence in Honouliuli. Large residential structures are not present along the Pacific shoreline where they would be expected. The late prehistoric occurrence of chiefs’ houses is not apparent, perhaps because the ocean shoreline, although rich in marine resources, is uninviting for sport and unsuitable for fishponds. The chiefly focus of ‘Ewa District was Waipi‘o. Whatever activities of this class occurred in Honouliuli would have been in or near the rich lands fronting West Loch (the *‘ili* of Honouliuli). Concerning status associations with Honouliuli, it is interesting to note the connection of the Pu‘uku‘ua settlement with slaves (*kauwā*), the lowest class of Hawaiians (Sterling and Summers 1978:33).

The focus of population and agriculture within the *ahupua‘a* of Honouliuli was the *‘ili* of Honouliuli. There is good reason to assume, given the lack of intensive agricultural resources in other prehistoric times, all other habitation zones were economically and socially co-dependent.

Section 5 Traditional Culture in the Project Area

The project area lies back from the coast, at the foot of the upland ridges, which was, according to Honouliuli settlement predictions, probably never permanently inhabited. It could have, however, provided temporary habitation for gatherers and travelers crossing the barren ‘Ewa plains. Discussions of specific aspects of traditional Hawaiian culture as they may relate to the project area are presented below.

5.1 Gathering for Plant Resources

Upland resources were utilized by Hawaiians for a multitude of purposes. Forest resources were gathered, not only for the basic needs of food and clothing, but for tools, weapons, canoe-building, house construction, dyes, adornments, hula, medicinal and religious purposes. These resources were found and gathered at higher elevations than the present project area. Within the project area itself, there is no specific documentation of plant gathering during traditional Hawaiian times. The only plant observed in the project area that is known to have been gathered at all in this area is ‘*uhaloa* (*Waltheria indica*). The stems, leaves, and root bark of this plant is pounded and strained; the extract is gargled to relieve a sore throat. This is still a common medicine used by Hawaiians today (Abbott 1992:101).

5.2 Historic Properties

As noted in the Previous Archaeology Research section, archaeological studies of land surrounding the present project area have identified only sites related to post-Contact development of the land for sugarcane cultivation by the Ewa Plantation Company, and later the Oahu Sugar Company. The findings of the field assessment appear to confirm that the project area in traditional Hawaiian times was probably only marginally utilized. No historic properties have been documented or are believed to exist in the project area.

5.3 Trails

Trails served to connect the various settlements throughout the District of ‘Ewa. Based on nineteenth and twentieth century maps the primary transportation routes *mauka/makai* correlated closely to the existing major roadways. John Papa ‘Ī‘ī describes a network of Leeward O‘ahu trails (see Figure 4) that in later historic times encircled and crossed the Wai‘anae Range, allowing passage from West Loch to the Honouliuli lowlands, past Pu‘uokapolei and Waimānalo Gulch to the Wai‘anae coast and onward, circumscribing the shoreline of O‘ahu (‘Ī‘ī 1959:96-98). Following ‘Ī‘ī's description, a portion of this trail network would have passed close to the presently existing Farrington Highway, which is north of the current project area. To our knowledge, no clear remnant of this trail or associated site has been identified in the vicinity.

5.4 *Wahi pana* (Storied Places)

While clearly Pu‘uokapolei (Kapolei Regional Park), east of the project area, was a storied place (*wahi pana*) associated with a number of Hawaiian traditions, there are no storied places identified within the project area itself or in the immediate vicinity.

Section 6 Community Contact Process

Throughout the course of this study, an effort was made to contact and consult with Hawaiian cultural organizations, government agencies, and individuals who might have knowledge of and/or concerns about traditional cultural practices specifically related to the project area. CSH made this effort by letter, e-mail, and telephone; however, no formal interviews were conducted. The contacts and their concerns are listed in Table 3. In the majority of cases, a letter along with a TMK map and a USGS topographical map of the project area were mailed with the following text:

Date: 19 April, 2005

Aloha,

At the request of Kimura International, Cultural Surveys Hawai‘i (CSH) is conducting a cultural impact evaluation for the proposed southern extension of Kamōkila Blvd Honouliuli Ahupua‘a, ‘Ewa District, O‘ahu (TMK: 9-1-16 & 9-1-75). The proposed road would connect the southwest end of Kamōkila Blvd at its present L-intersection with the Kapolei Parkway (a ¼ mile SW of the Kākuhihewa Building) with Franklin D. Roosevelt Avenue approximately 1100 feet to the south. The lands in question are shown on Figures 1 (USGS map) and 2 (Tax Map Key 9-1-16 & 9-1-75).

The purpose of this cultural impact evaluation is to identify any traditional cultural practices associated with the project area, past or present, pursuant to Hawai‘i revised Statutes 343. We are seeking your *kōkua* and guidance regarding the following aspects of our study:

1) General history and present and past land use of the study area;
2) Knowledge of cultural sites which may be impacted by the project, for example historic sites, archaeological sites, and burials;
3) Knowledge of traditional gathering practices in the study area, both past and on-going;
4) Cultural associations with the study area through legends, traditional use or otherwise;
5) Referrals of kūpuna or anyone else who might be willing to share their general cultural knowledge of the study area; and,
6) Any other cultural concerns the community might have related to cultural practices in the Honouliuli area.

The focus of this study is to document the potential impacts to cultural practices or resources of the proposed project area. If you wish to voice any cultural concerns or provide input on any of the above, please contact Kēhaulani Souza of Cultural Surveys Hawai‘i at (808) 262-9972. Ms. Souza may also be contacted by e-mail: ksouza@culturalsurveys.com

Mahalo,

Kēhaulani Souza

The results of the community contacts are summarized in Table 3. On the basis of the cultural impact evaluation and consultation, the potential impact to on-going cultural practices for the development of the subject project area is regarded as very low to none.

Table 3. Community Contacts

NAME	AFFILIATION	COMMENTS AND CONCERNS
Bob Alaka‘i	*Kūpuna*, local resident	Contacted on 5-17-05. Mr. Alaka‘i stated that the area has been planted previously in sugar cane and does not know of anything culturally significant there. He mentioned a gas line *makai* of the rail line. He has no cultural concerns.
Coochie Cayan	O‘ahu Island Burial Council	She made a referral to Kalama Makaneole.
John Ka‘imikaua	*Kumu Hula*, and local resident	Met with him on 5-12-05 at his home. He has no cultural concerns.
Shad Kane	Local resident, ‘Ahahui Siwila Hawai‘i O Kapolei Hawaiian Civic Club	E-mailed Shad on 4-26-05. He stated that there is a low probability for finding *iwi* (bones). Mr. Kane stated that the project area has gone through extensive modification such as sugar cane. He has no cultural concerns.
Kawika McKeague	Kama‘āina and O‘ahu Island Burial Council,	Contacted by phone on 5-5-05 and e-mailed the maps of the project area. He e-mailed a response on 5-17-05. He has no cultural concerns for the specific project area, but he did emphasize the cultural significance of Pu‘uokapolei for the area.
Clyde Nāmu‘o	Office of Hawaiian Affairs	He made referrals to Nettie Tiffany and Shad Kanē. He also stated that “should *iwi* or Native Hawaiian cultural or traditional deposits be found during ground disturbance, work will cease, and the appropriate agencies will be contacted pursuant to applicable law.”
Nettie Tiffany	*Kahu* at Lanikūhonua, O‘ahu Island Burial Council	Contacted on 4-28-05. She stated that the land has been altered by the sugar cane. Mrs. Tiffany has no concerns and stated that there is a low probability for finding *iwi.*

Section 7 Results of Fieldwork and Recommendations

7.1 Summary of Expected Results

As noted in the Previous Archaeological Research portion of this report, no historic properties were identified in the current project area a 1986 inventory survey by the Bishop Museum (Haun 1986a). In the Predictive Model section of this report, three areas of pre-Contact habitation were discussed; the coastal ‘Ewa plain, Honouliuli ‘Ili at Pearl Harbor, and inland settlement at Pu‘uku‘ua. The present project area is not within any of these three settlement loci. It is located near a pre-Contact/early post-Contact trail. The present-day Farrington Highway is aligned with this ancient trail. It is likely that the project area was crossed by Hawaiians to travel to friends and family in Wai‘anae/Pearl Harbor or to move *mauka-makai*, from the mountains to the sea. A review of traditional Hawaiian literature, legends, and ethnology does not indicate that the project area was associated with any Hawaiian gods, noted chiefs or heroes, or with storied places. In regards to a cultural impact evaluation, there is no indication that this area was used to collect resources or to conduct traditional cultural practices in the recent past, nor is it used for any cultural practices today. Based on this background material, it was thought unlikely that any traditional Hawaiian sites would be found in the project area. It was possible that some twentieth century sugar cane cultivation/irrigation features would be found. It was also known that a portion of the main line of OR&L railway line ran through the project area.

7.2 Results of Field Work

The field assessment of the project area was conducted on December 15, 2005 by CSH staff archaeologist, Constance R. O’Hare, B.A., under the general direction of Hallett H. Hammatt, Ph.D. Photographs of the area and of the two railroad cars on the O.R.& L railroad were taken.

The Kamōkila Blvd. extension project consists of two portions (Figure 11), Area A, extending from the present termination of the Kamōkila Boulevard to the OR&L right-of-way, and Area B, from the OR&L right-of-way to Franklin D. Roosevelt Avenue. To access the project area (Area B) it was necessary to walk over the Area A portion of the Kamōkila Blvd. extension area. This area has no standing structures and is covered by dirt roads and low grass (Figure 12 and Figure 13). No archaeological features were found.

A portion of the main line of the OR&L railway extends through the project area (Area B); Franklin D. Roosevelt Avenue is parallel to the orientation of this track. In addition, there is a railroad siding near the project area; on this siding there are two train cars, a flatbed car and a water tanker. According to an undated OR&L map of O‘ahu (Figure 14), this siding is called Jensen’s Siding (Figure 15 and Figure 16).

As noted previously in the Background Research section of this report, the U.S. Navy took over a portion of the OR&L main line in 1947. They used it to transport ammunition from the storage magazines in Lualualei, West Loch, and Waikele to the naval base at Pearl Harbor. Ammunition, bombs, and torpedoes from Lualualei were transported on military trains up to 1968 (Treiber 2005:25-26). It was this track section that was donated from the Federal

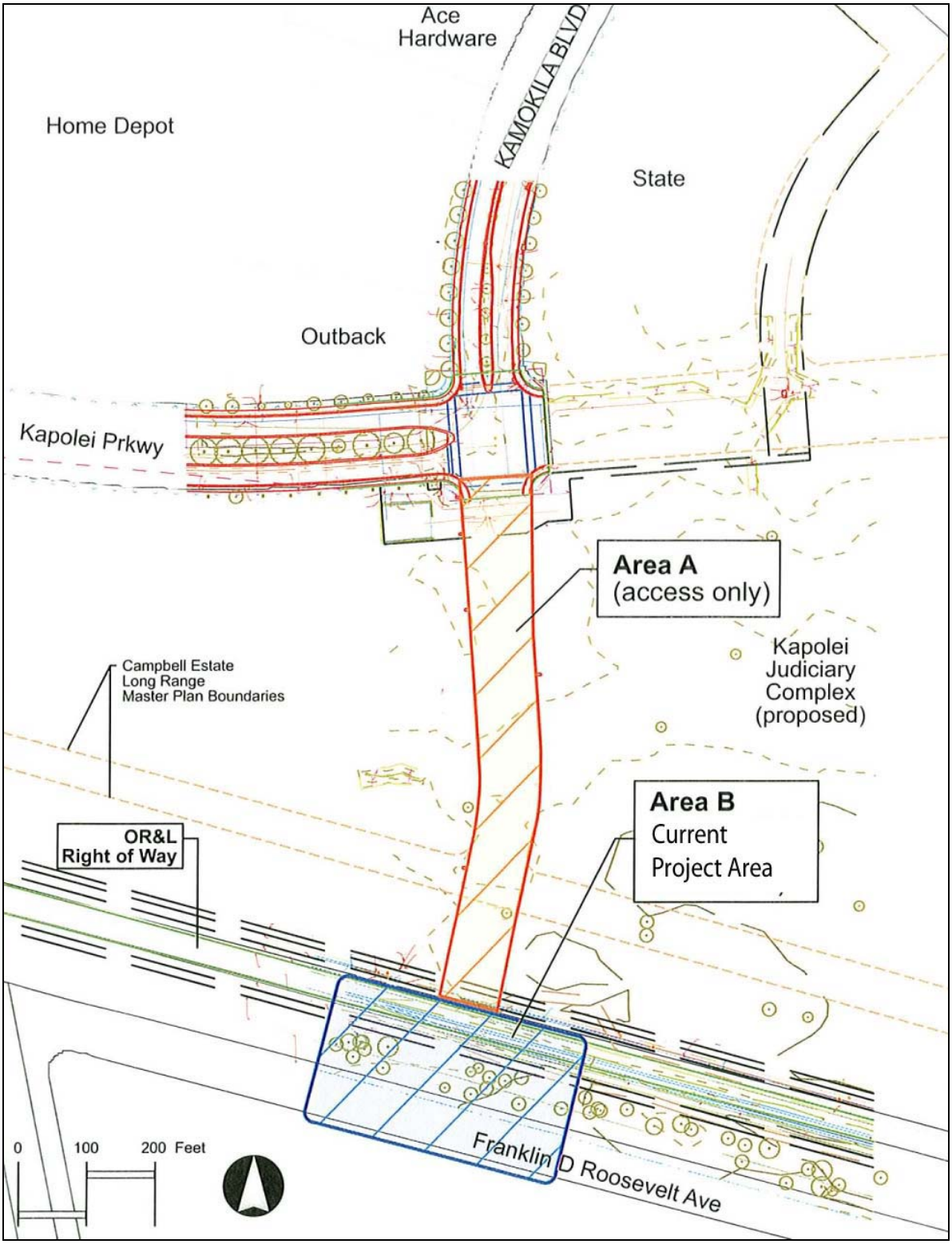

Figure 11. Proposed Kamōkila Blvd. Extension, showing project area (in blue box) from the OR& L right-of-way to Franklin D. Roosevelt Ave.

Figure 12. Kamōkila Blvd. Extension Area A, view to north, Pu‘u Makakilo in background

Figure 13. Kamōkila Blvd. Extension Area A, view to south; OR&L right-of-way in background

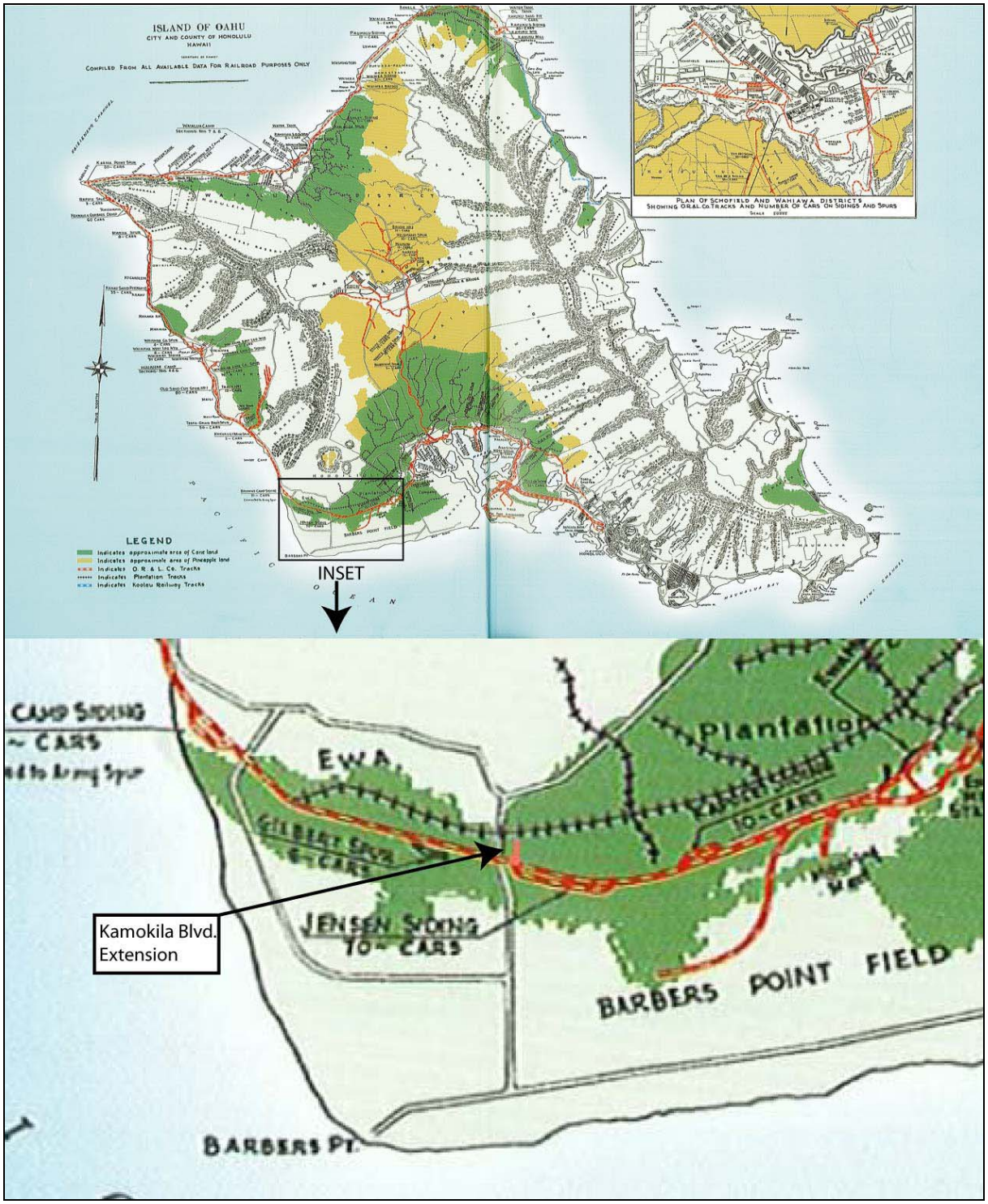

Figure 14. Map of OR& L railroad tracks (dashed red lines), showing approximate location of project area along the Jensen Siding; note: black lines denote plantation railroad tracks and green shaded areas show extent of sugar cane fields (map from Chiddix and Simpson: front piece)

Figure 15. Project Area (Area B), view to the east, showing flatbed and tanker cars on Jensen’s Siding off OR&L’s main line

Figure 16. Project area (Area B), view to the west, showing junction of main line with Jensen’s Siding

government to the State of Hawai‘i in 1970, and placed on the National Register. The Hawai‘i Railway Society uses a restored portion of this track to conducted weekly train excursions from the ‘Ewa Station west along the coast to Kahe Point. This train excursion uses the track portion that extends through the project area and passes Jensen’s siding, where the train tour guide points out the two railroad cars on the siding. During a personal recent excursion on this train trip on December 18, 2005, the tour guide stated that these two cars were on the siding “because there was no room for them at the Hawaii Railway Society’s yard at ‘Ewa Station.”

In the book, *Next Stop Honolulu. The Story of the Oahu Railway & Land Company,* is a list of the railroad locomotives and cars owned by the Hawai‘i Railway Society. The flatbed car (Figure 17 and Figure 18) on Jensen’s Siding has stenciled on one side “U.S. Army 91868”. Under the heading of ex-Military Cars, the Hawai‘i Railway Society lists Flatcar No. 91868. One wheel axle has the number 1944, possibly a manufacturing date for this part. The tanker on Jensen’s Siding (Figure 19 and Figure 20) has “Roger Tanker” stenciled on one end, a wheel axle embossed U.S. Navy, and a plate on the tanker body embossed “American Car and Export Foundry Co., New York, U.S.A.” In the Hawai‘i Railway Society stock, under the category ex-Military Cars, two cars are listed, Nos. 64-00020 and –00025, both made by the American Car and Foundry Co. in 1945. A number was not seen on the tanker in the field, but one side of the car has been completely covered in graffiti, and thus the number may be obscured. During the train trip, the tour guide stated that this tanker was used to transport water. He also stated that they recently had to seal the opening on this car to prevent people from exploring and perhaps then getting trapped inside the tanker.

Figure 17. U.S. Army Flatcar No. 91868 on Jensen’s Siding, view to the north

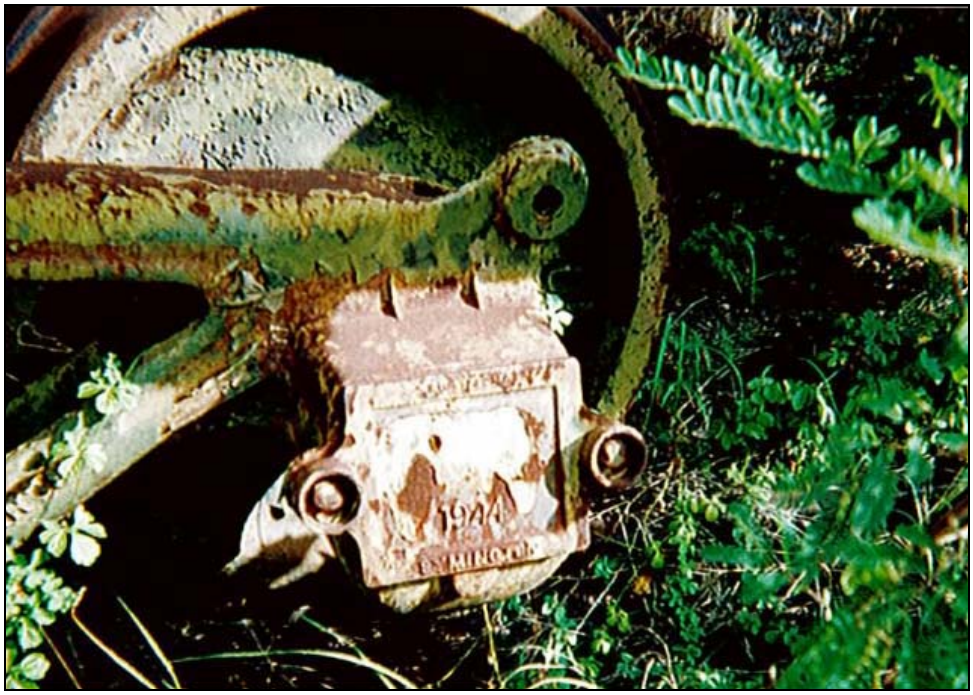

Figure 18. U.S. Army Flatcar No. 91868, axle area showing date of 1944

Figure 19. U.S. Navy tank car, stenciled “TANKER ROGER”, view to the west

Figure 20. Metal plate on U.S. Navy tanker, showing manufacturer American Car and Foundry Export Co., New York, U.S.A., view to the north

Section 8 Project Effect and Mitigation Recommendations

8.1 Summary of Background Research and Findings

Background historical research for this project indicates that this area of the ‘Ewa Plain was not a locus for traditional Hawaiian habitation, agriculture, or ceremonial activities. No traditional Hawaiian properties were found during the recent field assessment of the project area. Background research did indicate that this area was used for sugar cane cultivation and transportation; the main line of the OR&L railroad passes through the project area. This is a portion of OR&L track that was placed on the National Register of Historic Places in 1975; it is currently being used by the Hawai‘i Railway Society for weekly train excursions.

Sites are evaluated for significance according to the broad criteria established for the National and State Registers. The four federal criteria are:

A Site reflects major trends or events in the history of the state or nation.

B Site is associated with the lives of persons significant in our past.

C Site is an excellent example of a site type.

D Site may be likely to yield information important in prehistory or history.

In the National Register of Historic Places, the OR&L Right-of-Way, Site 50-80-12-9714, is listed as significant under Criterion A, as the development of a train system was a major event in the history of O‘ahu, under Criterion B, as it is associated with a significant person, B. Franklin Dillingham, under Criterion C, as an excellent example of architecture and engineering related to the railway, and under Criterion D, as a site likely to yield information on history. The areas of historical significance for this site are in industry, economics, engineering, transportation, social history, and agriculture.

8.2 Mitigation Recommendations

Although there are several existing road crossings of the OR&L Right-of-Way (such as neighboring Ka Lae Loa Blvd. and Fort Barrette Road), it is never the less concluded that the proposed undertaking would have a potentially adverse impact on this National Register listed site. It is recommended that mitigation measures be worked out in a Memorandum of Agreement (MOA) that would include as parties 1) the State Historic Preservation Division, 2) the State of Hawaii Department of Transportation, understood as the land owner of the right-of-way, 3) the City and County of Honolulu, and 4) the Hawaiian Railway Society. With mitigation agreeable to these parties it is suggested that a determination of “No adverse effect” may be possible.

Two rail cars owned by the society are parked on a siding (Jensen’s Siding) that extends into the project area. Thus this section of OR&L main line, Jensen’s Siding, and the two rail cars on Jensen’s siding will be impacted by construction of the Kamōkila Boulevard Extension.

The two railroad cars may be considered as contributing elements to the National Register site 50-80-12-9714. We recommend that the disposition of the two railway cars, such as movement to another location, be worked out directly between the City and County and the Hawaiian Railway Society. Relocation to another siding would seem to be the appropriate mitigation.

Before construction of the Kamōkila Extension, an agreement should be made on detailing the type of crossing that will be made across the main tracks and the siding, and any reconstruction of the line/siding that may be necessary. The MOA would stipulate the obligations and time frames for any work to be undertaken.

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MAYOR

MELVIN N. KAKU
ACTING DIRECTOR

ALFRED A. TANAKA, P.E.
DEPUTY DIRECTOR

TPD06-00064

February 13, 2006

RECEIVED
FEB 15 2006

Ms. Melanie Chinen, Administrator
State Historic Preservation Division
Department of Land and Natural Resources
601 Kamokila Boulevard, Room 555
Kapolei, Hawaii 96707

Dear Ms. Chinen:

Subject: Kamokila Boulevard Extension, Kapolei, Honouliuli Ahupua'a
Ewa District, Oahu, TMK (1) 9-1—16: 012, 032
Section 106, National Historic Preservation Act
Request for Concurrence on Determination of Effect

The City and County of Honolulu Department of Transportation Services (DTS), on behalf of the Federal Highway Administration (FHWA), requests your concurrence with its "no adverse effect" determination for the above-referenced project, in accordance with Section 106 of the National Historic Preservation Act.

Project Description

The DTS proposes to construct approximately 200 linear feet of roadway to extend Kamokila Boulevard to Franklin D. Roosevelt Avenue. The project site is the City of Kapolei, located in the Ewa plain on the southwestern end of the island of Oahu.

The Estate of James Campbell (EJC), a major landowner in the area, is in final design to construct a 1,000 foot extension of Kamokila Boulevard from its current terminus near Kapolei Parkway. The DTS project will continue the Kamokila Boulevard extension from that point, and connect to Franklin D.

Roosevelt Avenue. This last segment is a critical component in improving roadway connectivity in the Kapolei region (Figure 1).

Figure 2 shows the Area of Potential Effect for this project.

Cultural Resources in the APE

An Archaeological Assessment and Cultural Impact Evaluation for the DTS project (Cultural Surveys Hawaii, February 2006) was completed and is attached to this submittal. The report assessed the potential for significant historic properties and potential impacts to cultural practices. The scope of work included background research, a review of land use within the vicinity, and limited consultation. No formal interviews were conducted, but informal consultations were undertaken and reported.

One historic site, a portion of the historic Oahu Railway and Land Company (OR&L) rail lines (Site 50-80-12-9714) is within the project area. The tracks, which run parallel to Roosevelt Avenue, were part of a railroad line that extended from Honolulu through the Ewa Plain to Waianae and to Kahuku. During World War II, the U.S. Navy took over a portion of the OR&L main line and used it to transport ammunition from the storage magazines in Lualualei, West Loch and Waikele to Pearl Harbor. In 1974, the Federal government donated this section of track to the State of Hawaii, and in 1975, the Lualualei-Pearl Harbor section was placed on the National Register of Historic Places. The Hawaiian Railway Society currently operates tourist train rides on the weekends from Ewa Station to Nanakuli.

In addition to the main track, the project area includes a railroad siding (separate track off the main track) with two train cars, a flatbed car and a water tanker. According to an undated OR& L map of Oahu, this siding is called Jensen's Siding. The siding and railway cars are in the path of the proposed roadway extension.

Other than the OR&L lines, there are no other historic properties in the project area. It is our understanding that the State Historic Preservation Division has formally evaluated the remainder of the project area and determined it to be free of all other historic resources. The project site is not within known areas of pre-contact settlement, though it is near a pre-contact/early post-contact trail, which is located near the present-day Farrington Highway. In traditional Hawaiian times, the project area was probably only marginally utilized.

A review of traditional Hawaiian literature, legends and ethnology indicates that the area is not associated with any Hawaiian gods, chiefs or heroes, or with storied places. There is no indication that this area was used to collect resources or to conduct traditional cultural practices in the recent past. It is not used for any cultural practices today. It is unlikely that any traditional Hawaiian sites would be found in the project area, though it is possible that some twentieth century sugar cane cultivation/irrigation features could be found.

Project Impacts and Mitigation

The DTS-proposed 200-foot Kamokila Boulevard extension will cross the OR&L main line and Jensen's siding, and displace the two railroad cars owned by the Hawaiian Railway Society. The two railroad cars may be considered as contributing elements to the National Register Site 50-80-12-9714. Appropriate mitigation could include relocation of the two railway cars to another siding location. This will be worked out directly between the DTS and the Hawaiian Railway Society. The new roadway extension will include a signaled railroad crossing at the tracks.

Before construction of the proposed project, an agreement will be made between the SHPD, DTS, State Department of Transportation (landowner of right-of-way), and the Hawaiian Railway Society. The resulting Memorandum of Agreement (MOA) will detail the type of crossing that will be made across the main tracks and the siding, and any reconstruction of the line/siding that may be necessary. The MOA would stipulate the obligations and time frames for any work to be undertaken.

Section 106 consultation letters are also being sent to the Office of Hawaiian Affairs, Hui Malama I Na Kupuna O Hawai'i Nei, the Hawaiian Railway Society, and Ahahui Siwila o Kapolei Hawaiian Civic Club.

Summary

In summary, the DTS has determined that the project will have "no adverse effect" on this historic property. We respectfully request your concurrence with this determination. If you have other questions or require additional information, please contact Mr. Brian Suzuki at 527-6880.

Sincerely,

MELVIN N. KAKU
Acting Director

Enclosures

cc: Ms. Leslie Kurisaki
Kimura International, Inc.

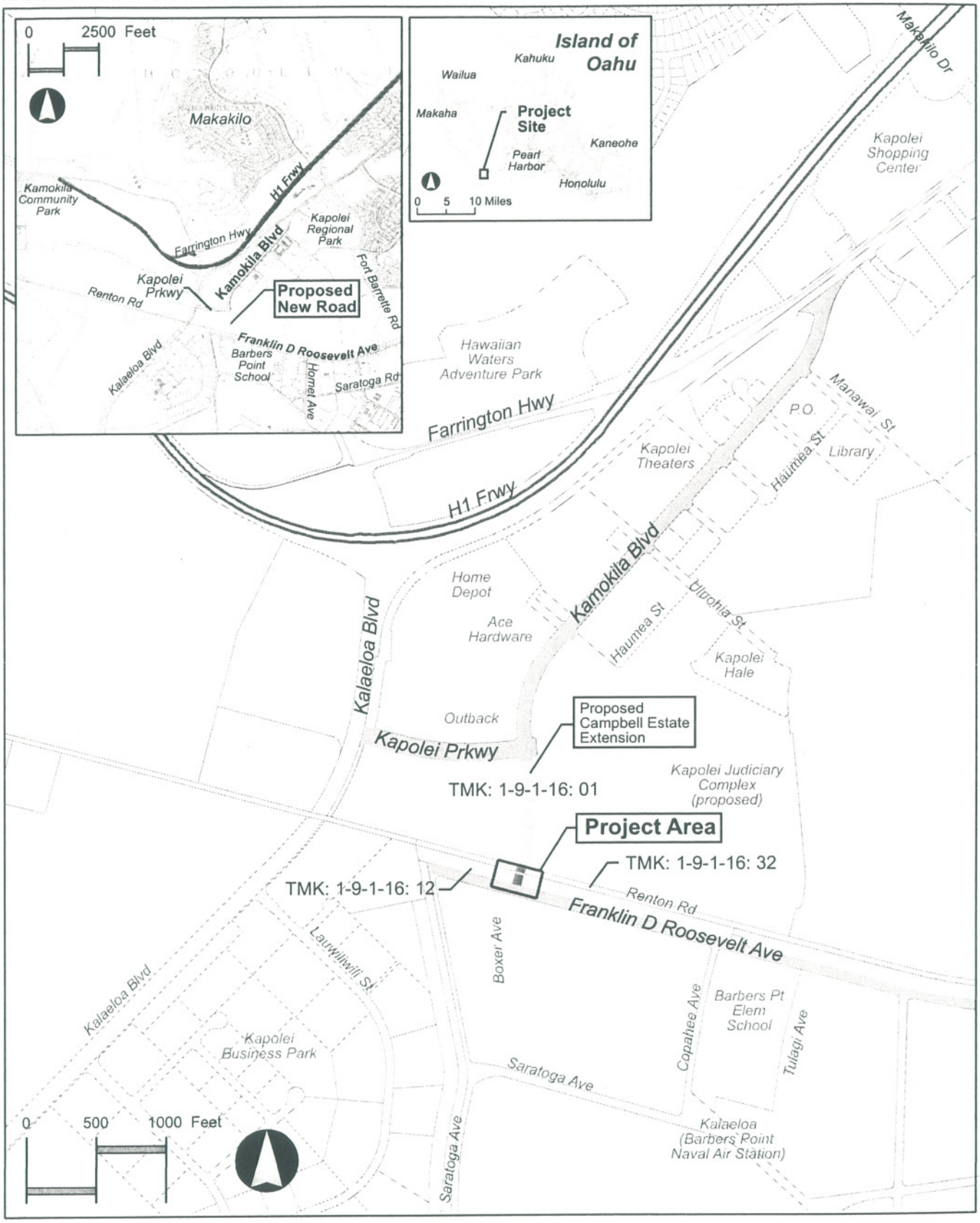

Figure 1
Project Location

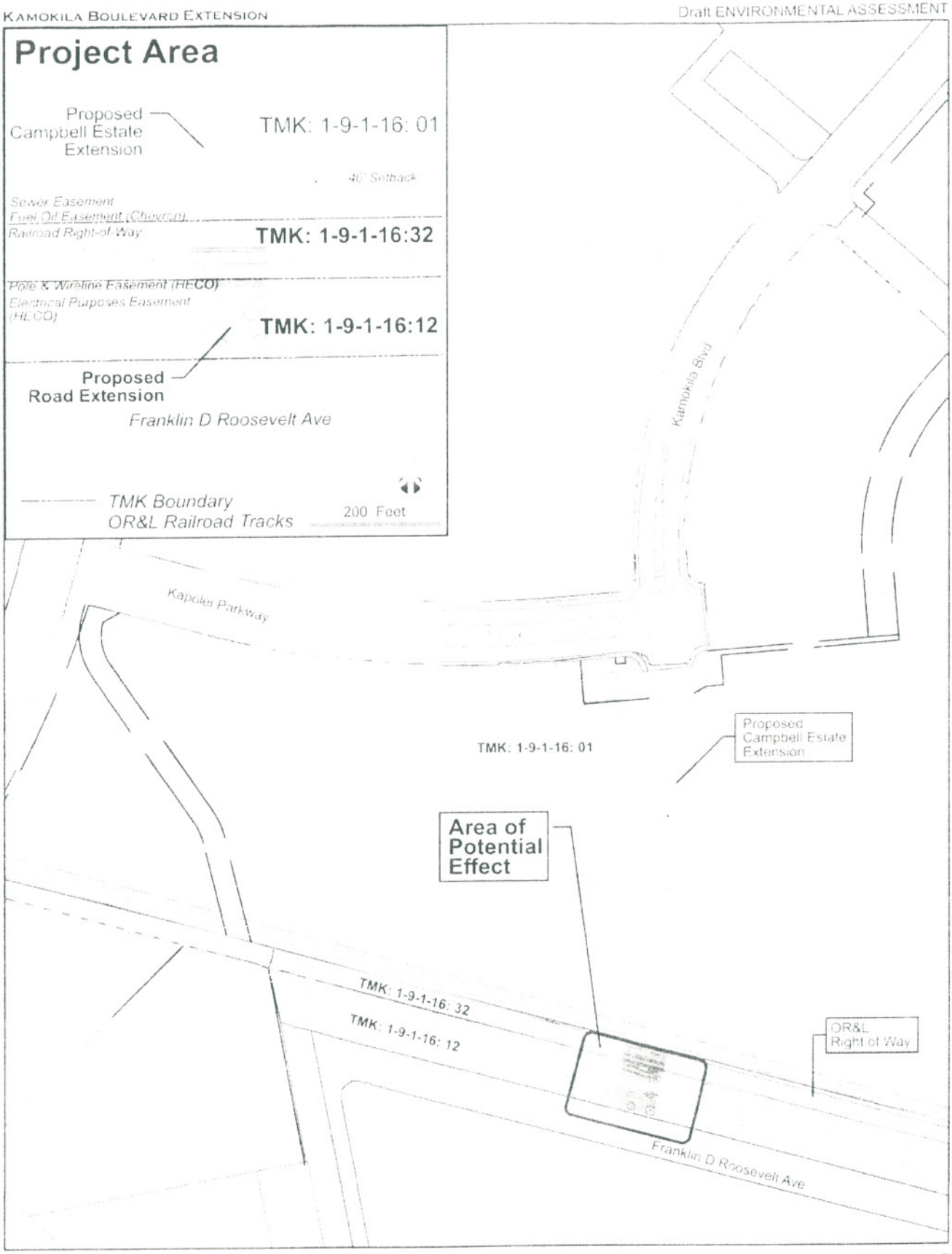

Figure 2

Area of Potential Effect (APE)

Archaeological Assessment and Cultural Impact Evaluation for the Kamōkila Boulevard Extension Project at Kapolei, Honouliuli Ahupua'a, 'Ewa District O'ahu

TMK: (1) 9-1-016:001, 012, 032

Prepared for

Kimura International, Inc.

Prepared by

Constance R. O'Hare, B.A.

David W. Shideler, M.A.,

and

Hallett H. Hammatt, Ph.D.

Cultural Surveys Hawai'i, Inc.

Kailua, Hawai'i

(Job Code: KAPO 10)

February 2006

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TPD - 148055

LINDA LINGLE
GOVERNOR OF HAWAII

RECEIVED
APR 3 A9:11

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

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DEAN NAKANO
ACTING DEPUTY DIRECTOR - WATER

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

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

March 24, 2006

Mr. Melvin Kaku
Department of Transportation Services
City and County of Honolulu
650 South King Street, 3RD Floor
Honolulu, Hawai'i 96813

LOG NO: 2006.0820
DOC NO: 0603AJ19
Archaeology

Dear Mr. Kaku:

SUBJECT: National Historic Preservation Act (NHPA) Section 106 Review
Kamōkila Boulevard Extension
Hono'uli'uli Ahupua'a, 'Ewa District, Island of O'ahu
TMK: (1) 9-1-016:001, 012 & 032

Thank you for the opportunity to comment on the aforementioned project. We received your cover letter and supporting documents on February 16, 2006. The project consists of the construction of approximately 200 linear feet of roadway by the City & County of Honolulu Department of Transportation Services (DTS) to extend Kamōkila Boulevard to Franklin D. Roosevelt Avenue. This section of roadway is being developed in-conjunction with an adjacent section of roadway located on Campbell Estate land.

The project plans and our records indicate that there is a historic property, the OR&L Railway right-of-way (SIHP No. 50-80-12-9714) present within the project area. Cultural Surveys Hawai'i (CSH) has conducted an archaeological and cultural impact assessment of the proposed project area (O'Hare *et. al.* 2006). CSH has noted that, in addition to the main railway right-of-way, there is a side track (Jensen's Siding) containing two rail cars belonging to the Hawai'i Railway Society present within the project area. Jensen's Siding and the rail cars can be considered to be contributing properties of SIHP 50-80-12-9714.

We cannot at this time offer our concurrence with the DTS determination of "no adverse effect" to historic properties. Discussion concerning the proper mitigation of SIHP No: 50-80-12-9714 between all parties concerned should occur prior to the commencement of construction activities. We agree with the CSH recommendation that appropriate mitigation measures should be worked out in a Memorandum of Understanding (MOU) between all parties involved with the project. In addition to the various State agencies and the Hawaiian Railway Society, we would also like to recommend that the Campbell Estate be included in the MOU.

Campbell Estate is developing the proposed roadway from the current terminus of Kamōkila Boulevard to the OR&L right-of-way. Mitigation measures (*i.e.* reconstruction) for the portions of SIHP 50-80-12-9714 to be impacted are proposed in the Campbell Estate project plans submitted to this office. Consultation with Campbell Estate can aid in ensuring that the chosen mitigation measures are consistent for both the privately- and publicly-owned portions of the Kamōkila Boulevard extension.

While the proposed undertaking will result in some modification to the historic integrity of SIHP No. 50-80-12-9714, appropriate mitigation will have an overall "net benefit" to the historic property.

We look forward to continued consultation regarding this project.

If you have any question about this letter please contact Mr. Adam Johnson at (808) 692-8015.

Aloha,

for Peter Young, Chair
State Historic Preservation Officer

AJ:cmm

Cc: Hawaiian Railway Society
Cultural Surveys of Hawai'i

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DEPARTMENT OF TRANSPORTATION SERVICES
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MUFI HANNEMANN
MAYOR

ALFRED A. TANAKA, P.E.
ACTING DIRECTOR

TPD06-00032

January 30, 2006

Mr. Clyde W. Namu'o, Administrator
Office of Hawaiian Affairs
State of Hawaii
711 Kapiolani Boulevard, Suite 500
Honolulu, Hawaii 96813

Dear Mr. Namu'o:

Subject: Kamokila Boulevard Extension, Kapolei, Honouliuli Ahupua'a
Ewa District, Oahu, TMK (1) 9-1—16: 012, 032
Section 106, National Historic Preservation Act Consultation

Pursuant to Section 106 of the National Historic Preservation Act (NHPA) and the Advisory Council on Historic Preservation's regulations for Protection of Historic Properties (36 CFR Part 800), the City and County of Honolulu Department of Transportation Services (DTS), on behalf of the Federal Highway Administration (FHWA), is notifying you of a proposed federal undertaking that could have an adverse effect on a historic property on the National Register of Historic Places.

This letter is intended to request OHA's consultation in compliance with Section 106 of the NHPA, as well as the State of Hawaii's Chapter 6E-8 Historic Preservation review/consultation.

We have received your comment letter to Kimura International dated November 10, 2005, during the Environmental Assessment early consultation period. The Draft EA will be available within a few weeks, and you will be sent a copy. The Draft EA will include a copy of the Archaeological Assessment and Cultural Impact Evaluation.

The following is a project description and summary of archaeological work completed to date:

JAN 30 2006

Project Description

The DTS proposes to construct approximately 200 linear feet of roadway to extend Kamokila Boulevard to Franklin D. Roosevelt Avenue. The project site is the City of Kapolei, located in the Ewa plain on the southwestern end of the island of Oahu.

The Estate of James Campbell (EJC), a major landowner in the area, is finalizing design to construct a 700-foot long extension of Kamokila Boulevard from its current terminus near Kapolei Parkway to the Oahu Railway & Land Company (OR&L) right-of-way. The DTS project will continue the Kamokila Boulevard extension from that point, and connect to Franklin D. Roosevelt Avenue. This last segment is a critical component in improving roadway connectivity in the Kapolei region (Figure 1).

Figure 2 shows the Area of Potential Effect for this project, which will be the roadway right-of-way.

Cultural Resources in the APE

An Archaeological Assessment and Cultural Impact Evaluation for the DTS project (Cultural Surveys Hawaii, December 2005) was completed for the project. The report assessed the potential for significant historic properties and potential impacts to cultural practices. The scope of work included background research, a review of land use within the vicinity, and limited consultation. No formal interviews were conducted, but informal consultations were undertaken and reported.

One historic site, a portion of the historic OR&L right-of-way (ROW) (Site 50-80-12-9714), is within the project area. The tracks, which run parallel to Roosevelt Avenue, were part of a railroad line that extended from Honolulu through the Ewa Plain to Waianae and to Kahuku. During World War II, the U.S. Navy took over a portion of the OR&L main line and used it to transport ammunition from the storage magazines in Lualualei, West Loch and Waikele to Pearl Harbor. In 1974, the Federal government donated this section of track to the State of Hawaii, and in 1975, the Lualualei-Pearl Harbor section was placed on the National Register of Historic Places. The Hawaiian Railway Society currently operates tourist train rides on the weekends from Ewa Station to Nanakuli.

In addition to the main track, the project area includes a railroad siding (separate track off the main track) with two train cars, a flatbed car and a water tanker. According to an undated OR& L map of Oahu, this siding is called Jensen's Siding. The siding and railway cars are in the path of the proposed roadway extension.

Other than the OR&L ROW, there are no other historic properties in the project area. It is our understanding that the State Historic Preservation Division has formally evaluated the remainder of the project area and determined it to be free of all other historic resources. The project site is not within known areas of pre-contact settlement, though it is near a pre-contact/early post-contact trail, which is located near the present-day Farrington Highway. In traditional Hawaiian times, the project area was probably only marginally utilized.

A review of traditional Hawaiian literature, legends and ethnology indicates that the area is not associated with any Hawaiian gods, chiefs or heroes, or with storied places. There is no indication that this area was used to collect resources or to conduct traditional cultural practices in the recent past. It is not used for any cultural practices today. It is unlikely that any traditional Hawaiian sites would be found in the project area, though it is possible that some twentieth century sugar cane cultivation/irrigation features could be found.

Project Impacts and Mitigation

The DTS-proposed 200-foot Kamokila Boulevard extension will cross the OR&L main line and Jensen's Siding, and displace the two railroad cars owned by the Hawaiian Railway Society. The two railroad cars may be considered as contributing elements to the National Register Site 50-80-12-9714. Appropriate mitigation could include relocation of the two railway cars to another siding location. This will be worked out directly between the DTS and the Hawaiian Railway Society. The new roadway extension will include a signaled railroad crossing at the tracks.

Before construction of the proposed project, an agreement will be made between the SHPD, DTS, State Department of Transportation (landowner of right-of-way), and the Hawaiian Railway Society. The resulting Memorandum of Agreement (MOA) will detail the type of crossing that will be made across the main tracks and the siding, and any reconstruction of the line/siding that may

be necessary. The MOA would stipulate the obligations and time frames for any work to be undertaken.

Request for Your Comments

In summary, as part of the Section 106, NHPA consultation process, we respectfully request any additional written comments you have pertaining to the subject project. Please transmit comments to us ***within 30 days upon receipt of this letter.***

If you need additional review time or would like additional information, please contact Mr. Brian Suzuki at 527-6880.

Sincerely,

ALFRED A. TANAKA, P. E.
Acting Director

Attachments

cc: Mr. Abraham Wong
Federal Highway Administration

TP3/06 - 143655

PHONE (808) 594-1888

FAX (808) 594-1865

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
711 KAPI'OLANI BOULEVARD, SUITE 500
HONOLULU, HAWAI'I 96813

HRD06/1830C

February 28, 2006

Alfred A. Tanaka
City and County of Honolulu
Department of Transportation Services
650 South King Street, 3rd Floor
Honolulu, HI 96813

RE: Section 106 Consultation for the Proposed Kamokila Boulevard Extension, 'Ewa, O'ahu, TMK (1) 9-1-16: 012, 032.

Dear Mr. Tanaka,

The Office of Hawaiian Affairs (OHA) is in receipt of your January 30, 2006 request for comment on the above listed proposed project. OHA offers the following comments:

The 'Ewa plain has historically been known to contain sinkholes in which human skeletal and avi-faunal remains have been encountered. These sinkholes can continue to exist in areas that have been graded or heavily cultivated for agricultural uses.

According to records at the Bishop Museum pertaining to inventories conducted for compliance with the Native American Graves Protection and Repatriation Act of 1990, burial sites in Honouliuli and in 'Ewa in general have been documented in the past including:

> *In 1938, human remains representing six individuals from Honouliuli, 'Ewa, O'ahu were collected by Kenneth P. Emory and William A. Lessa and acquired by the Bishop Museum. Museum documentation indicates these remains were in a shallow crypt burial one mile from the coast;*
>
> *In 1933, human remains representing three individuals from stone pits at 'Ewa, O'ahu were collected by J.W. Barrington and Edwin H. Bryan;*
>
> *In 1942, human remains representing two individuals from Kualakai, 'Ewa Beach, O'ahu were donated to the Bishop Museum;*
>
> *In 1959, human remains representing seven individuals from 'Ewa, O'ahu were donated to the Bishop Museum by the Anthropology Club of the University of Hawaii (from Standard Oil Refinery land);*

> *In 1980, human remains representing nine individuals from Honouliuli, O'ahu were collected and donated to the Bishop Museum by Albert, Borthwick and Folk. Donor information indicates these human remains were recovered from coral sinkholes.*

In the last decade, unmarked burial sites have been found in the area of St. Francis West, West Loch Estates, Old Fort Weaver Road, Kalaeloa, One'ula Beach, Campbell Estate, Ko'Olina and other areas in the vicinity of this project.

The depth of grading activities and the likelihood of adversely impacting any sub-surface cultural sites or deposits is contingent upon understanding the original surface grade as it may have existed prior to agricultural activities such as sugarcane.

Native Hawaiian burial 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, sinkholes, crypts, etc.) could lead to the survival of these sites despite intensive agricultural activities on the surface.

As for the future consultation process, OHA recommends contacting two individuals in particular: Shad Kane and Nettie Tiffany. Both individuals have served as cultural resources on past projects and would likely aid in the community consultation process.

OHA asks that, In accordance with Section 6E-46.6, Hawaii Revised Statutes and Chapter 13-300, Hawaii Administrative Rules, if any significant cultural deposits or human skeletal remains are encountered, work shall stop in the immediate vicinity and the State Historic Preservation Division (SHPD/DLNR) shall be contacted.

Thank you for the opportunity to comment. If you have further questions or concerns, please contact Jesse Yorck, Native Rights Policy Advocate, at (808) 594-0239 or jessey@oha.org.

'O wau iho nō,

Clyde W. Nāmu'o
Administrator

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
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MUFI HANNEMANN
MAYOR

ALFRED A. TANAKA, P.E.
ACTING DIRECTOR

TPD06-00031

January 30, 2006

Mr. William Aila
Hui Malama I Na Kupuna O Hawaii Nei
P.O. Box 746
Waianae, Hawaii 96792

Dear Mr. Aila:

Subject: Kamokila Boulevard Extension, Kapolei, Honouliuli Ahupua'a
Ewa District, Oahu, TMK (1) 9-1—16: 012, 032
Section 106, National Historic Preservation Act Consultation

Pursuant to Section 106 of the National Historic Preservation Act (NHPA) and the Advisory Council on Historic Preservation's regulations for Protection of Historic Properties (36 CFR Part 800), the City and County of Honolulu Department of Transportation Services (DTS), on behalf of the Federal Highway Administration (FHWA), is notifying you of a proposed federal undertaking that could have an adverse effect on a historic property on the National Register of Historic Places.

This letter is intended to request Hui Malama's consultation in compliance with Section 106 of the NHPA, as well as the State of Hawaii's Chapter 6E-8 Historic Preservation review/consultation.

An Environmental Assessment is being prepared for this project. You will be sent a copy of the Draft EA, which will be available within the next few weeks. The Draft EA will include a copy of the Archaeological Assessment and Cultural Impact Evaluation.

The following is a project description and summary of archaeological work completed to date:

JAN 30 2006

Project Description

The DTS proposes to construct approximately 200 linear feet of roadway to extend Kamokila Boulevard to Franklin D. Roosevelt Avenue. The project site is the City of Kapolei, located in the Ewa plain on the southwestern end of the island of Oahu.

The Estate of James Campbell (EJC), a major landowner in the area, is finalizing design to construct a 700-foot long extension of Kamokila Boulevard from its current terminus near Kapolei Parkway to the Oahu Railway & Land Company (OR&L) right-of-way. The DTS project will continue the Kamokila Boulevard extension from that point and connect to Franklin D. Roosevelt Avenue. This last segment is a critical component in improving roadway connectivity in the Kapolei region (Figure 1).

Figure 2 shows the Area of Potential Effect for this project, which will be the roadway right-of-way.

Cultural Resources in the APE

An Archaeological Assessment and Cultural Impact Evaluation for the DTS project (Cultural Surveys Hawaii, December 2005) was completed for the project. The report assessed the potential for significant historic properties and potential impacts to cultural practices. The scope of work included background research, a review of land use within the vicinity, and limited consultation. No formal interviews were conducted, but informal consultations were undertaken and reported.

One historic site, a portion of the historic OR&L right-of-way (ROW) (Site 50-80-12-9714), is within the project area. The tracks, which run parallel to Roosevelt Avenue, were part of a railroad line that extended from Honolulu through the Ewa Plain to Waianae and to Kahuku. During World War II, the U.S. Navy took over a portion of the OR&L main line and used it to transport ammunition from the storage magazines in Lualualei, West Loch and Waikele to Pearl Harbor. In 1974, the Federal government donated this section of track to the State of Hawaii, and in 1975, the Lualualei-Pearl Harbor section was placed on the National Register of Historic Places. The Hawaiian Railway Society currently operates tourist train rides on the weekends from Ewa Station to Nanakuli.

In addition to the main track, the project area includes a railroad siding (separate track off the main track) with two train cars, a flatbed car and a water tanker. According to an undated OR& L map of Oahu, this siding is called Jensen's Siding. The siding and railway cars are in the path of the proposed roadway extension.

Other than the OR&L ROW, there are no other historic properties in the project area. It is our understanding that the State Historic Preservation Division has formally evaluated the remainder of the project area and determined it to be free of all other historic resources. The project site is not within known areas of pre-contact settlement, though it is near a pre-contact/early post-contact trail, which is located near the present-day Farrington Highway. In traditional Hawaiian times, the project area was probably only marginally utilized.

A review of traditional Hawaiian literature, legends and ethnology indicates that the area is not associated with any Hawaiian gods, chiefs or heroes, or with storied places. There is no indication that this area was used to collect resources or to conduct traditional cultural practices in the recent past. It is not used for any cultural practices today. It is unlikely that any traditional Hawaiian sites would be found in the project area, though it is possible that some twentieth century sugar cane cultivation/irrigation features could be found.

Project Impacts and Mitigation

The DTS-proposed 200-foot Kamokila Boulevard extension will cross the OR&L main line and Jensen's Siding, and displace the two railroad cars owned by the Hawaiian Railway Society. The two railroad cars may be considered as contributing elements to the National Register Site 50-80-12-9714. Appropriate mitigation could include relocation of the two railway cars to another siding location. This will be worked out directly between the DTS and the Hawaiian Railway Society. The new roadway extension will include a signaled railroad crossing at the tracks.

Before construction of the proposed project, an agreement will be made between the SHPD, DTS, State Department of Transportation (landowner of right-of-way), and the Hawaiian Railway Society. The resulting Memorandum of Agreement (MOA) will detail the type of crossing that will be made across the main tracks and the siding, and any reconstruction of the line/siding that may

be necessary. The MOA would stipulate the obligations and time frames for any work to be undertaken.

Request for Your Comments

As part of the Section 106, NHPA consultation process, we respectfully request any written comments you have pertaining to the subject project. Please transmit comments to us ***within 30 days upon receipt of this letter.***

If you need additional review time or would like additional information, please contact Mr. Brian Suzuki at 527-6880.

Sincerely,

ALFRED A. TANAKA, P. E.
Acting Director

Attachments

cc: Mr. Abraham Wong
Federal Highway Administration

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
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MUFI HANNEMANN
MAYOR

ALFRED A. TANAKA, P.E.
ACTING DIRECTOR

TPD06-00030

January 30, 2006

Mr. Larry Howard
Hawaiian Railway Society
P.O. Box 60369
Ewa Station
Ewa Beach, Hawaii 96706

Dear Mr. Howard:

Subject: Kamokila Boulevard Extension, Kapolei, Honouliuli Ahupua'a
Ewa District, Oahu, TMK (1) 9-1—16: 012, 032
Section 106, National Historic Preservation Act Consultation

Pursuant to Section 106 of the National Historic Preservation Act (NHPA) and the Advisory Council on Historic Preservation's regulations for Protection of Historic Properties (36 CFR Part 800), the City and County of Honolulu Department of Transportation Services (DTS), on behalf of the Federal Highway Administration (FHWA), is notifying you of a proposed federal undertaking that could have an adverse effect on Site 50-80-12-9714, the OR&L Right of Way, a historic property on the National Register of Historic Places.

This letter is intended to request the Hawaiian Railway Society's consultation in compliance with Section 106 of the NHPA, as well as the State of Hawaii's Chapter 6E-8 Historic Preservation review/consultation.

In July 2005, Mr. Glenn Kimura and Ms. Leslie Kurisaki of Kimura International met with you to discuss the proposed Kamokila Boulevard Extension project. At that time, you indicated your biggest concern was the section where the proposed road would cross the railroad tracks.

An Environmental Assessment is currently being prepared for the project. You will be sent a copy of the Draft EA, which will be available within the next few weeks.

JAN 30 2006

The following is a project description and summary of cultural resource investigations completed to date:

Project Description

The DTS proposes to construct approximately 200 linear feet of roadway to extend Kamokila Boulevard to Franklin D. Roosevelt Avenue. The project site is the City of Kapolei, located in the Ewa plain on the southwestern end of the island of Oahu.

The Estate of James Campbell (EJC), a major landowner in the area, is finalizing design to construct a 700-foot long extension of Kamokila Boulevard from its current terminus near Kapolei Parkway to the Oahu Railway & Land Company (OR&L) right-of-way. The DTS project will continue the Kamokila Boulevard extension from that point and connect to Franklin D. Roosevelt Avenue. This last segment is a critical component in improving roadway connectivity in the Kapolei region (Figure 1).

Figure 2 shows the Area of Potential Effect for this project, which will be the roadway right-of-way.

Cultural Resources in the APE

An Archaeological Assessment and Cultural Impact Evaluation for the DTS project (Cultural Surveys Hawaii, December 2005) was completed for the project. The report assessed the potential for significant historic properties and potential impacts to cultural practices. The scope of work included background research, a review of land use within the vicinity, and limited consultation. No formal interviews were conducted, but informal consultations were undertaken and reported.

One historic site, a portion of the historic OR&L right-of-way (ROW) (Site 50-80-12-9714), is within the project area. The tracks, which run parallel to Roosevelt Avenue, were part of a railroad line that extended from Honolulu through the Ewa Plain to Waianae and to Kahuku. During World War II, the U.S. Navy took over a portion of the OR&L main line and used it to transport ammunition from the storage magazines in Lualualei, West Loch and Waikele

to Pearl Harbor. In 1974, the Federal government donated this section of track to the State of Hawaii, and in 1975, the Lualualei-Pearl Harbor section was placed on the National Register of Historic Places. The Hawaiian Railway Society currently operates tourist train rides on the weekends from Ewa Station to Nanakuli.

In addition to the main track, the project area includes a railroad siding (separate track off the main track) with two train cars, a flatbed car and a water tanker. According to an undated OR& L map of Oahu, this siding is called Jensen's Siding. The siding and railway cars are in the path of the proposed roadway extension.

Other than the OR&L ROW, there are no other historic properties in the project area. It is our understanding that the State Historic Preservation Division has formally evaluated the remainder of the project area and determined it to be free of all other historic resources. The project site is not within known areas of pre-contact settlement, though it is near a pre-contact/early post-contact trail, which is located near the present-day Farrington Highway. In traditional Hawaiian times, the project area was probably only marginally utilized.

A review of traditional Hawaiian literature, legends and ethnology indicates that the area is not associated with any Hawaiian gods, chiefs or heroes, or with storied places. There is no indication that this area was used to collect resources or to conduct traditional cultural practices in the recent past. It is not used for any cultural practices today. It is unlikely that any traditional Hawaiian sites would be found in the project area, though it is possible that some twentieth century sugar cane cultivation/irrigation features could be found.

Project Impacts and Mitigation

The DTS-proposed 200-foot Kamokila Boulevard extension will cross the OR&L main line and Jensen's Siding, and displace the two railroad cars owned by the Hawaiian Railway Society. The two railroad cars may be considered as contributing elements to the National Register Site 50-80-12-9714. Appropriate mitigation could include relocation of the two railway cars to another siding location. This will be worked out directly between the DTS and the Hawaiian Railway Society. The new roadway extension will include a signaled railroad crossing at the tracks.

Before construction of the proposed project, an agreement will be made between the SHPD, DTS, State Department of Transportation (landowner of right-of-way), and the Hawaiian Railway Society. The resulting Memorandum of Agreement (MOA) will detail the type of crossing that will be made across the main tracks and the siding, and any reconstruction of the line/siding that may be necessary. The MOA would stipulate the obligations and time frames for any work to be undertaken.

Request for Your Comments

As part of the Section 106, NHPA consultation process, we respectfully request any additional written comments you have pertaining to the subject project. Please transmit comments to us ***within 30 days upon receipt of this letter.***

If you need additional review time or would like additional information, please contact Mr. Brian Suzuki at 527-6880.

Sincerely,

ALFRED A. TANAKA, P. E.
Acting Director

Attachments

cc: Mr. Abraham Wong
Federal Highway Administration

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 3RD FLOOR • HONOLULU, HAWAII 96813
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MUFI HANNEMANN
MAYOR

ALFRED A. TANAKA, P.E.
ACTING DIRECTOR

TPD06-00029

January 30, 2006

Ms. Annelle Amaral, President
Ahahui Siwila O Kapolei Hawaiian Civic Club
P.O. Box 700007
Kapolei, Hawaii 96709-0007

Dear Ms. Amaral:

Subject: Kamokila Boulevard Extension, Kapolei, Honouliuli Ahupua'a
Ewa District, Oahu, TMK (1) 9-1—16: 012, 032
Section 106, National Historic Preservation Act Consultation

Pursuant to Section 106 of the National Historic Preservation Act (NHPA) and the Advisory Council on Historic Preservation's regulations for Protection of Historic Properties (36 CFR Part 800), the City and County of Honolulu Department of Transportation Services (DTS), on behalf of the Federal Highway Administration (FHWA), is notifying you of a proposed federal undertaking that could have an adverse effect on a historic property on the National Register of Historic Places.

This letter is intended to request your organization's consultation in compliance with Section 106 of the NHPA, as well as the State of Hawaii's Chapter 6E-8 Historic Preservation review/consultation.

An Environmental Assessment is being prepared for this project. You will be sent a copy of the Draft EA, which will be available within the next few weeks. The Draft EA will include a copy of the Archaeological Assessment and Cultural Impact Evaluation.

The following is a project description and summary of archaeological work completed to date:

JAN 30 2006

Project Description

The DTS proposes to construct approximately 200 linear feet of roadway to extend Kamokila Boulevard to Franklin D. Roosevelt Avenue. The project site is the City of Kapolei, located in the Ewa plain on the southwestern end of the island of Oahu.

The Estate of James Campbell (EJC), a major landowner in the area, is finalizing design to construct a 700-foot long extension of Kamokila Boulevard from its current terminus near Kapolei Parkway to the Oahu Railway & Land Company (OR&L) right-of-way. The DTS project will continue the Kamokila Boulevard extension from that point and connect to Franklin D. Roosevelt Avenue. This last segment is a critical component in improving roadway connectivity in the Kapolei region (Figure 1).

Figure 2 shows the Area of Potential Effect for this project, which will be the roadway right-of-way.

Cultural Resources in the APE

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One historic site, a portion of the historic OR&L right-of-way (ROW) (Site 50-80-12-9714), is within the project area. The tracks, which run parallel to Roosevelt Avenue, were part of a railroad line that extended from Honolulu through the Ewa Plain to Waianae and to Kahuku. During World War II, the U.S. Navy took over a portion of the OR&L main line and used it to transport ammunition from the storage magazines in Lualualei, West Loch and Waikele to Pearl Harbor. In 1974, the Federal government donated this section of track to the State of Hawaii, and in 1975, the Lualualei-Pearl Harbor section was placed on the National Register of Historic Places. The Hawaiian Railway Society currently operates tourist train rides on the weekends from Ewa Station to Nanakuli.

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Other than the OR&L ROW, there are no other historic properties in the project area. It is our understanding that the State Historic Preservation Division has formally evaluated the remainder of the project area and determined it to be free of all other historic resources. The project site is not within known areas of pre-contact settlement, though it is near a pre-contact/early post-contact trail, which is located near the present-day Farrington Highway. In traditional Hawaiian times, the project area was probably only marginally utilized.

A review of traditional Hawaiian literature, legends and ethnology indicates that the area is not associated with any Hawaiian gods, chiefs or heroes, or with storied places. There is no indication that this area was used to collect resources or to conduct traditional cultural practices in the recent past. It is not used for any cultural practices today. It is unlikely that any traditional Hawaiian sites would be found in the project area, though it is possible that some twentieth century sugar cane cultivation/irrigation features could be found.

Project Impacts and Mitigation

The DTS-proposed 200-foot Kamokila Boulevard extension will cross the OR&L main line and Jensen's Siding, and displace the two railroad cars owned by the Hawaiian Railway Society. The two railroad cars may be considered as contributing elements to the National Register Site 50-80-12-9714. Appropriate mitigation could include relocation of the two railway cars to another siding location. This will be worked out directly between the DTS and the Hawaiian Railway Society. The new roadway extension will include a signaled railroad crossing at the tracks.

Before construction of the proposed project, an agreement will be made between the SHPD, DTS, State Department of Transportation (landowner of right-of-way), and the Hawaiian Railway Society. The resulting Memorandum of Agreement (MOA) will detail the type of crossing that will be made across the main tracks and the siding, and any reconstruction of the line/siding that may

be necessary. The MOA would stipulate the obligations and time frames for any work to be undertaken.

Request for Your Comments

As part of the Section 106, NHPA consultation process, we respectfully request any written comments you have pertaining to the subject project. Please transmit comments to us ***within 30 days upon receipt of this letter.***

If you need additional review time or would like additional information, please contact Mr. Brian Suzuki at 527-6880.

Sincerely,

ALFRED A. TANAKA, P. E.
Acting Director

Attachments

cc: Mr. Abraham Wong
Federal Highway Administration

Traffic Analysis Report

for

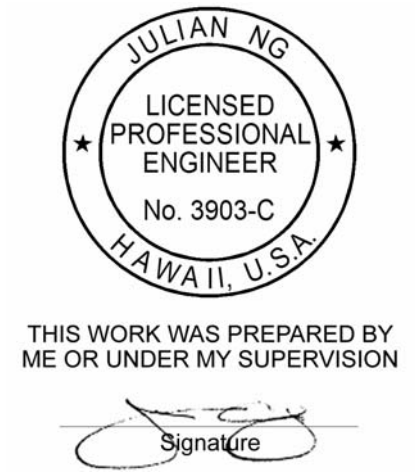
Kamokila Boulevard Extension

Ewa, Oahu, Hawaii

February 2006

Prepared for:

City and County of Honolulu
Department of Transportation Services



Expiration Date: April 30, 2006

Prepared by:

Julian Ng, Inc.
P. O. Box 816
Kaneohe, Hawaii 96744

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Traffic Analysis Report for Kamokila Boulevard Extension
January 2006

Introduction

An extension of Kamokila Boulevard, a minor (secondary) arterial roadway that serves the Kapolei town center, south of its existing terminus at Kapolei Parkway has been proposed. Part of the extension, to be constructed by the landowner to provide access to neighboring properties, is in the final design stage; however, the segment to be constructed by the landowner will terminate before connecting to F. D. Roosevelt Avenue in Kalaeloa.

The City and County of Honolulu Department of Transportation Services has proposed to connect Kamokila Boulevard to F. D. Roosevelt Avenue, thereby improving traffic flow between Kalaeloa and Kapolei. This report provides estimates of existing and future traffic volumes and conditions, identifies potential impacts of the project, and provides recommendations for appropriate improvements and control at the intersection of Kamokila Boulevard and F. D. Roosevelt Avenue. The project location and the street system in the surrounding area are shown in Exhibit 1.

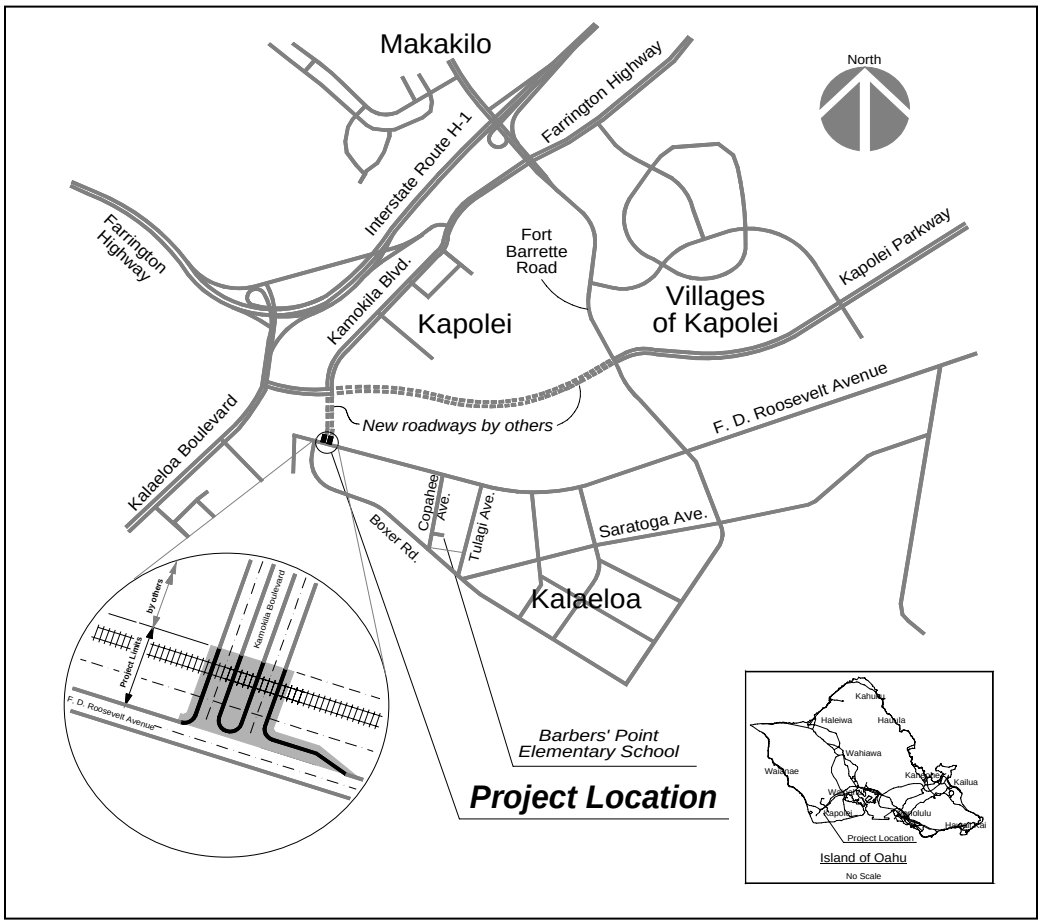

Exhibit 1 – Project Location

Existing Traffic

The existing Kamokila Boulevard is a divided four-lane roadway that is the main street in the Kapolei town center area. It currently ends at Kapolei Parkway, where traffic turns onto or off of Kapolei Parkway west of Kamokila Boulevard at an all-way stop intersection.

F. D. Roosevelt Avenue, the perimeter roadway along the north boundary of the old Barber's Point naval facility (Kalaeloa), is an existing two-lane roadway. In the vicinity of the proposed connection, traffic flow on F. D. Roosevelt Avenue is minimal due to very little activity to the west. Existing traffic volumes on F. D. Roosevelt Avenue at the proposed connection are estimated to be less than 20 vehicles per hour in each direction in the morning (AM) peak hour and less than 30 vehicles per hour in each direction in the afternoon (PM) peak hour. The traffic analysis will also include estimates of project impact to the existing unsignalized intersection of F. D. Roosevelt Avenue and Copahee Avenue, which provides access to the Barber's Point Elementary School.

The primary generator of traffic in the vicinity is the Barber's Point Elementary School, which has an existing enrollment of about 550 students. The main vehicular entrance to the school campus is located off of Copahee Avenue. Copahee Avenue intersects with F. D. Roosevelt Avenue approximately 1,500 feet east of the proposed connection with Kamokila Boulevard; it is the stop-controlled stem of a "T'-intersection. While a portion of the students is bused in from Makakilo and a portion bused in from Ko Olina, the traffic estimates were developed without the mitigative effect of the bus service. Traffic volumes generated by the school during its peak hours were estimated for a typical weekday and all vehicles to and from the school were assumed to use the intersection of F. D. Roosevelt Avenue and Copahee Avenue, resulting in the traffic assignments shown in Exhibit 2.

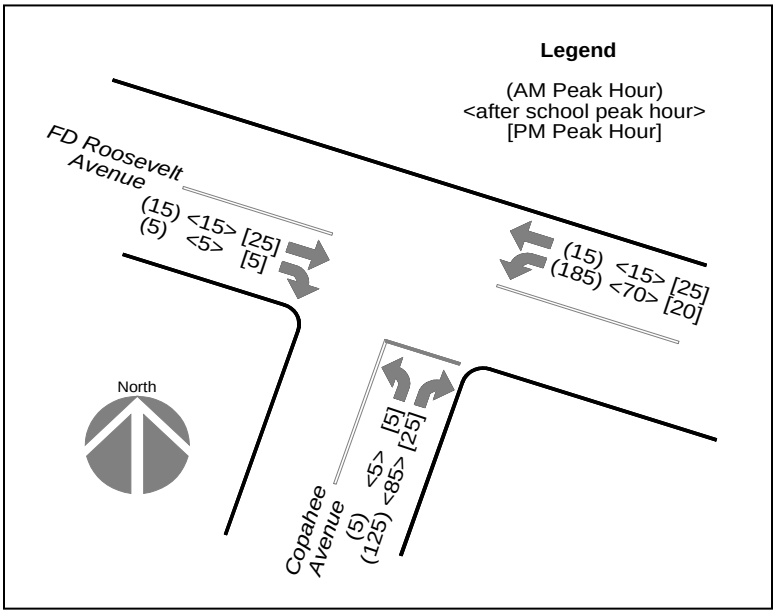

Exhibit 2 – Existing Traffic Assignments
Copahee Avenue and F. D. Roosevelt Avenue

The intersection was analyzed using the unsignalized intersection procedure described in the *Highway Capacity Manual*, which estimates average delay for stopped and yielding vehicles, and from the average delays, assigns a level of service to the movement. Levels of service, which are used to describe peak hour intersection conditions, are determined from the delays due to stop controls or the need to yield to conflicting traffic at unsignalized intersections. Level of Service C is considered acceptable. Criteria for levels of service are:

Average Delay per Vehicle at an Unsignalized Intersection	**Level of Service**
up to 10 seconds	A
> 10 and ≤ 15 seconds	B
> 15 and ≤ 25 seconds	C
> 25 and ≤ 35 seconds	D
> 35 and ≤ 50 seconds	E
> 50 seconds	F

Reference: *Highway Capacity Manual 2000*

The unsignalized intersection analyses includes estimates of the capacities of controlled movements (those that must stop or yield to oncoming traffic), based on the volume of other traffic at the intersections. A volume-to-capacity ratio is computed, as well as an estimate of the number of vehicles lined up (or queued) for each controlled movement. The number of queued vehicles that is not exceeded 95 per cent of the time is used as a design parameter. The analysis also calculates the average delay due to the control (stop sign or oncoming vehicles), which is used with the criteria above to determine a level of service for the controlled movement. Results of the intersection analyses for the unsignalized intersection of F. D. Roosevelt Avenue and Copahee Avenue are shown in Table 1. Little or no delay occurs at the intersection because existing peak hour volumes are low.

Table 1 – Results of Analysis of Existing Unsignalized Intersection
F. D. Roosevelt Avenue and Copahee Avenue

	Volume/ capacity ratio	95% queue length	Control Delay (seconds)	Level of Service
AM Peak Hour				
Westbound left turn (yields)	0.14	0.5	7.7	A
Northbound shared lane (stop sign)	0.15	0.5	9.3	A
AS (After School) Peak Hour				
Westbound left turn (yields)	0.05	0.2	7.5	A
Northbound shared lane (stop sign)	0.11	0.4	9.0	A
PM Peak Hour				
Westbound left turn (yields)	0.02	0.1	7.4	A
Northbound shared lane (stop sign)	0.04	0.1	8.8	A

Vehicle Types on Project Segment: Data from a vehicle type classification count taken by the State Highways Division on Fort Barrette Road south of Farrington Highway in 2002 are summarized in Table 2.

Table 2 – Vehicle Classification

	AM Peak Hour		PM Peak Hour		24-hour	
	count *	percent **	count *	percent **	count *	percent **
Motorcycle	2	0%	4	0%	40	0%
Car	1,460	91%	1,456	90%	16,594	89%
Pick up truck or van	99	6%	133	8%	1,595	9%
Unclassified	281	---	105	---	1,127	---
Bus	17	1%	2	0%	99	1%
Single unit trucks	14	1%	10	1%	268	1%
Multi-axle or trailer	10	1%	5	1%	90	0%
Total counted	1,883	100%	1,715	100%	19,813	100%

* Source: State of Hawaii, Department of Transportation, Highway Planning Branch. *Traffic Survey Data – Island of Oahu 2002* (Station 11-M, January 28-29, 2002)

** percentages of classified vehicles only, rounded to total 100%

Future Traffic Volumes

The proposed project will provide an additional roadway connection between the Kapolei town center area and the old Barber's Point naval station (Kalaeloa), which is planned for future development. The connection of Kamokila Boulevard to F. D. Roosevelt Avenue will also allow Kamokila Boulevard to be used to route local transit service between Kapolei and Kalaeloa, as indicated in the draft master plan for Kalaeloa.

Two future conditions were evaluated. In the short-term, the project roadway is expected to serve as a detour route during the proposed widening of Fort Barrette Road. This short-term condition would not include significant new traffic from development in Kalaeloa, and estimates of peak hour traffic were made for the year 2010, based on a diversion of a portion of the existing traffic on Fort Barrette Road (from a traffic count taken by the State Highways Division on Fort Barrette Road at Kapolei Parkway, December 10-12, 2003). Average daily traffic on the project segment is estimated to be 14,400 vehicles per day in 2010.

The connection of Kamokila Avenue to F. D. Roosevelt Avenue will provide a shorter route for vehicular access from (or to) the west, including the Honokai Hale and Ko Olina communities, where portions of the student body of the Barber's Point Elementary School reside. Exhibit 3 shows the peak hour traffic assignments for the short-term (2010).

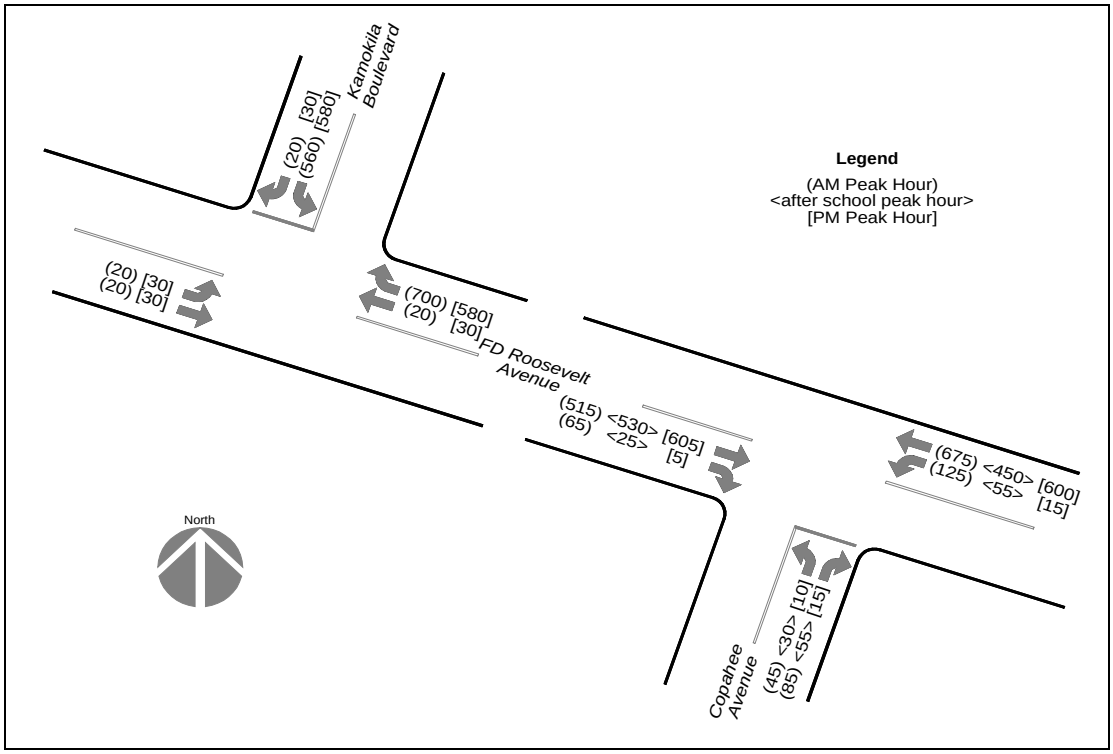

Exhibit 3 – 2010 Traffic Assignments

Conditions in the longer term were also considered. Peak hour traffic assignments for year 2025 were developed. The completion of construction on Fort Barrette Road will provide an improved connection from the center of Kalaeloa to Kapolei, alleviating the expected short-term diversion of traffic onto the project segment of Kamokila Boulevard. Future traffic on this segment would include the traffic to and from the Barber's Point Elementary School and new traffic generated by development that is expected in the Kalaeloa area. The draft master plan for Kalaeloa developed by the Hawaii Community Development Authority (September 2005) shows a total development in Kalaeloa by year 2025 of nearly 6,500 dwelling units, 117 thousand square feet of commercial floor area, 725 thousand square feet of office floor area, nearly 1,820 thousand square feet of light industrial floor area, and 470 thousand square feet of light industrial mixed use floor area. The draft master plan also shows other new roadways and improvements for access into Kalaeloa.

The uses proposed in the draft master plan for Kalaeloa are estimated to generate a total of nearly 94,000 vehicle trips per day. The uses in Kalaeloa will result in a small number of internal trips that will not leave Kalaeloa, and other roadway improvements are included in the master plan, increasing the number of possible routes in and out of Kalaeloa from the existing two to as many as ten. Three roadway connections to the west and four roadway connections to the north are shown in the draft master plan. With the improved access to Kalaeloa, Kamokila Boulevard is estimated to carry about 12% of the total daily trip ends, or an average daily volume of 11,260 vehicles per day. Estimated peak hour volumes for 2025 are shown in Exhibit 4.

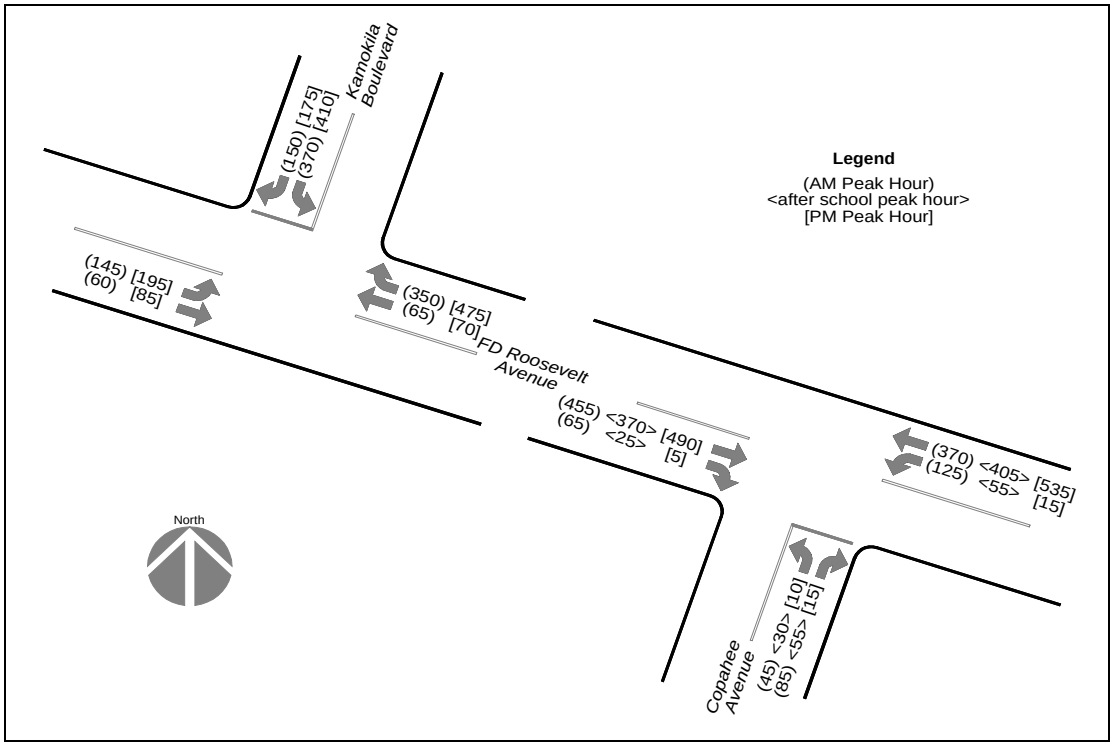

Exhibit 4 – 2025 Traffic Assignments

Intersection Analyses of 2010 Traffic Assignments

The proposed four-lane Kamokila Boulevard would have separate lanes for left and right turns at its "T"-intersection with the two-lane F. D. Roosevelt Avenue. Southbound traffic on Kamokila Boulevard would be controlled by a stop sign before entering F. D. Roosevelt Avenue. A capacity analysis of this intersection for the 2010 volumes shows that, if no other improvements are made, over-capacity conditions would occur during both peak hours. However, widening of F. D. Roosevelt Avenue to add a separate right turn lane on the westbound approach would result in acceptable conditions in the peak hours. Table 3 shows the results of the capacity analyses for 2010 peak hours at this intersection.

Table 3 – Results of Analysis of Unsignalized Intersection (2010)
Kamokila Boulevard at F. D. Roosevelt Avenue

	Volume/ capacity ratio	95% queue length	Control Delay (seconds)	Level of Service
AM Peak Hour				
Eastbound left turn (yields)	0.03	0.1	9.5	A
Southbound right turn lane (stop sign)	0.03	0.1	10.8	B
Southbound left turn lane (stop sign)	1.15	21.2	115.0	F
PM Peak Hour				
Eastbound left turn (yields)	0.03	0.1	9.1	A
Southbound right turn lane (stop sign)	0.05	0.2	10.5	B
Southbound left turn lane (stop sign)	1.13	20.6	107.2	F
With an added separate westbound right turn lane				
AM Peak Hour				
Eastbound left turn (yields)	0.03	0.1	9.5	A
Southbound right turn lane (stop sign)	0.02	0.1	8.5	A
Southbound left turn lane (stop sign)	0.69	5.8	17.7	C
PM Peak Hour				
Eastbound left turn (yields)	0.03	0.1	9.1	A
Southbound right turn lane (stop sign)	0.03	0.1	8.6	A
Southbound left turn lane (stop sign)	0.75	7.1	21.2	C

The connection of Kamokila Boulevard will have two effects on traffic on F. D. Roosevelt Avenue. Increases in through traffic diverted from Fort Barrette Road and changes in school access affect the volumes at the intersection of Copahee Avenue and F. D. Roosevelt Avenue. The intersection analyses show very long delays for left turns from Copahee Avenue to F. D. Roosevelt Avenue in the AM Peak Hour. In the peak hour after school and in the PM Peak Hour, however, delays will increase but conditions will be acceptable.

One possible mitigation measure for the AM Peak Hour is the implementation of a “No Left Turn” restriction for westbound F. D. Roosevelt Avenue to Copahee Avenue, thereby “saving” the available gaps in the eastbound traffic for the left turns from Copahee Avenue. The westbound traffic wishing to turn left at Copahee Avenue would instead turn one block sooner, onto Tulagi Avenue (followed by right turns at Boxer Road and Copahee Avenue to enter the school. Results of the analyses are shown in Table 4.

Table 4 – Results of Analysis of Unsignalized Intersection (2010)
F. D. Roosevelt Avenue and Copahee Avenue

	Volume/ capacity ratio	95% queue length	Control Delay (seconds)	Level of Service
AM Peak Hour				
Westbound left turn (yields)	0.14	0.5	9.4	A
Northbound shared lane (stop sign)	0.65	3.9	48.5	E
Northbound shared lane (stop sign)*	0.48	2.5	27.9	D
AS (After School) Peak Hour				
Westbound left turn (yields)	0.06	0.2	9.0	A
Northbound shared lane (stop sign)	0.29	1.2	20.8	C
PM Peak Hour				
Westbound left turn (yields)	0.02	0.1	9.0	A
Northbound shared lane (stop sign)	0.10	0.32	19.9	C
*if westbound left turns are prohibited				

Intersection Analyses of 2025 Traffic Assignments

Similar analyses were done for the 2025 volumes at the F. D. Roosevelt Avenue intersections with Kamokila Boulevard and with Copahee Avenue. At the intersection with Kamokila Boulevard, the southbound approach would be stopped and the added westbound right turn lane is assumed to be in place. Table 5 shows the results of the capacity analyses.

Table 5 – Results of Analysis of Unsignalized Intersection (2025)
Kamokila Boulevard at F. D. Roosevelt Avenue

	Volume/ capacity ratio	95% queue length	Control Delay (seconds)	Level of Service
AM Peak Hour				
Eastbound left turn (yields)	0.15	0.5	8.9	A
Southbound right turn lane (stop sign)	0.17	0.6	9.4	A
Southbound left turn lane (stop sign)	0.85	8.7	42.4	E
PM Peak Hour				
Eastbound left turn (yields)	0.21	0.8	9.7	A
Southbound right turn lane (stop sign)	0.19	0.7	9.6	A
Southbound left turn lane (stop sign)	1.20	18.1	143.7	F

Left turns from F. D. Roosevelt Avenue would have minimal delays. However, southbound left turns from Kamokila Boulevard would not have acceptable conditions. While there is sufficient capacity for the traffic demand in the AM Peak Hour, left turns will experience

very long delays (Level of Service E), and traffic demand in the PM Peak Hour would exceed the intersection capacity.

Alternatives that place the stop sign on other approaches did not fix the over-capacity conditions. However, a traffic signal at the intersection will mitigate the poor peak hour operating conditions. A traffic signal will cause delays to traffic that would otherwise proceed through the intersection without stopping; a traffic signal would need to be warranted, or meet minimum conditions, before it is installed and put into service.

A traffic signal would likely be warranted with the planned development in Kalaeloa. Exhibit 5 shows the traffic volumes for the peak hours and two other hours of an average day (each of these hours is assumed to have volumes that are 85% of the peak hour volumes) plotted on Figure 4C-1 of the *Manual on Uniform Traffic Control Devices for Streets and Highways*. The four plotted points are above the applicable warrant line ("2 OR MORE LANES & 1 LANE"), indicating that the projected 2025 volumes would warrant a traffic signal.

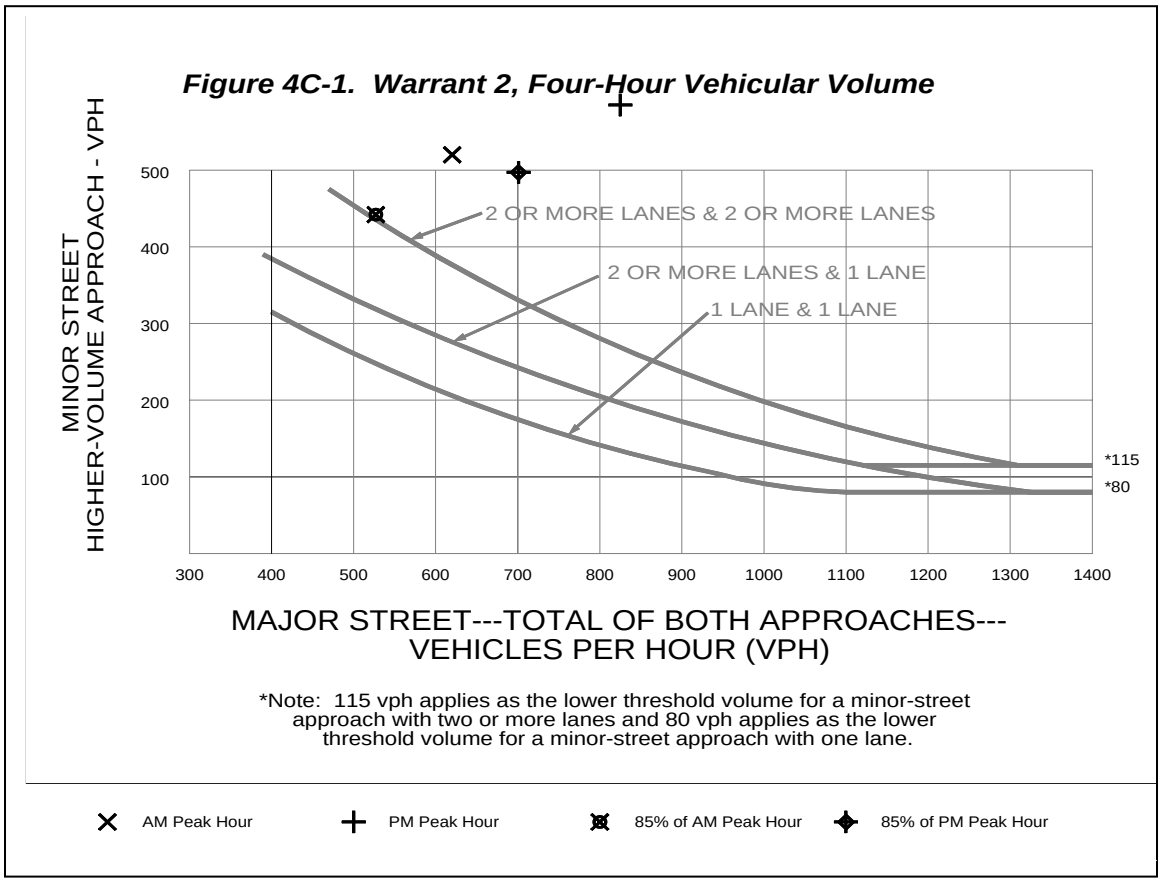

Exhibit 5 – Traffic Signal Warranted (Four-Hour)

A signalized intersection would provide acceptable peak hour conditions. The analyses of signalized intersections use signal timing parameters to compute capacities, average delays, and queue lengths. Criteria for levels of service at signalized intersections, which account for

drivers' tolerance of longer delays at signalized intersections (as compared to at unsignalized intersections), are:

Average Delay per Vehicle at a Signalized Intersection	Level of Service
up to 10 seconds	A
> 10 and ≤ 25 seconds	B
> 25 and ≤ 35 seconds	C
> 35 and ≤ 55 seconds	D
> 55 and ≤ 80 seconds	E
> 80 seconds	F

Reference: *Highway Capacity Manual 2000*

Table 6 summarizes the results of the analyses of a signalized intersection.

Table 6 – Results of Analysis of Signalized Intersection (2025)
Kamokila Boulevard and F. D. Roosevelt Avenue

	Volume/ capacity ratio	95% queue length	Control Delay (seconds)	Level of Service
AM Peak Hour (overall intersection)	0.61	--	15.9	B
Eastbound (shared lane)	0.49	6.3	16.8	B
Westbound (through lane)	0.12	1.9	11.8	B
Westbound (right turn lane)	0.74	11.3	23.5	C
Southbound (right turn lane)	0.23	3.7	8.9	A
Southbound (left turn lane)	0.51	9.3	11.9	B
PM Peak Hour (overall intersection)	0.74	--	20.1	C
Eastbound (shared lane)	0.59	8.2	17.2	B
Westbound (through lane)	0.11	1.8	10.3	B
Westbound (right turn lane)	0.88	16.4	31.0	C
Southbound (right turn lane)	0.29	4.4	10.7	B
Southbound (left turn lane)	0.61	10.9	15.1	B

The analyses of the intersection of F. D. Roosevelt Avenue and Copahee Avenue show that an unsignalized intersection without any restrictions on turning movements would operate at acceptable levels of service during the 2025 peak hours. The results of the analyses are summarized in Table 7.

Table 7 – Results of Analysis of Unsignalized Intersection (2025)
F. D. Roosevelt Avenue and Copahee Avenue

	Volume/ capacity ratio	95% queue length	Control Delay (seconds)	Level of Service
AM Peak Hour				
Westbound left turn (yields)	0.13	0.5	9.1	A
Northbound shared lane (stop sign)	0.43	2.1	24.5	C
AS (After School) Peak Hour				
Westbound left turn (yields)	0.05	0.2	8.4	A
Northbound shared lane (stop sign)	0.22	0.8	15.9	C
PM Peak Hour				
Westbound left turn (yields)	0.02	0.1	8.6	A
Northbound shared lane (stop sign)	0.08	0.3	16.5	C

Conclusions and Recommendations

The proposed project to connect Kamokila Boulevard to F. D. Roosevelt Avenue is expected to provide an alternative route into Kalaeloa. Access to the Barber's Point Elementary School from the west will be improved, as the connection will provide a shorter path than the existing route via Fort Barrette Road.

In the interim (2010) condition, development in Kalaeloa is not expected to have a significant impact on traffic volumes; however, a temporary diversion of traffic from the nearby Fort Barrette Road during the construction activity of a proposed widening of that roadway will increase traffic in the area. Acceptable peak hour conditions could be achieved at unsignalized intersections of F. D. Roosevelt Avenue with Kamokila Boulevard and with Copahee Avenue for the projected 2010 peak hour traffic volumes with the following mitigation measures:

a. The addition of a dedicated right turn lane on F. D. Roosevelt Avenue for westbound traffic at the Kamokila Boulevard intersection.

b. The implementation of a "NO LEFT TURN" restriction for westbound traffic on F. D. Roosevelt Avenue at Copahee Avenue during the AM peak period.

In the longer term with the development of Kalaeloa indicated in the draft master plan, higher traffic volumes on F. D. Roosevelt Avenue west of Kamokila Boulevard are expected. The higher volumes result in insufficient capacity at the unsignalized intersection for the southbound left turns from Kamokila Boulevard to F. D. Roosevelt Avenue in the PM Peak Hour. A traffic signal would be warranted and simple two-phase operation would provide acceptable conditions for the 2025 peak hour traffic volumes.

The addition of a dedicated right turn lane for westbound traffic at Kamokila Boulevard would be needed in both the interim and longer-term future conditions. The dedicated right turn lane should be constructed as part of the proposed project to connect Kamokila

Boulevard to F. D. Roosevelt Avenue. The analyses found that the turn restriction at the intersection of F. D. Roosevelt Avenue and Copahee Avenue would only be needed in the AM Peak Hour for the short-term (during construction on Fort Barrette Road) traffic volumes. The turn restriction should be implemented if necessary and the restriction should be reevaluated after completion of construction activities on Fort Barrette Road.

Exhibit 6 shows a conceptual layout of the intersection of F. D. Roosevelt Avenue and Kamokila Boulevard.

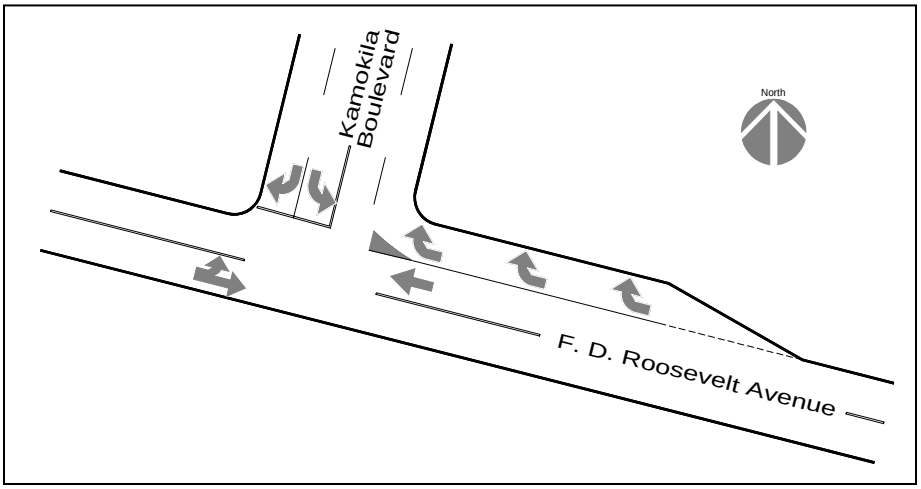

Exhibit 6 – Conceptual Intersection Layout
Kamokila Boulevard and F. D. Roosevelt Avenue