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IN REPLY REFER TO:  
HWY-DD 2.9593

SEP 12 2011

TO: THE HONORABLE LORETTA J. FUDDY, A.C.S.W., M.P.H.  
DIRECTOR OF HEALTH

ATTN: GARY HOOSER, DEPUTY DIRECTOR  
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

FROM: GLENN M. OKIMOTO, Ph.D.  
DIRECTOR OF TRANSPORTATION 

SUBJECT: FINAL ENVIRONMENTAL ASSESSMENT  
FINDING OF NO SIGNIFICANT IMPACT (FEA/FONSI)  
WAIIEHU BEACH ROAD, REHABILITATION OF IAO STREAM BRIDGE  
FEDERAL AID PROJECT NO.: BR-STP-3400(5)  
WAILUKU DISTRICT, ISLAND OF MAUI, HAWAII

OFFICE OF ENVIRONMENTAL  
QUALITY CONTROL

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The State of Hawaii Department of Transportation (HDOT) is submitting the FEA/FONSI, for the Waiehu Beach Road, Rehabilitation of Iao Stream Bridge project. The FEA/FONSI was prepared in compliance with the requirements of Chapter 343, Hawaii Revised Statutes, and Hawaii Administrative Rules, Title 11, Department of Health, Chapter 200.

After reviewing the FEA for the subject project, DOT has determined that the subject project will not have a significant environmental effect and has issued a FONSI. The basis for the FONSI determination is set forth in Chapter 10 of the FEA. The determination is pursuant to the significance criteria set forth in Hawaii Administrative Rules, Title 11, State of Hawaii, Department of Health, Chapter 200, Environmental Impact Statement Rules, Section 12.

Please publish notice of this FEA/FONSI in the September 23, 2011 issue of OEQC's *The Environmental Notice*.

We have enclosed one (1) each the following items:

- Hardcopy of the OEQC publication form and FEA/FONSI; and
- CD including the FEA/FONSI and OEQC publication form in pdf format.

Should you have any questions or require additional information, please call Ms. Li Nah Okita of our Design Branch at (808)692-7581 or by email at [Li.Nah.Okita@hawaii.gov](mailto:Li.Nah.Okita@hawaii.gov).

Enclosures

**Publication Form**  
**The Environmental Notice**  
**Office of Environmental Quality Control**

Instructions: Please submit one hardcopy of the document along with a determination letter from the agency. On a compact disk, put an electronic copy of this publication form and a PDF of the EA or EIS. Mahalo.

**Name of Project:** Waiehu Beach Road, Rehabilitation of Iao Stream Bridge

**Applicable Law:** Chapter 343, Hawaii Revised Statutes and Chapter 11-200-2, Hawaii Administrative Rules

**Type of Document:** Final Environmental Assessment

**Island:** Maui

**District:** Wailuku

**TMK:** N/A

**Permits Required:** Federal

- Department of the Army
  - Department of the Army, Nationwide Permit, Section 404, Clean Water Act
  - Department of the Army, 33 U.S. Code, Section 408

**State of Hawaii**

- Department of Health
  - Section 401, Clean Water Act, Water Quality Certification
  - National Pollutant Discharge Elimination System (NPDES) General Permit for Construction Stormwater Activities
  - Noise Permit
  - Noise Variance
- Office of Planning
  - Coastal Zone Management (CZM) Federal Consistency Certification
- Department of Transportation
  - Permit to Perform Work Within State Highways

**County of Maui**

- Department of Planning
  - Special Flood Hazard Area Development Permit

**Name of Applicant or Proposing Agency:** State of Hawaii  
Department of Transportation  
Address: Highways Division  
City, State, Zip: 601 Kamokila Boulevard, Room 609  
Contact and Phone: Kapolei, Hawaii 96707  
Ms. Li Nah Okita  
692.7581

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OFFICE OF ENVIRONMENTAL  
QUALITY CONTROL

**Approving Agency  
or Accepting  
Authority:** State of Hawaii  
Department of Transportation  
Highways Division  
Address: 601 Kamokila Boulevard, Room 609  
City, State, Zip: Kapolei, Hawaii 96707  
Contact and Phone: Ms. Li Nah Okita  
692.7581

**Consultant** Wilson Okamoto Corporation  
Address: 1907 South Beretania Street, Suite 400  
City, State, Zip: Honolulu, Hawaii 96826  
Contact and Phone: Mr. Earl Matsukawa  
946.2277

**Project Summary:** Summary of the direct, indirect, secondary, and cumulative impacts of the proposed action (less than 200 words).

The State of Hawaii, Department of Transportation, Highways Division, proposes improvements to widen Iao Stream Bridge and its associated roadway approaches, which carry Waiehu Beach Road over Iao Stream. Iao Stream Bridge will also be rehabilitated to meet current seismic standards. The primary purpose of the improvements, including multi-use roadway shoulders, is to enhance the safety of motorists, bicyclists, and pedestrians along this section of roadway.

The project is located between milepost 1.54 and 1.79 on Waiehu Beach Road (Route 3400), in the district of Wailuku, Maui. Located mauka of Paukukalo Beach, the approximately 0.25-mile long project extends from the intersection of Waiehu Beach Road with Kaae Road/Kuhio Place, over the existing Iao Stream Bridge, to its intersection with Nukuwai Place/Eha Street. The project site is within DOT's existing right-of-way.

No significant impacts are anticipated from the construction and operation of the proposed project. Construction activities are anticipated to have short-term noise, traffic, and air quality impacts in the surrounding area. Construction noise and air quality impacts will be minimized by compliance with applicable State Department of Health Rules. No significant long-term environmental or community impacts in the vicinity of the project site are anticipated.

Final Environmental Assessment/  
Finding of No Significant Impact

---

**WAIEHU BEACH ROAD,  
REHABILITATION OF IAO STREAM BRIDGE**  
Project No. **BR-STP-3400(5)**

District of Wailuku, Island of Maui, State of Hawaii

Prepared For:



**STATE OF HAWAII**

**DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION**

Prepared By:



**WILSON OKAMOTO  
CORPORATION**

**SEPTEMBER 2011**

**Final Environmental Assessment/  
Finding of No Significant Impact**

**Waiehu Beach Road, Rehabilitation of Iao Stream Bridge**

**District of Wailuku, Maui, Hawaii**

**Project No. BR-STP-3400(5)**

**Prepared For:**

**State of Hawaii  
Department of Transportation  
Highways Division  
869 Punchbowl Street  
Honolulu, Hawaii 96813**

**Prepared By:**

**Wilson Okamoto Corporation  
Engineers and Planners  
1907 South Beretania Street, Suite 400  
Honolulu, Hawaii 96826  
WOA Job No. 7213-01**

**September 2011**

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Appendix C	Pre-Consultation Comment and Response Letters
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## **PREFACE**

This Final Environmental Assessment (EA) / Finding of No Significant Impact (FONSI) has been prepared pursuant to Chapter 343, Hawaii Revised Statutes (HRS), and Title 11, Chapter 200, Hawaii Administrative Rules (HAR), Department of Health, State of Hawaii. The State Department of Transportation, Highways Division is proposing the Waiehu Beach Road, Rehabilitation of Iao Stream Bridge project in the Wailuku District of the Island of Maui. The project requires the use of State lands and State funds. Therefore, the project is subject to the State environmental review process.

The proposed action assessed herein is for the widening of Waiehu Beach Road and the rehabilitation and widening of Iao Stream Bridge. The widening will provide multi-use road shoulders and a sidewalk with guardrails in the Wailuku District, Island of Maui, Hawaii. Improvements also include bringing the entire bridge into compliance with current seismic standards. This EA has been processed as a Finding of No Significant Impact (FONSI) as no significant impacts are anticipated as a result of implementing the proposed project. .

Subsequent to the publication of the Draft EA, the County of Maui Planning Department was consulted regarding the project's location relative to the Special Management Area (SMA). The Planning Department determined that the project site is located outside the SMA boundary and, as such, is not subject to SMA permit requirements.

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## SUMMARY

<b>Proposing Agency:</b>	State of Hawaii Department of Transportation, Highways Division
<b>Approving Agency:</b>	State of Hawaii Department of Transportation, Highways Division
<b>Location:</b>	Wailuku, Maui, Hawaii
<b>Tax Map Keys (TMKs):</b>	None, State of Hawaii Roadway
<b>Recorded Fee Owner:</b>	State of Hawaii
<b>Existing Use:</b>	Public roadway with shoulders, and a bridge over Iao Stream carrying the roadway and a walkway on the mauka side.
<b>State Land Use Classification:</b>	Urban District
<b>Community Plan Designation:</b>	None
<b>County Zoning Designation:</b>	None
<b>Proposed Action:</b>	The proposed action involves widening the existing Iao Stream Bridge and a portion of Waiehu Beach Road to provide wider, multi-use road shoulders, and a sidewalk on the mauka side of the road. Improvements will also include bringing the entire bridge into compliance with current seismic standards
<b>Impacts:</b>	No significant impacts are anticipated from the construction and operation of the proposed project. Construction activities are anticipated to have short-term noise, traffic, and air quality impacts in the surrounding area. Construction noise and air quality impacts will be minimized by compliance with applicable State Department of Health Rules. No significant long-term environmental or community impacts in the vicinity of the project site are anticipated.
<b>Determination:</b>	Finding of No Significant Impact (FONSI)
<b>Parties Consulted During Pre-Assessment:</b>	<u>Federal Agencies</u> U.S. Army Corps of Engineers U.S. Fish and Wildlife Service U.S. Geological Survey

State Agencies

Department of Accounting and General Services  
Department of Business, Economic Development and Tourism (DBEDT)  
Department of Hawaiian Home Lands  
Department of Health (DOH)  
DOH, Clean Water Branch  
DOH, Environmental Management Division  
DOH, Office of Environmental Quality Control  
Department of Land and Natural Resources (DLNR)  
DLNR, Division of Boating & Ocean Recreation  
DLNR, Commission on Water Resources Management  
DLNR, Division of Forestry and Wildlife  
DLNR, Division of State Parks  
DLNR, Engineering Division  
DLNR, Land Division  
DLNR, State Historic Preservation Division  
DLNR, Maui/Lanai Island Burial Council  
Office of Hawaiian Affairs  
University of Hawaii Environmental Center

County of Maui Agencies

Civil Defense Agency  
Cultural Resources Commission  
Department of Fire and Public Safety  
Department of Parks and Recreation  
Department of Planning  
Department of Public Works  
Department of Transportation  
Department of Water Supply  
Office of the Mayor  
Police Department

Elected Officials

Councilmember Danny A. Mateo, Council Chair

**Parties Consulted  
During the Draft EA:**

Federal Agencies

U.S. Army Corps of Engineers (COE)  
COE, Civil Works Technical Branch  
COE, Regulatory Branch  
U.S. Fish and Wildlife Service  
U.S. Geological Survey

State Agencies

Department of Business, Economic Development and Tourism (DBEDT)

State Agencies (Continued)

DBEDT, Strategic Industries Division  
DBEDT, Office of Planning  
Department of Hawaiian Home Lands  
Department of Health (DOH)  
DOH, Indoor and Radiological Health Branch  
Department of Land and Natural Resources (DLNR)  
DLNR, Division of Aquatic Resources  
DLNR, Engineering Division  
DLNR, Commission on Water Resource Management  
DLNR, State Historic Preservation Division  
Office of Hawaiian Affairs  
University of Hawaii Environmental Center

County Agencies

Department of Environmental Management  
Department of Fire and Public Safety  
Department of Planning  
Department of Public Works  
Department of Transportation  
Department of Water Supply  
Police Department  
Maui County Cultural Resources Commission

Elected Officials

Councilmember Danny A. Mateo, Council Chair  
Councilmember Michael P. Victorino

Utility Companies

Maui Electric Company  
Oceanic Time Warner Cable  
The Gas Company  
Hawaiian Telcom

Libraries

Other Interested Parties and Individuals

Paukukalo Hawaiian Homestead Community Association  
Waiehu Kou Community Homestead Association  
Waiehu Kou residence Lots, Phase 2 Association  
Waiehu Kou Phase 3 Association, Inc.  
Waiehu Kou Phase 4  
Trust for Public Lands  
Wailuku Neighborhood Place  
Maui Bicycle Alliance  
Mr. Bryan Sarasin  
Mr. Foster Ampong  
Mr. Timmy Bailey  
Mr. Keoki Kiili

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## **1. INTRODUCTION**

### **1.1 Project Background**

The State of Hawaii (State), Department of Transportation (DOT), Highways Division is proposing to implement the Waiehu Beach Road, Rehabilitation of Iao Stream Bridge project, referred to herein as the “project” or “proposed project.”

The project is located between milepost 1.54 and 1.79 on Waiehu Beach Road (Route 3400), in the district of Wailuku, Maui. Located mauka of Paukukalo Beach, the approximately 0.25 mile project extends from the intersection of Waiehu Beach Road with Kaae Road/Kuhio Place, over the existing Iao Stream Bridge, to its intersection with Nukuwai Place/Eha Street (see Figure 1-1). The project site is within DOT’s existing right-of-way (ROW), and is not identified by a specific tax map key (TMK) parcel.

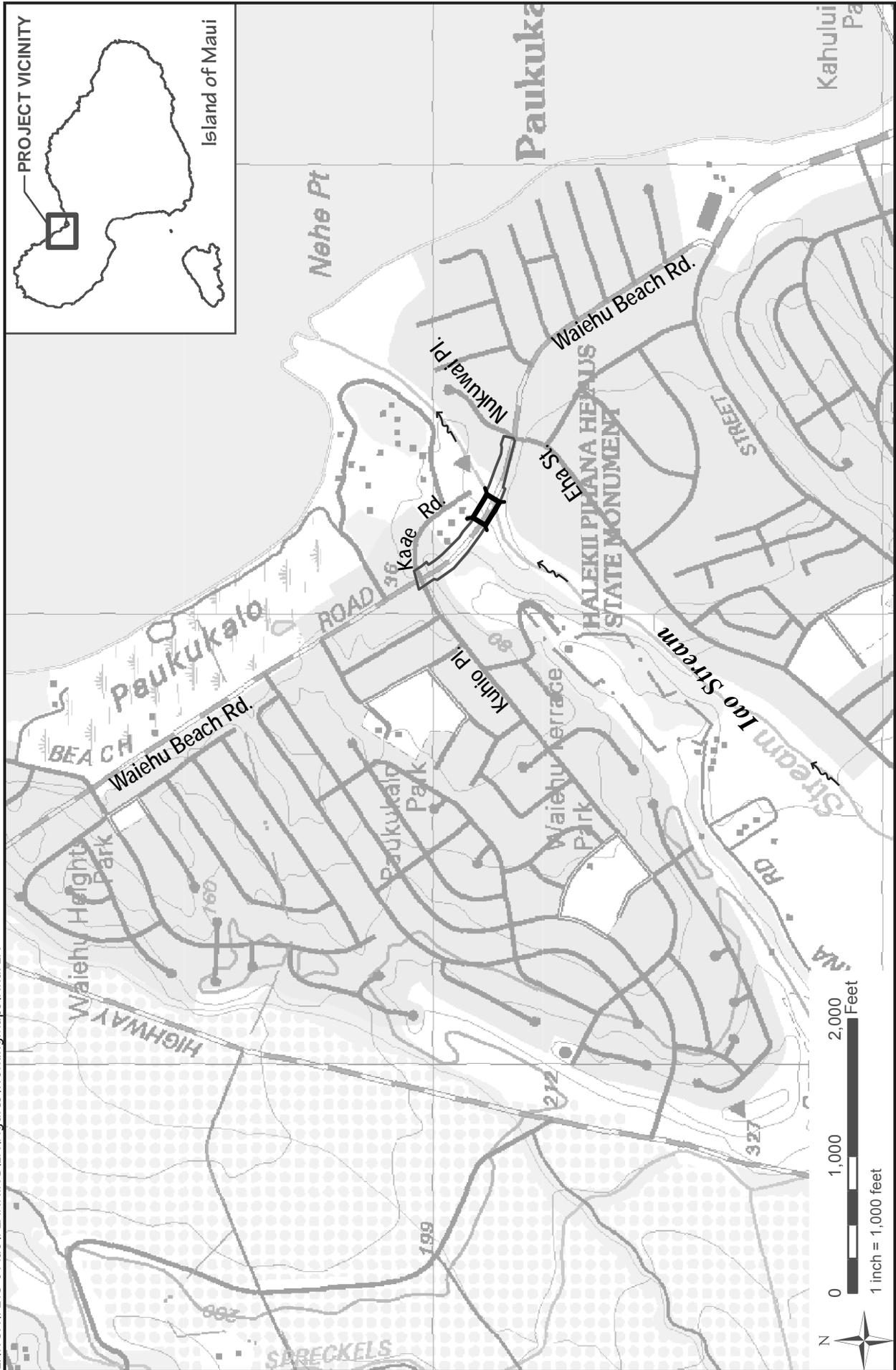
Existing Uses: Waiehu Beach Road, which connects Central and West Maui, is a two-lane, undivided highway that is classified as a Primary Rural Arterial. The existing roadway consists of two 11-foot lanes with 3-foot to 5-foot wide shoulders. The road ROW varies from approximately 80-feet to 200-feet. The posted speed limit along this section is 30 miles per hour.

Constructed in 1954, the existing Iao Stream Bridge is approximately 176-feet long, 39-feet wide, and sits approximately 20-feet above Iao Stream. The triple-span bridge is supported by five continuous longitudinal concrete beams lying over two solid wall piers within the stream and abutment walls at either bank. Record drawings indicate that the bridge was constructed with two 12-foot wide travel lanes, 2-foot wide gutters at the edge of each travel lane, and two 4-foot wide sidewalks on each side of the roadway. The surfaces of the sidewalks are raised 9-inches above the bridge deck and a railing on the mauka side of the bridge was subsequently constructed to separate the sidewalk from the travel way. There is no railing or barrier on the makai side of the bridge (see Photographs 1 through 6).

The approaches to Iao Stream Bridge along Waiehu Beach Road vary in width and configuration. Currently, pedestrians and bicyclists share use of the roadway shoulders. The makai- and mauka-Wailuku approach shoulders are approximately 5-feet wide and a metal beam guardrail separates the shoulders from the traffic lanes near the bridge.

The configuration of the Waiehu approach is similar to the Wailuku approach at locations near the bridge. At the mauka-Waiehu approach, a metal beam guardrail continues the function of the concrete railing on the bridge, separating the raised sidewalk from the travel way. A metal beam guardrail is also present on the makai-Waiehu approach shoulder.

Surrounding Uses: The project site is located northwest of the central Kahului area. Nearby land uses include a variety of residential, commercial/business, civic, and recreational land uses (see Figure 1-2).



**FIGURE 1-1**  
**LOCATION MAP**  
WAIIEHU BEACH ROAD  
REHABILITATION OF IAO STREAM BRIDGE  
State Department of Transportation, Highways Division

**LEGEND**

-  Project Site
-  Iao Stream Bridge
-  Direction of Flow

  
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CORPORATION  
ENGINEERS • PLANNERS





NOT TO SCALE



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**LEGEND**

-  Project Site
-  Iao Stream Bridge
-  Direction of Flow

**FIGURE 1-2  
SURROUNDING LAND USES**

WAIEHU BEACH ROAD  
REHABILITATION OF IAO STREAM BRIDGE  
State Department of Transportation, Highways Division





Photograph 1: Waihee Approach to Existing Bridge



Photograph 2: Wailuku Approach to Existing Bridge



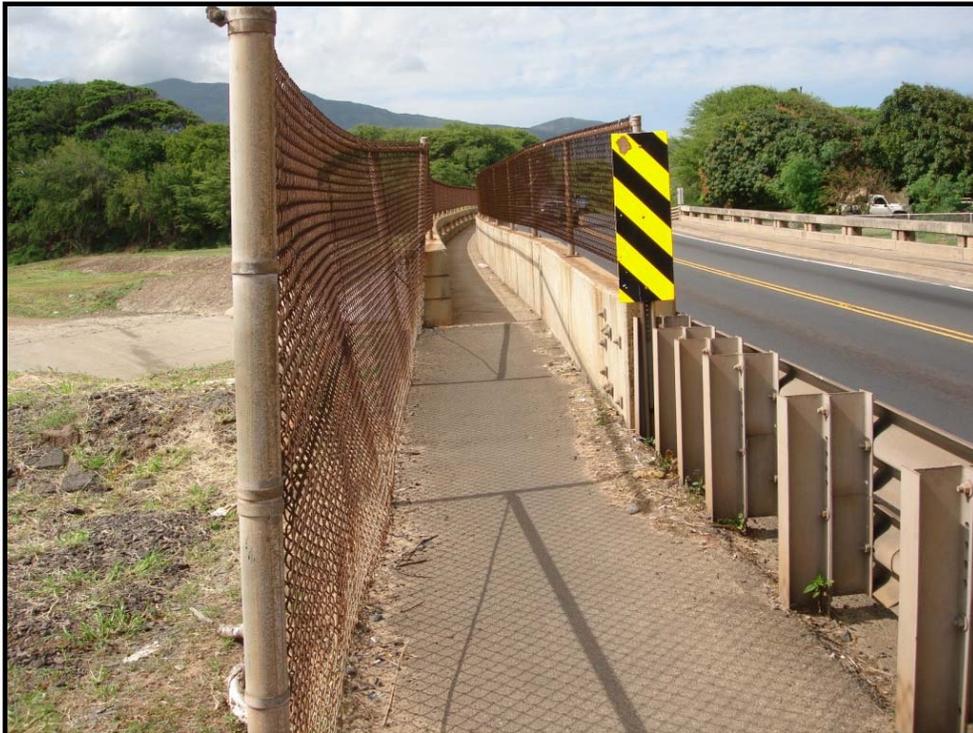
Photograph 3: Mauka Elevation of Existing Bridge



Photo 4: Makai Elevation of Existing Bridge



Photograph 5: Existing Pedestrian Walkway on Mauka Side of Bridge



Photograph 6: Wailuku Approach of Existing Pedestrian Walkway

The residential communities located within the project vicinity are comprised of single-family homes which include, Waiehu Heights located to the northwest of the project site, Paukukalo Residential Lots to the west, Waiehu Terrace to the southwest, and Wailuku Beach Lots to the east.

Commercial and businesses located in the vicinity of the project site include a McDonalds restaurant located directly to the east of the project site as well as the Wailuku Industrial Park located to the south.

Recreational uses situated around the proposed project site include Paukukalo Park located to the northwest, Waiehu Terrace Park to the southwest, and Papohaku Park to the south. Halekii-Pihana Heiau State Monument is a 10.2 acre park located approximately 0.2 miles to the south of the project site. The park includes two historical heiaus that were rededicated as war temples by Kahekili, Maui's last ruling chief.

## **1.2 Project Need**

The State of Hawaii Department of Transportation has identified various deficiencies for the Iao Stream Bridge. These deficiencies extend to the bridge approaches and adjacent roadways. The deficiencies in the existing conditions include:

- Inadequate width of shoulders on the bridge and approaches for combined use by motorists, bicyclists, and pedestrians;
- Inadequate separation between pedestrians from the traffic lanes;
- Inadequate width of sidewalks for combined pedestrian and bicycle use;
- Inadequate width of sidewalk and non-conformance to accessibility standards; and,
- Nonconforming end treatment for bridge railing and metal beam guardrails.

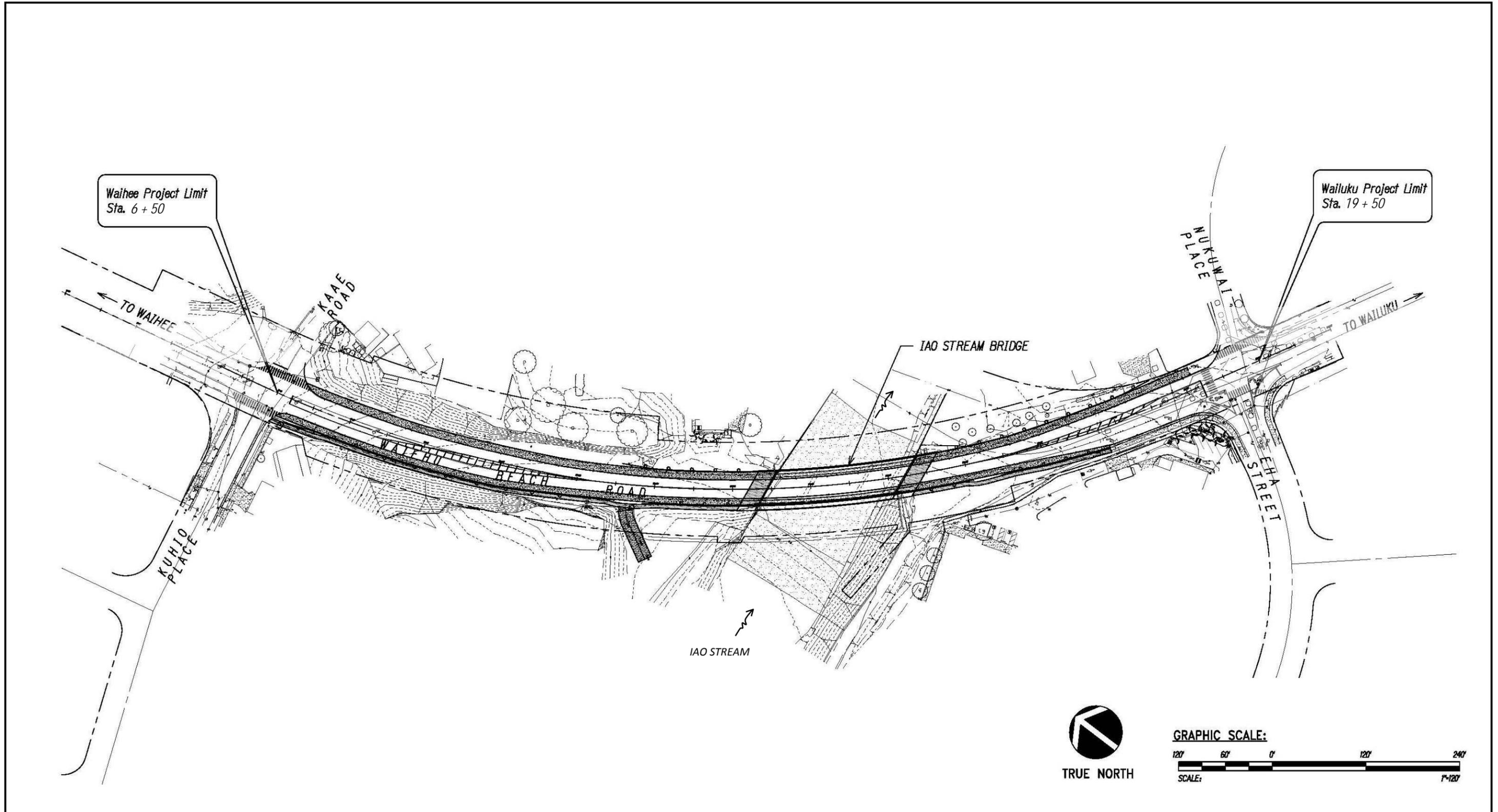
Rehabilitation is also needed due to deterioration in sections of the roadway as well as the roadway pavement.

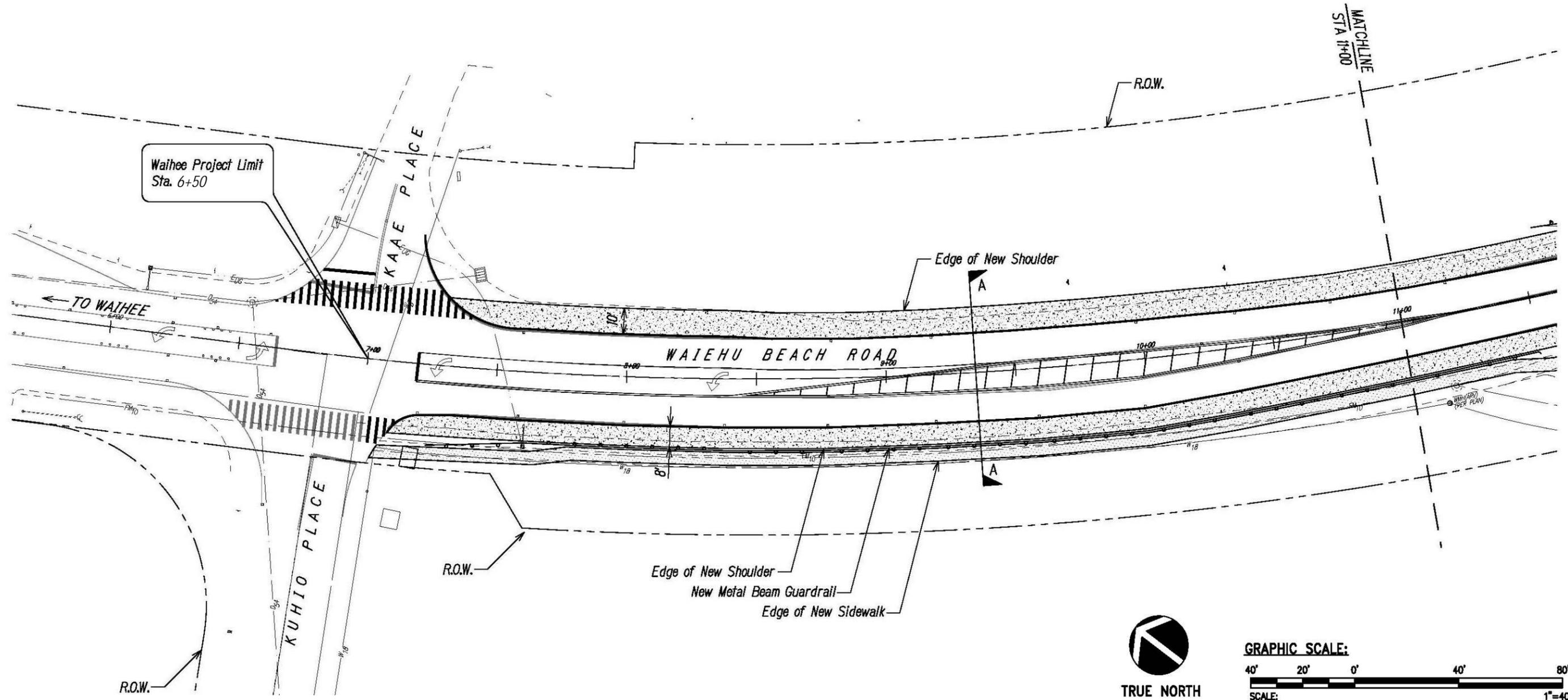
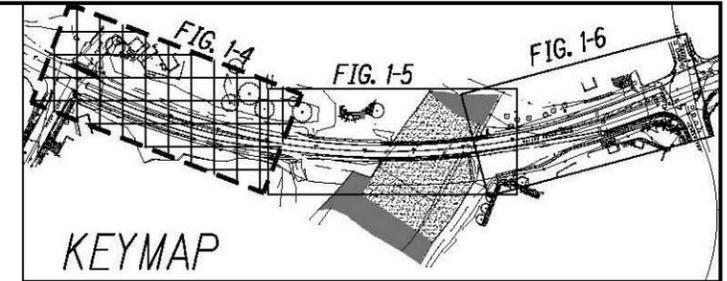
## **1.3 Project Description**

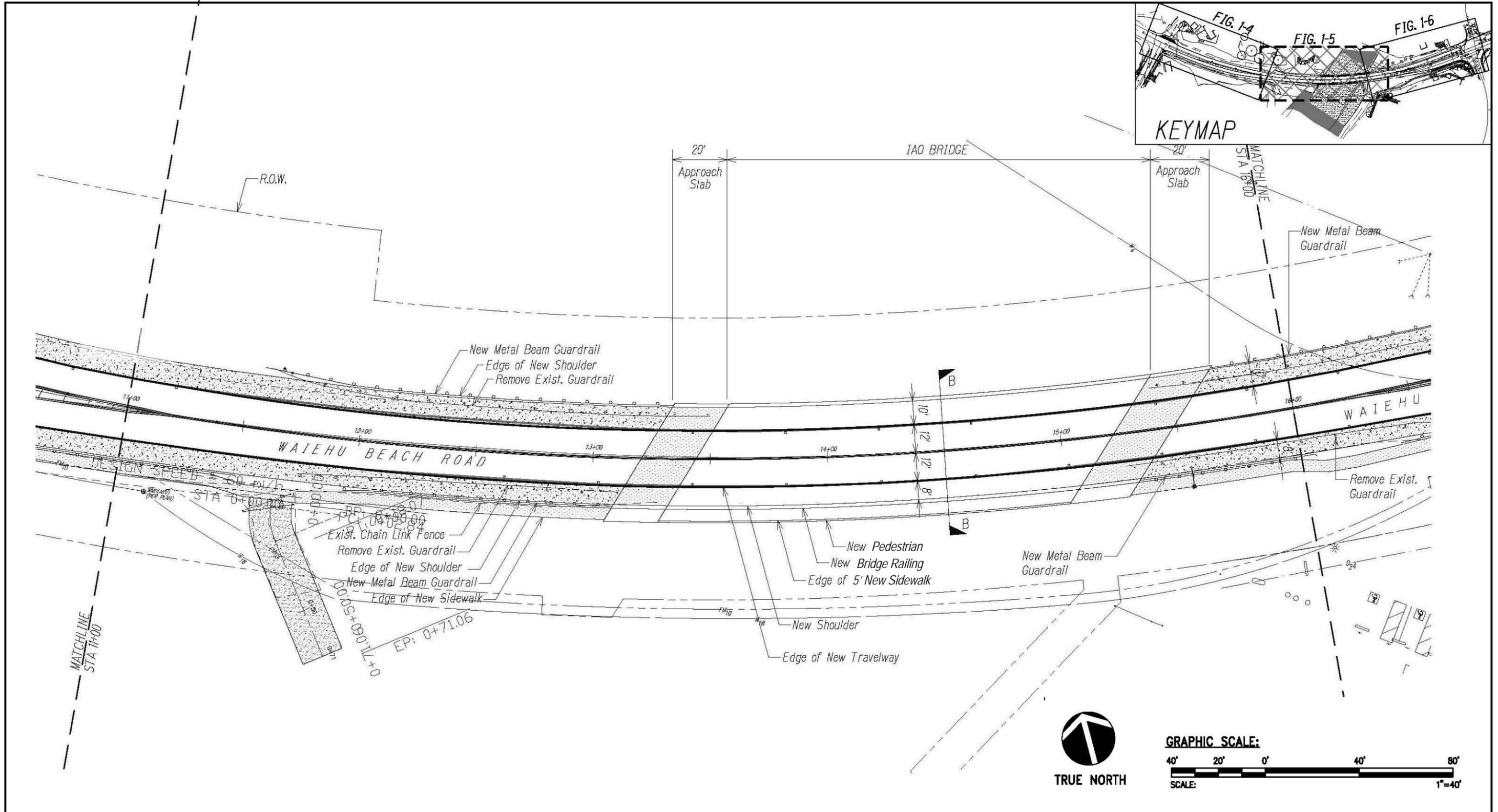
The proposed project involves widening a 0.25 mile section of Waiehu Beach Road and the existing Iao Stream Bridge. The proposed improvements include the following (see Figures 1-3 to 1-7):

- The existing Iao Stream Bridge, which is 38½-feet wide, will be widened on both sides. The makai side will be widened by 3¾-feet and the mauka side will be widened by 8¼-feet. Thus, the finished width of the bridge will be approximately 50½-feet.
- The approach roadway shoulders will be widened on both sides. The makai side of the road will have a consistent 10-foot wide shoulder while the mauka side of the road will typically have an 8-foot wide shoulder that terminates as the shoulder transitions to a right turn lane onto Eha Street. The shoulders are multi-use and will accommodate bicycles and emergency pullout for vehicles. The makai shoulder will also accommodate pedestrians.
- A separate 5-foot wide sidewalk for pedestrians will be provided on the mauka side of the road.

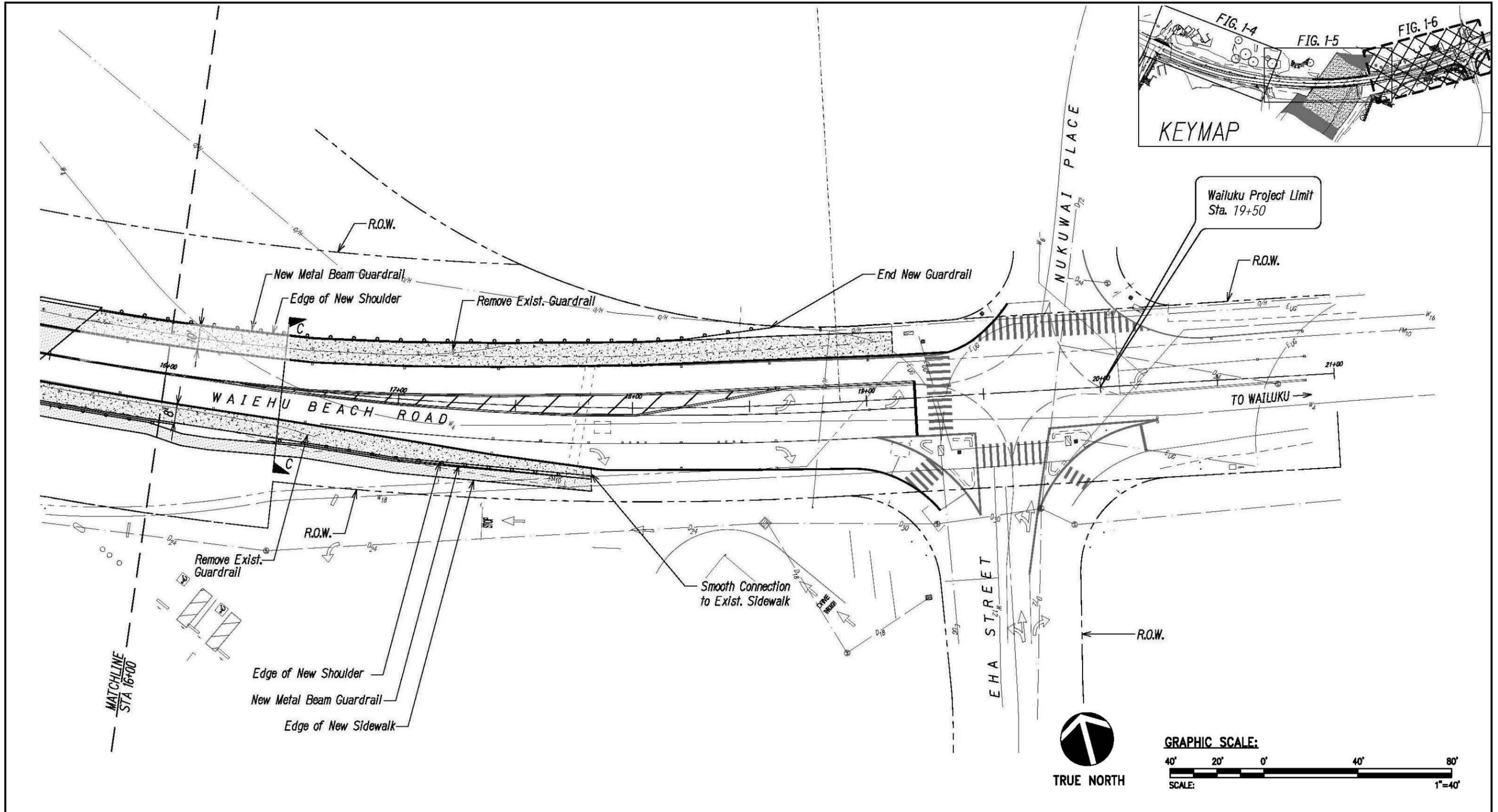
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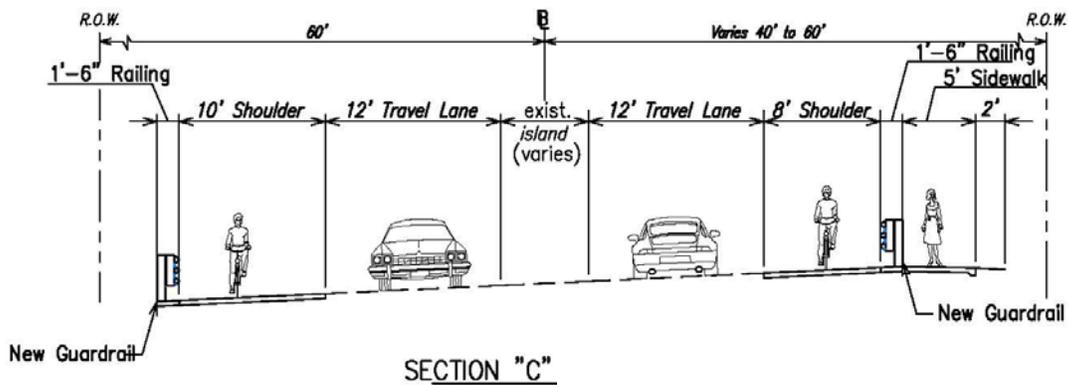
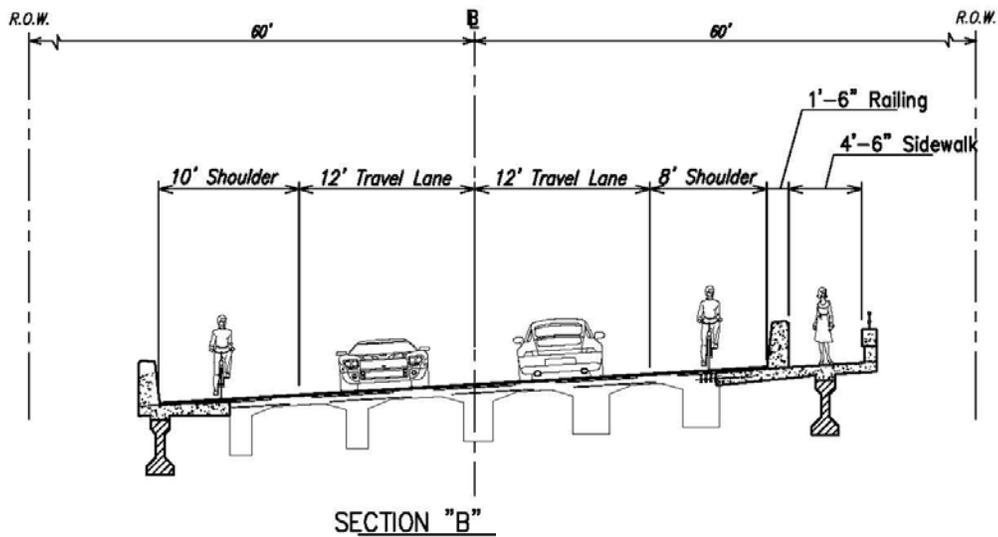
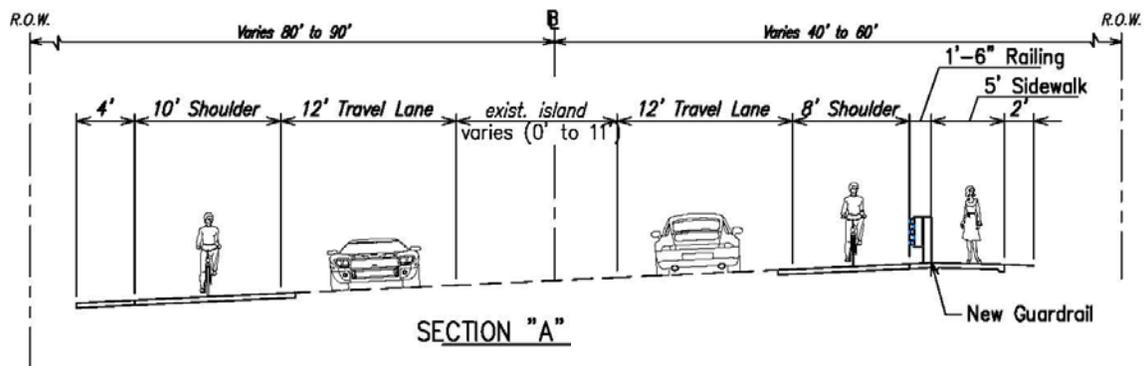




**FIGURE 1-5**  
**ROADWAY PLAN STATION 11+00 TO 16+00**



**FIGURE 1-6**  
**ROADWAY PLAN STATION 16+00 TO 19+50**



NOT TO SCALE

- The existing guardrails will be replaced with new guardrails with end connections, redesigned to comply with current standards. The guardrail on the mauka side of the road will separate the roadway shoulder from the proposed sidewalk.
- The bridge railings will be designed to meet the American Association of State Highway and Transportation Officials (AASHTO) standards of a minimum 42-inch height requirement for pedestrian railings. The proposed railing design, as shown in Figure 1-8, was determined in consultation between DOT and SHPD to retain the bridge's historical character. In addition, a separate 42-inch high combined vehicle/pedestrian/bike concrete railing, designed similarly to the bridge railings, will be installed between the sidewalk and the road shoulder on the mauka side of the bridge. The improvements to Iao Bridge will bring the entire bridge into compliance with current seismic standards

Construction for the widening of Waiehu Beach Road to accommodate wider roadway shoulders on both sides and a separate sidewalk on the mauka side will involve relatively minor amounts of cutting and filling. This will primarily involve removing talus material and soils that have accumulated at the base of large cuts through the dune system when the Waiehu Beach Road was constructed. Excavation work on the mauka side of the roadway will involve removal of talus material and soil from a 2-foot wide swath along the existing roadway shoulder (see Figure 1-9). On the makai side of the roadway, only the toe of the adjacent dune system will be excavated. Excavation on both sides will be less than a foot below existing conditions.

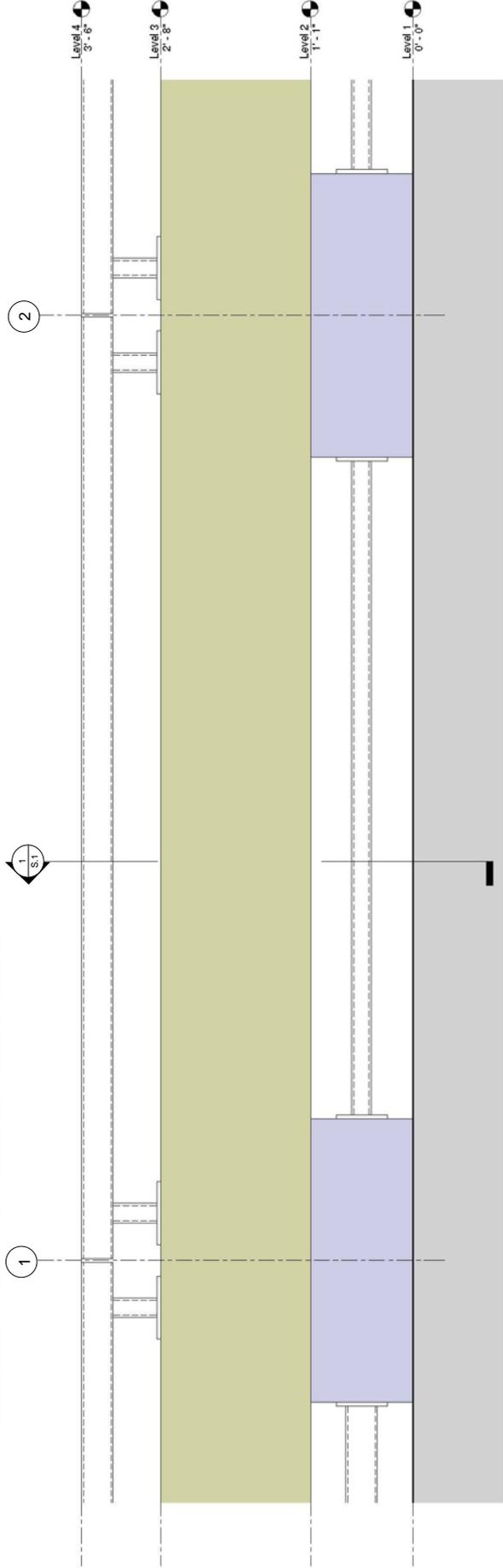
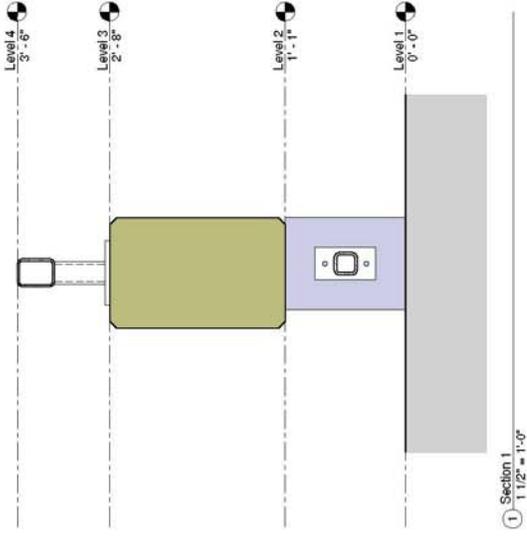
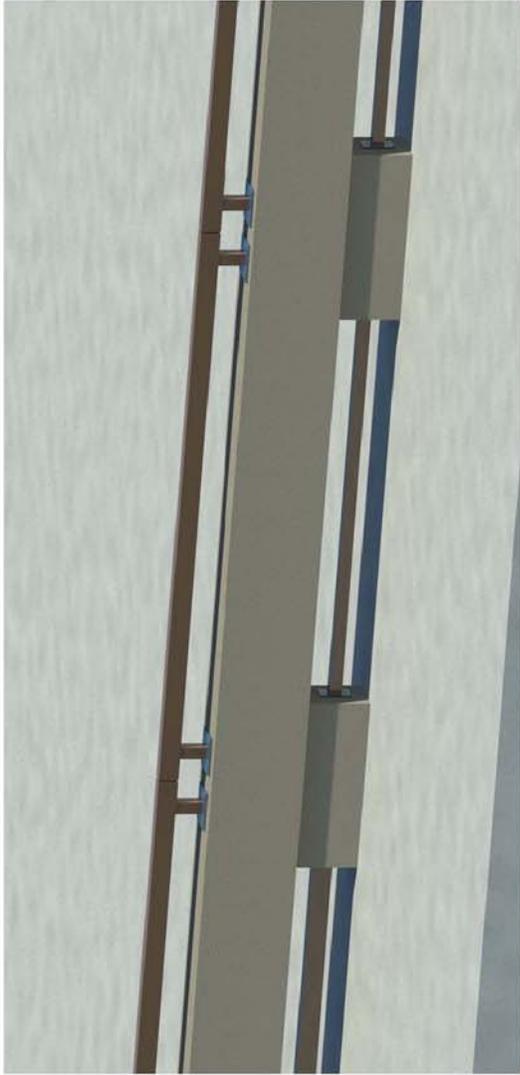
Construction for the widening of Iao Bridge will involve the following (see Figures 1-10 and 1-12):

- Demolishing the existing bridge overhangs and railings on both sides of the bridge to allow for the deck extensions.
- Extending the bridge abutments (the walls on either side of the Iao Stream channel that support the bridge) on both the mauka and makai sides of the existing bridge. This will require demolishing sections of the reinforced concrete channel walls and bottom, at the four corners of the bridge (see Figures 1-13 to 1-16). Once the concrete at the bottom of the channels is removed, the ground beneath the new abutment extensions will need to be excavated to construct the concrete footings that will support the extended abutments. The concrete walls of the channel will also need to be removed and the retained earth excavated to accommodate the extended abutments. After the abutment extensions have been constructed with reinforced concrete, the remaining openings in the channel walls and bottom will be reconstructed to tie-in with the extended abutments.
- Extending the existing two piers on both the mauka and makai sides of the bridge. This will require demolishing sections of the channel bottom, and excavating the ground beneath the pier extensions for the footings supporting the extensions (see Figure 1-17 and 1-18). After the footings and pier extensions above them are constructed, the remaining openings in the channel bottom will be reconstructed to tie in with the extensions.
- Constructing the bridge super structure extension (over which the widened bridge deck carrying the road will be constructed). The super structure will consist of new girders secured atop the abutments and center pier on either side of the bridge.

- Constructing the bridge deck extensions over the new girders. The new deck extensions will tie in with the existing bridge deck. The roadway improvements described previously will be constructed over the widened bridge deck.

#### **1.4 Project Schedule and Cost**

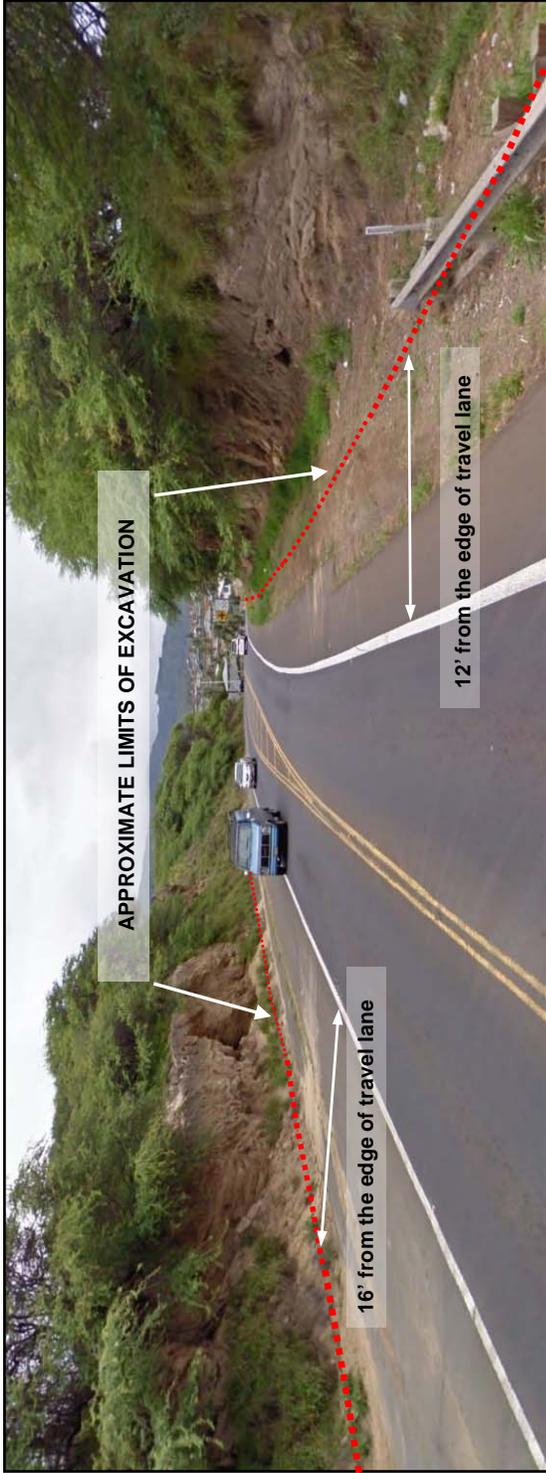
The estimated construction cost for the proposed project is approximately \$6.75 million. Construction of the project is anticipated to begin at the end of 2012, with completion approximately one year thereafter.



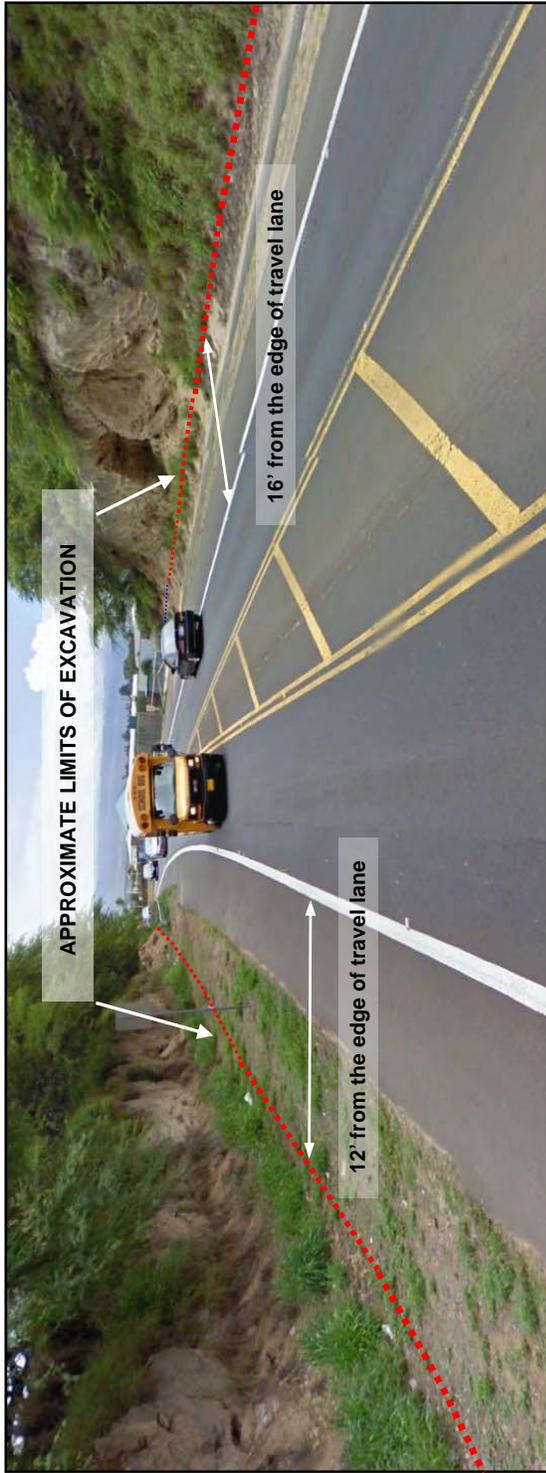
**FIGURE 1-8**  
**PROPOSED BRIDGE RAILING**  
WAIHEHU BEACH ROAD  
REHABILITATION OF IAO STREAM BRIDGE  
State Department of Transportation, Highways Division



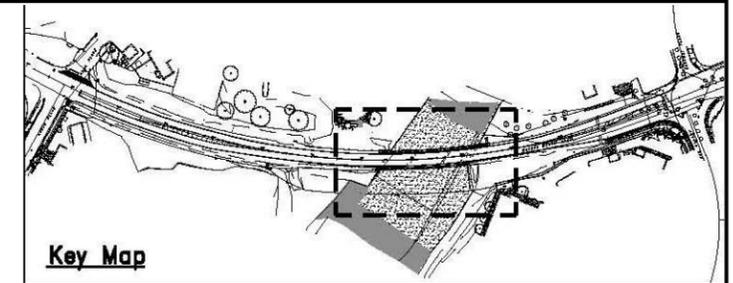
### VIEW TOWARDS WAIHEE



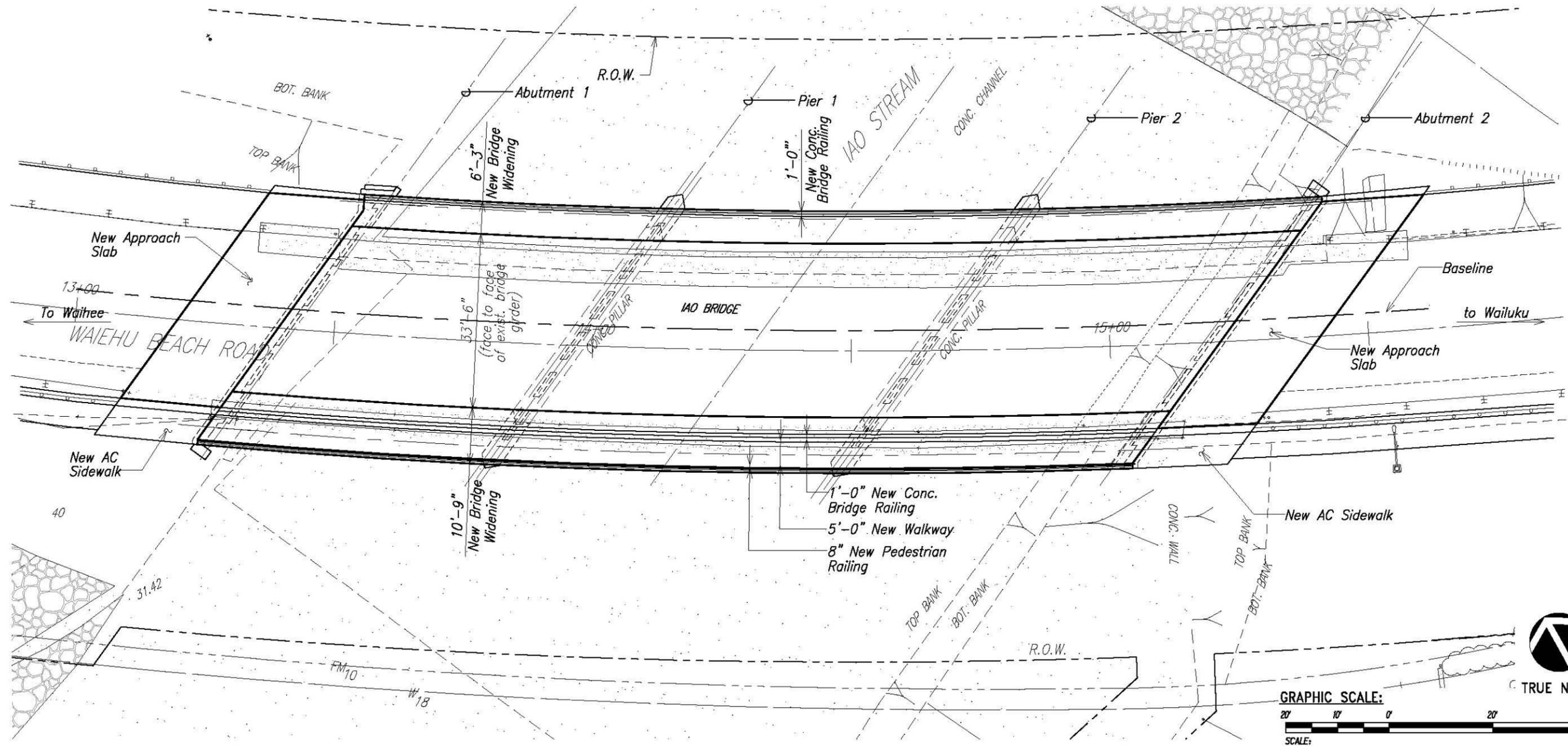
### VIEW TOWARDS WAILUKU



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Key Map

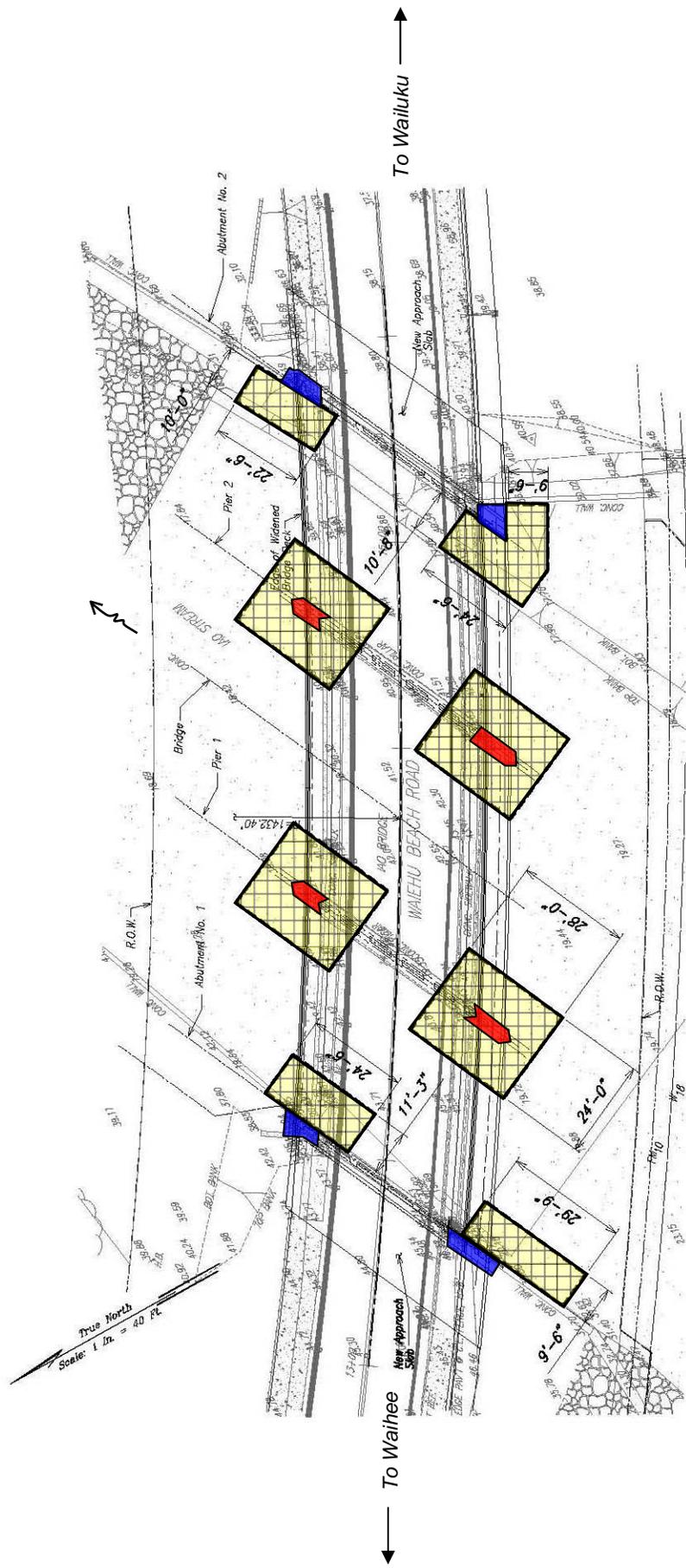


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FIGURE 1-10 BRIDGE LAYOUT PLAN

WAIHEHU BEACH ROAD REHABILITATION OF IAO STREAM BRIDGE State Department of Transportation, Highways Division



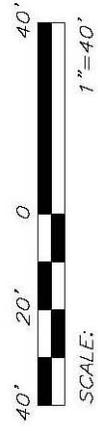


**LEGEND**

-  Proposed Pier Extension.
-  Proposed Abutment Extension.
-  Approximate Area of Ground Disturbance.
-  Direction of Flow

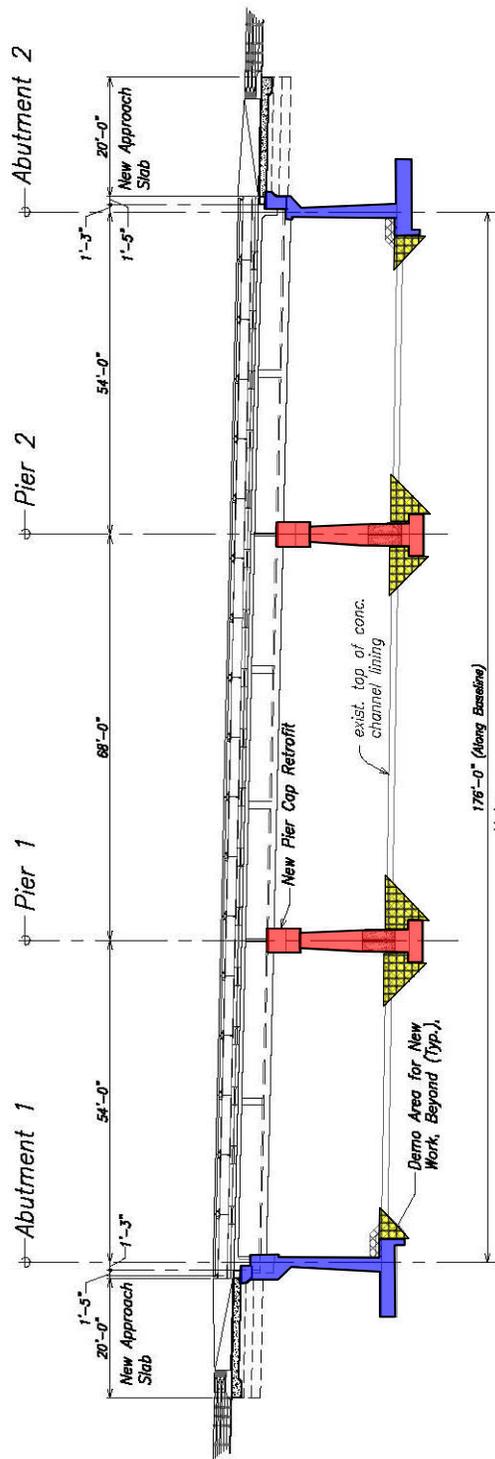
**IAO STREAM**

**GRAPHIC SCALE:**



← To Waihee

To Wailuku →

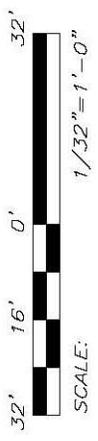


Note:  
 Replace Existing 12" Channel Slab  
 Where Removed due to New Work.

**LEGEND**

- Proposed Pier Extension.
- Proposed Abutment Extension.
- Approximate Area of Ground Disturbance.

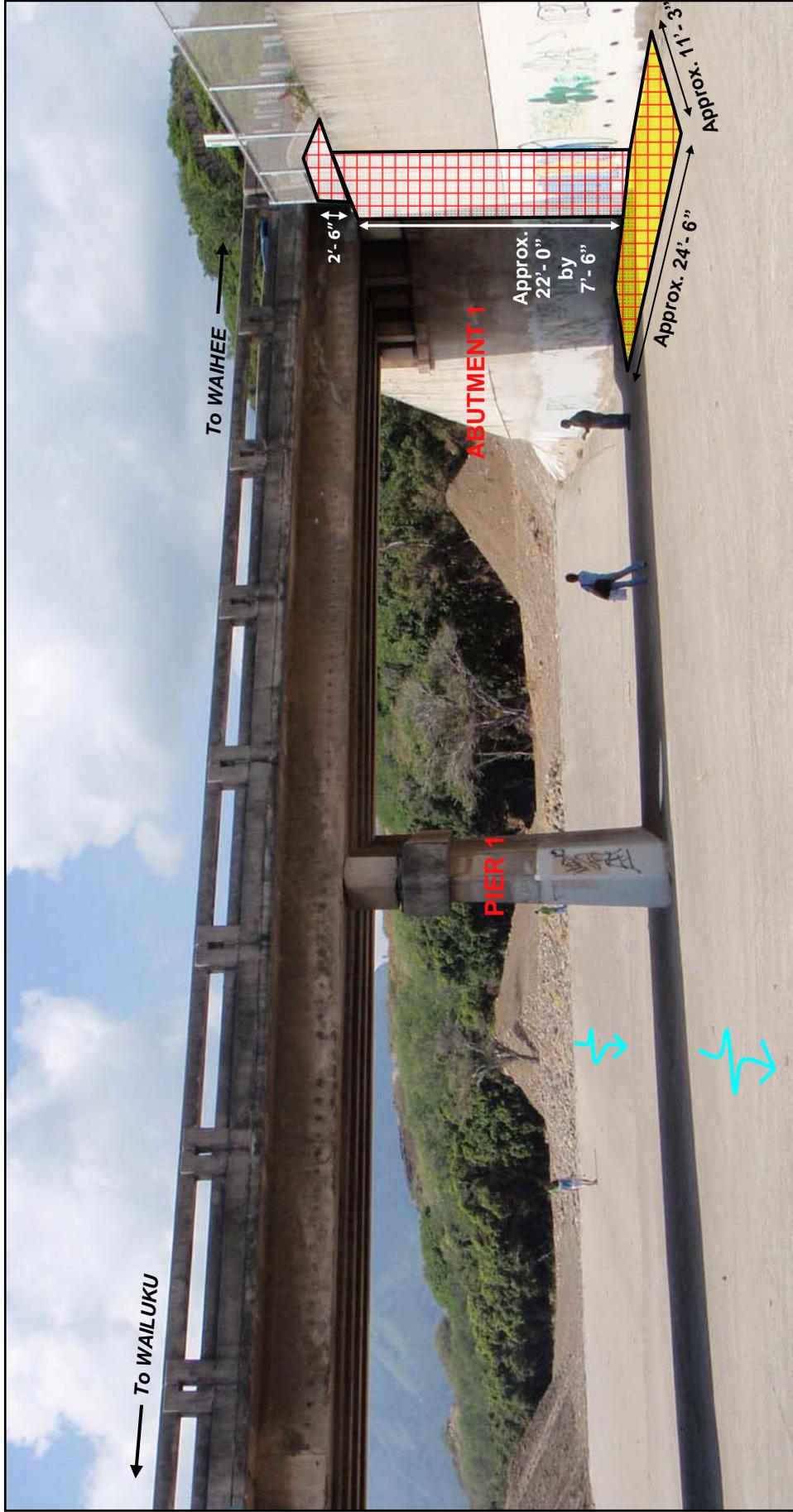
GRAPHIC SCALE:





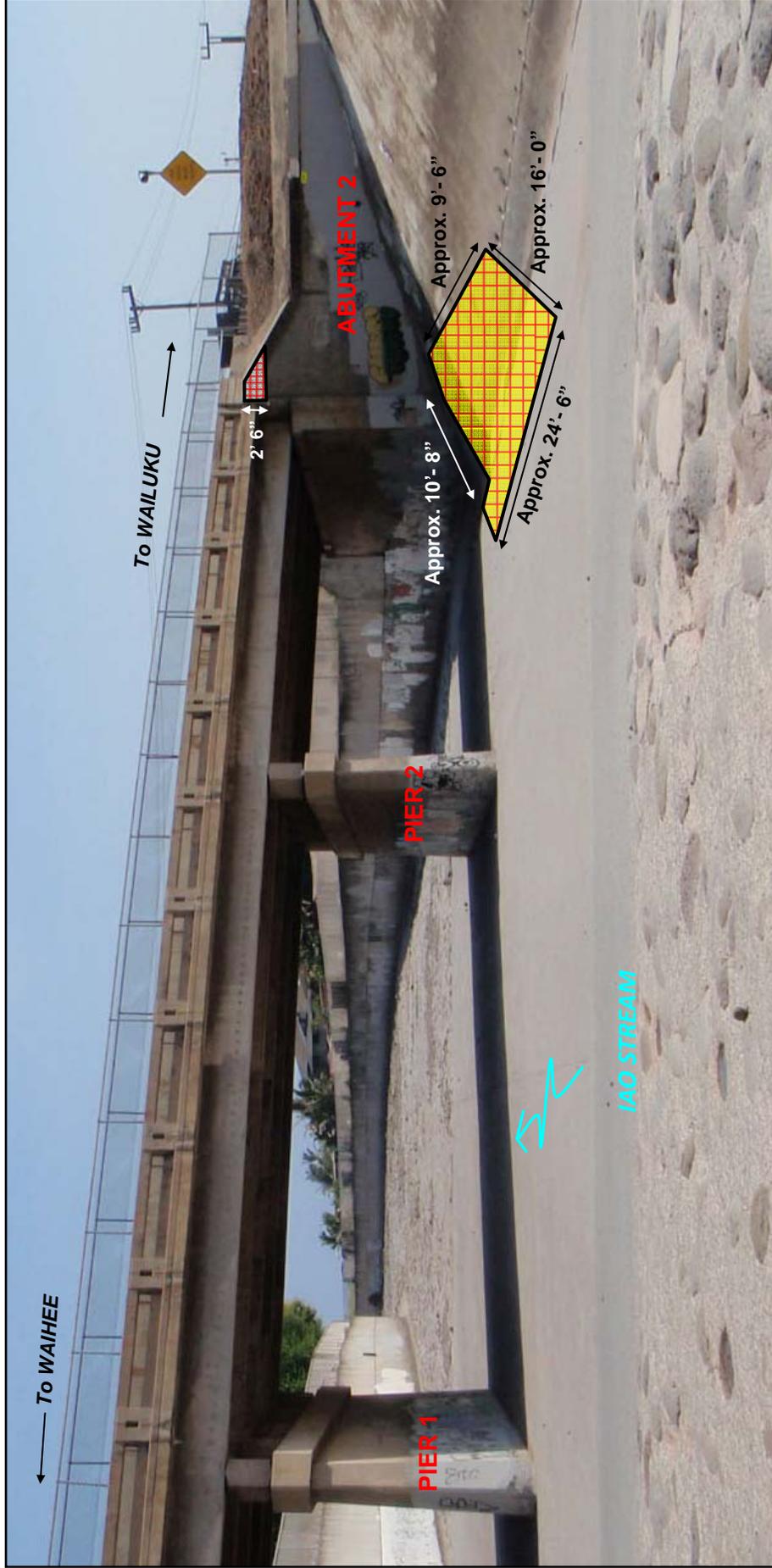
**LEGEND**

-  Approximate Area of Abutment to be Modified (As shown in Draft EA).
-  Additional Area to be Modified.
-  Direction of Flow



**LEGEND**

-  Approximate Area of Abutment to be Modified (As shown in Draft EA).
-  Additional Area to be Modified.
-  Direction of Flow



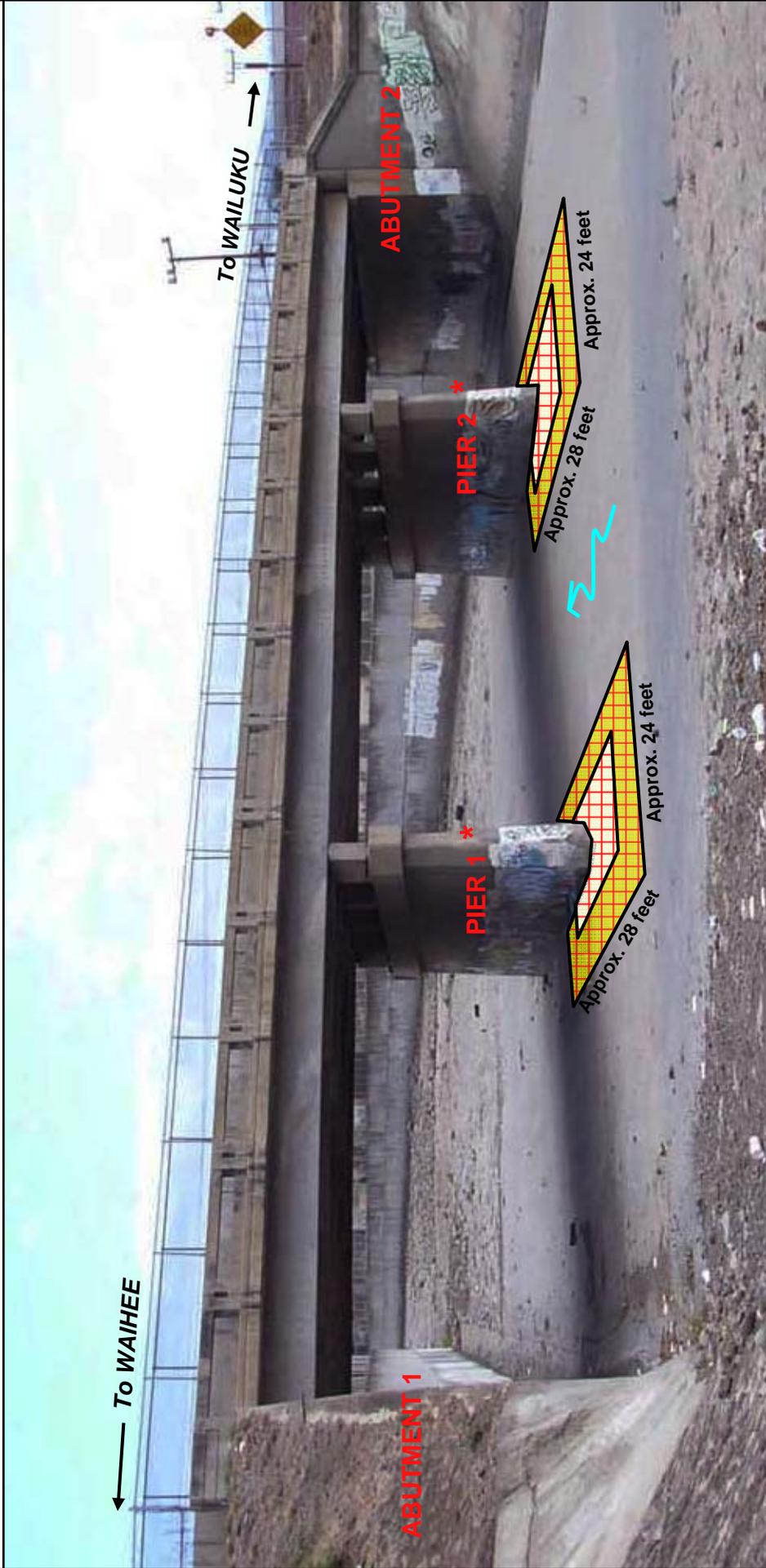
**LEGEND**

-  Approximate Area of Abutment to be Modified (As shown in Draft EA).
-  Additional Area to be Modified.
-  Direction of Flow



**LEGEND**

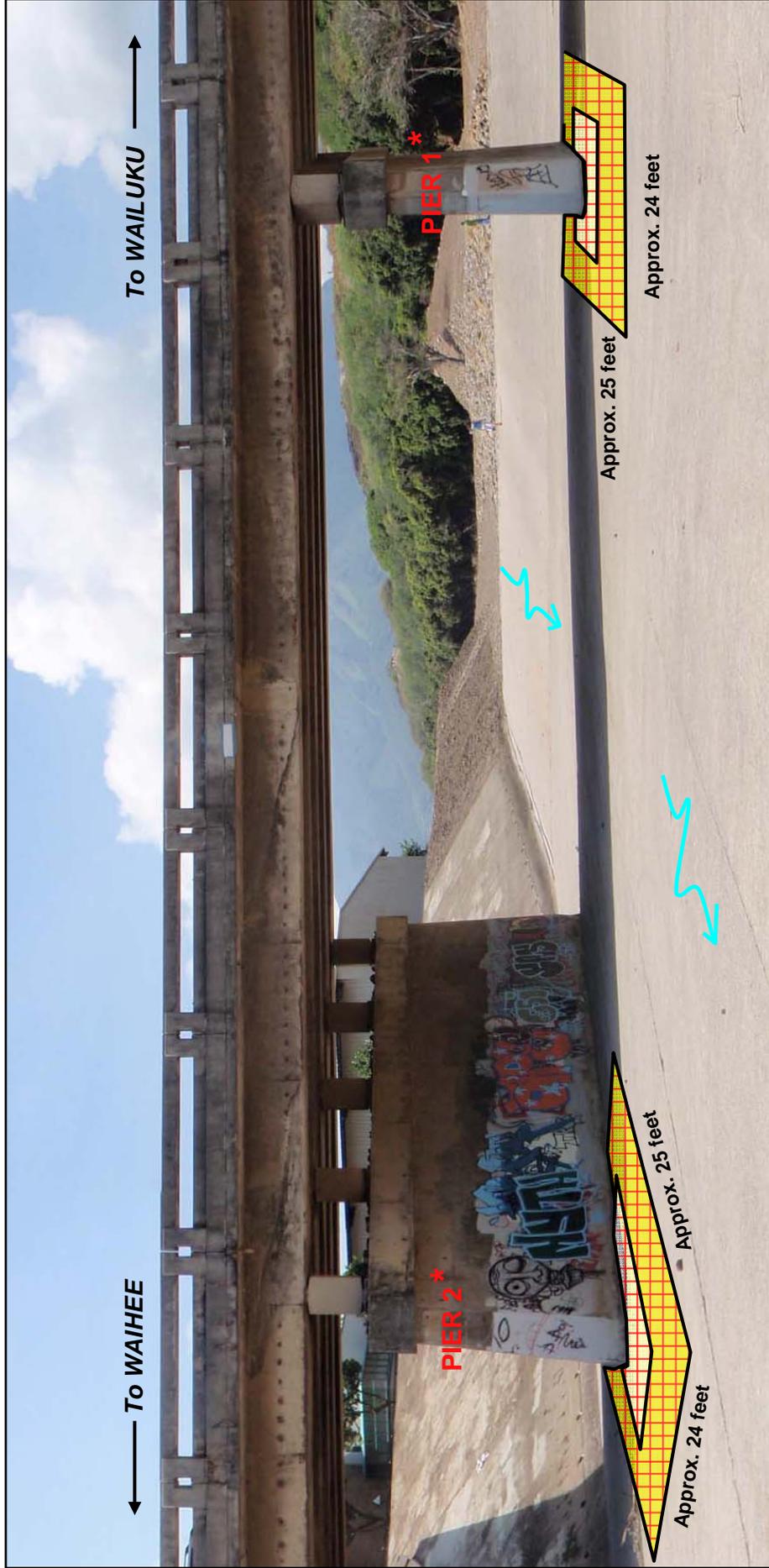
-  Approximate Area of Abutment to be Modified (As shown in Draft EA).
-  Additional Area to be Modified.
-  Direction of Flow



**LEGEND**

-  Approximate Area of Abutment to be Modified (As shown in Draft EA).
-  Additional Area to be Modified.
-  Direction of Flow

**\* Piers to be extended by approximately 11 feet.**



**LEGEND**

-  Approximate Area of Abutment to be Modified (As shown in Draft EA).
-  Additional Area to be Modified.
-  Direction of Flow

\* Piers to be extended by approximately 11 feet.

**FIGURE 1-18**  
**PROPOSED EXTENT OF IMPROVEMENTS TO PIERS 1 AND 2 – MAKAI ELEVATION**

## **2. DESCRIPTION OF THE EXISTING ENVIRONMENT, PROJECT IMPACTS AND MITIGATION MEASURES**

### **2.1 Climate**

The proposed project is situated within the Wailuku District, which is located in Central Maui where the weather is typically sunny and dry. The area is characterized by abundant sunshine, persistent tradewinds, relatively uniform temperatures, moderate humidity, and infrequent storms throughout the year.

The Wailuku area experiences a typical semi-tropical climate, with average monthly temperatures ranging from 67.7 to 81.7 degrees Fahrenheit. Average monthly precipitation is 2.57 inches. The prevailing winds are the northeasterly tradewinds which generally vary from between 13 to 24 miles per hour.

### **2.2 Geology and Topography**

The island of Maui was formed by two large dormant shield volcanoes, East Maui (Haleakala) and West Maui. The broad, gently sloping plain connecting the two volcanoes, the Maui isthmus, was formed when lavas of Haleakala banked against the already existing West Maui volcano.

The volcanic rocks of the older West Maui Volcano have been divided into three series. The Wailuku Volcanic Series is the oldest, and is comprised of basaltic lava flows and associated pyroclastic and intrusive rock that built the major shield volcano. The lavas of the Wailuku Volcanic Series generally consist of thinly bedded aa and pahoehoe lava flows of tholeiite, olivine tholeiite, and oceanite. Overlying this unit are lavas of the Honolua Volcanic Series that are mostly aa flows of trachyte and benmoreite, and a little hawaiiite. The Honolua eruptions were followed by a long period of erosion until interrupted by a brief interval of renewed volcanism which produced the Lahaina Volcanic Series. These lavas generally consist of olivine-rich basalt and nepheline basanite.

Stream erosion of the West Maui Volcano produced broad alluvial fans that fringe the eastern and southwestern sides of the mountain. Those along the eastern side are partly due to loss of water from the streams to the permeable lavas of Haleakala that have built the Maui isthmus. Lithified calcareous sand dunes rest on the alluvial fans near the shore between Kahului and Waihee, and extend inland almost across the western edge of the Maui isthmus. The dunes were formed by wind blowing sand inland from wide beached exposed during a stand of the sea lower than the present sea level. The project site is located within the northern portion of the Maui isthmus and east of the West Maui Volcano.

Elevations of the existing roadway grade range from 31 to 47 feet above Mean Sea Level (MSL).

#### **Impacts and Mitigation Measures**

In the short- and long-term, no significant impacts on geology or overall topography are anticipated during construction and operation of the proposed project. Construction of the proposed project will require cut and fill activities in approach roads for grading and excavations for the new bridge foundation. None of the cuts will

involve further excavation into the dune system on the Waiehu side of the bridge. Grading within the project site will slightly alter the existing topography, however, graded and excavated areas will be backfilled and paved over when the construction is completed.

### 2.3 Soils

According to the U.S Department of Agriculture, Natural Resources Conservation Service, there are two soil classifications underlying the project site, the Jaucas series and Puuone series (see Figure 2-1). The following soil types are found in the project site:

- Jaucas sand (JaC), 0 to 15% slopes, consists of very deep, excessively drained, very rapidly permeable soils existing where the typical climate is tropical semiarid. They are formed by sand-sized fragments of coral and sea shells located on coastal beaches above high tide. Typical profile of this series consists of sand in 0 to 60 inch depth. Competing soil series is Puuone series, which have a cemented sand layer.
- Puuone sand (PZUE), 7 to 30% slopes, consists of excessively drained soils that are formed from coral seashells. Typical profile of this soil series consists of sand in 0 to 20 inch depth, and cemented sand material in 20 to 40 inch depth. The competing soil series is Jaucas soils, which are uniform sand without cementation.

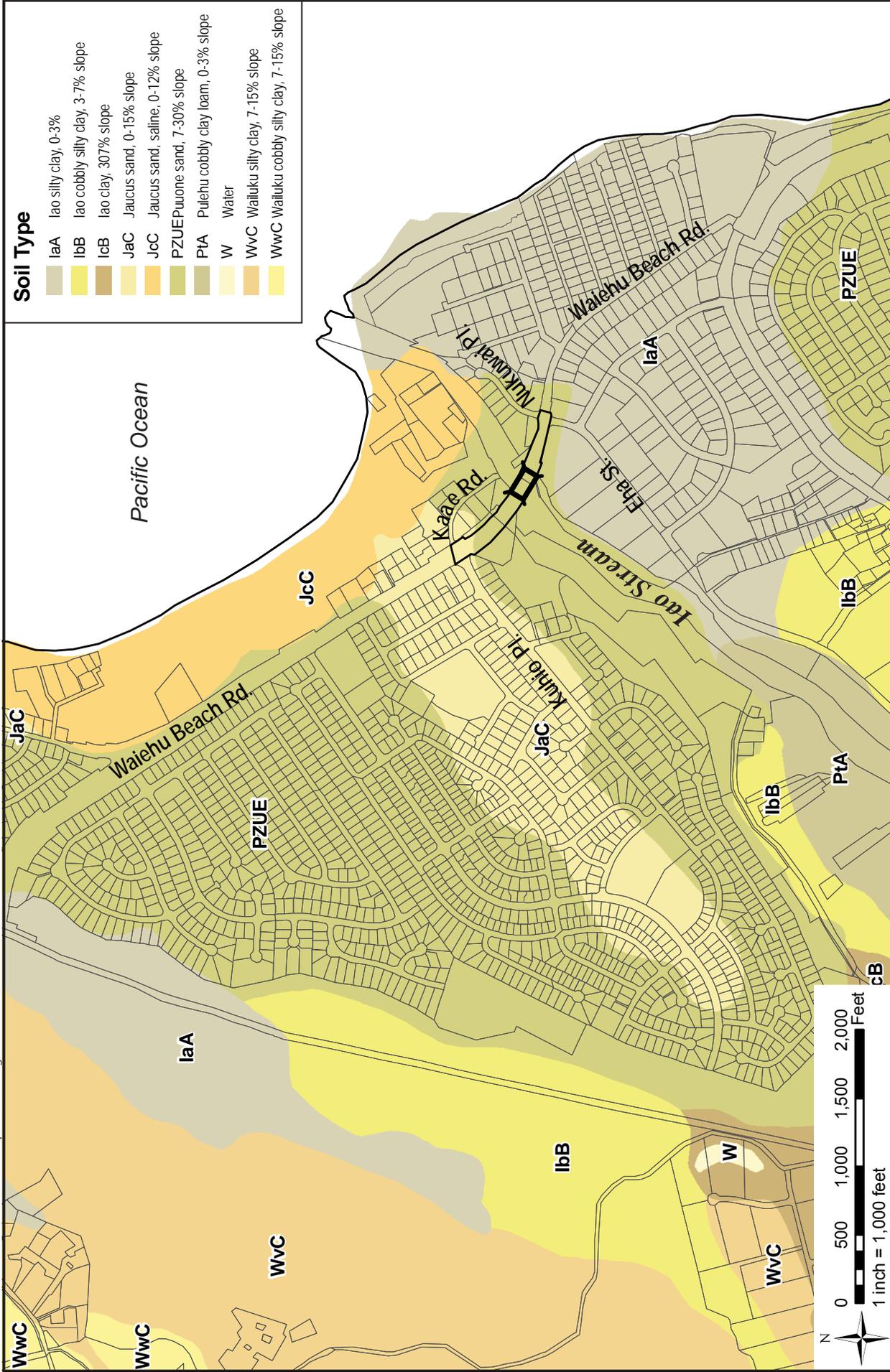
The State of Hawaii Department of Agriculture classification system “Agricultural Lands of Importance to the State of Hawaii” (ALISH) classifies lands into four agricultural types, Prime Lands, Unique Lands, Other Lands, and Unclassified. According to the ALISH, the project site is Unclassified, which commonly indicates that the lands are not suitable for intensive agriculture (see Figure 2-2).

*The Detailed Land Classification – Island of Maui*, published by the University of Hawaii Land Study Bureau (LSB), evaluates the quality or productive capacity of certain lands on the island using a five-class productivity rating system, with “A” representing the class of the highest productivity and “E” the lowest. Under this system, the entire proposed project site and adjacent lands are assigned “Not Classified.”

#### **Impacts and Mitigation Measures**

In the short- and long-term, no significant impacts on soils are anticipated within the project site and adjacent areas. The project site is currently used as a State Highway (Route 340). The surrounding lands are mainly used for residential, industrial, commercial, and parks/preserves, and do not include agricultural use. Construction and operation of the proposed project will not affect soils and agricultural production in the project vicinity.

Excavation and grading activities associated with construction of the proposed project will be regulated by the County’s grading ordinances and the National Pollutant Discharge Elimination System (NPDES) permit requirement administered by the State Department of Health (DOH).



**Soil Type**

- IaA Iao silty clay, 0-3%
- IbB Iao cobbly silty clay, 3-7% slope
- IcB Iao clay, 307% slope
- JaC Jaucus sand, 0-15% slope
- JcC Jaucus sand, saline, 0-12% slope
- PZUE Puuone sand, 7-30% slope
- PtA Pulehu cobbly clay loam, 0-3% slope
- W Water
- WwC Waialuku silty clay, 7-15% slope
- WwC Waialuku cobbly silty clay, 7-15% slope



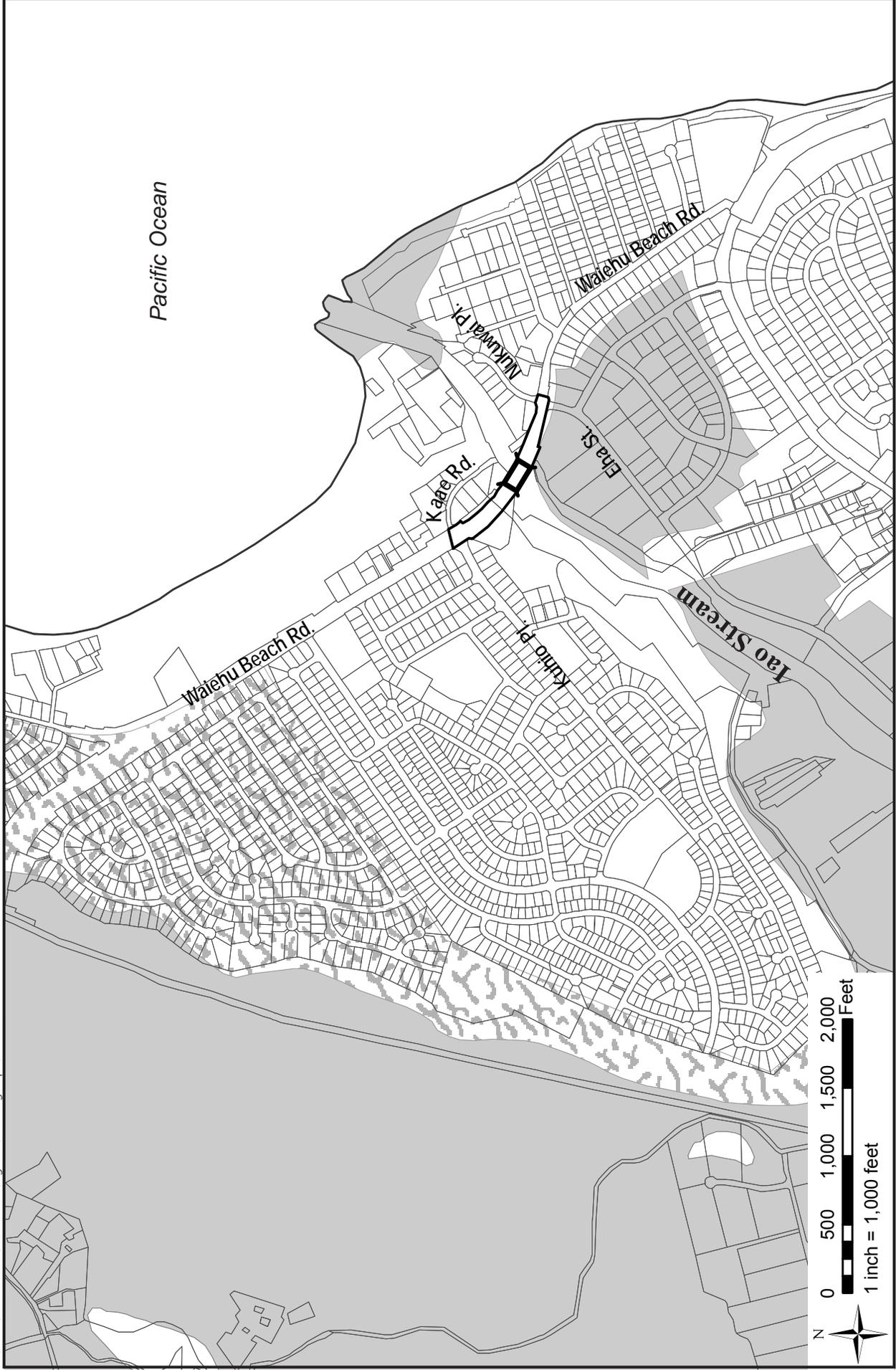
**FIGURE 2-1  
SOILS MAP**

WAIEHU BEACH ROAD  
REHABILITATION OF IAO STREAM BRIDGE  
State Department of Transportation, Highways Division

**LEGEND**

- Project Site
- Iao Stream Bridge

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**FIGURE 2-2**  
**AGRICULTURAL LANDS OF IMPORTANCE IN HAWAII (ALISH)**

**LEGEND**

- Project Site
- Prime Lands
- Other lands
- Not Classified/No Data
- Iao Stream Bridge

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WAIEHU BEACH ROAD  
 REHABILITATION OF IAO STREAM BRIDGE  
 State Department of Transportation, Highways Division

A NPDES General Permit for Storm Water Associated with Construction will be required for construction of the proposed project as the area of soil disturbance from activities such as clearing and grubbing, grading and stockpiling will exceed one acre. In conjunction with the NPDES permit, a Best Management Practices (BMP) plan will be prepared for construction activities within the project site. Erosion and sediment control mitigative measures that are typically included in the BMP plan are appropriately stockpiling materials on-site to prevent runoff, covering or stabilizing topsoil stockpiles, use of sediment basins and sediment traps, and establishing re-vegetation or landscaping as early as possible on completed areas. Following construction, exposed soils at the project site will have been built over, paved over, or re-vegetated to control erosion.

A Department of the Army (DA) Nationwide Permit (NP) will be required pursuant to Section 404 of the Clean Water Act (CWA). The NP will be obtained from the Corps of Engineers for any fill material that will be discharged below the Ordinary High Water Mark (OHWM) within Iao Stream, which has been determined by the DA to be jurisdictional. The DA permit also triggers the need for Water Quality Certification (WQC), pursuant to Section 401 of the CWA for “any activity including, but not limited to, the construction or operation of facilities, which may result in any “discharge” into navigable waters”. The WQC is administered by the DOH and is in place to regulate water quality during the construction phase of the project to in compliance with State Water Quality Standards.

## **2.4 Hydrology**

The State Department of Land and Natural Resources (DLNR), Commission on Water Resource Management (CWRM) has established surface water hydrologic units and coding system for surface water resource management. The proposed project is located within the Iao surface water hydrologic unit (6024).

The project site traverses the lower portion of Iao Stream, a perennial stream which is located on the windward side of the West Maui Mountains. Iao Stream originates in the upper portion of Iao Valley and flows east to Kahului Bay. The stream is part of the Na Wai Eha Surface Water Management Area which includes four streams in the Wailuku District: Waikapu Stream; Waiehu Stream; Waihee Stream; and, Iao Stream. Any withdrawal, diversion, impoundment, or consumptive use of surface water in the Na Wai Eha Surface Water Management Area will require a Surface Water Use Permit from the CWRM.

A Stream Biological and Water Quality Survey for the project site was conducted by AECOS Inc. in December 2009, to ascertain aquatic resources and assess water quality for the proposed project. The AECOS biologists surveyed a 1.5-mile segment of Iao Stream to identify any aquatic biota present and to measure water quality within the project area. The survey area extended from above the Imi Kala Street footbridge, downstream to the stream’s outlet at Nehe Point. The Biological and Water Quality Survey is included as Appendix A.

Based on the Water Quality Survey, it was determined that waters during a fresh water flow have depressed oxygen concentrations and elevated nitrate-nitrite concentration levels relative to State of Hawaii water quality criteria. Iao Stream is on the Hawaii DOH, 2006 list

of impaired waters in Hawaii, prepared under the Clean Water Act. This listing states that the stream does not meet the state water quality standards for certain parameters, specifically turbidity and trash, based solely on a visual assessment.

The State DLNR, CWRM has also established groundwater hydrologic units and coding system for groundwater resource management. The proposed project is located within the Iao groundwater hydrologic subunit (aquifer system code 60120) of Wailuku ground water hydrologic unit (aquifer system code 601) which has an estimated sustainable yield of 20 million gallons per day (mgd), while the entire island of Maui is estimated to have a sustainable yield of 427 mgd.

### **Impact and Mitigation Measures**

No long-term significant impacts to surface water or groundwater within the project site are anticipated as a result of the construction of the proposed project.

In the short-term, potential water quality impacts to surface and near shore coastal waters during construction of the project will be mitigated by adherence to State and County water quality regulations governing grading, excavation, and stockpiling. A National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Associated with Construction Activity, administered by the State Department of Health (DOH), will be required to control storm water discharges. Mitigation measures will be instituted in accordance with site-specific assessments, incorporating appropriate structural and/or non-structural Best Management Practices (BMPs) such as silt fences and minimizing time of exposure between construction and re-vegetation or paving. Following construction, exposed soils at the project site will have been built over, paved over, or re-vegetated to control erosion.

Construction activities are not anticipated introduce nor release from the soil any materials which could adversely affect groundwater. Construction material wastes will be appropriately disposed of and must also be prevented from leaching into receiving bodies of water. Dewatering activity is not anticipated for this project.

A Department of the Army (DA) Nationwide Permit (NP) will be required pursuant to Section 404 of the Clean Water Act (CWA). The NP will be obtained from the Corps of Engineers (COE) for any fill material that will be discharged below the Ordinary High Water Mark (OHWM) within Iao Stream, which has been determined by the DA to be jurisdictional. The DA permit also triggers the need for Water Quality Certification (WQC), pursuant to Section 401 of the CWA for "any activity including, but not limited to, the construction or operation of facilities, which may result in any "discharge" into navigable waters". The WQC is administered by the DOH and is in place to regulate water quality during the construction phase of the project to in compliance with State Water Quality Standards.

In addition, approval from the COE will be required pursuant to 33 United States Code (USC) Section 408 regarding any work activity resulting in significant modification or alteration of a COE project. Accordingly, a request for approval has been submitted to the COE Civil and Public Works Branch.

Iao Stream is also subject to Section 10 of the Rivers and Harbors Act of 1899 regarding activities conducted over, within and beneath navigable waters of the US. However, the project site is located approximately 0.3 miles inland of the mouth of Iao Stream at an elevation of approximately 19 feet above sea level. As such, the portion of Iao Stream where the project is located is not generally navigable or tidally influenced and is not anticipated to require a permit pursuant to Section 10.

## **2.5 Flood Hazard**

According to the Flood Insurance Rate Map (FIRM), Map number 15000300383E and 15000300384E, dated Sept 25, 2009, the project site straddles two flood zones (see Figure 2-3). The Waiehu approach to Iao Stream Bridge lies within "Zone X, other areas" and is characterized as "areas determined to be outside the 0.2% annual chance floodplain." The Wailuku approach lies within "Zone X, other flood areas" and is characterized as "areas of 0.2% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile, and areas protected by levees from 1% annual chance flood." Iao Stream Bridge lies over "Zone AE" which is characterized as a "special flood hazard area subject to inundation by the 1% annual chance flood." Zone AE is also a "floodway," which is "the channel of the stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood height." The 1% annual flood is also commonly referred to as the 100-year flood or the base flood. The base flood elevation for the Iao Stream Bridge area have been determined to be between approximately 25 to 29 feet while the bottom of the bridge is at elevation 39 feet, well above the base flood.

The entire project site, makai side of the Waiehu Beach Road, is within the Tsunami Evacuation Zone, as determined by County and State Civil Defense agencies (see Figure 2-4). The Tsunami Evacuation Zone map shows estimated inundation limits for all coastal areas in Hawaii using available historical data. The evacuation zone is an advisory designation meant to foster tsunami preparedness. It does not impose any construction restrictions on proposed development.

### **Impacts and Mitigation Measures**

In the short- and long-term, no significant impacts on flood hazards in the project area are anticipated.

Construction activities within the respective flood hazard districts will be conducted in accordance with regulations set forth in Section 19.62.060, Maui County Code. Before construction of any development begins within any flood hazard area, flood-related erosion hazard area, or mudslide area, a special flood hazard area development permit shall be obtained from the director of the Department of Planning.

**LEGEND**

**SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD**

The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

- ZONE A**  
No Base Flood Elevations determined.
- ZONE AE**  
Base Flood Elevations determined.
- ZONE AH**  
Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- ZONE AO**  
Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- ZONE AR**  
Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- ZONE A99**  
Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- ZONE V**  
Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- ZONE VE**  
Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

**FLOODWAY AREAS IN ZONE AE**

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of obstructions so that the 1% annual chance flood can be carried without substantial increases in flood heights.

**OTHER FLOOD AREAS**

Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

**OTHER AREAS**

Areas determined to be outside the 0.2% annual chance floodplain.

Areas in which flood hazards are undetermined, but possible.

**COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS**

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% annual chance floodplain boundary

0.2% annual chance floodplain boundary

Floodway boundary

Zone D boundary

CBRS and OPA boundary

Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.

Base Flood Elevation line and value; elevation in feet\*

Base Flood Elevation value where uniform within zone; elevation in feet\*

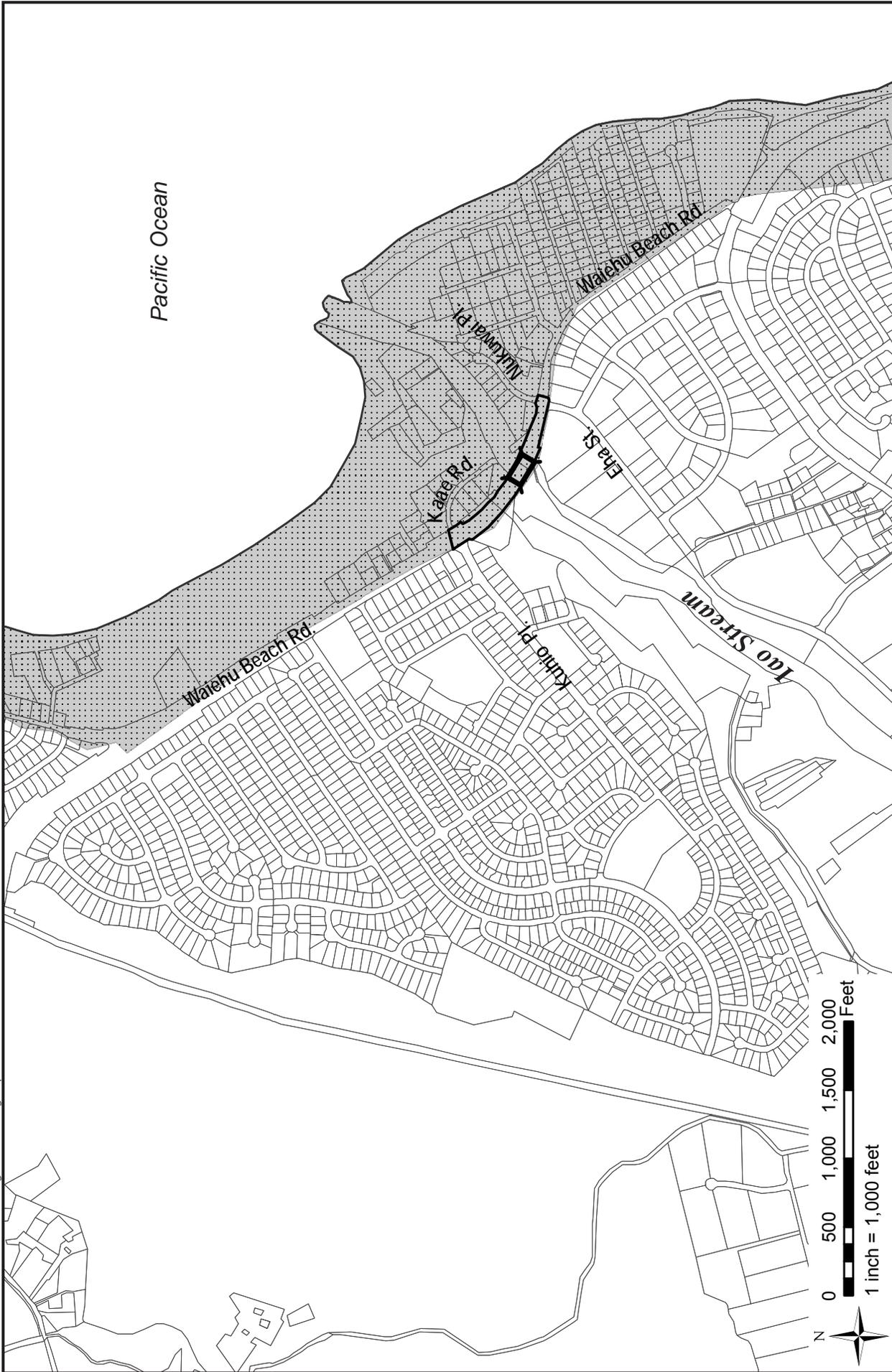
Project Site

Iao Bridge



Source: Flood Insurance Rate Map, Federal Emergency Management Agency  
Panel#: 15000300383E and 15000300384E, dated 9/25/2009





**FIGURE 2-4**  
**TSUNAMI EVACUATION ZONE**

WAIIEHU BEACH ROAD  
 REHABILITATION OF IAO STREAM BRIDGE  
 State Department of Transportation, Highways Division

**LEGEND**

-  Project Site
-  Tsunami Evacuation Zone
-  Iao Stream Bridge

  
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The project will comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), as the project is within a Special Flood Hazard Area. In addition, approval from the COE will be required pursuant to 33 USC Section 408 regarding any work activity resulting in significant modification or alteration of a COE project. Accordingly, a request for approval has been submitted to the COE Civil and Public Works Branch.

Studies will be conducted to ensure that any proposed encroachment in the floodway will not result in any increase in the regulatory flood elevations during an occurrence of the regulatory flood. The studies will identify a certified flood elevation and evaluate flooding impacts, including the potential impact of proposed structures on flood elevations.

## 2.6 Flora and Fauna Resources

A Stream Biological and Water Quality Survey for the project site was conducted by AECOS Inc. in December 2009, to ascertain aquatic resources and assess water quality for the proposed project (refer to Appendix A). The AECOS biologists surveyed a 1.5-mile segment of Iao Stream to identify any aquatic biota present and to measure water quality within the project area. The survey area extended from above the Imi Kala Street footbridge, downstream to the stream's outlet at Nehe Point. The biological findings are summarized below.

Flora: At the bridge project site, stream bank vegetation is sparse upstream and absent downstream of the project. This is due to the nature of the banks being concrete lined. Vegetation upstream includes Guinea grass (*Panicum maximum*), Bermuda grass (*Cynodon dactylon*), wire grass (*Eleusine indica*), fingergrass (*Chloris barbata*), graceful spurge (*Chamaesyce hypericifolia*), spiny amaranth (*Amaranthus spinosus*), batflower (*Tacca leontopetaloides*), and wedelia (*Sphagneticola trilobata*).

Fauna (Aquatic biota): Historical data indicates that populations of both native and introduced fishes and invertebrates inhabit Iao Stream well upstream of the project site. The presence of native, diadromous oopu (stream gobies) and opae (stream shrimp or prawns) in the upper reaches of the stream means that the stream segment through the project site provides passage up and down the stream during freshets (rainfall events causing water in the stream to flow) for these populations.

At the time of the survey, the marine toad (*Bufo marinus*) and a chlorophyte (alga) from the genus *Stigeoclonium* were the only organisms observed in the stream at the proposed project site at Waiehu Beach Road. A few fishes and invertebrates inhabit the estuarine reach of Iao Stream, downstream from the project site. Mullet (*Mugil cephalus*) and nehu (*Encrasicholina purpurea*) occur in small schools. Crayfish (*Procambarus clarkia*; molts or carcasses only) and dragonfly/damselfly naiads (Order Odonata) were observed. According to a letter dated March 10, 2011 from the State Department of Land and Natural Resources (DLNR) Division of Aquatic Resources, species found in Iao Stream include aholehole (*Kuhlia xenura*), introduced prawn (*Macrobrachium lar*), and guppies (*Poecilia reticulata*).

None of the fishes nor invertebrate species observed is listed as threatened or endangered by the U.S. Fish and Wildlife Service under the Endangered Species Act of 1973, as amended, or by the State of Hawaii under its endangered species program.

#### **Impacts and Mitigation Measures**

In the short-term, during the construction of the proposed project there will be times when construction will take place within the stream bed. During such construction, the project will ensure passage of diadromous fauna through the project site at all times. A Best Management Practices (BMP) plan will be designed and implemented to minimize environmental impacts to water quality and aquatic biota in the vicinity of or downstream of the project site.

In the long-term, no significant impacts from the proposed project are anticipated after the proposed project has been completed.

### **2.7 Air Quality**

Vehicular-related emissions are generated from traffic traveling along roadways in the project vicinity. The State Department of Health Clean Air Branch does not maintain any air quality monitoring stations in Wailuku area. Although there is very little information available, air quality in the project site is generally considered to be good due to the presence of [] abundant tradewinds throughout most of the year.

#### **Impacts and Mitigation Measures**

In the short-term, during construction of the proposed project, two potential types of air pollution emissions will likely occur, resulting in air quality impacts: 1) airborne dust from construction activities such as grading and excavation within the project site; and 2) exhaust emissions from construction vehicles and equipment from the project site.

Potential air quality impacts during construction of the proposed development will be mitigated by complying with the State DOH Administrative Rules, Title 11, Chapter 60 "Air Pollution Control". The construction contractor is responsible for complying with the State DOH regulations which prohibit visible dust emissions at property boundaries. Compliance with State regulations will require adequate measures to control airborne dust by methods such as water spraying and sprinkling of loose or exposed soil or ground surface areas and dust-generating equipment during construction. As may be deemed appropriate, planting of landscaping as soon as possible on completed areas will also help to control dust. Increased vehicular emissions due to disruption of traffic by construction equipment and/or commuting construction workers can be alleviated by moving the equipment and personnel to the site during off-peak hours. Exhaust emissions from construction vehicles are anticipated to have negligible impact on air quality in the project vicinity as the emissions would be relatively small and readily dissipated.

In the long-term, operation of the project will have no significant long-term impact on ambient air quality in the project vicinity. Air quality levels would be most affected by vehicular emissions generated by project-related traffic, however, the elevated vehicular emission concentrations are anticipated to dissipate.

## **2.8 Noise**

Ambient noise in the project area is predominantly attributed to vehicular traffic traveling along the adjacent roadways. Also contributing to the acoustic environment are noises from the parking lot of the adjacent Wailuku Industrial Park, low pitch sounds of waves along the coast, wind, and birds. During regular maintenance of the Iao Stream Flood Control Channel, noises also associated with heavy vehicles in and near the channel would be generated.

### **Impacts and Mitigation Measures**

In the short term, noise from construction activities such as excavation, grading, cutting and paving will be unavoidable. The increase in noise level will vary according to the particular phase of construction. Noise may also increase as a result of operating heavy construction vehicles and other power equipments during the construction period.

Construction noise impacts will be mitigated by compliance with provisions of the State DOH Administrative Rules, Title 11, Chapter 46, "Community Noise Control" noise control regulations. These rules require a noise variance for any night work. Night work is anticipated for the project and, as such, a noise variance will be obtained. Further, DOH rules require a noise permit if the noise levels from construction activities are expected to exceed the allowable levels stated in the DOH Administrative Rules. It shall be the contractor's responsibility to minimize noise by properly maintaining noise mufflers and other noise-attenuating equipment, and to maintain noise levels within regulatory limits. Also, the guidelines for hours of heavy equipment operation and noise curfew times as set forth by the DOH noise control rules will be adhered to; or if necessary, a noise permit will be obtained.

In the long-term, no significant noise impact from is anticipated once the proposed project has been completed. Noise from vehicles will continue to be the primary noise source along the project site, however, no adverse noise effects from the project are anticipated since the project will not generate additional traffic in the vicinity.

## **2.9 Archaeological Resources**

An Archaeological Literature Review and Field Inspection Report of the project site was prepared by Cultural Surveys Hawaii, Inc. in March 2010 and revised in September 2011 to evaluate the presence of significant historic properties within the project site. The archaeological literature review included studies of archival sources, historic maps, Land Commission Awards, and previous archaeological reports to construct a history of land use and to determine if archaeological resources have been recorded on or near the property. A field inspection of the project area was also conducted to identify any surface archaeological resources and to investigate and assess the potential for impact to such sites. The inspection also sought to identify any sensitive areas that may require further investigation or mitigation before the project proceeds. The Archaeological Literature Survey and Field Inspection Report is included as Appendix B and is summarized below.

The project area includes a portion of the Iao Stream, one of the streams and valleys of Na Wai Eha. Iao Stream and valley provided choice agricultural lands for pre-contact Hawaiians living in the area. Two known historic sites were identified in proximity to the

project area, although both sites are located well beyond the area of potential impact (APE). In addition, the Iao Stream Bridge itself was constructed in 1954, which makes it eligible to be recorded as a historic property.

The first known historic site is the Halekii-Pihana State Monument, identified as State Inventory of Historic Places (SIHP) No. 50-50-04-0592. It is located approximately 274 meters or 900 feet southwest of the project area and consists of two ancient heiau; the Halekii heiau and the Pihana heiau. The heiau are located atop a lithified sand dune west of the Iao Stream approximately 20 meters above the natural streambed. In 1959 these heiau and 10.2 acres of land upon which they are situated became state property and the State Monument was established. The monument area was a political center during and possibly before the 18<sup>th</sup> century.

The second known historic site is the Maui Jinsha Mission Temple identified as SIHP No. 50-50-04-1606, and is located in Paukukalo approximately 600 ft from the project site. Built in 1915, on lands in Kahului that were leased from Hawaiian Commercial & Sugar Company, construction of the small shrine section followed by the larger ceremonial hall was completed by master carpenter Ichitaro Takata from Japan. In 1953, due to its alien property status, the temple was moved to its current location in Wailuku which the church owned in fee simple.

Previous archaeological studies indicate that *taro loi* likely existed on the banks of the stream, but any archaeological remains have been destroyed due to the substantial alteration of the natural landscape and soils during the construction of the Iao Bridge in 1954 and the channelization of the stream for the flood control project of the 1970's. Pre-contact human burials have also been documented in the sand dune system that the project site crosses.

Results from the field inspection confirm sandy soils dominate the project site. Although the majority of the project area has undergone extensive ground alterations, there is a location at the northeastern end of the project site where a guardrail will be installed in these sandy soils. In addition, excavation will take place at both *mauka* and *makai* sides of existing bridge abutments for bridge widening.

### **Impacts and Mitigation Measures**

Pursuant to Section 106 of the Historic Preservation Act of 1966, As Amended, Native Hawaiian Organizations (NHO), including descendants with lineal or cultural ties to the ahupuaa of Wailuku or Waiehu were contacted to assess any cultural knowledge or concerns for, and cultural or religious attachment to the historic resources of the ahupua'a. NHOs included lineal and cultural descendants, SHPD, Office of Hawaiian Affairs, and Department of Hawaiian Home Lands.

NHO's were invited to attend the public information meeting that was conducted on March 23, 2011. Initially, concerns were expressed regarding the project's proximity to the Halekii-Pihana Heiau (SIHP No. 50-50-04-0592), as well as the potential for impact resulting from ground disturbance in the flood control project. However, these concerns were addressed following clarification that the project is distant from the heiau and is not anticipated to impact this cultural resource. Further, the anticipated

ground disturbance within the flood control project would be limited to the areas immediately surrounding the proposed abutment and pier extensions, and would be monitored by a qualified archaeologist in accordance with an archaeological monitoring plan that would be reviewed and approved by the SHPD prior to ground disturbance.

Due to previous archaeological findings of pre-contact habitation features and cultural deposits, as well as human burials in the vicinity of the project site, archaeological monitoring is recommended during ground disturbing activities for the bridge widening and sidewalk improvements project. Archaeological monitoring is also recommended for ground disturbing activities associated with the installation of the new guardrails and also for ground disturbing activities associated with the widening of the bridge piers. On-call archaeological monitoring is recommended for excavations that take place within the streambed itself as a part of the bridge pier monitoring. An archaeological monitoring plan will be submitted to SHPD for review and approval prior to ground disturbance.

Consultation with SHPD confirmed that the project site is located near the two historic sites listed on the National and State Registers of Historic Places, including Halekii-Pihana Heiau (SIHP No. 50-50-04-0592) and the Maui Jinsha Temple (SIHP No. 50-04-1606). SHPD determined, however, that the project is distant enough from these two sites that the project will have no adverse effect on them. The OHA, by letter dated March 22, 2011 concurred with the finding of no significant impact anticipated in the Draft EA. In addition, the DHHL by letter dated March 28, 2011 expressed their support for the project.

Also, since the Iao Bridge was built in 1954 and is now 57 years old, it is eligible to be recorded on the State Inventory of Historic Properties. It may also be eligible for nomination and listing on the Hawaii National Register of Historic Places. In a letter dated April 20, 2011, SHPD expressed concerns regarding maintaining the bridge's existing historical character. Further consultation between SHPD's Architecture Branch and DOT resulted in a modification of the balustrade design that was acceptable to both SHPD and DOT. The modified design is described in Section 1.3 of the Final EA and was determined by SHPD to have no adverse effect on the historic property.

## **2.10 Population**

The project site is located within the Wailuku Census Designated Place (CDP). Demographic and other information was reviewed from the U.S. Census 2000 for the Wailuku CDP, and the combined socio-economic data from the region is shown on Table 2-1.

Based upon the data shown on the table, Wailuku CDP has a slightly higher older population than the County. The median age of the population for Wailuku CDP was 38.5 versus 36.8 for the County.

<b>Table 2-1 Demographic Characteristics Comparison of Wailuku CDP with the County of Maui</b>				
<b>Subject</b>	<b>Wailuku CDP</b>		<b>Maui</b>	
	<b>Number</b>	<b>Percent</b>	<b>Number</b>	<b>Percent</b>
<b>Total Population</b>	<b>12,296</b>	<b>100</b>	<b>128,094</b>	<b>100</b>
<b>AGE</b>				
Under 5 Years	790	6.4	8,579	6.7
5 – 19 Years	2,378	19.3	27,073	21.1
20 – 64 Years	7,276	59.2	77,813	60.8
65 Years and over	1,852	15.1	14,629	11.4
Median age (years)	38.5	(X)	36.8	(X)
<b>RACE</b>				
White	2,233	18.2	43,421	33.9
Black or African American	29	0.2	509	0.4
American Indian and Alaska Native	44	0.4	479	0.4
Asian	5,174	42.1	39,728	31.0
Native Hawaiian and other Pacific Islander	1,439	11.7	13,730	10.7
Two or more races	3,232	26.3	28,484	22.2
Other	145	1.2	1,743	1.4
<b>HOUSEHOLD (BY TYPE)</b>				
<b>Total Households</b>	<b>4,535</b>	<b>100</b>	<b>43,507</b>	<b>100</b>
Family Households (families)	3,016	66.5	29,899	68.7
Married-couple family	2,193	48.4	22,154	50.9
With own children under 18 year	947	20.9	10,171	23.4
Female householder, no husband present	578	12.7	5,200	12.0
With own children under 18 years	268	5.9	2,864	6.6
Nonfamily households	1,519	33.5	13,608	31.3
Average household size	2.71	(X)	2.91	(X)
<b>HOUSING OCCUPANCY AND TENURE</b>				
<b>Total Housing Units</b>	<b>4,780</b>	<b>100</b>	<b>56,377</b>	<b>100</b>
Occupied units	4,535	94.9	43,507	77.2
By owner	2,675	59.0	25,039	57.6
By renter	1,860	41.0	18,468	42.2
Vacant units	245	5.1	12,870	22.8
<b>SOCIAL CHARACTERISTICS</b>				
<b>Population 25 years and over</b>	<b>8,538</b>	<b>100</b>	<b>85,752</b>	<b>100</b>
High school graduate or higher	7,011	82.1	71,510	83.4
Bachelor's degree or higher	1,845	21.6	19,234	22.4
<b>ECONOMIC CHARACTERISTICS</b>				
<b>Population 16 years and over</b>	<b>9,712</b>	<b>100</b>	<b>99,326</b>	<b>100</b>
In labor force	6,004	61.8	66,307	66.8
Median household income (dollars)	45,587	(X)	49,489	(X)
Median family income (dollars)	51,441	(X)	55,277	(X)
Per capita income (dollars)	20,503	(X)	22,033	(X)
<i>Source: Department of Business, Economic Development &amp; Tourism, U.S. Census 2000 Profiles</i>				

By racial mix, the Wailuku CDP has much lower percentage of Whites (18.2%) than the County (33.9%). Wailuku CDP has more Asians (42.1%) and those with two or more races (26.3%) than the County (31.0% and 22.2% respectively). These three races make up the majority of the population. Native Hawaiian and other Pacific islanders comprise a slightly higher proportion than the County as a whole, with 11.7% and 10.7%, respectively.

#### **Impacts and Mitigation Measures**

In the short- and long-term, no significant impacts on population in the project vicinity are anticipated. The proposed improvements will widen the roadway approaches and lao Stream Bridge, which carries Waiehu Beach Road over lao Stream, and will also rehabilitate the bridge to meet current seismic standards. The widening will accommodate multi-use shoulders of consistent width on both sides of the road for bicycles, pedestrians and emergency vehicle pullout. An additional sidewalk on the mauka side will be separated by a guardrail from vehicular traffic. The primary purpose of the improvements is to enhance safety of motorists, bicyclists and pedestrians along this section of roadway. No additional vehicular lanes are proposed that could increase roadway capacity or traffic flow. Therefore, the proposed project is not anticipated to induce population growth.

### **2.11 Socio-Economic Characteristics**

According to the 2000 Census, median household income and median family income for Wailuku CDP (\$45,587 and \$51,441 respectively) are slightly lower than for the County (\$49,489 and \$55,277 respectively). For the educational attainment, High school graduate or higher was 82.1% while bachelor's degree or higher was 21.6% for Wailuku CDP. The County data is generally comparable to the Wailuku CDP data.

Wailuku CDP has a much higher housing occupancy rate, 94.9%, than the County, 77.2%. Housing units in this region are largely occupied by renters at 41.0%. The County data is comparable to the Wailuku CDP data in that a large proportion of housing units are occupied with renters.

#### **Impacts and Mitigation Measures**

In the short term, construction expenditures will provide positive benefits to the local economy. This would include creation of some construction and construction support jobs, and the purchase of material from local suppliers.

In the long term, the proposed improvements will widen the roadway approaches and lao Stream Bridge, which carries Waiehu Beach Road over lao Stream, and will also rehabilitate the bridge to meet current seismic standards. The widening will accommodate multi-use shoulders of consistent width on both sides of the road for bicycles, pedestrians and emergency vehicle pullout. An additional sidewalk on the mauka side will be separated by a guardrail from vehicular traffic. The primary purpose of the improvements is to enhance safety of motorists, bicyclists and pedestrians along this section of roadway. This will benefit residents in the vicinity, particularly bicyclists and pedestrians crossing lao Stream Bridge between residential and commercial areas.

## **2.12 Police, Fire, and Ambulance Services**

The project site is located within the Patrol District I – Wailuku of the County of Maui Police Department. The District I - Wailuku Police Station is sited approximately 1.34 miles to the south of the project site along Mahalani Street, located near its intersection with West Kaahumanu Avenue.

Wailuku Fire Station is the closest fire station serving in the project vicinity. It is located at the intersection with Main Street and Kinipopo Street. It is approximately 1.45 miles southwest of the project site. Kahului Fire Station is the second closest fire station and is located along Dairy Road at its intersection with Hukilike Street, approximately 2.67 miles southeast of the project site.

Emergency medical service is provided by American Medical Response, a private ambulance service contracted by the County of Maui. The closest ambulance service is located along Hana Highway near the intersection with Haleakala Highway.

### **Impacts and Mitigation Measures**

In the short term, the proposed project may have adverse impacts such as temporary disturbance of traffic, which could adversely affect emergency vehicles access through the project site. During the construction period when only one vehicular lane is available, flagmen or off duty police officers will be present to direct traffic and emergency vehicles.

In the long term, the proposed project will provide positive effects by improving the shared roadway by providing consistent multi-use shoulders where vehicles can pull out to let emergency vehicles pass. By improving traffic safety, the proposed improvements will likely improve emergency access for police, fire, and ambulance through the project site.

## **2.13 Medical Facilities**

The closest hospital to the project site is the Maui Memorial Medical Center (MMMC) located along the Maui Lani Parkway, approximately 1.5 miles south of the project site. MMMC is the largest general hospital in the County of Maui employs more than 1,000 employees, has 200 attending physicians, and holds 231 total beds.

### **Impacts and Mitigation Measures**

In the short- and long-term, no significant impacts or increase demand on medical services is anticipated. The proposed improvements will widen the roadway approaches and Iao Stream Bridge, which carries Waiehu Beach Road over Iao Stream, and will also rehabilitate the bridge to meet current seismic standards. The primary purpose of the improvements is to enhance safety of motorists, bicyclists and pedestrians along this section of roadway. No additional vehicular lanes are proposed that could increase roadway capacity or traffic flow. Therefore, the proposed project is not anticipated to induce population growth and associated demand on medical facilities and services.

## **2.14 Schools**

The project site is within the State Department of Education's (DOE) Baldwin complex, which includes Waihee and Wailuku Elementary Schools and Iao Intermediate School, which feed into Baldwin High School. Maui Community College, associated with University of Hawaii community college system, is also located in the project vicinity.

Baldwin High School, which is the closest educational facility, is located over one mile away from the proposed project site.

### **Impacts and Mitigation Measures**

In the short term, the proposed project may have adverse impacts such as temporary disturbance of traffic which could adversely affect access through the project site, however, no significant impact on the educational facilities and its operations is anticipated.

In the long term, no significant impact or increased demand on schools within the project vicinity is anticipated. The proposed improvements will widen the roadway approaches and Iao Stream Bridge, which carries Waiehu Beach Road over Iao Stream, and will also rehabilitate the bridge to meet current seismic standards. The primary purpose of the improvements is to enhance safety of motorists, bicyclists and pedestrians along this section of roadway. No additional vehicular lanes are proposed that could increase roadway capacity or traffic flow. Therefore, the proposed project is not anticipated to induce population growth and associated demand on schools. Safer pedestrian and bicycle access over Iao Stream Bridge will benefit students who travel along this route.

## **2.15 Recreational Resources**

Halekii-Pihana State Heiau Monument is located southwest of the project site. The County also has several parks located in this Wailuku-Kahului region near the project site.

1. Halekii-Pihana State Heiau Monument: This is a 10.2 acre State Park located along lower portion of the Iao Stream. There are two heiaus (places of worship) remaining within the park. Interpretive signage is provided.
2. Paukukalo Park: This is a 4.7-acre park located at the corner of Kaunualii St. and Kawanakoa St. to the west of the Iao Stream Bridge. This park supports active recreational activities, and includes a softball field, open basketball courts, a multi-purpose field, and a playground area.
3. Papohaku Park: This is a 4.7-acre park located in Wailuku residential area along Waena St. This park has a comfort station, a softball field, and a basketball court.
4. Waiehu Terrace Park: This is a 4.8 acre park located at the corner of Makaala St. and Alihilani St. to the west from the Iao Stream Bridge. This park has basketball courts, a picnic area, comfort station, and a field for multi-use.
5. Maui Botanical Gardens: This is a 3.5-acre garden maintained by the County. There is an amphitheater, picnic areas, and a nursery maintenance building.
6. War Memorial Complex: War Memorial Stadium Complex, located along Kaahumanu Avenue, is the largest sports and recreation facility in the Maui Parks system. The complex occupies 51 acres which include a stadium, a multipurpose gymnasium, an open air pool, little league fields, baseball fields, tennis courts, an amphitheater, soccer fields, and a pavilion. County offices are also located within the complex.

7. Wells Community Complex This is a 6.6-acre park located in the mauka side within Wailuku District. There are baseball/softball fields, basketball/tennis courts, picnic areas, a swimming pool, and a comfort station.
8. Mokuhau Park This is a 2.4-acre park located within the residential area along Kahawai St. This grassed park has a baseball field, a multi-purpose field, and basketball courts.

#### **Impacts and Mitigation Measures**

In the short- and long-term, no significant impacts or increased demand on recreational resources in the project vicinity are anticipated. The proposed improvements will widen the roadway approaches and Iao Stream Bridge, which carries Waiehu Beach Road over Iao Stream, and will also rehabilitate the bridge to meet current seismic standards. The widening will accommodate multi-use shoulders of consistent width on both sides of the road for bicycles, pedestrians and emergency vehicle pullout. An additional sidewalk on the mauka side will be separated by a guardrail from vehicular traffic. The primary purpose of the improvements is to enhance safety of motorists, bicyclists and pedestrians along this section of roadway. No additional vehicular lanes are proposed that could increase roadway capacity or traffic flow. Therefore, the proposed project is not anticipated to induce population growth and associated demand for recreational facilities and parks.

### **2.16 Solid Waste**

The County of Maui, Environmental Management Solid Waste Division Refuse Collection Program collects residential solid waste in the vicinity. Solid waste from residential properties is disposed at three landfill locations: Central Maui Sanitary Landfill, Olowalu Residential Recycling & Refuse Convenience Center, and Hana Sanitary Landfill. Construction waste is disposed at Maui Construction & Demolition Landfill.

#### **Impacts and Mitigation Measures**

In the short- and long-term, no significant impacts to municipal solid waste collection and disposal systems are anticipated during the construction of the proposed improvements.

Construction of the project will generate solid waste typical of roadway construction related activities over the short-term. The contractor will be required to remove all debris from the site, and properly dispose it at the landfill in conformance with County regulations. Alternatively, the contractor could dispose of materials such as demolished concrete and excavated material by finding private parties desiring such materials for fill or other purposes.

### **2.17 Infrastructure and Utilities**

#### **2.17.1 Roadway System**

The major roadways which provide vehicular access traversing within and in the nearby vicinity of the proposed project area include:

1. Kaahumanu Avenue (Route 32) is a two-way, two-lane State road extending from the intersection with Hana Highway (Route 36) near Kahului Harbor to Wailuku providing access from East Maui through Central to West Maui.
2. Kahekili Highway (Route 340) is a two-way, two-lane State Highway extending from the intersection with Waiehu Beach Road to Camp Maluhia connecting with Honopiilani Highway (Route 30) in Keawalua.
3. Honoapiilani Highway (Route 30) is a two-way, two to four-lane State Highway extending from the intersection with Kaahumanu Avenue (Route 32) in Wailuku to Keawalua providing access from Central Maui to West Maui.
4. Hana Highway (Route 36) is a two-way, two-lane State Highway extending from the intersection with Kaupakalua Road in north of East Maui to the Kahului Harbor.

### **Impacts and Mitigation Measures**

In the short term, the proposed project may have adverse impacts such as temporary disruption of traffic by temporary closure of one lane of traffic and by the additional vehicles associated with the construction activities. During the construction period when only one vehicular lane is available, flagmen or off duty police officers will be present to direct traffic and emergency vehicles.

In the long term, the proposed project is not anticipated to generate additional vehicles in the project vicinity area. The proposed improvements will widen the roadway approaches and Iao Stream Bridge, which carries Waiehu Beach Road over Iao Stream, and will also rehabilitate the bridge to meet current seismic standards. The widening will accommodate multi-use shoulders of consistent width on both sides of the road for bicycles, pedestrians and emergency vehicle pullout. An additional sidewalk on the mauka side will be separated by a guardrail from vehicular traffic. The primary purpose of the improvements is to enhance safety of motorists, bicyclists and pedestrians along this section of roadway. No additional vehicular lanes are proposed that could increase roadway capacity or traffic flow. Therefore, the proposed project is not anticipated to induce population growth and associated increase in the number of vehicles in the project vicinity.

### **2.17.2 Water System**

Water service in the Wailuku-Kahului area is provided by the County of Maui Department of Water Supply (DWS). The DWS operates 13 water systems that serve particular geographic areas. The proposed project is located within the Central Maui water service section.

In the project vicinity there are various water service lines ranging in size from four inches to 18 inches in diameter. Most of these lines are near the Kaae Place/Kuhio Place and Nukuwai Place/Eha Street intersections at either end of the project site. An 18-inch line runs along the mauka side of Waiehu Beach Road.

### **Impacts and Mitigation Measures**

In the short-term, the construction of the proposed project is not anticipated to affect any of the existing water lines within in the project vicinity nor is anticipated to increase demand on the water system in the area. Construction work near the Kaae Place/Kuhio Place and Nukuwai Place/Eha Street intersections and along Waiehu

Beach Road is unlikely to require excavation to depths that could impact the existing waterlines.

In the long-term, the proposed project is not anticipated to significantly impact or increase demand on water system in the area. The proposed improvements will widen the roadway approaches and Iao Stream Bridge, which carries Waiehu Beach Road over Iao Stream, and will also rehabilitate the bridge to meet current seismic standards. The primary purpose of the improvements is to enhance safety of motorists, bicyclists and pedestrians along this section of roadway. No additional vehicular lanes are proposed that could increase roadway capacity or traffic flow. Therefore, the proposed project is not anticipated to induce population growth and associated demand for water. The proposed improvements are not anticipated to require using water on a regular basis.

### **2.17.3 Wastewater System**

Wailuku area is served by Maui County sewer lines and sewage pumping stations. Wailuku-Kahului Wastewater Treatment Plant (WWTP) is an activated sludge type secondary treatment facility with a design capacity of 6.0 mgd. Wailuku-Kahului WWTP is located north of Kanaha Pond collecting wastewater from Paukukalo pump station in Wailuku.

In the project vicinity, a 10-inch wastewater force main runs along the mauka side of Waiehu Beach Road.

#### **Impacts and Mitigation Measures**

In the short-term, the construction of the proposed project is unlikely to require excavation to depths that could impact the existing force main along Waiehu Beach Road.

In the long-term, the proposed project is not anticipated to significantly impact or increase demand on wastewater system in the area. The proposed improvements will widen the roadway approaches and Iao Stream Bridge, which carries Waiehu Beach Road over Iao Stream, and will also rehabilitate the bridge to meet current seismic standards. The primary purpose of the improvements is to enhance safety of motorists, bicyclists and pedestrians along this section of roadway. No additional vehicular lanes are proposed that could increase roadway capacity or traffic flow. Therefore, the proposed project is not anticipated to induce population growth and associated demand on the wastewater system. The proposed improvements will not generate wastewater.

### **2.17.4 Drainage System**

Beginning in the upper elevations of the Iao Valley, the Iao Stream flows eastward towards the Pacific Ocean, discharging into Kahului Bay. The stream has a drainage basin of approximately 10 square miles which begins at the boundary between the Lahaina and Wailuku Judicial districts, extending along the crests of the Kahoolewa and Kapilau Ridges to the Pacific Ocean.

Existing storm drainage facilities in the project area consist generally of a network of storm drainage pipes and culverts of varying sizes. In general, the sandy soils of the overlying project area promote percolation of rainwater into the ground.

In the project vicinity, there are various drainage lines in the roadways, particularly around the Kaae Place/Kuhio Place and Nukuwai Place/Eha Street intersections. These drain lines range in size from 12 inches to 72 inches in diameter.

#### **Impacts and Mitigation Measures**

In the short- and long-term, the proposed project is not anticipated to significantly impact or increase demand on use of the storm drainage facilities. Construction work is not anticipated to occur near or at depths that could impact these drainage lines. No change in drainage patterns of the project site are anticipated as a result of the proposed improvements.

### **2.17.5 Electrical and Communication Systems**

Electric power for residential and industrial use in Wailuku is provided by the Maui Electric Company, a subsidiary of Hawaiian Electric Company, Inc. The electrical source for the project area is the Maalaea Power Plant.

Telephone service in the Wailuku area, like the rest of the State, is provided by the Hawaiian Telecom.

Oceanic Time Warner Cable of Hawaii is the local CATV provider in the region.

Overhead lines providing these services and utility poles supporting them are located at the Kaae Place/Kuhio Place and Nukuwai Place/Eha Street intersections.

#### **Impacts and Mitigation Measures**

In the short-term, the proposed project is not anticipated to impact electrical or communication services. Construction work will not affect overhead lines or utility poles.

In the long-term, the proposed project is not anticipated to significantly impact or increase demand on water system in the area. The proposed improvements will widen the roadway approaches and Iao Stream Bridge, which carries Waiehu Beach Road over Iao Stream, and will also rehabilitate the bridge to meet current seismic standards. The primary purpose of the improvements is to enhance safety of motorists, bicyclists and pedestrians along this section of roadway. No additional vehicular lanes are proposed that could increase roadway capacity or traffic flow. Therefore, the proposed project is not anticipated to induce population growth and associated demand for electric and communication services. The proposed improvements are not anticipated to require electrical and communication services for its operation.

### **2.17.6 Gas Systems**

The Gas Company provides service for residential and commercial uses in the project area. In a letter dated March 8, 2011, The Gas Company confirmed that the area is currently clear of utility gas facilities.

#### **Impacts and Mitigation Measures**

In the short-term, the proposed project is not anticipated to impact gas service lines as there are no utility gas facilities within the area.

The proposed project is not anticipated to significantly impact or increase demand on gas and cable services. As the proposed project will involve the new improvements of bridge and approach roads, they are not population generators and thereby will not increase demand on gas and cable services. The proposed improvements are not anticipated to require gas and cable services for its operation.

In the long-term, the proposed project is not anticipated to significantly impact or increase demand for gas service in the area. The proposed improvements will widen the roadway approaches and Iao Stream Bridge, which carries Waiehu Beach Road over Iao Stream, and will also rehabilitate the bridge to meet current seismic standards. The primary purpose of the improvements is to enhance safety of motorists, bicyclists and pedestrians along this section of roadway. No additional vehicular lanes are proposed that could increase roadway capacity or traffic flow. Therefore, the proposed project is not anticipated to induce population growth and associated demand for gas service.

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### **3. RELATIONSHIP TO PLANS, POLICIES, AND CONTROLS**

#### **3.1 State Land Use District**

The State Land Use Law, Chapter 205, HRS is intended to preserve, protect, and encourage the development of lands in the State for uses that are best suited to the public health and welfare of Hawaii's people. Under Chapter 205, HRS all lands in the State of Hawaii are classified by the State Land Use Commission (LUC) into four major categories referred to as State Land Use Districts. These districts are identified as the Urban District, Rural District, Agricultural District, and Conservation District.

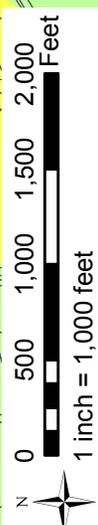
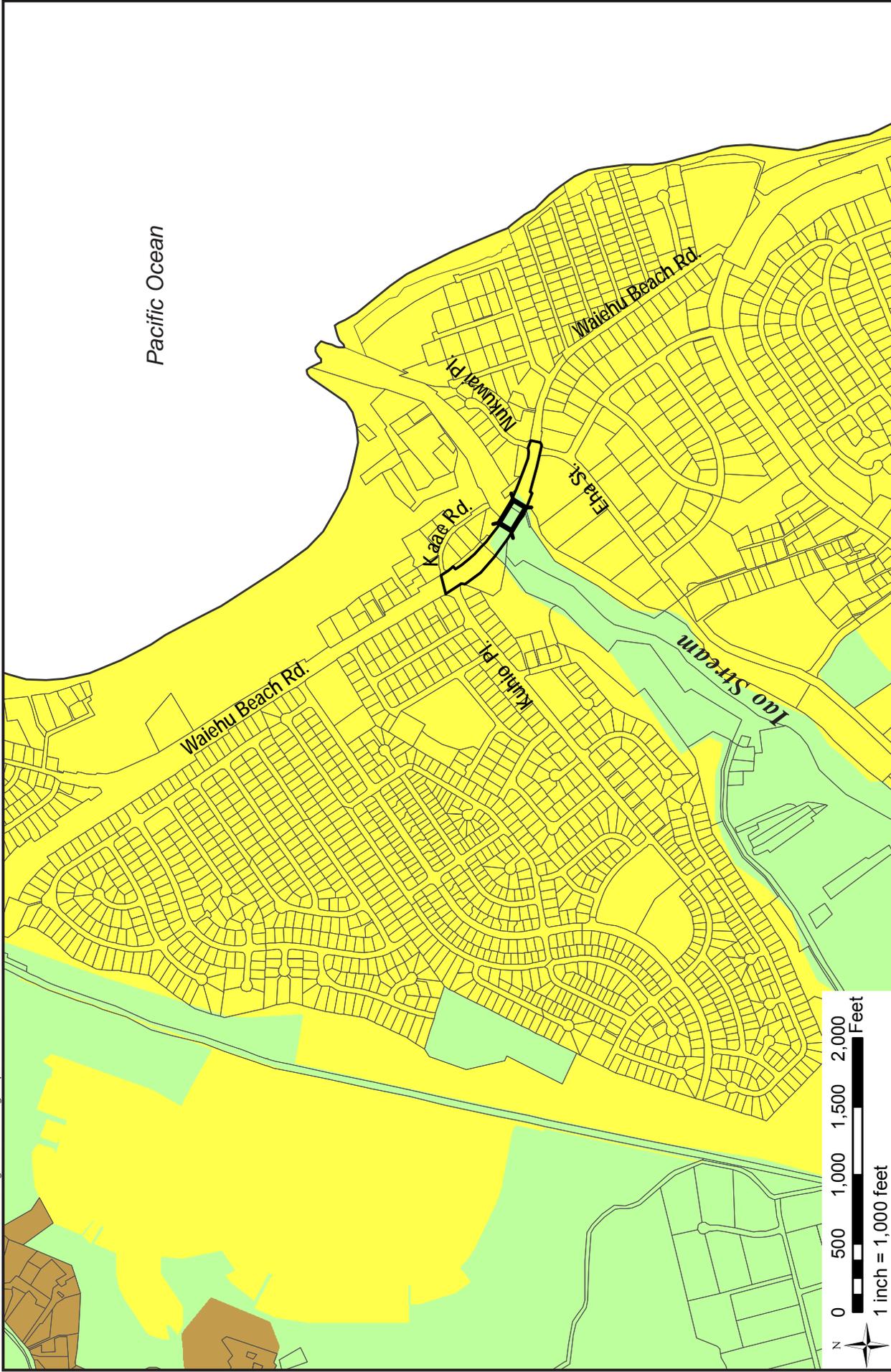
The LUC's Land Use District Boundary Map for the Island of Maui depicts the lands within the Project Area as being designated within the State Agricultural District and State Urban District. Figure 3-1 shows the location of the proposed project improvements in relation to the State Land Use District designations. Permitted uses within the State Agricultural District and State Urban District are prescribed under Title 12, Chapter 205 (Land Use Commission), HRS, and the State Land Use Commission's Administrative Rules prescribed under Title 15, Subtitle 3, Chapter 15 HAR.

Under §15-15-25, HAR, pertaining to permissible uses within the Agricultural District, permissible uses are determined by the productivity rating as classified by the Land Study Bureau's (LSB) detailed land classification. Land with an overall productivity rating of class A or B shall be those uses set forth in section 205-4.5, HRS while land with an overall productivity rating of class of C, D, E, or U shall be those uses permitted in A and B lands as set forth in section 205-4.5, HRS, and also those uses set forth in section 205-2(d), HRS.

Under the LSB's detailed land classification for the project area, a portion of the project corridor has a soil productivity rating of "U," indicating lands that are unclassified. Therefore, permitted uses within these classified lands are those uses permitted under section 205-4.5, HRS, and also those uses set forth in section 205-2(d), HRS.

Under Chapter 205-4.5 HRS, permitted uses consist of "Public, private, and quasi-public utility lines and roadways, transformer stations, communications equipment buildings, solid waste transfer stations, major water storage tanks, and appurtenant small buildings such as booster pumping stations, but not including offices or yards for equipment, material, vehicle storage, repair or maintenance, or treatment plants, or corporation yards, or other like structures" (Chapter 205-4.5(a)(7), HRS). Therefore, the proposed project is a permitted use within the Agricultural District because public roadways are permitted under Chapter 205-4.5, HRS.

Under §15-15-24, HAR, pertaining to permissible uses within the Urban District, permitted uses include any and all uses permitted by the counties, either by ordinances or rules, and are subject to any commission imposed by the Land Use Commission pursuant to section 205-4(g), HRS. Since roadways, such as the proposed project, are considered an incidental use that is permitted in each of the County's zoning districts, the proposed project is a permitted use within the Urban District.



**LEGEND**

- Project Site
- Iao Stream
- Bridge
- Agricultural Site
- Conservation
- Rural
- Urban

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**FIGURE 3-1**  
**STATE LAND USE DISTRICT MAP**  
WAIIEHU BEACH ROAD  
REHABILITATION OF IAO STREAM BRIDGE  
State Department of Transportation, Highways Division

### 3.2 Chapter 344, State Environmental Policy

The purpose of Chapter 344, State Environmental Policy is to “establish a state policy which will encourage productive and enjoyable harmony between people and their environment, promote efforts which will prevent or eliminate damage to the environment and the biosphere and stimulate the health and welfare of humanity, and enrich the understanding of the ecological systems and natural resources important to the people of Hawaii.” This section discusses the project’s consistency with the pertinent goals, policies, and guidelines described under Chapter 344, HRS.

*§ 344-3 Environmental Policy. It shall be the policy of the State, through its programs, authorities, and resources to:*

- (1) Conserve the natural resources, so that land, water, mineral, visual, air and other natural resources are protected by controlling pollution, by preserving or augmenting natural resources, and by safeguarding the State’s unique and natural environmental characteristics in a manner which will foster and promote the general welfare, create and maintain conditions under which humanity and nature can exist in productive harmony, and fulfill the social economic, and other requirements of the people of Hawaii.*

**Discussion:** The proposed project has been identified on State and County plans as beneficial to the general welfare of the community. The project is consistent with this environmental policy as it will conserve the natural resource of Maui, including visual and scenic resources. The project will not have an adverse impact of natural resources or the environment, as discussed in previous sections of this document. The project is designed to minimize impacts on the land, and best management practices (BMP) will be implemented during construction to control pollution and preserve natural resources.

- (2) Enhance the quality of life by:*

- (A) Setting population limits so that the interaction between the natural and artificial environments and the population is mutually beneficial;*
- (B) Creating an opportunities for the residents of Hawaii to improve their quality of life through diverse economic activities which are stable and in balance with the physical and social environments;*
- (C) Establishing communities which provide a sense of identify, wise use of land, efficient transportation, and aesthetic and social satisfaction in harmony with the natural environment which is uniquely Hawaiian; and*
- (D) Establishing a commitment on the part of each person to protect and enhance Hawaii’s environment and reduce the drain on nonrenewable resources.*

**Discussion:** The proposed project is consistent with the above policies regarding quality of life. The proposed improvements will widen the roadway approaches and Iao Stream Bridge, which carries Waiehu Beach Road over Iao Stream, and will also rehabilitate the bridge to meet current seismic standards. The widening will accommodate multi-use shoulders of consistent width on both sides of the road for bicycles, pedestrians and emergency vehicle pullout. An additional sidewalk on the mauka side will be separated by a guardrail from vehicular traffic. The primary purpose

of the improvements is to enhance safety of motorists, bicyclists and pedestrians along this section of roadway.

### 3.3 Hawaii Coastal Management Program

The National Coastal Zone Management Program was created through passage of the Coastal Zone Management Act of 1972. Hawaii's Coastal Zone Management (CZM) program, adopted in 1977 as Chapter 205A, HRS, provides a basis for protecting, restoring, and responsibly developing coastal communities and resources. The Hawaii CZM area includes all lands within the state and the areas seaward to the extent of the State's management jurisdiction. A discussion of the project's consistency with the objectives and policies of the CZM program is provided below.

#### (1) Recreational Resources

Objective:

*Provide coastal recreational opportunities accessible to the public.*

Policies:

- (A) *Improve coordination and funding of coastal recreational planning and management; and*
  - (i) *Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by: Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;*
  - (ii) *Requiring replacement of coastal resources having significant recreational value, including but not limited to surfing sites, fishponds, and sand beaches, when such resources will be unavoidably damaged by development; or requiring reasonable monetary compensation to the state for recitation when replacement is not feasible or desirable;*
  - (iii) *Providing and managing adequate supply of shoreline parks and other recreational facilities suitable for public recreation;*
  - (iv) *Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;*
  - (v) *Ensuring public recreational use of county, state, and federally owned or controlled shoreline lands and waters having recreational value consistent with public safety standards and conservation of natural resources;*
  - (vi) *Adopting water quality standards and regulating point and non-point sources of pollution to protect, and where feasible, restore the recreational value of coastal waters.*
  - (vii) *Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches, and artificial reefs for surfing and fishing; and*
  - (viii) *Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use commission, board of land and natural resources, and county authorities; and crediting such dedication against the requirements of section 46-6.*

The proposed project is located approximately 0.2 miles from the coastline at its closest point and 0.4 miles at its farthest point. However, given the nature of the project in the long term, will not provide or impact coastal recreational opportunities accessible to the public.

In the short term, certain phases of construction will involve temporary lane closures that will impede traffic flow. Vehicles, bicyclists, and pedestrians traveling to and from coastal recreational activities could experience inconveniences and delays.

Potential water quality impacts will be mitigated by adherence to State water quality regulations governing grading, excavation and stockpiling. An NPDES General Permit for Storm Water Associated with Construction Activity administered by the State DOH will be required to control storm water discharges. Mitigation measures will be instituted following site-specific assessments, incorporating appropriate structural and/or non-structural BMPs such as silt fences and minimizing time of exposure between construction and re-vegetation/re-paving. Following construction, exposed soils at the project site will have been built over, paved over, or re-vegetated to control erosion.

A Department of the Army (DA) Nationwide Permit (NP) will be required pursuant to Section 404 of the Clean Water Act (CWA). The NP will be obtained from the Corps of Engineers (COE) for any fill material that will be discharged below the Ordinary High Water Mark (OHWM) within Iao Stream, which has been determined by the DA to be jurisdictional. The DA permit also triggers the need for Water Quality Certification (WQC), pursuant to Section 401 of the CWA for “any activity including, but not limited to, the construction or operation of facilities, which may result in any “discharge” into navigable waters”. The WQC is administered by the DOH and is in place to regulate water quality during the construction phase of the project to in compliance with State Water Quality Standards.

(2) *Historic Resources*

*Objective:*

*Protect, preserve and, where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.*

*Policies:*

- (A) Identify and analyze significant archeological resources;*
- (B) Maximize information retention through preservation of remains and artifacts or salvage operations; and*
- (C) Support state goals for protection, restoration, interpretation, and display of historic resources.*

An Archaeological Literature Review and Field Inspection Report of the project site was conducted to evaluate the presence of significant historic properties within the project site. Due to previous archaeological findings of pre-contact habitation features and cultural deposits, as well as human burials in the vicinity of the project site, archaeological monitoring is recommended during ground disturbing activities for the bridge widening and sidewalk improvements project. Archaeological monitoring is also recommended for ground disturbing activities associated with the installation of the new guardrails and also for ground

disturbing activities associated with the widening of the bridge piers. On-call archaeological monitoring is recommended for excavations that take place within the streambed itself as a part of the bridge pier monitoring. An archeological monitoring plan will be submitted to SHPD for review and approval prior to ground disturbance.

Consultation with SHPD confirmed that the project site is located near the two historic sites listed on the National and State Registers of Historic Places, including Halekii-Pihana Heiau (SIHP No. 50-50-04-0592) and the Maui Jinsha Temple (SIHP No. 50-04-1606). SHPD determined, however, that the project is distant enough from these two sites that the project will have no adverse effect on them. The OHA, by letter dated March 22, 2011 concurred with the finding of no significant impact anticipated in the Draft EA. In addition, the DHHL by letter dated March 28, 2011 expressed their support for the project.

Also, since the Iao Bridge was built in 1954 and is now 57 years old, it is eligible to be recorded on the State Inventory of Historic Properties. It may also be eligible for nomination and listing on the Hawaii National Register of Historic Places. In a letter dated April 20, 2011, SHPD expressed concerns regarding maintaining the bridge's existing historical character. Further consultation between SHPD's Architecture Branch and DOT resulted in a modification of the balustrade design that was acceptable to both SHPD and DOT. The modified design is described in Section 1.3 of the Final EA and was determined by SHPD to have no adverse effect on the historic property.

(3) Scenic and open space resources

Objective:

*Protect, preserve and, where desirable, restore the quality of coastal scenic and open space resources.*

Policies:

- (A) *Identify valued scenic resources in the coastal zone management area;*
- (B) *Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views to and along the shoreline;*
- (C) *Preserve, maintain, and, where desirable, improve and restore shoreline open space and scenic resources; and*
- (D) *Encourage those developments which are not coastal dependant to locate in inland areas.*

The proposed project is not anticipated to have significant impacts on notable view planes nor adversely affect important public viewing points or visual resources. As an already existing roadway and bridge, the project will not significantly change the scenic and visual character of the surrounding area.

(4) Coastal ecosystems

Objective:

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

Policies:

- (A) *Improve the technical basis for natural resource management;*
- (B) *Preserve valuable coastal ecosystem, including reefs, or significant biological or economic importance;*
- (C) *Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs; and*
- (D) *Promote water quantity and quality planning and management practices which reflect the tolerance of fresh water and marine ecosystems and prohibit land and water uses which violate state water quality standards.*

The proposed project is not expected to adversely impact coastal ecosystems. Potential water quality impacts will be mitigated by adherence to State water quality regulations governing grading, excavation and stockpiling. An NPDES General Permit for Storm Water Associated with Construction Activity administered by the State DOH will be required to control storm water discharges. Mitigation measures will be instituted following site-specific assessments, incorporating appropriate structural and/or non-structural BMPs such as silt fences and minimizing time of exposure between construction and re-vegetation/re-paving. Following construction, exposed soils at the project site will have been built over, paved over, or re-vegetated to control erosion.

A Department of the Army (DA) Nationwide Permit (NP) will be required pursuant to Section 404 of the Clean Water Act (CWA). The NP will be obtained from the Corps of Engineers (COE) for any fill material that will be discharged below the Ordinary High Water Mark (OHWM) within Iao Stream, which has been determined by the DA to be jurisdictional. The DA permit also triggers the need for Water Quality Certification (WQC), pursuant to Section 401 of the CWA for “any activity including, but not limited to, the construction or operation of facilities, which may result in any “discharge” into navigable waters”. The WQC is administered by the DOH and is in place to regulate water quality during the construction phase of the project to in compliance with State Water Quality Standards.

Iao Stream is also subject to Section 10 of the Rivers and Harbors Act of 1899 regarding activities conducted over, within and beneath navigable waters of the US. However, the project site is located approximately 0.3 miles inland of the mouth of Iao Stream at an elevation of approximately 19 feet above sea level. As such, the portion of Iao Stream where the project is located is not generally navigable or tidally influenced and is not anticipated to require a permit pursuant to Section 10.

(5) Economic Uses

Objective:

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

Policies:

- (A) *Concentrate coastal dependant development in appropriate areas;*

- (B) *Ensure that coastal dependent developments such as harbors and ports, and coastal related development such as visitor facilities and energy generating facilities, are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area; and*
- (C) *Direct the location and expansion of coastal dependent developments to areas presently designated and used for such developments and permit reasonable long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when:*
  - (i) *Use of presently designated locations is not feasible;*
  - (ii) *Adverse environmental effects are minimized; and*
  - (iii) *The development is important to the State's economy.*

The proposed project provides the necessary infrastructure to increase roadway capacity and will promote the efficient movement of people, goods, and services important to the State's economy. The project will provide direct construction and operational jobs and will also have beneficial secondary economic benefits by promoting the procurement of materials and supplies from local vendors.

(6) Coastal hazards

Objective:

*Reduce hazards to life and property from tsunamis, storm waves, stream flooding, erosion, subsidence and pollution.*

Policies:

- (A) *Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and nonpoint source pollution hazards;*
- (B) *Control development in areas subject to storm wave, tsunami, flood, erosion, hurricane, wind, subsidence, and point and nonpoint pollution hazards;*
- (C) *Ensure that developments comply with requirements of the Federal Flood Insurance Program;*
- (D) *Prevent coastal flooding from inland projects; and*
- (E) *Develop a coastal point and nonpoint source pollution control program.*

According to the Flood Insurance Rate Map (FIRM), Map number 15000300383E and 15000300384E, dated Sept 25, 2009, the project site straddles two flood zones. The Waiehu approach to Iao Stream Bridge lies within "Zone X, other areas" and is characterized as "areas determined to be outside the 0.2% annual chance floodplain." The Wailuku approach lies within "Zone X, other flood areas" and is characterized as "areas of 0.2% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile, and areas protected by levees from 1% annual chance flood." Iao Stream Bridge lies over "Zone AE" which is characterized as a "special flood hazard area subject to inundation by the 1% annual chance flood." Zone AE is also a "floodway," which is "the channel of the stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood height." The 1% annual flood is also commonly referred to as the 100-year flood or the base flood. The base flood elevation for the Iao Stream Bridge area have been determined to be between approximately 25 to 29 feet while the bottom of the bridge is at elevation 39 feet, well above the base flood.

Construction activities within the respective flood hazard districts will be in accordance with regulations set forth in Section 19.62.060, Maui County Code. Before construction of any development begins within any flood hazard area, flood-related erosion hazard area, or mudslide area, a special flood hazard area development permit shall be obtained from the director of the department of planning.

The project will also comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), as the project is within a Special Flood Hazard Area.

Studies will be conducted to ensure that any proposed encroachment in the floodway will not result in any increase in the regulatory flood elevations during occurrence of the regulatory flood. The studies will identify a certified flood elevation and evaluate flooding impacts, including the potential impact of proposed structures on flood elevations.

(7) Managing development

Objective:

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

Policies:

- (A) *Use, implements, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development;*
- (B) *Facilitate timely processing of applications for development permits and resolve overlapping of conflicting permit requirements; and*
- (C) *Communicate the potential short and long-term impacts of proposed significant coastal developments early in their life-cycle and in terms understandable to the public to facilitate public participation in the planning and review process.*

The Hawaii State environmental review process, HRS 343, requires project review by government agencies and affords the public the opportunity to provide comments on the proposed project. Applicable State and County requirements will be adhered to in the design and construction of the project.

(8) Public participation

Objective:

*Stimulate public awareness, education, and participation in coastal management.*

Policies:

- (A) *Maintain a public advisory body to identify coastal management problems and to provide policy advice and assistance to the coastal zone management program;*
- (B) *Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal-related issues, developments; and government activities; and*

- (C) *Organize workshops, policy dialogues, and site-specific mediations to respond to coastal issues and conflict.*

Government agencies, organizations and the general public were notified of the proposed project and provided an opportunity to comment on the project through the environmental review process. In addition, a public information meeting was held at the Queen Liliuokalani Children's Center Lanai on March 23, 2011, to present the project to the community and to solicit written and verbal comments from them. The Hawaii CZM Federal Consistency Program process will also offer additional opportunities for public involvement. Short- and long-term impacts which may result from the construction and operation of the proposed project have been assessed in this EA.

(9) *Beach protection*

*Objective:*

*Protect beaches for public use and recreation.*

*Policies:*

- (A) *Locate new structures inland from the shoreline setback to conserve open space and to minimize loss of improvements due to erosion;*
- (B) *Prohibit construction of private erosion-protection structures seaward of the shoreline, except when they result in improved aesthetic and engineering solutions to erosion at the sites and do not interfere with existing recreational and waterline activities; and*
- (C) *Minimize the construction of public erosion-protection structures seaward of the shoreline.*

The proposed project does not involve the construction of improvements in the shoreline setback nor require any shoreline erosion-protection structures.

(10) *Marine resources*

*Objective:*

*Implement the State's ocean resources management plan.*

*Policies:*

- (A) *Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;*
- (B) *Assure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;*
- (C) *Coordinate the management of marine and coastal resources and activities management to improve effectiveness and efficiency;*
- (D) *Assert and articulate the interests of the State as a partner with federal agencies in the sound management of ocean resources with the United States exclusive economic zone;*
- (E) *Promote research, study, and understanding of ocean processes, marine life, and other ocean resources in order to acquire and inventory information necessary to understand how ocean development activities relate to and impact upon ocean and coastal resources; and*

- (F) *Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.*

The proposed project is not anticipated to have any adverse impact on marine and coastal resources. Potential water quality impacts to nearshore coastal waters during construction of the project will be mitigated by adherence to State water quality regulations governing grading, excavation, and stockpiling. Adherence to State water quality regulations governing grading, excavation and stockpiling, an NPDES General Permit for Storm Water Associated with Construction Activity administered by the State DOH will be required to control storm water discharges. Mitigation measures will be instituted following site-specific assessments, incorporating appropriate structural and/or non-structural BMPs such as silt fences and minimizing time of exposure between construction and re-vegetation/re-paving.

### **3.4 Special Management Area Designation**

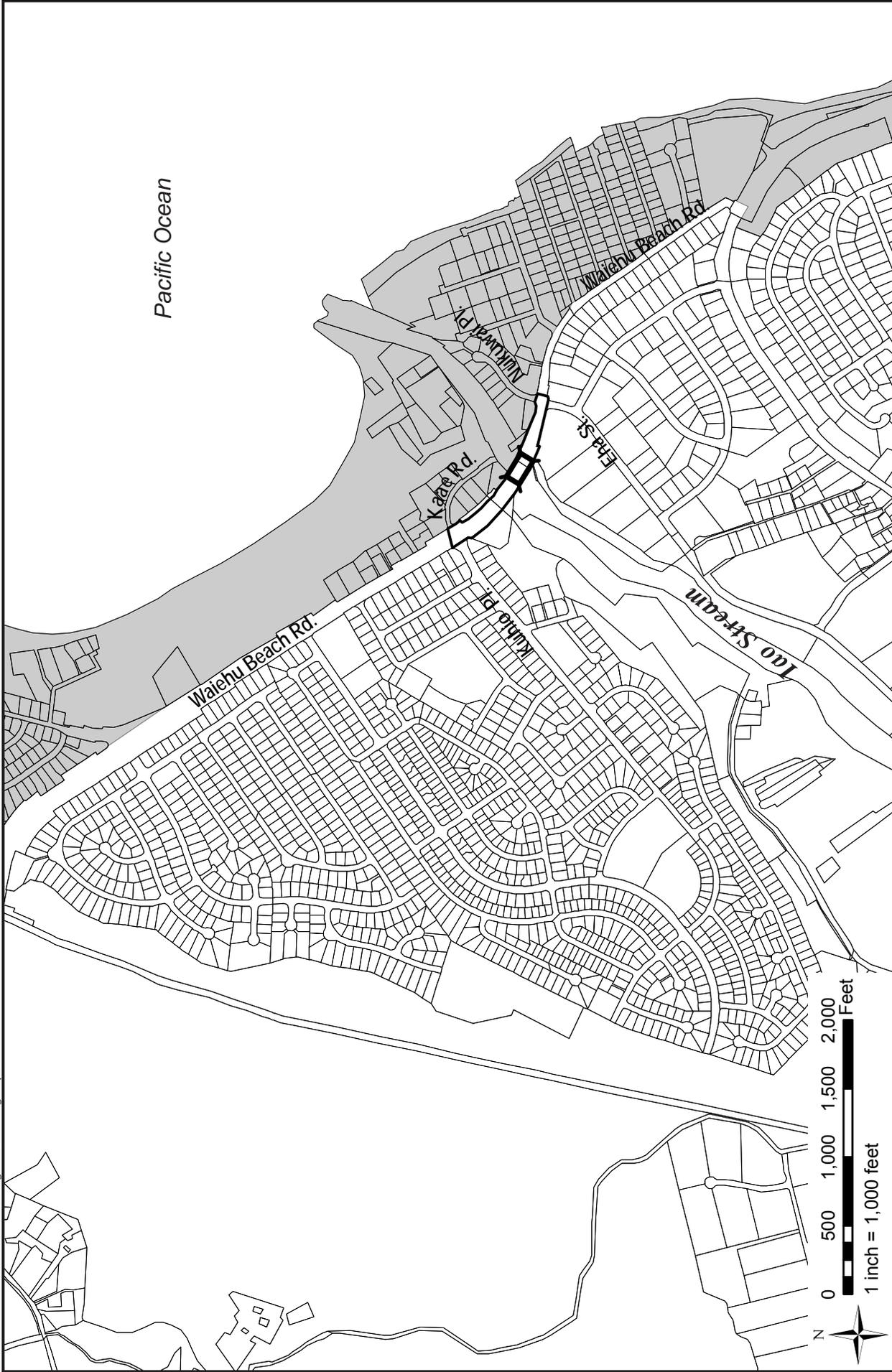
Pursuant to the Hawaii CZM Program, Chapter 205A, HRS, the counties have enacted ordinances establishing Special Management Areas (SMAs). Any “development” within the SMA requires an SMA Use permit administered by the County of Maui Planning Department. Through the SMA permit system, the County assesses and regulates developments proposed for areas located within the SMA and the proposed developments are evaluated for compliance with the CZM objectives and policies and SMA guidelines set forth in Chapter 205A, HRS.

The County of Maui Planning Department, by letter dated November 18, 2009, indicated that the project was located in the SMA. However, based on subsequent consultation, the Planning Department determined that the project is not located in the SMA and, as such, is not subject to SMA permit requirements (telephone communication between DOT and Planning Department on September 12, 2011). Figure 3-2 has been revised to show the project location in relationship to the County’s current SMA boundary map. The proposed project is consistent with the CZM objectives and policies as described in Section 3.3 of this document.

### **3.5 County General Plan**

Maui County is currently updating the *General Plan*, with a planning horizon of 2030. As part of the *2030 General Plan Update*, the County adopted a *Countywide Policy Plan* in March 2010, which supersedes the 1990 *General Plan*. The *Countywide Policy Plan* provides broad goals, objectives, policies, and implementing actions that portray the desired direction of the County’s future. This includes: (1) a vision statement and core values for the County to the year 2030; (2) an explanation of the plan-making process; (3) a description with supporting background information regarding Maui County today; (4) identification of guiding principles; and (5) a list of countywide goals, objectives, policies, and implementing actions related to the following core themes:

- Protect the Natural Environment
- Preserve Local Cultures and Traditions
- Improve Education
- Strengthen Social and Healthcare Services
- Expand Housing Opportunities for Residents
- Strengthen the Local Economy



**FIGURE 3-2**  
**SPECIAL MANAGEMENT AREA MAP (Revised 9.12.11)**

WAIIEHU BEACH ROAD  
 REHABILITATION OF IAO STREAM BRIDGE  
 State Department of Transportation, Highways Division

**LEGEND**

-  Project Site
-  SMA
-  Iao Stream Bridge

  
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- Improve Parks and Public Facilities
- Diversify Transportation Options
- Improve Physical Infrastructure
- Promote Sustainable Land Use and Growth Management
- Strive for Good Governance

The proposed project is consistent with the following *Countywide Policy Plan* objectives and policies relating to diversifying transportation options:

#### ***H. Diversify Transportation Options***

Goal: *Maui County will have an efficient, economical, and environmentally sensitive means of moving people and goods.*

Objective:

1. *Provide an effective, affordable, and convenient ground-transportation system that is environmentally sustainable.*

Policies:

- e. *Ensure that roadway systems are safe, efficient, and maintained in good condition.*
- f. *Preserve roadway corridors that have historic, scenic, or unique physical attributes that enhance the character and scenic resources of communities.*
- g. *Design new roads and roadway improvements to retain and enhance the existing character and scenic resources of the communities through which they pass.*
- i. *Evaluate all alternatives to preserve quality of life before widening roads.*

Objective:

2. *Reduce the reliance on the automobile and fossil fuels by encouraging walking, bicycling, and other energy-efficient and safe alternative modes of transportation.*

Policies:

- a. *Make walking and bicycling transportation safe and easy between and within communities.*
- c. *Design new and retrofit existing rights-of-way with adequate sidewalks, bicycle lanes, or separated multi-use transit corridors.*

Implementing Actions:

- a. *Design, build, and modify existing bikeways to improve safety and separation from automobiles.*

Furthermore, the County has issued a draft of the *Maui Island Plan*. The purpose of the *Maui Island Plan* is to accomplish the following:

- Assess existing conditions, trends, and issues specific to Maui;
- Provide policy direction for the use and development of land, the extension and improvement of transportation services and infrastructure, the development of community facilities, the expansion of the island's economic base, the provision of housing, and the protection of natural and cultural resources;

- Establish policies to manage change and to direct decisions about future land use and development; and
- Provide the foundation to set capital improvement priorities, revise zoning regulations, and develop other implementation tools.

The proposed project is consistent with or promotes the following *Draft Maui Island Plan* objectives and policies relating to transportation:

Goal:

6.4 *An interconnected, efficient, and well maintained, multimodal transportation system.*

Objective:

6.4.1 *More integrated island-wide transportation and land use planning program that reduces congestion and promotes more efficient (transit-friendly) land use patterns.*

Policies:

1. *Plan for an integrated multi-modal transportation system comprised of public transit, bicycle, pedestrian, automobile, and other transportation modes.*

Objective:

6.4.2 *Safe, interconnected roadway, bicycle, and pedestrian networks.*

Policies:

1. *Ensure that roadway and pedestrian facilities design and level-of-service standards respect the unique character of our communities.*
2. *Identify and improve hazardous and substandard sections of roadways and bridges, provided that the historical integrity of the roads and bridges are protected.*

### **3.6 Wailuku-Kahului Community Plan**

The Wailuku-Kahului Community Plan is one of the nine Community Plans for Maui County that reflects current and anticipated conditions in the Wailuku-Kahului region. The Wailuku-Kahului Community Plan provides recommendations regarding the goals, objectives and policies contained in the General Plan, while recognizing the values and uniqueness of the Wailuku-Kahului area in order to enhance the region's overall living environment.

The proposed project is consistent with the Wailuku-Kahului Community Plan goals, objectives, policies and implementing actions as follows:

#### **Cultural Resources**

**Goal**

*Identification, protection, preservation, enhancement, and where appropriate, use of cultural practices and sites, historic sites and structures, and cultural landscapes and view planes that:*

1. *Provide a sense of history and define a sense of place for the Wailuku-Kahului region; and*
2. *Preserve and protect native Hawaiian rights and practices customarily and traditionally exercised for subsistence, cultural and religious purposes in accordance with Article XII, Section 7, of the Hawaii State Constitution, and the Hawaii Supreme Court's PASH opinion, 79 HAW.425 (1995).*

### **Objectives and Policies**

1. *Recognize the importance of historically and archaeologically sensitive sites and encourage their preservation through development project review.*
2. *Protect and preserve historic, cultural and archaeological sites and resources through on-going programs to identify and register important sites, and encourage their restoration. This shall include structures and elements that are a significant and functional part of Hawaii's ethnic and cultural heritage.*
3. *Recognize and respect family ancestral ties to certain sites including burial sites, and establish cultural and educational programs to perpetuate Hawaiian and other ethnic heritages.*

### **Implementing Actions**

4. *Require development projects to identify all cultural resources located within or adjacent to the project area and consult with individuals knowledgeable about such cultural resources prior to application as part of the County development review process. Further, require that all propose activity include recommendations to mitigate potential adverse impacts on cultural resources including site avoidance, adequate buffer areas, and interpretation. Particular attention should be directed toward dune areas, known and probable pre-contact habitation areas, and other sites and areas listed in No. 5 below, with review by the Cultural Resources Commission, where appropriate.*
5. *Significant Wailuku-Kahului region sites and areas include the following:*

#### *Wahi Pana (Significant Traditional Places)*

- a. *Na Wai Eha (Waihee, Waiehu, Wailuku, Waikapu)*
- b. *Waihee Dunes Archaeological Complex*
- c. *Waihee Church*
- d. *Waihee Sugar Mill site*
- e. *Halekii-Pihanakalani heiau*
- f. *Waihee Dune complex*
- g. *Taro Loi in Iao Valley*
- h. *Traditional surfing sites*
- i. *Kanaha Pond*
- j. *Habitation and burial sites along Lower Main Street corridor*
- k. *Waiale Bridge*
- l. *Wailuku Civic Center Historic District*
- m. *Kama Ditch, Spreckles Ditch, and Waihee Ditch*
- n. *Kaahumanu Church*
- o. *Hale Hoikeike (Bailey House Museum)*

- p. Alexander House (next to Kaahumanu Church)
- q. Waikapu Stone Church Site
- r. Wailuku School
- s. Puunene School
- t. Puu One Sand Dune Formation from Kahului Harbor to Waikapu
- u. Coastal sand dunes from Kahului Airport to Baldwin Park.
- v. Kahului Railroad System sites (i.e., Roundhouse, Makaweli Rock Crusher Mill Foundation, etc )
- w. Chee Kung Tong Society Hall site
- x. Maui Jisha Mission
- y. Naval Air Station Kahului Airport (NASKA)
- z. Puunene Mill/Village
- aa. Kahului Railroad Building and Old Kahului Store
- bb. Buildings designed by C. W. Dickey-Wailuku Library, the Territorial Building in Wailuku, and the Baldwin Bank (Bank of Hawaii in Kahului)
- cc. Wailuku Union Church
- dd. Church of the Good Shepherd
- ee. Iao Theater
- ff. Plantation Manager's Residence in Wailuku
- gg. St. Anthony's School
- hh. Market Street from Main Street through Happy Valley
- ii. Vineyard Street from Market Street to end
- jj. Iao Stream**

*The above list is not comprehensive. It represents some of the well-known sites currently listed in the State inventory of Historic Places and on file with the State and National Registers of Historic Places. Many more sites have not yet been surveyed for historic, archaeological, and cultural significance.*

*The Department of Planning has (or will obtain from the State Historic Preservation Division) maps indicating the general location of these sites. Planning Department staff will obtain, maintain, and update all pertinent maps, which will be consulted prior to development proposals affecting the above-mentioned areas.*

## **Infrastructure**

### **Goal**

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

## **Transportation**

### **Objectives and Policies**

6. *Enhance circulation by improving road maintenance, improving or providing traffic signals and turning lanes at congested intersections; and by providing street and designation signs. Important intersections include Lono and Papa Avenues, and intersection along Papa Avenue, Wakea Avenue, and North Market Street. Additional turning lanes, traffic signals and roadway improvements in the Wailuku Town core should be designate to facilitate safe traffic movement and be compatible with the traditional character of the area.*
7. *Provide bikeway and walkway systems in the Wailuku-Kahului area which offer safe and pleasant means of access particularly along routes accessing residential district, major community facilities and activity centers, school sites, and the shoreline between Kahului Harbor and Paia.*
8. *Accommodate bicycle and pedestrian ways within planned roadway improvements.*

### **3.7 County of Maui Zoning**

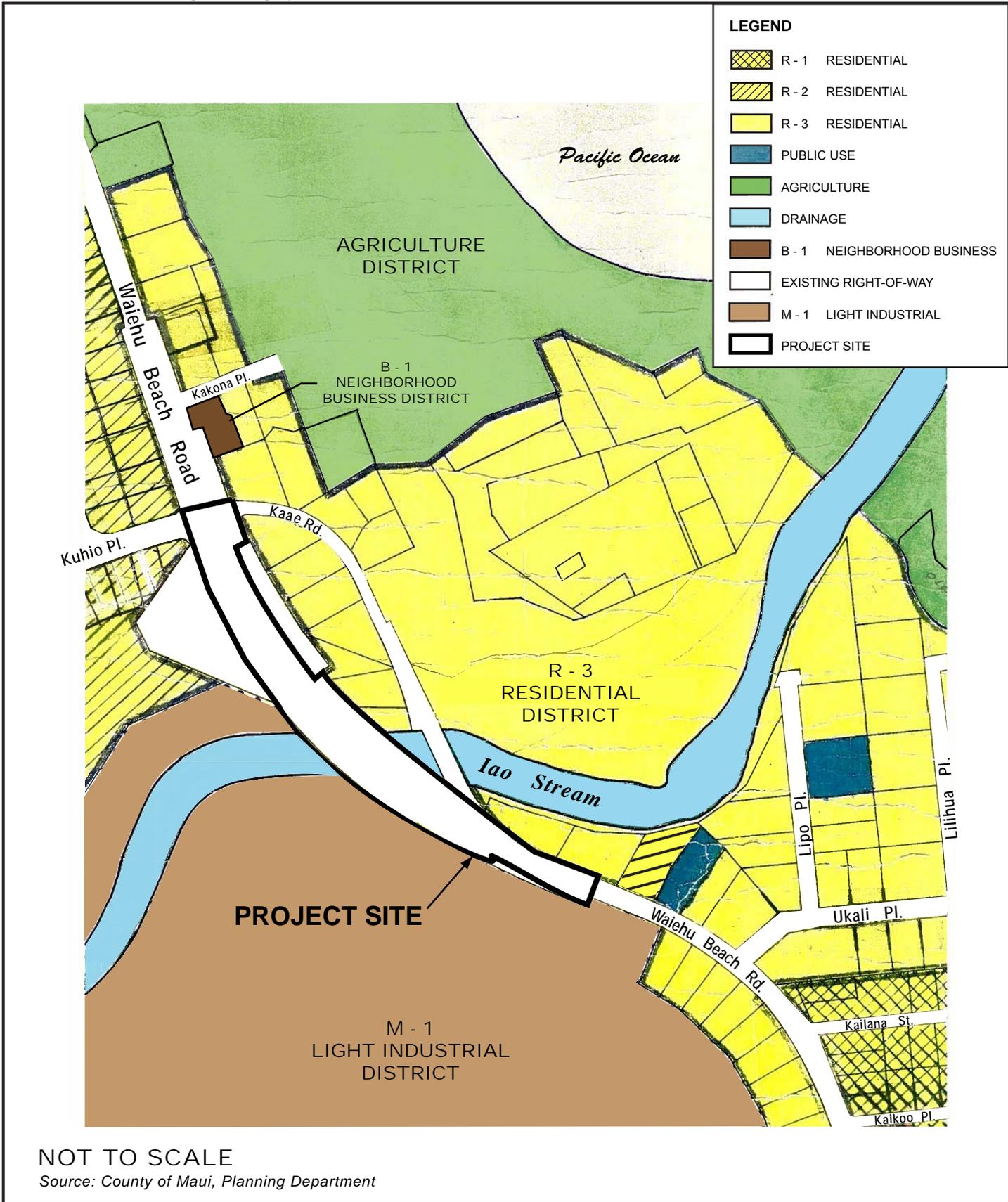
Roadways, such as the proposed project, are considered an incidental use that is permitted in each of the County's zoning districts. Since the proposed alignment falls within existing and designated State and County right-of-ways, there are no specific zoning standards or requirements which would require discretionary review from the Maui Planning Commission or the Maui County Council. County zoning districts adjacent to the project area are shown in Figure 3-3.

### **3.8 Maui Long-Range Land Transportation Plan**

The 1997 *Final Report, Maui Long-Range Land Transportation Plan* documents the results of the County-wide Transportation Planning Process for Maui County – a joint, long-range transportation planning study conducted by the State Department of Transportation (DOT) and Maui County. The Plan serves as a guide for the development of the major surface transportation facilities and programs to be implemented within Maui County, including highway, transit, and bikeway elements.

An inventory and assessment of the existing roadway system and operating conditions are provided, as well as information on existing land use and socio-economic conditions on Maui. The Plan identifies long-range (to the year 2020) strategies and actions for the development of an integrated inter-modal transportation system that facilitates the efficient movement of people and goods.

Chapter VII of the Plan presents the Recommended Improvement Plan, which includes new highways, bypass highways, roadway extensions, roadway widenings, and improvements to intersections. Table 33 of the Plan provides a prioritized listing of the projects recommended for implementation.



Project number S11 involving Waiehu Beach Road from Kahului Beach Road to Kahekili Highway includes the proposed project. The “S” designation indicates that it is a State project and is needed in the 2007 to 2020 timeframe. The description calls for widening the road from two to four lanes. The proposed project is not intended to implement project number S11, which addresses roadway capacity. Instead, it is an independent project intended to accommodate and improve traffic safety for existing motorists, bicyclists and pedestrians in the community who utilize this section of road. The DOT plans to update the MLRLTP in 2012.

### **3.9 Complete Streets, Act 54 Session Laws of Hawaii 2009**

Act 54, Session Laws of Hawaii 2009 requires that DOT and county transportation departments ensure the accommodation of all users of the road, regardless of their age, ability, or preferred mode of transportation. It also calls for the creation of a statewide task force to review existing state and county highway design standards and guidelines and requires the DOT and county transportation department to adopt a Complete Streets Policy. Complete streets are defined as “*transportation facilities that are planned, designed, operated, and maintained to provide safe access and mobility for all users, including bicyclists, pedestrians, transit riders, freight, and motorists, and that are appropriate to the function and context of the facility.*” Complete streets principles for Hawaii include the following:

- *Safety – Plan, design, and construct transportation facilities and land developments to create an environment that reduces risk and supports the safe movement of people and goods by all modes.*
- *Flexible design – Design transportation facilities using best practices that integrate community values and recognize the importance of the surrounding context and environment.*
- *Accessibility and mobility for all – Plan and design transportation facilities for ease of use and access to destinations by providing an appropriate path of travel for all users, and enhance the ability to move people and goods throughout the state and its counties.*
- *Use and comfort of all users – Ensure all users of all abilities including bicyclists, pedestrians, transit riders, and drivers feel comfortable and safe using the transportation system.*
- *Consistency of design standards and guidelines – Encourage consistent use of national best practices to generate consistency in the application of striping and pavement markings for all users on all islands. References of national best practices include the Manual on Uniform Traffic Control Devices (MUTCD) and A Policy on Geometric Design of Highways and Streets (American Association of State Highway and Transportation Officials [AASHTO] Green Book).*
- *Energy efficient – Plan, design, and construct a transportation system that offers transportation choices for residents and visitors and reduces reliance on single-occupant vehicles to improve energy efficiency in travel, and mitigates vehicle emissions.*
- *Health – Recognize the health benefits in providing alternative mode choices, while acknowledging that some routes may be healthier than others.*

- *Appropriate funding – Support a jurisdiction’s ability to secure funding for multimodal facilities and provide a framework to consider and pursue funding sources and opportunities.*
- *Building partnerships with organizations statewide – Build partnerships among the HDOT, the Counties, other governmental agencies, and stakeholders to implement complete streets throughout the state.*
- *Green infrastructure/streets – Use trees and landscaping as integral components of a Complete Street to provide both human and ecosystem benefits, such as shade, to reduce the urban heat island effect, vegetation for carbon sequestration, reducing/filtering non-point source pollution and sediments, retaining stormwater, increasing groundwater storage recharge, and providing wildlife habitat.*

The above policies should be considered on all public highways, roadways, and streets statewide when updating long-term planning documents and/or ordinances and when considering project alternatives. Agency design standards should also be updated to incorporate complete streets principles.

The proposed project is consistent with the policies of the complete streets. The project will provide multi-use shoulders making the area safer for pedestrians, bicyclists, and vehicles.

## **4. ALTERNATIVES TO THE PROPOSED ACTION**

### **4.1 No Action Alternative**

Under the no action alternative, the widening of; and associated improvements to Iao Stream Bridge and approach roads would not be pursued. Environmental impacts would be avoided, construction costs spared, and the need for permits precluded. The existing pavement would continue to degrade; substandard safety for motorists, pedestrians, and bicyclists would continue; and the curb height will remain near flush with pavement.

### **4.2 Alternative 1: Widen on Mauka Side of Existing Bridge**

This alternative presents an alignment in which the roadway section of Iao Stream Bridge would have been widened only on the mauka side of the existing bridge structure. The roadway section at the Iao Stream crossing would have been increased to accommodate 12-foot travel lanes, 10-foot wide shoulders, and 5-foot wide sidewalks in each direction. In this alternative, the mauka side of the existing Iao Stream Bridge would have been widened by approximately 20.5-feet.

While this alternative would cost less and would require a shorter construction duration compared to the proposed action because the widening would only occur only on one side of the existing bridge structure, it would require the use of compound curves in order to transition between the existing roadway curvature and the shifting of the roadway centerline in the mauka direction at the Iao Stream Bridge and approaches. This alternative would not be ideal as compound curves are undesirable for highway alignment from a safety perspective. The Hawaii Statewide Uniform Design Manual for Streets and Highways (Manual) states that “compound curve(s) should be avoided” as the element of surprise is introduced to the driver through the winding effect of negotiating a compound curve.”

### **4.3 Alternative 2: Widen on Makai Side of Existing Bridge**

This alternative presents an alignment in which the roadway section would have been widened only on the makai side of the existing bridge structure. The roadway section of the Iao Stream crossing would have been increased to accommodate 12-foot travel lanes, 10-foot wide shoulders, and 5-foot wide sidewalks in each direction. In this alternative, the makai side of the existing Iao Stream Bridge would have been widened by approximately 20.5-feet.

While this alternative would also cost less and require a shorter construction duration than the proposed action, it would require the use of compound curves as in Alternative 1, which was also rejected as a viable alternative.

### **4.4 Alternative 3: Alternative Alignment – Widened Bridge Approach and Transition to Exiting Roadway**

For each of the alternatives, as well as the proposed action, an additional option for the transition of the widened roadway section at the Iao Stream Bridge to the existing roadway section on either side of the bridge approaches was proposed.

The additional option involved transition the widened Iao Stream Bridge roadway section back to the existing roadway section on either side of the bridge in the shortest distance possible. However, the roadway section beyond the project limits would have remained unimproved and the potential hazard to pedestrians and bicyclists would continue to exist.

## **5. REQUIRED PERMITS AND APPROVALS**

The following is a list of permits and approvals, which may be required prior to construction of the proposed project:

### **Federal**

- Department of the Army
  - Department of the Army, Nationwide Permit, Section 404, Clean Water Act
  - Department of the Army, Section 408, Modification to an Existing Corps Project

### **State of Hawaii**

- Department of Health
  - Section 401, Clean Water Act, Water Quality Certification
  - National Pollutant Discharge Elimination System (NPDES) General Permit for Construction Stormwater Activities
  - Noise Permit
  - Noise Variance
- Office of Planning
  - Coastal Zone Management (CZM) Federal Consistency Certification
- Department of Transportation
  - Permit to Perform Work Within State Highways

### **County of Maui**

- Department of Planning
  - Special Flood Hazard Area Development Permit

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## **6. DETERMINATION OF FONSI**

The proposed project involves improvements to and the widening of a 0.24 mile section of Waiehu Beach road and the existing Lao Stream Bridge as well as bringing the entire bridge into compliance with current seismic standards. Potential impacts of the proposed project have been evaluated in accordance with the significance criteria of Section 11-200-12 of the Department of Health's Administrative Rules. Discussion of the project's conformance to the criteria is presented as follows:

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

The proposed project has been designed to avoid impacts to archaeological resources in the project vicinity. An Archaeological Literature Review and Field Inspection Report of the project site was conducted by Cultural Surveys Hawaii, Inc. in which previous archaeological studies indicated that *taro loi* likely existed on the banks of the stream, but any archaeological remains have been destroyed due to the substantial alteration of the natural landscape and soils during the construction of the Lao Bridge in 1954 and the channelization of the stream for the flood control project of the 1970's. Pre-contact human burials have also been documented in the sand dune system that the project site crosses. Although the majority of the project area has undergone extensive ground alterations, there is a location at the northeastern end of the project site where ground disturbance will take place, affecting the sand dune system. However, the amount of cutting is relatively minor. Excavation work on the mauka side of the roadway will involve removal of material from a 2-foot wide swath from the existing roadway shoulder. On the makai side of the roadway, only the toe of the adjacent dune system will be excavated. Excavation on both sides will be less than a foot below existing conditions. For ground disturbing activities, an archeological monitoring plan will be submitted for SHPD's review and approval before start of construction.

Consultation with SHPD indicated that the project site is located near two sites listed on the National and State Registers of Historic Places, namely Halekii-Pihana Heiau (No. 50-04-0592) and the Maui Jinsha Mission (No. 50-04-1606). SHPD has determined, however, that the project is far enough away from these two sites that the project will have no adverse effect on them. The OHA, by letter dated March 22, 2011 concurred with the finding of no significant impact anticipated in the Draft EA. In addition, the DHHL by letter dated March 28, 2011 expressed their support for the project.

Also, since the Lao Bridge was built in 1954 and is now 57 years old, it is eligible to be recorded on the State Inventory of Historic Properties. It may also be eligible for nomination and listing on the Hawai'i National Register of Historic Places. In a letter dated April 20, 2011, SHPD expressed concerns regarding their initial recommendation to reproduce the original balustrade design to preserve the bridge's historical character. Further consultation between SHPD's Architecture Branch and DOT resulted in a design acceptable to both SHPD and DOT. The revised design is described in Section 1.3 and was determined by SHPD to have no adverse effect on the historic property.

There will be no destruction or loss of any significant, endangered, or threatened botanical, faunal, geological, or other natural resources. None of the plant or animal species identified

within the project site are threatened or endangered, or are a species of concern, and all can be found in similar environments throughout the island. There is no federally delineated Critical Habitat within or close to the project corridor, thus construction and operation of the proposed project will not result in any impacts to federally designated Critical Habitat.

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

The proposed project will not curtail the beneficial uses of the environment. Use of the project site for the proposed project would be consistent with its current use as a bridge and a primary rural arterial.

(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's relationship to the environmental policies or goals and guidelines as expressed in Chapter 344 HRS, is discussed in Section 3.2 of this document.

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

In the short term, the project will confer positive benefits in the local area. Direct economic benefits will result from construction expenditures both through the purchase of material from local suppliers and through the employment of local labor, thereby stimulating that sector of the economy. Indirect economic benefits may include benefits to local retailing businesses resulting from construction activities.

There are no significant adverse long-term socio-economic impacts anticipated with the proposed project. The improvements to Waiehu Beach Road and Iao Stream Bridge are not expected to induce growth beyond that which is anticipated for the region. The improvements are intended to benefit the entire Waiehu-Wailuku region without impacting a specific ethnicity or income group. The proposed project will not result in a disproportionately high adverse impact on minority and low-income populations.

(5) *Substantially affects public health;*

No significant adverse long-term impacts are anticipated with the proposed project.

In the long-term, the proposed project will provide positive effects as the proposed improvements will widen the roadway approaches and Iao Stream Bridge to accommodate multi-use shoulders of consistent width on both sides of the road for bicycles, pedestrians and emergency vehicle pullout. An additional sidewalk on the mauka side will be separated by a guardrail from vehicular traffic. The primary purpose of the improvements is to enhance safety of motorists, bicyclists and pedestrians along this section of roadway.

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

No secondary effects are anticipated with the construction or operation of the proposed project. The project, in and of itself, is not anticipated to affect the population of the Wailuku District. Rather, the project is proposed to fulfill an essential community need to provide safe access to and from the region for vehicles, bicyclists, and pedestrian alike.

(7) *Involves a substantial degradation of environmental quality;*

The proposed project is not anticipated to involve a substantial degradation of environmental quality.

Construction activities associated with the proposed project will create some adverse short-term impacts such as temporary disruption of traffic, unavoidable noise impacts, and air quality impacts from soil excavation and other ground disturbance activities. The construction contractor(s) will be required to mitigate potential vehicular traffic impacts through appropriate traffic control measures (see Section 2.17.1). Unavoidable construction noise impacts on nearby land uses in the immediate vicinity of the proposed project will be mitigated to some degree by complying with the provisions of the State DOH Administrative Rules, Title 11, Chapter 46, Community Noise Control (see Section). Potential air quality impacts during construction of the proposed project will be mitigated by complying with the State DOH Administrative rules, Title 11, Chapter 60, Air Pollution Control (see Section 2.7).

Potential water quality impacts to Iao Stream and near shore coastal waters during construction of the project will be mitigated by adherence to State and County water quality regulations governing grading, excavation, and stockpiling. A NPDES General Permit for storm water associated with construction activity administered by the State DOH will be required to control storm water discharges. Mitigation measures will be instituted in accordance with site-specific assessments, incorporating appropriate structural and/or non-structural BMPs such as silt fences and minimizing time of exposure between construction and re-pavement.

In the long-term, no significant air quality, noise, or water quality impacts are anticipated from the operation of the proposed project.

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

No cumulative effects are anticipated, inasmuch as the proposed project involves improvements to an existing bridge and its approach roadways in an already urbanized setting.

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

No listed, candidate, or proposed rare, threatened, or endangered species of flora or fauna under either the Federal or State endangered species statutes nor any critical habitat units will be disturbed as a result of the proposed project.

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

No long-term significant impacts to air quality within the project site are anticipated with the construction of the proposed project.

During construction of the proposed project, two potential types of air pollution emissions will likely occur, resulting in air quality impacts: 1) airborne dust from construction activities such as grading and excavation within the project site; and 2) exhaust emissions from construction vehicles and equipment from the project site.

Potential air quality impacts during construction of the proposed development will be mitigated by complying with the State DOH Administrative Rules, Title 11, Chapter 60 "Air Pollution Control". The construction contractor is responsible for complying with the State DOH regulations which prohibit visible dust emissions at property boundaries. Compliance with State regulations will require adequate measures to control airborne dust by methods such as water spraying and sprinkling of loose or exposed soil or ground surface areas and dust-generating equipment during construction. As may be deemed appropriate, planting of landscaping or re-paving as soon as possible on completed areas will also help to control dust. Increased vehicular emissions due to disruption of traffic by construction equipment and/or commuting construction workers can be alleviated by moving the equipment and personnel to the site during off-peak hours. Exhaust emissions from construction vehicles are anticipated to have negligible impact on air quality in the project vicinity as the emissions would be relatively small and readily dissipated.

Operation of the project will have no significant long-term impact on ambient air quality in the project vicinity. Air quality levels would be most affected by vehicular emissions generated by project-related traffic, however, the elevated vehicular emission concentrations are anticipated to dissipate.

No long-term significant impacts to water quality within the project site are anticipated with the construction of the proposed project.

In the short term, potential water quality impacts to surface and near shore coastal waters during construction of the project will be mitigated by adherence to State and County water quality regulations governing grading, excavation, and stockpiling. A National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Associated with Construction Activity, administered by the State Department of Health (DOH), will be required to control storm water discharges. Mitigation measures will be instituted in accordance with site-specific assessments, incorporating appropriate structural and/or non-structural Best Management Practices (BMPs) such as silt fences and minimizing time of exposure between construction and re-vegetation or paving. Following construction, exposed soils at the project site will have been built over, paved over, or re-vegetated to control erosion.

Construction activities are not anticipated introduce nor release from the soil any materials which could adversely affect groundwater. Construction material wastes will be appropriately disposed of and must also be prevented from leaching into receiving bodies of water. Dewatering activity is not anticipated for this project.

A Department of the Army (DA) Nationwide Permit (NP) will be required pursuant to Section 404 of the Clean Water Act (CWA). The NP will be obtained from the Corps of Engineers (COE) for any fill material that will be discharged below the Ordinary High Water Mark (OHWM) within Iao Stream, which has been determined by the DA to be jurisdictional. The DA permit also triggers the need for Water Quality Certification (WQC), pursuant to Section 401 of the CWA for "any activity including, but not limited to, the construction or operation of facilities, which may result in any "discharge" into navigable waters". The WQC is administered by the DOH and is in place to regulate water quality during the construction phase of the project to in compliance with State Water Quality Standards.

In addition, approval from the COE will be required pursuant to 33 USC Section 408 regarding any work activity resulting in significant modification or alteration of a COE project. Accordingly, a request for approval has been submitted to the COE Civil and Public Works Branch.

Iao Stream is also subject to Section 10 of the Rivers and Harbors Act of 1899 regarding activities conducted over, within and beneath navigable waters of the US. However, the project site is located approximately 0.3 miles inland of the mouth of Iao Stream at an elevation of approximately 19 feet above sea level. As such, the portion of Iao Stream where the project is located is not generally navigable or tidally influenced and is not anticipated to require a permit pursuant to Section 10.

No long-term significant impacts to noise levels within the project site are anticipated with the construction of the proposed project.

In the short term, noise from construction activities such as excavation, grading, cutting and paving will be unavoidable. The increase in noise level will vary according to the particular phase of construction. Noise may also increase as a result of operating heavy construction vehicles and other power equipments during the construction period.

Construction noise impacts will be mitigated by compliance with provisions of the State DOH Administrative Rules, Title 11, Chapter 46, "Community Noise Control" noise control regulations. These rules require a noise variance for any night work. Night work is anticipated for the project and, as such, a noise variance will be obtained. Further, DOH rules require a noise permit if the noise levels from construction activities are expected to exceed the allowable levels stated in the DOH Administrative Rules. It shall be the contractor's responsibility to minimize noise by properly maintaining noise mufflers and other noise-attenuating equipment, and to maintain noise levels within regulatory limits. Also, the guidelines for hours of heavy equipment operation and noise curfew times as set forth by the DOH noise control rules will be adhered to; or if necessary, a noise permit will be obtained.

In the long-term, no significant noise impact from is anticipated once the proposed project has been completed. Noise from vehicles will continue to be the primary noise source along the project site, however, no adverse noise effects from the project are anticipated since the project will not generate additional traffic in the vicinity.

(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;*

No short or long-term significant impacts are anticipated as the project site is not located within an environmentally sensitive area.

According to the Flood Insurance Rate Map (FIRM), Map number 15000300383E and 15000300384E, dated Sept 25, 2009, the project site straddles two flood zones. The Waiehu approach to Iao Stream Bridge lies within "Zone X, other areas" and is characterized as "areas determined to be outside the 0.2% annual chance floodplain." The Wailuku approach lies within "Zone X, other flood areas" and is characterized as "areas of 0.2% annual chance flood with average depths of less than 1 foot or with drainage areas less than

1 square mile, and areas protected by levees from 1% annual chance flood.” Iao Stream Bridge lies over “Zone AE” which is characterized as a “special flood hazard area subject to inundation by the 1% annual chance flood.” Zone AE is also a “floodway,” which is “the channel of the stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood height.” The 1% annual flood is also commonly referred to as the 100-year flood or the base flood. The base flood elevation for the Iao Stream Bridge area have been determined to be between approximately 25 to 29 feet while the bottom of the bridge is at elevation 39 feet, well above the base flood.

The entire project site, makai side of the Waiehu Beach Road, is within the Tsunami Evacuation Zone, as determined by County and State Civil Defense agencies.

Construction activities within the respective flood hazard districts will be conducted in accordance with regulations set forth in Section 19.62.060, Maui County Code. Before construction of any development begins within any flood hazard area, flood-related erosion hazard area, or mudslide area, a special flood hazard area development permit shall be obtained from the director of the Department of Planning.

The project will also comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), as the project is within a Special Flood Hazard Area.

Studies will be conducted to ensure that any proposed encroachment in the floodway will not result in any increase in the regulatory flood elevations during occurrence of the regulatory flood. The studies will identify a certified flood elevation and evaluate flooding impacts, including the potential impact of proposed structures on flood elevations.

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

The proposed project is not anticipated to have significant impacts on notable view planes nor adversely affect important public viewing points or visual resources. As an already existing roadway and bridge, the project will not affect the scenic and visual character of the surrounding area.

(13) *Requires substantial energy consumption.*

Operation of the proposed project will not result in a significant increase in energy consumption.

## 7. CONSULTATION

### 7.1 Pre-Assessment Consultation

The following agencies and organizations were consulted during the preparation of the Draft EA. Of the 17 parties that formally replied during the pre-assessment period, some had no comments while others provided substantive comments as indicated by the ✓ and ✓✓, respectively. All written comments are reproduced in Appendix C.

#### Federal Agencies

- ✓✓ U.S. Army Corps of Engineers
- ✓ U.S. Fish and Wildlife Service
- ✓ U.S. Geological Survey

#### State Agencies

- Department of Accounting and General Services
- Department of Business, Economic Development and Tourism (DBEDT)
- ✓✓ Department of Hawaiian Home Lands
- Department of Health (DOH)
- DOH, Clean Water Branch
- DOH, Environmental Management Division
- DOH, Office of Environmental Quality Control
- Department of Land and Natural Resources (DLNR)
- ✓ DLNR, Division of Boating & Ocean Recreation
- ✓✓ DLNR, Commission on Water Resources Management
- ✓ DLNR, Division of Forestry and Wildlife
- ✓ DLNR, Division of State Parks
- ✓✓ DLNR, Engineering Division
- ✓ DLNR, Land Division
- ✓✓ DLNR, State Historic Preservation Division
- DLNR, Maui/Lanai Island Burial Council
- Office of Hawaiian Affairs
- University of Hawaii Environmental Center

#### County of Maui Agencies

- Civil Defense Agency
- Cultural Resources Commission
- Department of Fire and Public Safety
- ✓ Department of Parks and Recreation
- ✓✓ Department of Planning
- ✓✓ Department of Public Works
- ✓ Department of Transportation
- ✓✓ Department of Water Supply
- Office of the Mayor
- ✓✓ Police Department

#### Elected Officials

Councilmember Danny Mateo, Council Chair

## 7.2 Draft EA Consultation

Notice of the Draft EA was published in the February 23, 2011 edition of the Office of Environmental Quality Control's *The Environmental Notice*. The following agencies and organizations were consulted during the public review period of the Draft EA, which ended on March 24, 2011. Of the 20 parties that formally replied during the Draft EA comment period, some had no comments, while others provided substantive comments as indicated by the ✓ and ✓✓, respectively. All written comments received along with response letters are reproduced in Appendix D.

### Federal Agencies

- U.S. Army Corps of Engineers (COE)
- ✓✓ COE, Civil Works Technical Branch
- ✓✓ COE, Regulatory Branch
- ✓✓ U.S. Fish and Wildlife Service
- ✓ U.S. Geological Survey

### State Agencies

- Department of Business, Economic Development and Tourism (DBEDT)
- DBEDT, Strategic Industries Division
- DBEDT, Office of Planning
- ✓ Department of Hawaiian Home Lands
- Department of Health (DOH)
- ✓ DOH, Indoor and Radiological Health Branch
- Department of Land and Natural Resources (DLNR)
- ✓✓ DLNR, Division of Aquatic Resources
- ✓✓ DLNR, Engineering Division
- ✓ DLNR, Commission on Water Resource Management
- ✓✓ DLNR, State Historic Preservation Division
- ✓✓ Office of Hawaiian Affairs
- University of Hawaii Environmental Center

### County Agencies

- ✓✓ Department of Environmental Management
- ✓✓ Department of Fire and Public Safety
- ✓ Department of Planning
- ✓✓ Department of Public Works
- ✓ Department of Transportation
- ✓ Department of Water Supply
- Police Department
- Maui County Cultural Resources Commission

### Elected Officials

- Councilmember Danny A. Mateo, Council Chair
- Councilmember Michael P. Victorino

### Utility Companies

- ✓ Maui Electric Company
- Oceanic Time Warner Cable

**Utility Companies (Continued)**

- ✓ The Gas Company
- Hawaiian Telcom

**Other Interested Parties and Individuals**

- Paukukalo Hawaiian Homestead Community Association
- Waiehu Kou Community Homestead Association
- Waiehu Kou residence Lots, Phase 2 Association
- Waiehu Kou Phase 3 Association, Inc.
- Waiehu Kou Phase 4
- Trust for Public Lands
- Wailuku Neighborhood Place
- ✓✓ Maui Bicycle Alliance
- Mr. Bryan Sarasin
- Mr. Foster Ampong
- Mr. Timothy Bailey
- Mr. Keoki Kiili

**7.3 Final EA Distribution**

The Final EA has been distributed to the following agencies and other interested parties and individuals.

**Federal Agencies**

- U.S. Army Corps of Engineers (COE), Civil Works Technical Branch
- COE, Regulatory Branch
- U.S. Fish and Wildlife Service
- U.S. Geological Survey

**State Agencies**

- Department of Hawaiian Home Lands
- Department of Health Indoor and Radiological Health Branch
- Department of Land and Natural Resources (DLNR)
- DLNR, Division of Aquatic Resources
- DLNR, Division of Forestry and Wildlife
- DLNR, Engineering Division
- DLNR, Commission on Water Resource Management
- DLNR, State Historic Preservation Division
- Office of Hawaiian Affairs

**County Agencies**

- Department of Environmental Management
- Department of Fire and Public Safety
- Department of Planning
- Department of Public Works
- Department of Transportation
- Department of Water Supply

### **Elected Officials**

Councilmember Mike Victorino

### **Utility Companies**

Maui Electric Company

The Gas Company

### **Other Interested Parties and Individuals**

Paukukalo Hawaiian Homestead Community Association

Waiehu Kou Community Homestead Association

Waiehu Kou residence Lots, Phase 2 Association

Waiehu Kou Phase 3 Association, Inc.

Waiehu Kou Phase 4

Trust for Public Lands

Wailuku Neighborhood Place

Maui Bicycle Alliance

Mr. Bryan Sarasin

Mr. Foster Ampong

Mr. Keoki Kiili

## **7.4 Public Information Meeting**

A public information meeting was held on March 23, 2011 at the Queen Liliuokalani Children's Center Lanai. A copy of the meeting notes is included in Appendix E.

The purpose of the meeting was to apprise the community of the project, present a summary of findings on the Draft Environmental Assessment (DEA), and solicit verbal and written comments from the community at-large as well as pursuant to Section 106 of the Historic Preservation Act, as amended.

A summary of the questions and comments received at the meeting is included below.

#### **1. Archaeological/Cultural Resources**

- Is there was any evidence of human remains or heiaus in Iao Stream because the stream has moved over the years and its movement may have disturbed human remains or other culturally sensitive areas?
- Is there was a back up plan in case significant cultural artifacts are found when work is done on the bridge abutments?
- What are the qualifications of the on-site archeological monitor?
- Will ground disturbance work disturb the pohaku?
- Comment that open communication is important.

**Response:** *As the project area was mainly lined in lo'i, any movement or shifting of the stream alignment would have disturbed those. However, through time, the stream has eroded some of the dune that Halekii and Pihana are on. As a result of natural stream erosion and some sand mining occurring on the dune, a part of Pihana has collapsed. Proposed construction work is not anticipated to disturb the pohaku.*

Work being done in and around the bridge area will require a qualified professional archeological monitor to present who meets the qualifications set forth in HAR Chapter 13-281. An archeological monitoring plan will be submitted to SHPD for review and approval and the monitor will have to follow the approved plan. Should any significant archaeological, cultural, or historic resources be found during construction activities, all work will cease and the SHPD will be notified immediately.

## 2. Traffic During Construction

- What are the specific times for night work?
- What will the duration of night work for minimum distraction or noise impact for people who live in the impacted area.
- Comment that traffic is going to be a major nightmare in the project vicinity. There is so much traffic in the area that two lanes may need to stay open during the day and contra flow be done at night.
- Comment that they should assume work on the abutments and footing will be done in the summer months and into fall as to avoid the rain.
- Comment that they are concerned about the contra flow during the daytime traffic because traffic is really backed up.
- Comment that the morning peak time be extended until 9:00 AM and the afternoon peak time extended until 5:00 PM. Suggestion that from 9:00 AM to 2:00 PM DOT should do contra flow and the rest of the time the road remain completely open.
- Comment that sporadic closure, if necessary, would be acceptable.

**Response:** *Night work is anticipated, however, the hours and duration have not yet been determined. DOT will mitigate potential impacts to the extent practicable in consideration of time and cost requirements. Waiehu Road will remain open during peak travel periods. Traffic conditions will be monitored to mitigate potential traffic impacts, and the traffic control plan will be adjusted accordingly. Pursuant to Chapter 11-46, HAR, regarding Community Noise Control, a noise variance will be obtained as needed prior to the start of night work and will include measures to minimize the noise impact to the surrounding areas.*

## 3. Community Outreach

- How did DOT notify the public besides the newspaper?
- Comment that since Waiehu Kou I, II, III, and IV were contacted, Waihee should be contacted as well.

**Response:** *In addition to Legal notices published in The Honolulu Star-Advertiser and The Maui News, an extensive mail out was conducted to notify the public regarding this meeting. Notably, invitation letters were mailed to residents in the Waiehu Terrace, Paukukalo Homestead, and Waiehu Kou I, II, III, and IV. In addition, invitation letters were also mailed to properties within a 500-foot radius of the project site, including the shopping center located immediately to the southeast of the project site as well as the smaller shops in the Wailuku Industrial Area. Furthermore, Native Hawaiian Organizations, including descendants with lineal or cultural ties to the ahupuaa of Wailuku or Waiehu were contacted via phone and*

*email regarding the project and public information meeting. Waihee will be added to the contact list.*

4. Consistency with Plans, Policies, Permitting Requirements

- Has DOT reviewed the complete streets concept and is it being implemented with this project?
- Since the project is in a flood control area, does DOT need to work with the Army Corps of Engineers?
- How will DOT contain the construction debris during excavation of the bridge footings and abutments?
- Comment that DOT must work with other agencies to control runoff and debris entering the stream during construction.

**Response:** *It is DOT's policy to look at every project as a complete street.*

*As part of the permitting process, DOT will coordinate with the Army Corps of Engineers to address potential impacts the existing flood control project as a result of the proposed project. Pursuant to Section 401 and 404 of the Clean Water Act, a Water Quality Certification and Nationwide Permit will be obtained. In conjunction with these approvals, BMPs will be included to contain debris that may be generated from the project.*

## 8. REFERENCES

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# **APPENDIX A**

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**Stream Biological and Water Quality Survey for the Iao Stream  
Bridge Rehabilitation at Waiehu Beach Road, Maui**

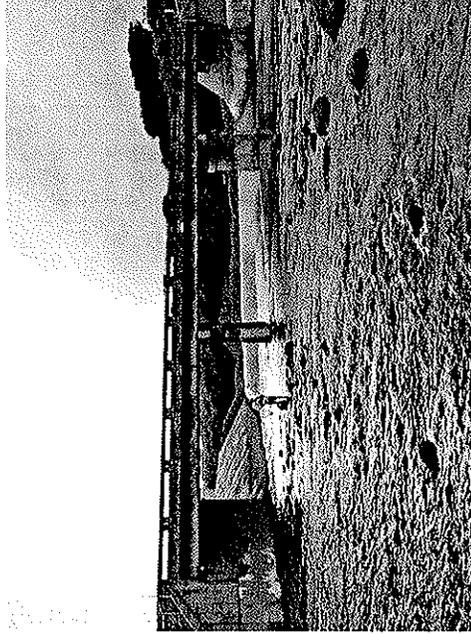
**AECOS, Inc.**

**February 2011**

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## Stream biological and water quality survey for the ‘Iao Stream bridge rehabilitation at Waiehu Beach Road, Maui.

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Prepared by:  
AECOS Inc.  
45-939 Kamehameha Hwy, Suite 104  
Kāne‘ohe, Hawai‘i 96744-3221

February 9, 2011

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## Stream biological and water quality survey for the ‘Iao Stream bridge rehabilitation at Waiehu Beach Road, Maui

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February 9, 2011

AECOS No. 1132

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AECOS, Inc.  
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### Introduction

In December 2009, AECOS, Inc. biologists conducted biological and water quality surveys of ‘Iao Stream near Wailuku, Maui (Fig. 1). The existing T-beam bridge crossing of Waiehu Beach Road is scheduled for rehabilitation. AECOS, Inc. was contracted by Wilson Okamoto and Associates, Inc.<sup>1</sup> to ascertain aquatic resources and assess water quality for the proposed project. This report presents findings of those surveys.

### Stream Description

‘Iao Stream is classified as a perennial stream by the State of Hawai‘i, Division of Aquatic Resources and assigned a stream code of 6-2-009. The stream originates on the eastern slopes of the West Maui Mountains, southeast of Pu‘u Kukui at an elevation of 2450 ft (817 m). The stream flows 7.3 mi (11.7 km) east-northeast through Wailuku, reaching its outlet to the Pacific Ocean at Nehe Point, approximately 1 mi (1.6 km) northwest of Kahului Harbor. ‘Iao Stream waters are diverted for agricultural use at several points, serving the ‘Iao-Waikapu Tunnel, Iao-Maniania Tunnel, Waihee Ditch, Kama Ditch, and the Spreckels ditch that connects the Mill and Waiaie Reservoirs (USGS, 2009).

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<sup>1</sup> This document will be incorporated into the Environmental Assessment (EA) for the ‘Iao Stream Bridge Rehabilitation Project and will become part of the public record.

At the bridge project site, the stream bed consists of a basalt boulders, cobbles, and gravel covering the bottom of a concrete lined channel 164 ft (50 m) wide. The concrete lined stream banks are approximately 15 ft (5 m) in height. Stream bank vegetation is sparse upstream and absent downstream of the project site because of the nature of the banks. Vegetation upstream includes Guinea grass (*Panicum maximum*), Bermuda grass (*Cynodon dactylon*), wire grass (*Eleusine indica*), fingergrass (*Chloris barbata*), graceful spurge (*Chamaesyce hypericifolia*), spiny amaranth (*Amaranthus spinosus*), and wedelia (*Sphagneticola trilobata*).

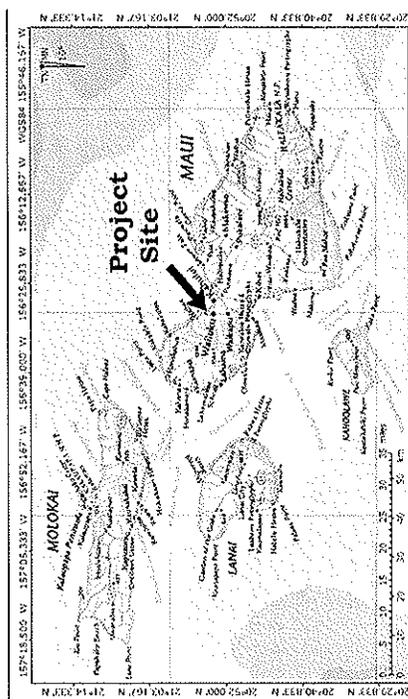


Figure 1. General location of the project near Wailuku, Maui.

## Survey Methods

AECOS biologists surveyed a 1.5-mi (2.4-km) segment of Iao Stream on December 4, 2009, to identify any aquatic biota present and to measure water quality within the project area. The survey extended from above the Imi Kala St. footbridge, downstream to the stream's outlet at Nehe Point. High stream flow on the survey date precluded looking at areas further upstream for safety reasons. Field measurements of water quality and water quality samples were taken at three station locations in the project area. Table 1 lists analytical methods and instrumentation used in the analysis of water quality.

Table 1. Analytical methods and instruments used for water quality analyses of Iao Stream waters sampled on December 4, 2009.

Analysis	Method	Reference	Instrument
Ammonia	EPA 350.1 M	Grasshoff et al. (1986) EPA (1995)	Technicon AutoAnalyzer II
Conductivity	SM 2510-B	Standard Methods, 20th Edition (1998)	Hydach pH/conductivity meter
Dissolved Oxygen	SM 4500-O G	Standard Methods 20th Edition (1998)	YSI Model 550A Dissolved Oxygen Meter
Nitrate + Nitrite	EPA 353.2 Rev 2.0	EPA (1995)	Technicon AutoAnalyzer II
pH	SM 4500 H+	Standard Methods 20th Edition (1998)	Hanna pocket pH meter
Temperature	thermistor calibrated to NBS. Cert. thermometer SM 2550 B	Standard Methods 20 <sup>th</sup> Edition (1998)	YSI Model 550A Dissolved Oxygen Meter
Total Nitrogen	persulfate digestion/EPA 353.2	Grasshoff et al. (1986) EPA (1995)	Technicon AutoAnalyzer II
Total Phosphorus	persulfate digestion/EPA 365.1 Rev 2.0	Grasshoff et al. (1986) EPA (1995)	Technicon AutoAnalyzer II
Total Suspended Solids	Method 2540 D	Standard Methods 20th Edition (1998)	Mettler H51 balance
Turbidity	EPA 180.1 Rev 2.0	EPA (1995)	Hach 2100N Turbidimeter

EPA. 1993. Methods for the Determination of Inorganic Substances in Environmental Samples. EPA 600/R-93/100.  
Grasshoff, K., M. Ehrhardt, & K. Kremling (eds). 1986. Methods of Seawater Analysis (2nd ed.). Verlag Chemie, GmbH, Weinheim.  
Standard Methods. 1998. Standard Methods for the Examination of Water and Wastewater, 20th Edition. 1998. (Greenberg, Clesceri, and Eaton, eds.). APHA, AWWA, & WEF. 1220 p.

Station "Upstream" was located 900 ft (275 m) upstream from the bridge at Waiehu Beach Road. Station "Bridge" was collected a few meters downstream from the bridge slated for rehabilitation. Station "Downstream" was collected 1375 ft (420 m) downstream from Waiehu Beach Road. All water samples were collected on December 4, 2009 and delivered to AECOS, Inc. in Kaneohe, HI for laboratory analysis (AECOS Log No 25754). An alga was collected near Sta. Bridge for microscopic examination and identification.

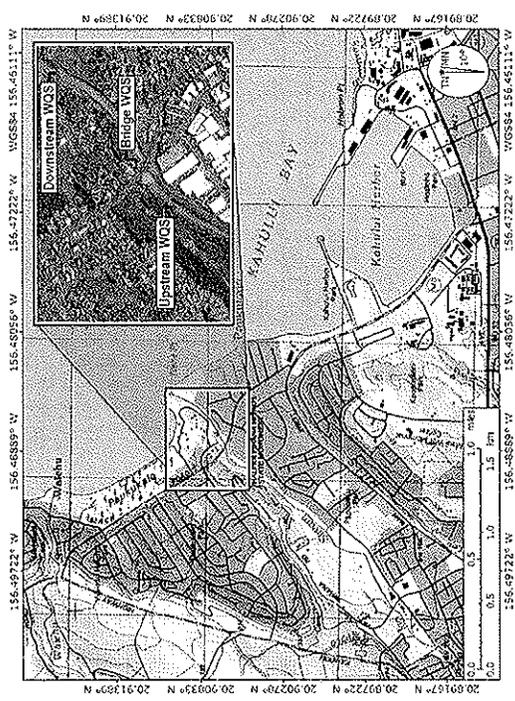


Figure 2. Location of water quality sampling stations in 'Iao Stream near Waiehu Beach Road, Maui.

## Results

### Water Quality

Table 2 lists water quality characteristics of 'Iao Stream on December 4, 2009. Stream flow was high, with water flow across the entire width of the channel in most of the survey area. Total suspended solids concentrations and turbidity levels were low, reflecting the good underwater visibility experienced during the survey. Dissolved oxygen concentrations appeared slightly low for such brisk flowing surface water. Sta. "Downstream" had elevated pH for stream water. Nitrate-nitrite concentrations at all sampled stations were elevated, whereas total nitrogen and total phosphorus levels are low.

Table 2. Water quality characteristics of 'Iao Stream on December 4, 2009.

Station	Time (hh:mm)	Temp. (°C)	Dissolved Oxygen (mg/l)	Dissolved Oxygen (% sat.)	pH	Conductivity (µmhos/cm)	Nitrate + Nitrite			Total	
							TSS (mg/l)	Turbidity (ntu)	Ammonia (µg/l)	Nitrite (µg/l)	N
Upstream	1548	22.4	6.86	79	7.58	111	<4	1.04	87	178	17
Bridge	1532	22.8	6.83	79	7.88	112	<4	1.02	92	160	17
Downstream	1459	23.5	6.72	79	8.41	114	<4	1.40	95	147	18

### Aquatic Biota

A list of aquatic biota identified from 'Iao Stream on December 4, 2009, is presented in Table 4. The marine toad (*Rhinella marina*) and a chlorophyte (*Stigeoclonium* sp.) were the only organisms observed in the stream at the proposed project site at Waiehu Beach Road. A few fishes and invertebrates inhabit the estuarine reach of 'Iao Stream, downstream from the project site. Mullet (*Mugil cephalus*) and *nehu* (*Encrasicholina purpurea*) occur in small schools. Crayfish (*Procambarus clarkii*; molts or carcasses only) and dragonfly/damselfly naiads (Order Odonata) were seen.

### Assessment

Stream waters, as determined on December 4, 2009 during a freshet flow event, have depressed oxygen concentrations and elevated nitrate-nitrite con-

Table 3. Checklist of aquatic biota observed on December 4, 2009 by AECOS, Inc. biologists or reported (DAR, 2009) from the lower reach of ʻĪao Stream, Maui.

PHYLUM, CLASS, ORDER, FAMILY Genus species	Common name	Abundance	Status	Notes
<b>ALGAE</b>				
CHLOROPHYTA, CHLOROPHYCEAE, CHAETOPHORALES CHAETOPHORACEAE <i>Stigeoclonium</i> Kuetzing sp.	green algae	R	Ind.	<2>
<b>INVERTEBRATES</b>				
MOLLUSCA, GASTROPODA BASOMMATOPHORA LYMNAEIDAE unid.	lymnaeid snail	--	Nat.	<3>
ARTHROPODA, INSECTA, DIPTERA CHIRONOMIDAE unid.	midge	--	Nat.	<3>
ARTHROPODA, INSECTA, ODONATA unid.	naiad	R	--	<1>
COENAGRIONIDAE <i>Megalagrion</i> sp.	damselfly	--	End.	<3>
MALACOSTRACA, DECOPODA ATYIDAE <i>Atyaidea bisulcata</i> J.W.Randall	mountain shrimp; <i>ʻopae kala ʻole</i>	--	End.	<3>
CAMBARIDAE <i>Procambarus clarkii</i> Girard	American crayfish	R	Nat.	<1>
<b>FISHES</b>				
CHORDATA, ACTINOPTERYGII ENGRAULIDAE <i>Engraulichthys purpurea</i> Powell	Hawaiian anchovy; <i>nehū</i>	O	End.	<1>
MUGILIDAE <i>Mugil cephalus</i> L.	mullet; <i>ʻama ʻama</i>	O	Ind.	<1>
KUHLIDAE <i>Kuhlia</i> Gill sp.	flagtail; <i>ʻāhohole</i>	--	Ind.	<3>

Table 3 (continued).

PHYLUM, CLASS, ORDER, FAMILY Genus species	Common name	Abundance	Status	Notes
GOBIIDAE <i>Awaous guamensis</i> Valciennes	<i>ʻo ʻopu nākea</i>	--	Ind.	<3>
<i>Lentipes concolor</i> Gill	<i>ʻo ʻopu ʻalamo ʻo</i>	--	End.	<3>
<i>Sicyopterus stimpsoni</i> Gill	<i>ʻo ʻopu nōpili</i>	--	End.	<3>
<b>AMPHIBIANS</b>				
CHORDATA, AMPHIBIA, ANURA BUFONIDAE <i>Rhinella marina</i> L.	cane toad <b>BIRDS</b>	R	Nat.	<1>
CHORDATA, AVES, CICONIIFORMES CHARADRIIDAE <i>Pluvialis fulva</i> J.F.Gmelin.	golden plover; <i>kōlea</i>	R	Ind.	<1>

## KEY TO SYMBOLS USED:

## Abundance categories:

R - Rare - only one or two individuals observed.  
 U - Uncommon - several to a dozen individuals observed.  
 O - Occasional - seen irregularly in small numbers  
 C - Common - observed everywhere, although generally not in large numbers.  
 A - Abundant - observed in large numbers and widely distributed.

## Status categories:

End - Endemic - species found only in Hawaii  
 Ind - Indigenous - species found in Hawaii and elsewhere  
 Nat - Naturalized - species were introduced to Hawaii intentionally, or accidentally.

## Identification codes:

<1> - field identification on December 4, 2009  
 <2> - sample specimen collected December 4, 2009 and identified by microscopic examination.  
 <3> - reported historically present by Division of Aquatic Resources (DAR, 2009)

centrations relative to State of Hawai'i water quality criteria for streams (Table 4). A single sampling event does not imply impairment for these parameters, as a geometric mean of at least three sampling events would be required to determine compliance. However, ʻĪao Stream is listed on the Hawai'i Department of Health, 2006 list of impaired waters in Hawai'i (HDOH, 2006), prepared under Clean Water Act §303(d). This listing states that the stream does not meet the state water quality standards for certain parameters, specifically turbidity and trash based solely on a visual assessment.

An aquatic macrofauna community was not present at the project site during the December 4, 2009 survey. The only aquatic species encountered was a

chlorophyte (alga), from the genus *Stigeoclonium*. A few estuarine species are present farther downstream from the project, a short distance inland from the ocean. Historical data (DAR, 2009) indicate that populations of both native and introduced fishes and invertebrates inhabit ʻĪao Stream well upstream of the project site. The presence of native, diadromous *ʻōʻopu* (stream gobies) and *ʻopae* (stream shrimp or prawns) in the upper reaches of the stream means that the stream segment through the project site provides passage up and down the stream—at least during freshets—for these populations.

Table 4. State of Hawaiʻi water quality criteria for streams (geometric mean values) for wet (Nov. 1-Apr. 30) and dry (May 1-Oct. 31) seasons from HAR §11-54-05.2(b).

Parameter	Total Nitrogen (µg N/l)	Nitrate + Nitrite (µg N/l)	Total Phosphorus (µg P/l)	Turbidity (NTU)	Total Suspended Solids (mg/l)
Not to exceed given value (dry season)	180.0	30.0	30.0	2.0	10.0
(wet season)	250.0	70.0	50.0	5.0	20.0
Not to exceed more than 10% of the time (dry season)	380.0	90.0	60.0	5.5	30.0
(wet season)	520.0	180.0	100.0	15.0	50.0
Not to exceed more than 2% of the time (dry season)	600.0	170.0	80.0	10.0	55.0
(wet season)	800.0	300.0	150.0	25.0	80.0

- pH – shall not deviate more than 0.5 units from ambient and not be lower than 6.5 nor higher than 8.0.
- Dissolved oxygen – not less than 80% saturation.
- Temperature – shall not vary more than 1 °C from ambient.
- Conductivity – not more than 300 micromhos/cm.

None of the fishes nor invertebrate species observed during these surveys is listed as threatened or endangered by the U.S. Fish and Wildlife Service under the Endangered Species Act of 1973, as amended, or by the State of Hawaiʻi under its endangered species program (DLNR 1998; USFWS, 2009). However, the construction phase will need to guarantee passage of diadromous fauna

through the project site at all times. A Best Management Practices (BMP) plan should be designed and implemented to minimize environmental impacts to water quality and aquatic biota in the vicinity of or downstream of the project site.

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U.S. Fish & Wildlife Service (USFWS). 2009. Endangered and Threatened Wildlife and Plants. 50CFR 17.11 and 17.12. Available online at URL: [http://ecos.fws.gov/hess\\_public/pub/state/usingindividual.jsp?state=HI&status=listed](http://ecos.fws.gov/hess_public/pub/state/usingindividual.jsp?state=HI&status=listed); last accessed on Jan 5, 2010.

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## **APPENDIX B**

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**Archaeological Literature Review and Field Inspection for the Iao  
Bridge Widening and Sidewalk Improvements Project  
Wailuku Ahupuaa, Wailuku District, Maui Island**

**Cultural Surveys Hawaii, Inc.**

**March 2010, Revised September 2011**

**Archaeological Literature Review and Field Inspection for  
the 'Iao Bridge Widening and Sidewalk Improvements  
Project  
Wailuku Ahupua'a, Wailuku District, Maui Island  
TMK: (2) 3-4-30**

Prepared for  
Wilson Okamoto Corporation

Prepared by  
Colleen Medeiros Dagan B.S.,  
Tanya L. Lee-Greig  
and  
Hallett H. Hammatt, Ph.D.  
Cultural Surveys Hawai'i, Inc.  
Wailuku, Hawai'i  
(Job Code: WAIEHU 1)

March 2010  
Revised September 2011

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[www.culturalsurveys.com](http://www.culturalsurveys.com)

**Management Summary**

<b>Reference</b>	Archaeological Literature Review and Field Inspection for the 'Iao Bridge Widening and Sidewalk Improvements Project, Wailuku Ahupua'a, Wailuku District, Maui Island, TMK (2) 3-4-30 (Dagan and Hammatt, 2009)
<b>Date</b>	March 2010
<b>Project Number (s)</b>	Wilson Okamoto Corporation (WOC) Project No. 7213-01 Hawaii State Department of Transportation Project No. BR-STP-3400(5)
<b>Permit Number</b>	Cultural Surveys Hawai'i, Inc. Job Code: Waiehu 1
<b>Project Agencies</b>	Federal: Federal Highway Administration (FHWA) State: Hawai'i Department of Transportation (HDOT) Hawai'i Department of Land and Natural Resources /State Historic Preservation Division (DLNR/SHPD)
<b>Land Jurisdiction</b>	Hawai'i State Department of Transportation (HDOT)
<b>Project Location</b>	TMK (2) 3-4-30, Wailuku Ahupua'a, Wailuku District, Island of Maui.
<b>Project Acreage and Description</b>	The project area includes approximately 0.77 acres. The HDOT will be widening a portion of Waiehu Beach Road which includes the 'Iao Bridge and the roadway from Kaae Place to Nukuwai Place. All improvements will be conducted within the existing right-of-way.
<b>Project Area of Potential Effect (APE)</b>	The APE for this project includes the Waiehu Beach Road right-of-way from Kaae Place to Nukuwai Place and includes the 'Iao Bridge and a portion of the 'Iao stream channel which the bridge spans. The approximate area of disturbance for the project is 0.77 acres.

<b>Project Historic Preservation Regulatory Context</b>	<p>Due to FHWA funding, this project is considered a federal undertaking requiring compliance with Section 106 of the National Historic Preservation Act (NHPA), the National Environmental Policy Act (NEPA), and Section 4(f) of the federal Department of Transportation Act (DTA). As an HDOT project within state lands, the project is additionally subject to State of Hawai'i environmental and historic preservation review legislation (Hawai'i Revised Statutes (HRS) Chapter 343 and HRS 6E-8/Hawai'i Administrative Rules (HAR) Chapter 13-13-275, respectively).</p> <p>This document is intended to assist in the project planning efforts and historic preservation review process. This literature review and field inspection does not fulfill SHPD requirements of an archaeological inventory survey as mandated by Hawai'i Administrative Rules (HAR) 13-276-5.</p>
<b>Document Purpose</b>	<p>This document has been requested by the client, Wilson Okamoto Cooperation to provide guidance in the planning process in regard to State Historic Preservation Division requirements.</p>
<b>Fieldwork Effort</b>	<p>Mrs. Colleen Medeiros Dagan B.S. performed a field inspection of the project area on August 26 and October 8, 2009. A total of six man hours were utilized for these inspections.</p>
<b>Identified/Cultural Resources</b>	<p>ʻĪao Bridge constructed in 1954.</p>
<b>Discussion of Project Effect and Mitigation Recommendation</b>	<p>Due to previous archaeological findings of pre-contact habitation features and cultural deposits as well as human burials in the vicinity of the project area, and due to the project area's proximity to the Halekii-Phana State Monument, archaeological monitoring is recommended during ground disturbing activities for the bridge widening and sidewalk improvements project.</p> <p>The ʻĪao Bridge was built in 1954 and is now 55 years old. It is eligible to be recorded on the State Inventory of History Properties. It may also be eligible for nomination and listing on the Hawai'i and National Registers of Historic Places. Review and recordation of this bridge by the State Historic Preservations Division's Architecture branch may be required.</p>

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## Section 1 Introduction

### 1.1 Project Background

Cultural Surveys Hawaii, Inc. was contracted by Wilson Okamoto Corporation to perform an archaeological literature review and field inspection for the Hawaii State Department of Transportation (HDOT) for the 'Iao Bridge widening project, Wailuku Ahupua'a, Island of Maui (TMK (2) 3-4-30) (Figure 1 and Figure 2). The Area of Potential effect or APE, hereafter referred to as the "project area", for this project is situated between the Wailuku Town Center and the Paukalo Hawaiian Home Lands subdivision and includes the Waiehu Beach Road right-of-way from Kaae Place to Nukuwai Place. The 'Iao Bridge is located within the project area. In addition to the 'Iao Bridge widening, the project includes sidewalk improvements from Kaae Place to Nukuwai Place.

The portion of the 'Iao Stream that crosses the project area was heavily modified during the 1970's for the 'Iao Stream Flood Control Project. The stream was bed was excavated and the stream walls were heightened and reinforced with concrete. Today, a channelized stream exists.

Three alternatives for the bridge widening were considered: Alternatives A, B, and C. Alternative A was recommended in the Concept Design Report (Wilson Okamoto Corporation 2007) and has been chosen as the construction design. This bridge widening design would increase the bridge width 10 feet 3 inches on both the *mauka* and *makai* sides. The roadway would be increased to 12 foot wide travel lanes, shoulders increased to 10 feet wide and sidewalks on both sides would increase to a five foot width. On the Waiehu end of the existing bridge Waiehu Beach Road cuts through a lithified sand dune. Minimal cut of this dune will be required on the *mauka* side of the roadway and may be required on the *makai* side as well. Construction of this alternative will also include extending the concrete pier supports, bridge abutments and footings on both sides of the structure, increasing seismic strengthening of the structure. All construction and engineering improvements will be accomplished within the existing road right-of-way.

In addition to the bridge widening, two options for improvements to roadway and sidewalks approaching the bridge were considered and Option 1 was chosen as the preferred Option. Option 1 would continue widening improvements from the bridge to the intersections with Kaae Place and Nukuwai Place. This option would increase the roadway and excavation work but it would also improve highway safety.

Due to federal funding through the Federal Highways Administration (FHWA), this project is considered a federal undertaking requiring compliance with Section 106 of the National Historic Preservation Act (NHPA), the National Environmental Policy Act (NEPA), and Section 4(f) of the federal Department of Transportation Act (DTA). As an HDOT project within state lands, the project is additionally subject to State of Hawaii's environmental and historic preservation review legislation [Hawaii Revised Statutes (HRS) Chapter 343 and HRS 6E-8/Hawaii Administrative Rules (HAR) Chapter 13-13-275, respectively]. This document is intended to assist in the project planning and facilitate the historic preservation review process. This literature review and field inspection does not fulfill SHPD requirements of an archaeological inventory survey as mandated by Hawaii Administrative Rules (HAR) 13-276-5.

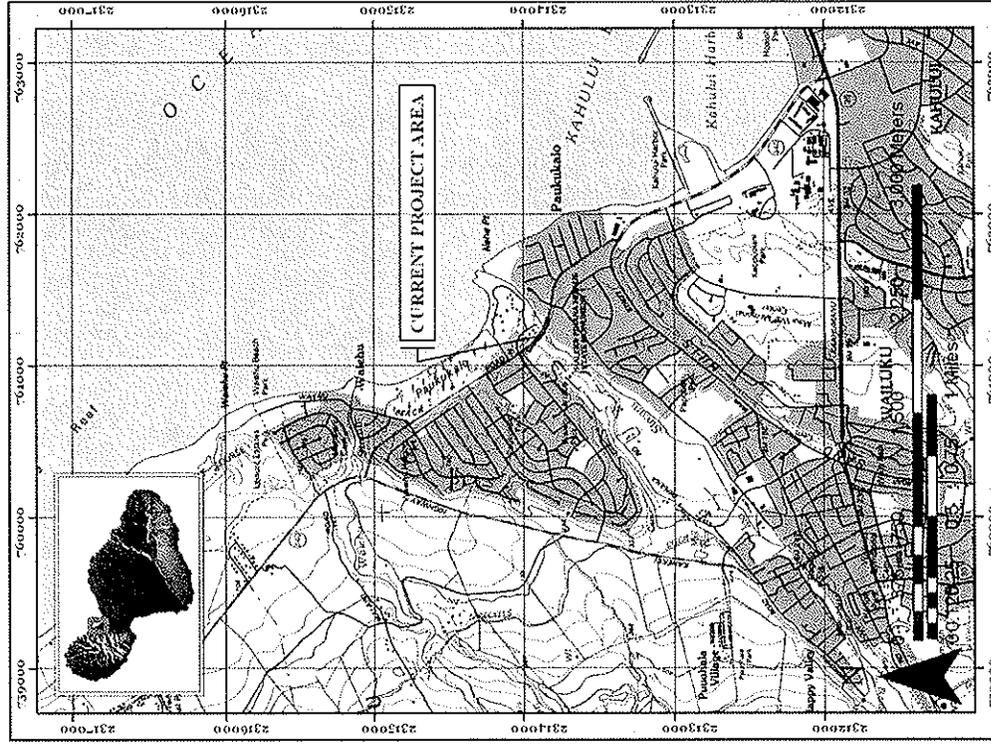


Figure 1. USGS Topographic map showing the project area location.

## 1.2 Scope of Work

The scope of work for this archaeological literature review and field inspection included:

- 1) Historical research, including study of archival sources, historic maps, Land Commission Awards and previous archeological reports, to construct a history of land use and to determine if archaeological resources have been recorded either on or near the property.
- 2) Field inspection of the project area to identify any surface archaeological resources and to investigate and assess the potential for impact to such sites. This assessment identified sensitive areas that required further investigation or mitigation before the project proceeds.
- 3) Preparation of a report to include the results of the historical research and the field work with an assessment of archaeological potential based on that research, with recommendations for further archaeological work, if appropriate. It will also provide mitigation recommendations if there are archaeologically sensitive areas that need to be taken into consideration.

## 1.3 Environmental Setting

### 1.3.1 Natural Environment

The current project area is situated approximately 0.40 kilometers (km) (approximately 0.25 mile) to the west of the coastline, overlying alluvial deposits approximately 40 feet to feet above mean sea level (AMSL). Most of the alluvial deposits in Waiuku are derived from the igneous rocks of the Waiuku Volcanic Series, the shield building and oldest exposed lavas of the West Maui Mountains. The Waiuku Volcanic Series consists primarily of thin *paohoehoe* and *a'a* lava flows of basaltic lavas that are considered to be of late Pliocene to early Pleistocene age, approximately 1.3 million years old, as determined by the potassium-argon method of dating. The shield building activity of the Waiuku Volcanic Series was followed by the Honolua Volcanic Series during the Pleistocene epoch with little apparent break in time. A considerable number of vents along the north and northeast rift zones of West Maui produced lava flows during this latter series of volcanic activity, covering the older Waiuku Series lavas on the northeast flank just north and south of Waiehu Valley (Macdonald et al. 1983). The end of the Honolua Volcanic Series on West Maui was followed by a long period of erosion during which the deep valleys were formed and most of the older alluvium and colluvium that chokes the heads of these valleys was deposited, likely owing to a rise in sea level and consequent reduction in stream gradient.

The project area is located within the Pulehu-Ewa-Jaucas soil association. Geographically these soils are associated with Jao and Jaucas soils (Foote et al. 1972:117). These soils consist of deep and nearly level to moderately sloping, well-drained and excessively drained soils with moderately fine textured to coarse textured subsoil or underlying material found in alluvial fans or basins (Foote et al. 1972: General Soil Map Maui Island). The project area is in PZUE or Puuone sand with a 7 to 30 percent slope. At the time of the 1972 soil survey, lands consisting of this soil were used for pasture and home sites (Foote et al. 1972:117) (Figure 3 and Figure 4).

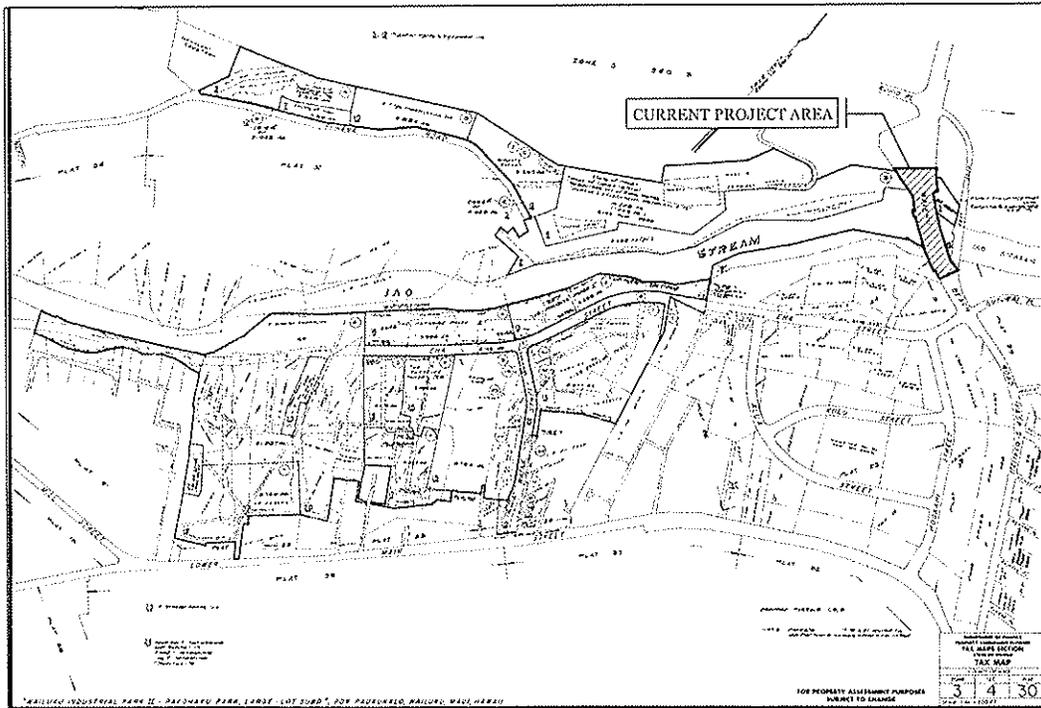


Figure 2. TMK map showing current project area.

Average annual rainfall is 20 to 30 inches, falling mostly in the winter. The heavy annual rainfall at the summit of the West Maui Mountains, approximately 350 inches a year (Giambelluca et al. 1986). Prior to stream diversion for sugar cane, the 'Iao Stream was a perennially stream. Average annual temperatures range from a maximum of about 85° F in late summer to a minimum of about 60° F in mid-winter (Stearns 1942: 27) with typical trade winds out of the northeast. Vegetation within the project area consists of *kiawe* (*Prosopis pallida*) and short grasses.

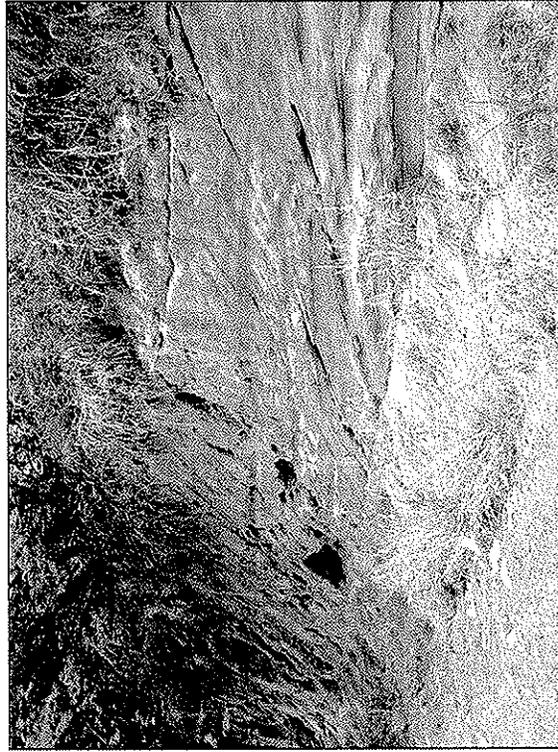


Figure 3. Lithified dune sand at northwestern end of project area.

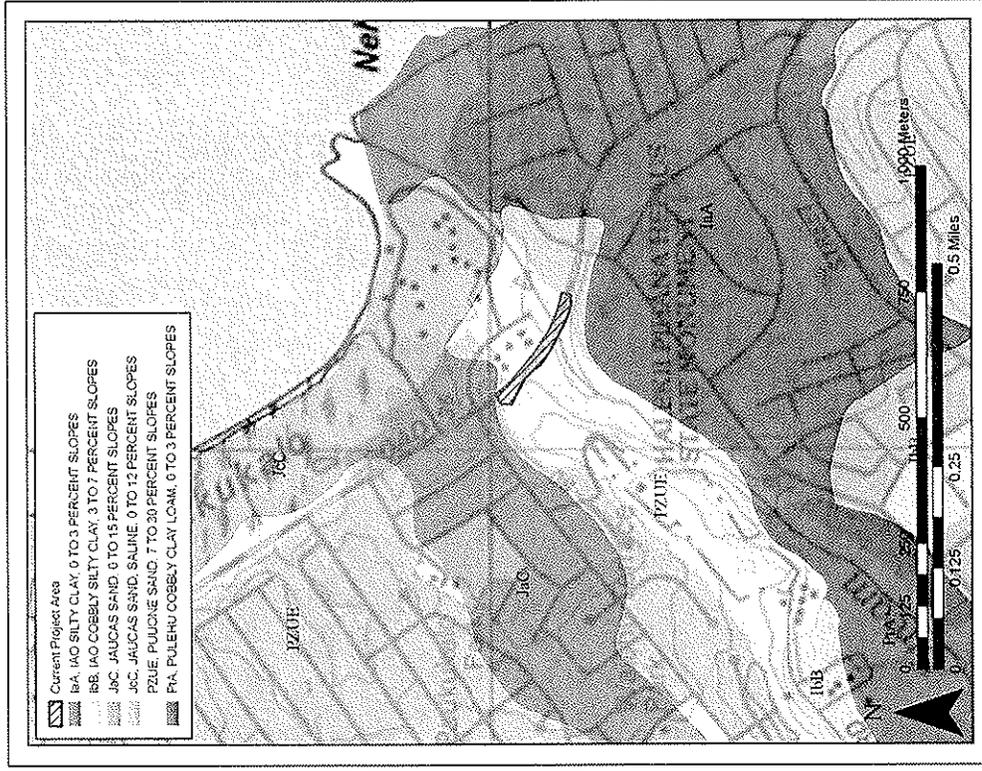


Figure 4. Soil Survey Map over topographic map of project area.

**1.3.2 Built Environment**

The project area includes the 'Iao Stream Bridge which carries Waiehu Beach Road over 'Iao Stream. The bridge is situated centrally between the Department of Hawaiian Home Lands Paukukalo subdivision and the Wailuku Town Center. The Wailuku Town Center, south of the project area, is a small strip mall that consists of a Sae-N-Save grocery store, a McDonalds and other assorted shops. The Town Center is located within Wailuku Industrial Park, a typical industrial park with large warehouses for automotive, carpet and industrial business. On the west side of Waiehu Beach Road there are residential homes and to the east is the Maui Okinawan Cultural Center (Figure 5, Figure 6, Figure 7, Figure 8 and Figure 9).



Figure 5. Wailuku Town Center view south.

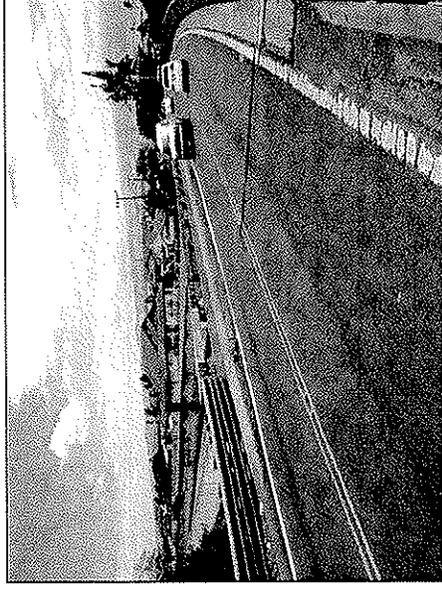


Figure 6. Waiehu Beach Road and 'Iao Bridge view east.



Figure 7. Waiehu Beach Road and 'Iao Bridge view northeast

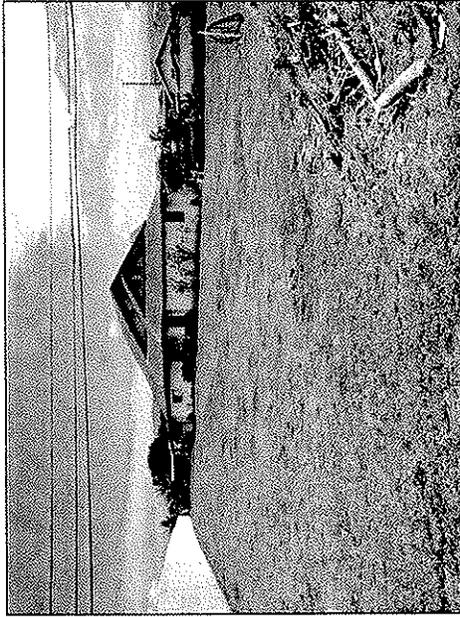


Figure 8. Neighboring Okinawan Cultural Center view east.

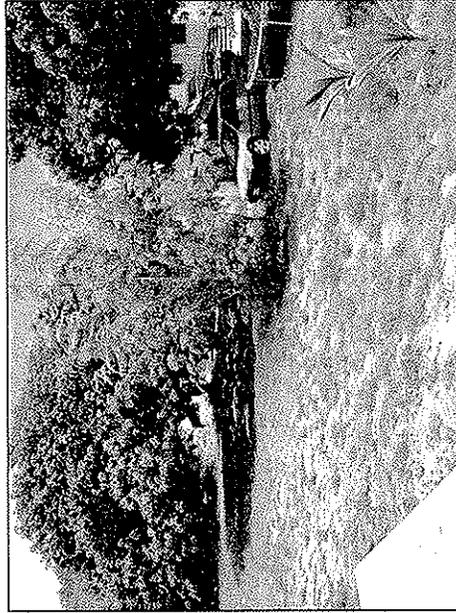


Figure 9. Adjacent residence view northeast.

## Section 2 Methods

### 2.1 Field Methods

Mrs. Colleen Medeiros Dagan B.S. conducted a pedestrian field inspection for the bridge widening project August 26, 2009 under the supervision of Cultural Surveys Hawaii, Inc. (CHS) principal archaeologist Hallett H. Hammatt Ph. D. An additional site visit was conducted on October 8, 2009 by Mrs. Dagan, accompanied by Tanya Lee-Greig CSH Maui Office manager, and WOC personnel: Mrs. Laura Mau, Mr. Earl Matsukawa, Mr. Evan Kawashima and Ms. Yukino Tanaka.

A total of five man hours were utilized for the field inspection and site visit.

The August 26, 2009 pedestrian inspection included the approximate footprint of the project area. The exposed ground surface was inspected for evidence of cultural materials. Soils within the project area were also inspected. During the site visit with the WOC team, specific construction details were discussed as the party observed the different areas to be impacted.

### 2.2 Document Review

Background research included a review of previous archaeological studies on file at SHPD/DLNR and a review of documents and maps at the Cultural Surveys Hawaii library. Land Commission Award documentation was consulted using the Waihona Aina online database. Historic research of the Iao Bridge was conducted with the support of the Maui Department of Transportation office resources.

## Section 3 Background Research

The current project area is located in Wailuku Ahupua'a, Wailuku District, Maui Island (Figure 10). Located within one of five centers of traditional settlement (Handy et al. 1991:272), Wailuku Ahupua'a is a part of an *okana* or sub-district (Moffat and Fitzpatrick 1995:23) of Maui referred to as Na Wai 'Eha, or "The Four Waters" (Handy et al. 1991:496). Geographically and culturally, Na Wai 'Eha consists of four deep valley streams that supply water to four distinct areas of taro land in near-shore valleys (Handy et al. 1991: 272).

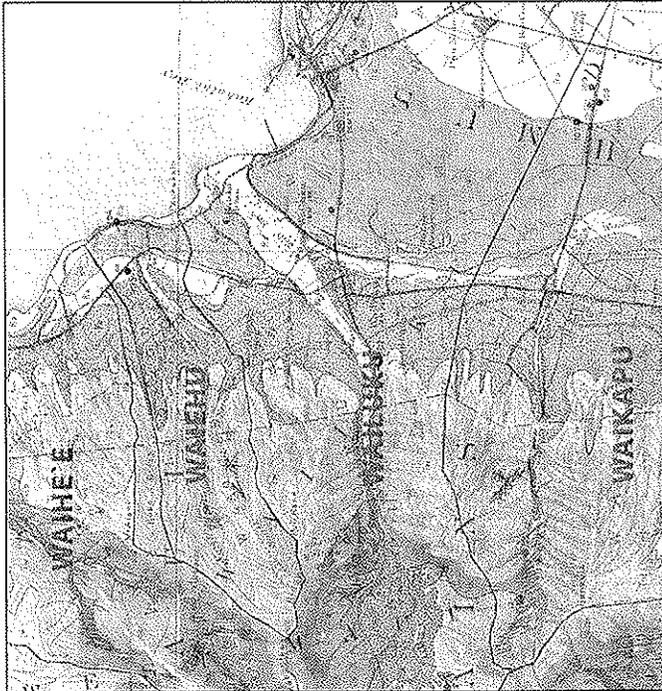


Figure 10. The present project area is located between the Wailuku Town Center and the Paukukalo Hawaiian Home Lands subdivision. Each region of Na Wai 'Eha is delineated by blue lines that run from the high mountain ridges in the West Maui Mountains to the alluvial soils of north Maui.

## 3.1 Traditional and Historic Background

The English Reverend Henry T. Cheever travelled to the Sandwich Islands and landed at Maui in 1843, almost twenty five years after the passing of Kamehameha I and the adoption of Christianity among the Hawaiians. In his travels, Cheever came upon the region of Na Wai 'Eha, four valleys of north Maui renowned for their fertile agricultural settlements. These four valleys were the subject of many legends and sayings. Cheever recounts his observations, and explains the origin of the name Wailuku, based on the order of battle between Maui's chief Kalamikupule and the success of the invading army of Hawaii's Kamehameha I:

There are, in this region, four streams in succession from the different gorges of the mountain, significantly named, it is thought, from the events of battle, which have transpired upon them. Waikapu – The water where the conch was blown and the engagement began. Waiehu – The water where the combatants soaked with dust and perspiration. Wailuku – The water of destruction, where the battle began to be fierce and fatal. Waihee – The water of total rout and defeat, where the army melted away (Cheever 1851:59).

King David Kalākaua, in his collection of Hawaiian oral traditions *The Legends and Myths of Hawaii*, recounts a "remarkable event [that] had occurred at Wailuku" during the late 14th or 15th century when Wakalana, the principal chief of West Maui, was in residence there. According to Kalākaua (1990) there was an "appearance in the [Hawaiian] group of a vessel bearing people of a strange race, described by tradition as 'white, with bright, shining eyes'".

It was a Japanese vessel that had been dismantled by a typhoon, driven toward the North American coast until it encountered the northwest trade-winds, and then helplessly blown southward to the coast of Maui...it was hazardous to approach the wreck too nearly, but Wakalana succeeded in rescuing from the waves and returning to Wailuku with five persons, but not before he saw the last fragment of the wreck disappear in the abyss of raging waters. (Kalākaua 1990:182-183)

### 3.1.1 Habitation and Subsistence

"From Waihe'e to Wailuku Valley, in ancient times was the largest continuous area of wet-taro cultivation in the islands" (Handy et al. 1991:496). The high degree of cultivation within Wailuku Ahupua'a, along the flood plain of 'Iao Stream, and its near neighbors gives evidence that a substantial population would have been established in the region during the pre-contact period. Historical documentation also mentions the Wailuku spring, from which the ahupua'a gets its name. The Wailuku spring was located "several hundred yards from the base of Pihaana" [Meiaua] and was reserved for *ati'i* crops (Thrum 1908: 46).

While Hawaiian traditions do not relate the size of the Wailuku population in terms of pre-contact demography, density and distribution can be inferred by the number and locations of Land Commission Awards (LCAs) as well as traditional accounts of Wailuku Ahupua'a as a seat of political power. It is interesting to note, however, that the LCAs within Wailuku Ahupua'a are clearly clustered along the valley floor and flood plain of 'Iao Stream, as well as upon the alluvial fans extending from the base of the West Maui Mountains, in comparison to the area noted as "Sand Hills" and surrounding sand dunes.

### 3.1.2 Politics and Warfare

The *moku* of Wailuku and Hāna comprised the two rival societies on Maui Island. It was only in the mid-16th century, during the reign of the Wailuku chief Pi'iāni, that the "Hāna chiefs finally acknowledged the West Maui king's rule" (Cordy 1981:210). By the second half of the 18th century, Maui *alii* - including the ruling chief Kahekili - are reported to have been residing at Wailuku, with the chiefs of Wailuku enjoying the surf of Keolu and Ka'akau (Kamakau 1992:83).

While the chiefly intra-island rivalry between East and West Maui was settled, the political rivalry between the *alii* of Hawai'i Island and Maui Island continued. Where Hāna had been the primary stage of battle, Wailuku would come to take a central role in the fight for political gain during the latter part of the 18th century. It was in the sand hills of Wailuku that Kahekili and his forces from O'ahu and Maui would do battle with the armies of Kalani'opu'u, chief of Hawai'i, that had invaded Maui.

Following a losing battle at Kaipō in 1775, Kalani'opu'u dedicated several war *heiau* on Hawai'i Island to aid in the defeat of Kahekili. Upon hearing this news Kahekili sent for the *kahuna* (priest) Kaleopu'u who directed construction of the *heiau* of Kalu'i and Pu'uohala on the north side of Wailuku. When Kalu'i Heiau was completed Kaleopu'u said to Kahekili:

This is the house of your god, open the sluice gate that the fish may enter.  
[Kamakau 1992: 85].

In the year 1776, the warriors of Kalani'opu'u landed at Keoneo'o'io where their war canoes extended to Mākēna at Honua'ula and proceeded to ravage the countryside. Kalani'opu'u himself went on to Kīheipuko'a at Kealia with additional forces that stretched to Kapa'ahu - 800 strong and eager to drink the waters of Wailuku:

Across the plains of Pu'u'ainako (Can-trash-hill) and Kama'oma'o shone the  
feather cloaks of the soldiers ... Ka-hekili was at Kalanihale just below Kihahale  
and above the plateau of Ka'ilipoe at Pohakuokahi ... Kaleopu'u [said] to  
Ka-hekili, "The fish have entered the sluice; draw in the net." [Kamakau 1992:85]

The forces of Kahekili descended on and destroyed the soldiers of Kalani'opu'u, slaying the Alapa (elite soldiers of Kalani'opu'u) on the sand hills at the southeast of Kalua:

...the Maui army had the advantage of a well chosen position. The Hawaiians had  
to fight uphill or else drift down to the sand hills. In either case advance was  
difficult ... There was a full day of savage fighting, marked by inhuman acts of  
awful brutality. The native account of the battle says: "It was not a war  
characterized by deeds of princely courtesy." Many noted names of valiant chiefs  
were never again mentioned in Hawaiian story. The story and the life ended  
together in this Wailuku battle. [Westervelt 1977:139-140]

Only two men escaped to Kīheipuko'a in Kīhei to tell Kalani'opu'u the news of their defeat. According to Westervelt, the battle that took place received the name in Hawaiian history - "The furious destruction at Kakamilua" - Kakamilua was the name of the sand hills below Wailuku. After a second day of warfare, Kalani'opu'u sued for peace and was granted such by Kahekili and his messengers at Kīheipuko'a (Kamakau 1992:88-89). Kalani'opu'u returned to Hawai'i Island.

A few years later, Kahekili was again at Wailuku when Capt. James Cook and his ships *Resolution* and *Discovery* encountered Maui. Cook first sighted the island on November 26, 1778; his ship *Resolution* positioned three miles off Kahului, he recorded in his logbook:

In the country was an elevated saddle hill, whose summit appeared above the  
clouds. From this hill, the land fell in a gentle slope, and terminated in a steep  
rocky coast, against which the sea broke in a dreadful surf. Finding that we could  
not weather the island, I bore up, and ranged along the coast to the Westward. It  
was not long before we saw people on several parts of the shore, and some houses  
and plantations. The country seemed to be both well wooded and watered; and  
running streams were seen falling into the sea in various places. (in Speakman  
1978:23)

Cook records that the Hawaiians who came out in canoes to trade for supplies appeared "to be of the same nation with the inhabitants of the islands more to leeward [*i.e.* O'ahu and Kaula'i] which we had already visited [ten months earlier in January 1778]: and ... they knew of our having been there" (in Speakman 1978:23-24).

The battle of Kepeaniwai, fought in Iao Valley in 1790, would be the last great conflict on Maui. Kamēhameha's victory over Kahekili consolidated his control of Maui. It is said that Kamēhameha visited Pihana *heiau* before this battle (Thrum 1908). With the peace engendered during Kamēhameha's reign, no further accounts of events and life at Wailuku are recorded in the remainder of the 18th century.

### 3.1.3 1800 to 1850

The initial documentation of life in Wailuku during the first half of the 19th century was recorded by the Protestant missionaries who established their station at Wailuku in 1832. The missionary census of 1831-1832 recorded a total population of 2,256 in Wailuku Ahupua'a, comprising 918 adult males, 860 adult females, and 478 children (Schmitt 1973:18). By the time of the 1840 census, the Wailuku population had dropped to 1,364, representing a diminution of 892 (Schmitt 1973:38).

An account by one of the missionaries in Wailuku, Rev. Richard Armstrong, gives a vivid picture of a tsunami at Kahului where the "entire village of 26 native grass houses" was carried away; in his journal entry of Nov. 8, 1837, Armstrong records:

A strange phenomenon appeared last evening in our neighborhood. About seven  
o'clock in the evening, the waves of the ocean just opposite our station, at a small  
harbor [*i.e.* Kahului], gradually receded from the shore to a distance of some 15 or  
20 rods leaving multitudes of fishes upon the ground, so that the children  
observing it ran and picked up some of them; leaving a small schooner also,  
which was at anchor in the harbor, without sufficient water to float her  
completely, and the wave slowly formed itself as it were into an embankment, or  
as the natives said, a "steep precipice." Then, as if having collected strength  
enough for the onset, the wave rushed back upon the beach, overflowed the banks,  
and carried away the entire village of 26 native grass houses with all their effects  
and inhabitants, some 40 or 50 rods inland, throwing most of the wrecks of  
houses, broken canoes, fowls, beasts, men, women, and children into a small lake

of perhaps three miles circumference, which lay immediately inland from the village.

The rush of the wave was so sudden and unexpected, that the inhabitants of the village, unlike Lot in Sodom, had no warning whatever, except a few who seeing the sea receding from the shore suspected a corresponding reflux, and fled inland in season. But it is not easy for water to baffle a Hawaiian, this being the element with which he is most familiar. Some swam single handed with the waves. Others took their children in their arms. Others the sick on their backs and bore them up until the waters ceased from the earth. One man took his old mother on his back and swam with her until he reached the dry land, but, laying her down on the ground, he found she was dead. Another poor old woman, having no one to assist her, and it being dark got into the small lake and was drowned. These are all the lives that were lost. (*Maui News* Nov. 10, 1937)

Armstrong also recorded that the "overflow was confined to less than two miles of coast" and noted a report that "a similar overflow occurred shortly after the death of Kamehameha I, but no houses were destroyed or lives lost."

Three years later, Armstrong reported on the first effort to grow sugar at Wailuku; in a letter dated July 7, 1840 he wrote:

By request of the King I have taken some part in inducing the people about me to plant sugar cane. A fine crop of 60 or 70 acres is now on the ground ripe, and a noble water mill set up by a Chinaman is about going into operation to grind it. I keep one plow a-going constantly with a view to the support of the schools. We shall get in 10 acres of cane the present season. (*Maui News* March 22, 1941)

One of the schools to be supported was likely the girls' school which had opened at Wailuku in 1836 (Kamakau 1992:405).

At the mid-19th century *Māhale*, the *ahupua'a* of Wailuku was declared Crown Land. Subsequent *kuleana* awards to individuals were made of parcels within the *ahupua'a*. As mentioned previously, a map of 1882 shows that the majority of the Land Commission Awards (LCAs) were focused along the flood plain of the 'Iao Valley Stream, as well as *mauka* of the area identified as the "Sandhills". The disposition of these awards may reflect a continuation into the post-contact era of the traditional Hawaiian settlement of Wailuku.

The following table presents the LCA located adjacent to the current 'Iao Bridge location. These ten claims include a total of 164 taro *lo'i*, two inland ponds, eight *kula* or pasture lots, eight houses, several *lauhala* clusters and six claims include *poalima lo'i*. The individuals who made these claims were clearly dependant on the 'Iao Stream. An early survey of the 'Iao Stream shows a many taro *lo'i* along the stream (Waihona 'Aina 2002) (Figure 11).

Table 1. Land Commission Awards and Grants in the Vicinity of the Current Project Area

Land Claim Award/ or Grant	Claimant	Ili of Wailuku and Waiehu	Land Use	Landscape Features	Amount of Land Claimed
LCA: 3234C	Kaianui	Nehe, Paukukalo, Pihani	4 <i>lo'i</i> and 2 ponds	Two <i>loko</i> , or ponds, and a wall/fence	Four <i>'āpana</i>
LCA: 3464	Kamakaolea	Nehe, Papohaku	17 <i>lo'i</i> , one <i>kula</i> , and one house lot. This claim contains a <i>Poalima lo'i</i> .	Wall/fence and Stream/ <i>Muhwai</i> three <i>lauhala</i> trees	Six <i>'āpana</i>
LCA: 3482	Kaiaikaioa	Nehe	14 <i>lo'i</i> , a <i>kula</i> , and a house	An edifice, a <i>lauhala</i> tree, a <i>Muhwai</i> /Stream and a cattle pen.	One <i>'āpana</i>
LCA: 3386	Pehuino	Kuhimana, Paukukalo, Kapaaloo, Pannuu, Holu	28 <i>lo'i</i> , one <i>kula</i> , a house lot, and one <i>pō'ālima lo'i</i>	Wall/fence and three <i>lokoia</i> /fishponds.	Five <i>'āpana</i> (one <i>āpana</i> containing two <i>lo'i</i> were disputed by Kaianui)
LCA: 3476	Kahula	Nehe	35 <i>lo'i</i> , one <i>kula</i> , one house and one <i>poalima lo'i</i>	Two <i>lauhala</i> trees	Six <i>'āpana</i>
LCA: 8559B*M (This LCA is not depicted I Figure 11 as it is a multiple <i>ahupua'a</i> claim.)	William C. Lunailo, Kanama, Charles for King	Ahupua'a of Waiehu 2.	A house lot	A government road traverses the <i>ahupua'a</i>	Several <i>ahupua'a</i> 13 <i>'āpana</i>
LCA: 2481	Kalawekua, wahine (Kalawakua-	Nehe	12 <i>lo'i</i> , one <i>kula</i> , contains a <i>poalima lo'i</i> also referred to	Wall/fence	One <i>'āpana</i>

Land Claim Award/ or Grant	Claimant	'Ili of Wailuku and Waiehu	Land Use	Landscape Features	Amount of Land Claimed
LCA: 3462	variation in spelling) Kalomi (in Figure 11 as Kalawalahea).	Ohia, Kaluolena, Halawa and Ahikuli	as a <i>haku one lo'i</i> . 37 <i>lo'i</i> , one house lot and a <i>kula</i> lot. Four <i>poalima</i>		Three <i>'āpana</i>
LCA: 3463 (Could not be located in Figure 11.)	Kalaiwahea	Nehc	10 <i>lo'i</i> , a house lot, a <i>poalima</i> , and a wall/fence.		Three <i>'āpana</i>
LCA: 3471	Kekumamaawa for Nalehu	Nehc, Lamalii, Pohoiiki	37 <i>lo'i</i> , one house lot, <i>poalima lo'i</i> , and <i>kula</i> lots.	<i>Lauhala</i> trees	Seven <i>'āpana</i>

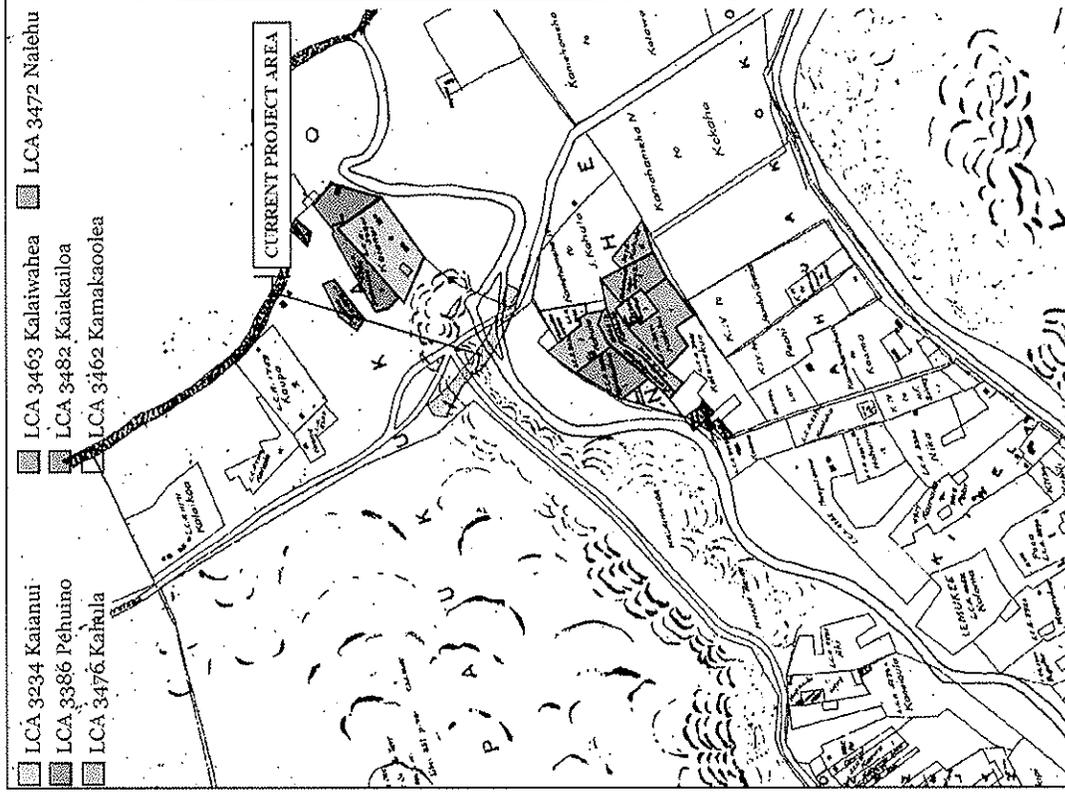


Figure 11. Land Claim Awards near the project area.

In 1823, a Chinese merchant named Hungtai established the first sugar mill in Wailuku. It is probable that the cane used was native cane growing in the neighborhood, which was carried by mule to the mill. Hungtai took his own life in 1841, and little is known about the fate of his business. It is known that he sold white sugar, and white sugar-based syrup in Wailuku (Dorrance 2000). By 1849, a number of simple mills were in operation on Maui, powered by oxen moving small sets of wooden rollers. Large try-pots brought by whalers were used to boil the extracted molasses without regard to crystallization and sugar recovery. The resulting thick syrup, an essential ingredient in the manufacture of rum, was sold primarily from sales to whalers (Wadsworth 1936).

In the mid-1840's, when the English Reverend Henry Cheever first travelled to the missionary station at Wailuku, he commented on refreshing trade winds and lush greenery, as opposed to dusty and hot conditions at the missionary station in Lahaina.

As you get into the valley and vega of Wailuku, you see numerous remains of old kihapais, or cultivated lots, and divisions of land now waste, showing how much more and extensive formerly was the cultivation, and proportionally numerous the people, than now. It is so all through this fruitful region. From accounts kept one year by Mr. Green (Reverend Jonathan Smith Green), he estimated that the births were to the deaths as one to five; and he says the population has fallen off very greatly since the time he was first settled here [1832] (Cheever 1851:92).

His remarks continued:

The whole valley of Wailuku, cultivated terrace after terrace, gleaming with running waters and standing pools, is a spectacle of uncommon beauty to one that has a position a little above it (Cheever 1851:93).

### 3.1.4 1850s to 1900

The second half of the 19th century was marked by commercial development within Wailuku Ahupua'a. Teams of oxen and horses pulled freight between the town of Wailuku and the ship landing at Kahului. The Wailuku Sugar Company was organized in 1862 by James Robinson & Company, Thomas Cumming, J. Fuller and C. Brewer and Company (Figure 12). That same year, Thomas Hobron purchased land in Waihe'e Valley for the cultivation of sugar cane. Christopher Lewis became the first owner of the Waihe'e Plantation, and L.L. Tolbert was its first manager" (Kelly et al 1978:12). A sugar mill in Waihe'e was constructed in 1865, and the first production figures for the crop of 1865 were promising - 757 tons of sugar and 45,000 gallons of molasses. The mill manager was Samuel T. Alexander, and the mill's head foreman was Henry P. Baldwin, both of whom would resign in the late 1860's to establish their own small sugar enterprise in Sunnyside (lower Makawao).

Constructed between June and September 1879, the Wailuku and Kahului Railroad carried passengers and freight from the sugar enterprises of Wailuku to the port of Kahului. Success was instantaneous, and Thomas Hobron's family partnership with his two sons-in-law, William H. Bailey and William Owen Smith, made plans to expand the railroad to include sugar mills at Spreckelsville and Pāia (Figure 13). In 1881, King David Kalakaua signed papers that created the Kahului Railroad Company and that designated Hobron's railroad as an official "common

carrier" for passenger traffic. In 1886, Hobron's railroad was sold to the Wilder Steamship Company which subsequently applied for and received, in 1889, authorization from the Hawaiian government to engage in maritime shipping operations. Ten years later, in 1899, the Kahului Railroad Company was once again sold, this time to the Hawaiian Commercial & Sugar Company, now headed by Henry P. Baldwin and Samuel T. Alexander.

Following his success in building the Honomanū Ditch linking East Maui water sources with his sugar fields in the central isthmus, sugar grower Claus Spreckels engineered the Waihe'e Ditch (also named the Spreckels Ditch) in 1882, to tap water resources from West Maui. The 15-mile-long ditch started at the 435 foot elevation of Waihe'e Stream, and carried 60 million gallons of water (per 24-hour day) to the Wai'ale Reservoir at the 214 foot elevation of Wailuku. Spreckels became the first plantation owner to irrigate his fields with mountain water from both East and West Maui (Wilcox 1996). By 1888, the Spreckels plantation covered 28,000 acres, making it the largest sugar plantation in the world.

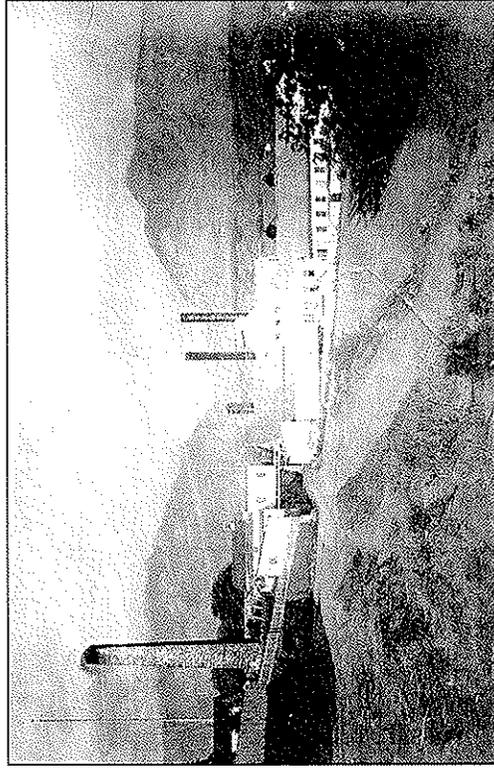


Figure 12. A photograph of the Wailuku Sugar Company mill, taken about 1880, at the western edge of the 'Iao Stream meander (collection of Robert Hill).

Government censuses document the growth of the population of Wailuku during the decades of the latter 19th century: in 1853 the total population was recorded as 4,463, in 1872 it had dropped to 3,002; in 1878 it had risen to 4,186; in 1890 it was 6,708; and by 1900 the population was 7,953 (Schmitt 1973:12-13). The censuses reflect the influx of immigrant workers to the burgeoning sugar plantations of Maui. An early photograph, ca. 1890, of the view from the Wailuku sand hills, shows sugar cane fields encompassing all sides of the town of Wailuku with a church in the foreground and 'Iao Valley in the background (Figure 14)

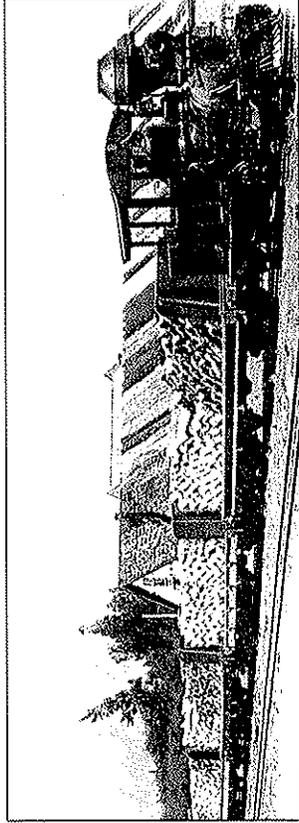


Figure 13. A Kahului Railroad Company train transporting bagged sugar from Wailuku to the Kahului Harbor (*Locomotive Engineering*, Vol. XIII, No. 11, Nov. 1900, New York).

By 1900, Wailuku had a system drawing water from Iao Valley to a reservoir in town, a newspaper, and three hotels. A power plant was planned for Kahului to supply electricity to Wailuku. But 1900 was also the year in which the bubonic plague broke out in Kahului; the first death recorded as caused by the plague occurring on Saturday, February 4th. An article in the *Maui News* of February 17, 1900 announced:

The plague has reached Maui. Six deaths have occurred and the whole of Chinatown [in Kahului] is a heap of ashes. The people of Maui are aroused to action and feel confident of being able to control and stamp out the pest in a short time...

...Sheriff Baldwin at once established a strict quarantine at Kahului which is still maintained. The Maui Board of Health met at once and selected a site for a pest house and one for a detention camp, the latter being established at the race track of the Maui Racing Association...

...by noon on Monday [Feb. 13] the detention camp was ready for its occupants. Over 200 Chinese, Japanese and natives were fumigated and dressed in new suits, and at two o'clock the procession quickly moved out to their new quarters.

Scarcely had they reached their destination before everything was prepared for the destruction of their old quarters. At three o'clock a cloud of dust and broken timbers leaped into the air, accompanied by the savage roar of dynamite; then another and another, being the exterior houses of the doomed district. Soon dense volumes of smoke, through which pierced yellow shafts of flame, told that the work of destruction was begun. In two hours the whole block from the Kahului saloon to the Custom House was a heap of glowing ashes. The breeze was from the sea and no trouble was experienced in holding the fire within the prescribed district. Kahului town was entirely cordoned off with corrugated iron fences and, before the year was out, the plague had been eradicated (*Maui News* 1900).

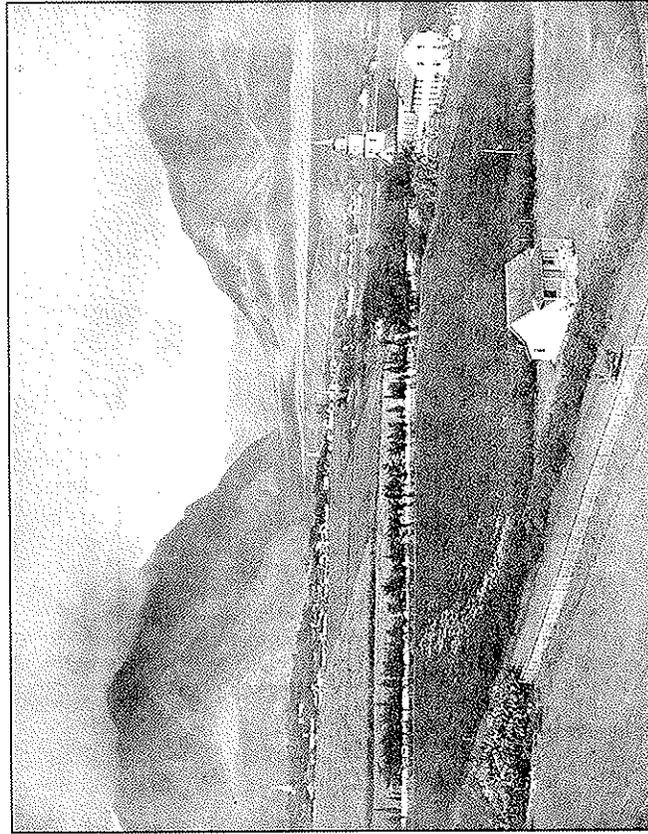


Figure 14. A photograph of Wailuku, taken about 1890 by an unknown photographer, shows the buildings in the upland areas of the ahupua'a from the white steeple of Ka'ahumanu Church (far left) to the Wailuku Sugar Company mill (white smokestack, right) (collection of Robert Hill).

### 3.2 'Iao Stream and Bridge Projects

#### 3.2.1 The Postwar Years 1945-1955

Following the end of World War II in 1945, the Territorial Highway Department began a series of road improvements in Wailuku that included the construction of a new steel beam bridge to cross the 'Iao Stream at North Market Street, and a new concrete bridge to cross the 'Iao Stream at Waiehu Beach Road. Prior to these projects, the North Market Street crossing was made on a wood trestle bridge, and the Waiehu Beach Road crossing was by way of a stone-and-concrete ford through the stream bed itself. Completing these two crossings called for the construction of a new bridge to cross the Waiehu Stream and the realignment of Waiehu Beach Road by way of a new intersection with Kahekili Highway.

The overall improvement to this circuit of roadways required the relocation of a major section of Waiehu Beach Road and the construction of a new bridge to cross Waiehu Stream. The first project undertaken by the Territorial Highway Department was the North Market Street bridge. Designed in 1948 and completed in 1949, the new steel beam bridge improved traffic between the outlying areas of Waiehu and Waiehu, and in-town employers such as the Wailuku Sugar Company and the County of Maui. The project was aided by Federal Highway funds (Federal Aid Project No. S-27[1]) and included concrete sidewalks on both edges of the bridge. The sidewalks were extended into Wailuku Town and into Happy Valley (Territorial Highway Dept. 1949).

The reinforced concrete piles supporting the bridge were linked to the steel structure of the bridge by a series of expansion joints; railings were of concrete. Structures in the vicinity of the North Market Street bridge included a restaurant and a rooming house that remain today. The restaurant just north of the bridge, recently known as "Aki's Hawaiian Food", was named the "Happy Valley Tavern" when the bridge was constructed. The present day "Happy Valley Hale" was known then as the "Iron Bridge Hotel."

The next phase of road improvements for Wailuku would occur at the current project area and included the construction of a bridge across the 'Iao Stream at Waiehu Beach Road. Designed in 1952 and completed in 1954, the bridge replaced a concrete/boulder ford located in the stream bed. The bridge project, Federal Aid Project No. S-247(1), included large-scale improvements to the approaches on either end of the bridge, consisting of massive revetments and embankments to properly channel the flow of the 'Iao Stream. A new access roadway was constructed at Kaula'e Road, a road which led west to an encampment for the Hawai'i National Guard. Approximately 4/10ths of a mile of Waiehu Beach Road was relocated west of the 'Iao Stream ford during the project, which vastly improved access to Lower Main Street from Waiehu (Territorial Highway Dept. 1954).

All piers, abutments and road surfaces were constructed of reinforced concrete. The bridge structure sits on reinforced concrete piles that are topped with rockers: a mechanism designed to distribute weight and move with the forces of an earthquake. Each concrete pile in the 'Iao Stream was designed to allow the stream flow to pass the bridge with a minimum of restriction.

Other postwar road projects on Maui involved the resurfacing of existing central Maui roadways damaged by the military during WWII. In the 1950's, federal highway funds were utilized for road improvements to the McGregor Point portion of the Honoapiilani Highway, including Maui's first tunnel (completed in 1951), and improvements to the Hana Highway in the vicinity of the Kahului Airport.

#### 3.2.2 1960 to Present

The last phase to improve roads between Wailuku and Waiehu was the construction of the Waiehu Stream bridge and the realignment of the Waiehu Beach Road inland (west) to meet Kahekili Highway at the stream crossing. This Federal Aid project (No. S-034[13]) was designed in 1966 and completed in 1967 by the State Department of Transportation Highways Division. Over 7/10ths of a mile of the Waiehu Beach Road was realigned to provide a direct access to the Kahekili Highway. A new roadway intersection was combined with the demolition of an existing bridge, resulting in a change in the alignment of the Waiehu Stream. According to project plans,

no existing industrial or residential structures were located in the vicinity of this construction (State Dept. of Transportation 1967).

The realignment of Kahekii Highway, accomplished in conjunction with the Waiehu Beach Road improvements, also made possible the segregation of the residential areas of Waiehu located along the access road to the Waiehu golf course from vehicular traffic destined for Waiehu or Kahului. Previous to the realignment of Waiehu Stream, two fords crossing the stream wash were subject to occasional washouts which caused the isolation of the coastal region of Waiehu until the fords could be cleared of debris and rain water had subsided.

The impact of the roadway improvements completed across the 'Iao and Waiehu Streams between 1949 and 1967 meant that access to central Maui from the Waiehu region could be accomplished either by way of Kahului or Wailuku in any weather. Travel between the outlying areas and 'Iao Jr. High School and Baldwin High School was vastly improved.

A small number of nearby residences were impacted by the construction of the Waiehu Beach Road bridge. Those along the eastern portion of Kauhau'e Road lost access to Lower Main Street by way of the ford, but were relieved of the burden of attempting the crossing in bad weather.

Following the construction of the North Market Street bridge, a large rain storm on November 30, 1950 caused serious erosion to the river bank upstream of the bridge. The flow of water was massive, resulting in the drowning of a Wailuku man who was swept into the stream (Saito 2009). The Maui County Department of Public Works constructed concrete reinforced walls just upstream of the bridge, a project that cost \$70,000. This work also included the construction of a concrete-reinforced lining beneath the bridge. A follow-on contract to further modify the stream channel with more linings and walls cost the County an additional \$345,000. By the mid-1970's, the U.S. Army Corps of Engineers had begun a \$12,112,000 project to channel the flow of the 'Iao Stream from the North Market Street bridge to the ocean. The concrete walls and stream floor spillways of this project, which include the portion beneath the 'Iao Bridge, can be seen today (Saito 2009).

Following Statehood, additional federal highway funds were used to improve the Lower Kula Highway, South Kihet Road, and the Hana Highway as far east as Kailua.

As part of the Statewide Transportation Improvement Program for the fiscal years 2008 through 2011, the County of Maui Department of Public Works, Department of Planning and Department of Transportation will work in conjunction with the State on the proposed project MS20; the rehabilitation of the Waiehu Beach Road bridge at 'Iao Stream. This proposed project is a "System Preservation Project" of the State of Hawaii, to be funded primarily with federal money (Highways Division 2007). The project comes as part of a State program to retrofit bridges to better withstand earthquakes (Nakaso 2007).

### 3.3 Modern Land Use

Today, the 'Iao Bridge is located centrally between the Wailuku Town Center to the south, residential housing on both northeast and southeast side and Hawaiian homestead Paukukalo subdivision to the northwest. Separating the 'Iao Stream and the Paukukalo subdivision is the Halekii-Pihana State Monument. It is located approximately 274 meters or 900 feet southwest of the project area and consists of two ancient *heiau*; the Halekii *heiau* and the Pihana *heiau*. The *heiau* are located atop a lithified sand dune west of the 'Iao Stream approximately 20 meters above the natural streambed. In 1959 these *heiau* and 10.2 acres of land upon which they are situated became state property and the State Monument was established (Yent 1983).

In addition to their cultural significance as war temples during the time of Kamehameha's conquering of the islands, several other great Maui rulers have close associations with these *heiau*. In their research for excavations at this State Monument, Mr. Michael Kolb and Mr. Charles Keau (1990) explain that the sacred wife of Kamehameha I, Keopuolani, was born at Halekii and Kamehameha Nui, an uncle of Kamehameha I and former ruler of Maui was "laid in state" here before being taken to his final burial place. Kahekili lived here for a time and his father Kekaulike died here in 1736 (Kolb 1990: 4).

### 3.4 Previous Archaeological Research

The present project area is located near the boundary of Wailuku and the adjacent Waiehu Ahupua'a. Previous archaeological studies in the surrounding portions of Wailuku and Waiehu are relevant to predicting archaeological resources within the project area. These are summarized in Table 2; archaeological studies nearest the current project area depicted in Figure 15.

The early urbanization of significant parts of Wailuku Ahupua'a, for example the shoreline, fringes of 'Iao Valley, the Kahului Harbor area, and various residential and commercial areas, has altered much of the landscape and probably eradicated much of the surface archaeological remains. To our knowledge, the earliest dated cultural material comes from a test excavation along the shoreline at the east side of Kahului Airport. Here, in 1991, cultural material in sand deposits was dated to around A. D. 600-800. These deposits may be the only remnant of the pioneering phase of Polynesian settlement identified within the *ahupua'a* to date (Toenjes et al. 1991).

A work of Theresa Donham, entitled "Site Patterns in the Lower 'Iao Valley, Wailuku" (Donham 1996) notes the crucial importance of the 'Iao Stream in the formation of settlement in the *ahupua'a*. Additionally, there are sheltered bays and two known fishponds, Mau'oni and Kanaha (SIHP 50-50-05-1783). Based on the heavy concentration of known historic properties within the narrow corridor of Lower Main Street (Connolly 1973; D. Fredericksen and W. Fredericksen 1992; D. Fredericksen et al. 1995; E. Fredericksen and D. Fredericksen 1996; and E. Fredericksen et al. 1995), it is postulated that permanent settlement was heavily concentrated along the base of the dunes on either side of 'Iao Valley. On the dunes of the northwest side of the valley lie the two major *heiau* (temples), Halekii and Pihana. *Heiau* are also reported for the top of the dune on the southeast side of the valley (Toenjes et al. 1991:2).

More important to the present project area is the proximity of the Waialuku Dune on the southeast side of 'Iao Valley, which crests at 330 feet above sea level and proceeds away from the valley itself. The dunes form a northeast-to-southwest line, eventually rising to an elevation of about 500 feet and extending all the way to Waikapū. While isolated and clustered Hawaiian burials appear to be a general pattern throughout the dune environment of Waialuku and other dunes in adjoining *āhupua'a*, evidence of habitation would be expected to be scattered rather than concentrated (Pantaleo et al. 2007). Previous archaeological research along the perimeter and within the sand hills of Waialuku indicates the presence of subsurface cultural deposits and human burials dating to both the pre-contact and historic era. Relevant to the present study area is the research and monitoring conducted within the Maui Lani Development Area, located to the south and southwest, and Keopuani Park (commonly referred to as Maui Central Park) to the immediate east. From 1990 up to the present, both habitation remnants and multiple human burial sites have been recorded within the Maui Lani Development Area, verifying the culturally sensitive nature of the nearby sand dune environment.

The earliest archaeological studies of Waiehu and Waialuku (Stokes 1918; Thrum 1908 and 1915; Walker 1931) were a part of island-wide studies and tended to focus on monumental architecture and areas of human interment. Some of the first documented included numerous burials on the long sandy ridge near the shore northeast of Waiehu Town, an adze grinding stone at Wawaekanaka and a former fishpond at Kapoho northeast of Waiehu Town.

The interim period from 1930 to 1978 saw only sporadic archaeological activity in the Waiehu and Waialuku area. The most notable historic property identified during this time period was an extensive discontinuous midden scatter (SIHP no. 50-50-04-1189) extending from the Waiehu Golf Course on the south to north of Kalepa Gulch (Kirch 1966). This site was later subdivided into the "Waiehu Midden" site on the shore at the southern extreme of Waiehu Ahupua'a (SIHP no. 50-50-04-1796) and the "Waiehu Midden" which retained the earlier (SIHP no. 50-50-04-1189).

Connolly and Hommon (1973) conducted a comprehensive survey for the State of Hawaii's Inventory of Historic Properties. During this survey, supplemental recordation and historic property number assignment to the following properties identified by Walker (1931) was completed: Kealakahonua Heiau at Kapokea (Kapokea Heiau) – SIHP No. 50-50-04-32, the heiau at Kapoho – SIHP No. 50-50-4-33, and the Wawaekanaka Grindstone a large flat boulder with nine ground depressions – SIHP No. 50-50-4-1191. In 1974, J. C. Wright filled out Hawaii Register of Historic Places site forms for Waiehu Town (SIHP No. 50-50-04-1501), noting its "limited architectural and historic interest" and assigning a "marginal" evaluation and a form for the East Maui Irrigation Ditches (Spreckels Ditch; SIHP No. 50-50-4-1508).

In 1978, the Maui Jinsha Mission Temple (50-50-04-1606), located in Paukukalo approximately 600 ft from the current project area, was placed on the National Register of Historic Places as an excellent example of the Shinto style of Japanese temple architecture (Arime 1978:Item 7). Built in 1915, on lands in Kahului that were leased from Hawaiian Commercial & Sugar Company, construction of the small shrine section followed by the larger ceremonial hall was completed by master carpenter Ichitaro Takata from Japan (Arime 1978:Item 8 p1). In 1953, due to its alien property status, the temple was moved to the current location in Waialuku which the church owned in fee simple Japan (Arime 1978:Item 8 p1).

Table 2. Previous Archaeological and Historical Studies in Waialuku and Waiehu Ahupua'a

Study	Location	Type of Study	Findings
Thrum 1908-1915	Island-wide	Heiau-study	Identifies numerous heiau, including Waialuku's Pihauna Heiau
Stokes 1918	Island-wide	Reconnaissance	Records numerous sites, primarily heiau, including those in Waialuku District
Walker 1931	Island-wide	Reconnaissance	Identifies nine sites (28-36) in Waiehu and five (37-41) in Waiehu - mostly heiau
Kirch 1966	Waiehu Area	Reconnaissance	Identification of an extensive discontinuous midden scatter extending from the Waiehu Golf Course on the south to north of Kalepa Gulch.
Hommon and Connolly 1973	State Register of Historic Places	Survey	Limited fieldwork on four sites: Waiehu Dune Burials(-1185), Waiehu Golf Course burials (-1188), burial cave (-1186), and Waiehu midden scatter (-1189)
Keau and Murray 1977	Paukukalo Hawaiian Home Lands, Phase III	Archaeological Walk Through Survey	Identified features I-IX which included basalt cobble cairns believed to be gravesites and historic and prehistoric artifacts
Kelly, Sinoto, and Cordy 1978	Waiehu Heights Subdivision	Survey, Data Recovery	Documented over twenty historic coffin burials exposed during heavy equipment disturbance in dune area
Han 1979	South of Waiehu Point on coast	Archaeological Reconnaissance Survey	Identified a burial and walled terrace
Han 1982	South of Waiehu Point on coast	Archaeological Investigations	Revisited earlier project area identifying four additional sites. Describes 20 <sup>th</sup> century house site, limestone quarry and several incomplete burials
Bordner 1983	Waiehu Housing Development, Environmental Impact Study Corp.	Survey and excavation	Historic Military features only

Study	Location	Type of Study	Findings
Yent 1983-1984	Halekii-Pihana State Monument: Phase I, Waiehu	Survey and Test Coring	Halekii (-4592), <i>iti'iti</i> stones, marine shell, charcoal. Pihana (-4592): <i>iti'iti</i> stones, marine shell, human and pig bone, and a human burial that remains <i>in situ</i>
Tremblay 1987	Waiehu Planned Development	Monitoring	Remains of six individuals that were exposed and displaced during construction activity along Waiehu Beach Road
Donham 1992	Maui Homeless Shelter	Human Skeletal Remains Discovered	SIHP-2916, TMK (2) 3-8-46:21
Folk and Hammatt 1992	South of Waiehu Point on coast	Archaeological survey & sub-surface testing	Identified one site consisting of two buried charcoal lenses. Reports two carbon dates
SHPD burials files November 26 <sup>th</sup> , 1992	Waiehu Sand Dunes	SHPD burials files	Eroding burials reported Waiehu Sand Dunes Site 50-50-04-1185
SHPD burials files January 4, 1993 (Griffin, Annie)	Paukukalo, Wailuku, Maui	Inadvertent Burial Discovery	TMK (2) 3-4-29:22 SIHP 50-04-3139. Burial assessment conducted December 30, 1992 located at 480 Lilihua St.
SHPD Burials Files November 23, 1994 (Kolb, Michael)	Pihana Heiau Site Wailuku, Maui	Human Skeletal Remains	TMK (2) 3-4-30:4. Human skeletal remains found at Pihana Heiau, SIHP 50-04-592, Feature 43.
SHPD burials files March 15 <sup>th</sup> , 1995	Waiehu Sand Dunes	SHPD burials files	Eroding burials reported Waiehu Sand Dunes Site 50-50-04-1185
SHPD burials files June 1996	Waiehu Sand Dunes	SHPD burials files	Eroding burials (28 individuals) reported at Waiehu Sand Dunes Site 50-50-04-1185
Fredericksen 1997	Waiehu Kou Phase II	Monitoring Report	Notes extensive impact of post-contact agricultural activities
SHPD burials files February 4 <sup>th</sup> , 1997	Waiehu Sand Dunes	SHPD burials files	Account of B.P. Bishop Museum repatriation assoc. with Waiehu Sand Dunes Site 50-50-04-1185
Chaffee, Dunn, Asbury-Smith and Spear 1998	Wailuku Parkside Property	Archaeological Inventory Survey	40 backhoe trenches excavated produced no cultural material. Heavily disturbed soils.
Sterling 1998	Island-wide	Compendium	Quite thorough compendium

Study	Location	Type of Study	Findings
Rechtman 1999	Lower Main Street Jack in the Box Restaurant, Wailuku, Maui	Monitoring Report	No archaeological deposits or human remains likely due to the location in the flood plain of Iao Stream.
Fredericksen and Fredericksen 1999 (draft)	Seaward of Waiehu Kou Subdivisions	Archaeological Inventory Survey	Identified two burials assoc. with site 50-50-04-4731; five carbon dates suggest occupation from the 13 <sup>th</sup> century.
Fredericksen 2000	Corridor <i>Mauka</i> of Kahekili Hwy	Letter Report, On Reconnaissance	Identifies modified outcrop and an old access road
Fredericksen and Madeus 2005	Waiehu Ahupua'a	Archaeological Inventory Survey of an approximate two-acre parcel	Identified a site which consisted of earthen and rock terraces, several taro <i>lo'i</i> , a rock and concrete-lined <i>anwai</i> , a 1920's plantation home and associated structures. Artifacts that were documented consisted of an <i>ulu mauka</i> stone and small amounts of portable remains.
Lee-Greig 2006	Paukukalo, Wailuku, Maui	Archaeological Field Inspection	TMK (2) 3-4-028-016. Previously disturbed soils that include indigenous and historic era materials.

The Paukukalo Hawaiian Home Lands subdivision lies approximately 243 meters from the project area. The subdivision and the project area are separated by Waiehu Beach Road and the sand dune on which Pihaana and Halekii *heiau* are located. Several pre-contact burials have been discovered eroding from this dune and within the subdivision. In addition, midden scatters, cave features and rock cairns have also been discovered in the subdivision, along the northern edge of this sand dune. The following documents report on the above mentioned discoveries: Bordner and Parveys 1979a and b, Awai 1986, Estioko-Griffin 1988a and b, D. Fredericksen and W. Fredericksen 1988, Dixon 1996, Kennedy 1990, Estioko-Griffin 1990 and Estioko-Griffin 1991.

Han (1979 and 1982) carried out two studies at Waiehu Heights Subdivision Phase IV (south of Waiehu Point on the coast) identifying six historic properties including a burial, two scatters of human bone, a walled terrace (early 20<sup>th</sup> century), a limestone quarry and a midden scatter.

Folk & Hammatt (1992) carried out sub-surface testing south of Waiehu Point on the coast identifying two buried charcoal lenses (designated SIHP No. 50-50-04-3115) which yielded carbon date ages of AD 1430-1660 and AD 1350-1655.

The files of the State Historic Preservation Division burials program report (November 26, 1992) eroding burials at the Waiehu Golf Course sand dunes (SIHP No. 50-50-04-1185). Few details are documented.

The files of the State Historic Preservation Division burials program report (March 15, 1995) eroding burials at the Waiehu Golf Course sand dunes (SHIP No. 50-50-04-1185). Few details are documented.

The files of the State Historic Preservation Division burials program report (June 1996) eroding burials at the Waiehu Golf Course sand dunes (SIHP No. 50-50-04-1185). Remains from twenty-eight individuals were reported.

E. Fredericksen (1997) carried out archaeological monitoring of the Waiehu Kou Phase II subdivision finding no significant cultural deposits and noting the extensive impact of post-contact agricultural activities.

The files of the State Historic Preservation Division burials program report (February 4, 1997) the repatriation of human remains from the Bernice Pauahi Bishop Museum associated with the Waiehu Golf Course sand dunes (SIHP site number: 50-50-04-1185). Few details are documented.

E Fredericksen and D. Fredericksen (1999, draft) carried out an inventory survey on an approximate 1,110 meters long by 18 meter wide drainage and diversion easement corridor and portions of two proposed retention basins. This study identified two human burials associated with SIHP No. 50-50-04-4731 an extensive dune site on the *mauka* (leeward) side of the large coastal dune that contains the Waiehu Municipal Golf Course. The results of five carbon dates suggested occupation from as early as the 13<sup>th</sup> century. Archaeological monitoring was recommended.

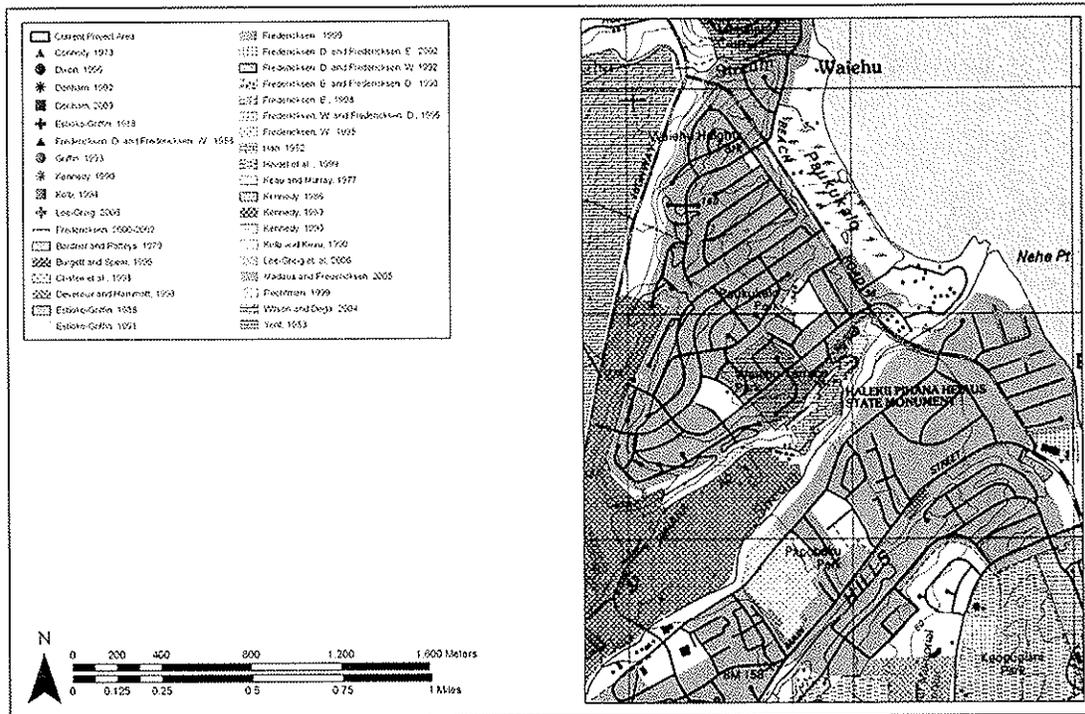


Figure 15. A portion of the Waiehu (1998) U.S.G.S. 7.5 minute topographic quadrangle showing the location of the current project area and nearby archaeological studies

### 3.5 Background Summary and Predictive Model

Background historic research documents the major role of Wailuku Ahupua'a in traditional Hawaiian times. In the vicinity of the present project area, two major *heiau* give evidence of the significance of this portion of the ahupua'a. Mid-nineteenth century *Mahalo* records indicate that the area surrounding the 'Āao Stream, including the present project area, were places of intensive agriculture and habitation. Archaeological properties associated with such activities would include *lo'i* terracing, water diversion systems in the form of traditional *anwai*, and platforms and terraces reflective of temporary and/or permanent habitation. Along with the potential for encountering structural features is the potential for uncovering human burial remains.

However, the historical record has also documented the urbanization of this portion of Wailuku, including the development of modern roadways, commercial and residential area, and the construction of the current 'Āao Bridge (in 1954) and the 'Āao Stream drainage (in the 1970's).

Previous archaeological studies in the vicinity of the project area have documented numerous human burials in sand deposits.

Based on the above considerations, it is predicable that the present project area contains no surface archaeological resources related to traditional Hawaiian culture. However, subsurface cultural deposits, including human burials, may be present in the project area. Additionally, the 'Āao Bridge itself is over fifty years old and may be evaluated as a historic property.

## Section 4 Field Inspection Results

On August 26 Colleen Medeiros Dagan, B.S. conducted a pedestrian field inspection of the 'Āao Bridge and surrounding project area. An additional site visit with both CSH archaeologists and WOC planners and engineers was conducted on October 8, 2009. Critical areas of disturbance were identified during this site visit.

The project area is located in the Wailuku sand dune system. Sand eroding from the dune was clearly visible at neighboring properties (Figure 16). Directly northwest of the bridge is a lithified portion of the dune. This section of the dune was cut through during the original construction of Waihehu Beach Road. Talus from this lithified dune is visible on the shoulder of the roadway. Some of this talus appeared to have been cleared from the roadway and piled at the northwestern end of the bridge (Figure 17 and Figure 18). The Halekii-Pihana State Monument is located atop this large dune. (Figure 19).

The ground surface near the eastern end of the bridge consists of sand/fill material, likely brought in or recycled during the original flood control dredging. The channelized streambed was dry. The stream exits into the ocean at Nehe Point (Figure 20 and Figure 21). Overall, the project area has been heavily disturbed and built-out. No cultural material was observed on the ground surface of the project area.



Figure 16. Sand visible at neighboring property.

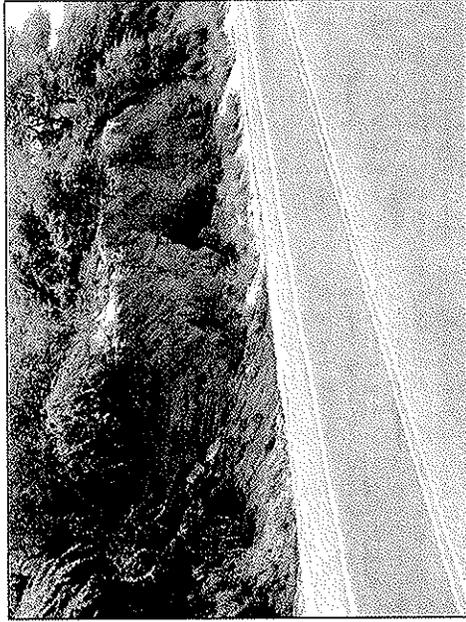


Figure 17. Lithified dune sand and talus.

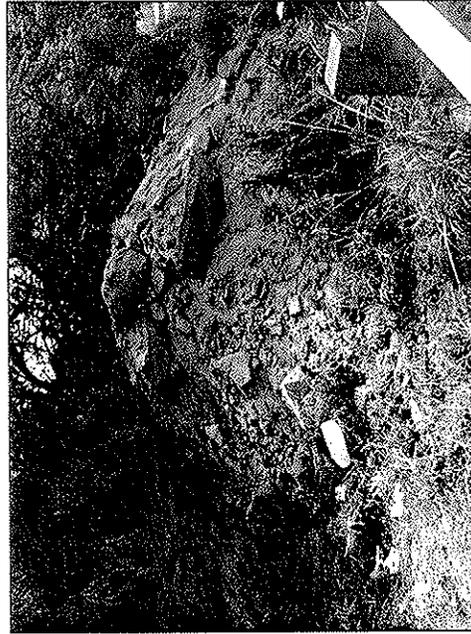


Figure 18. Talus pile at northwestern end of project area.

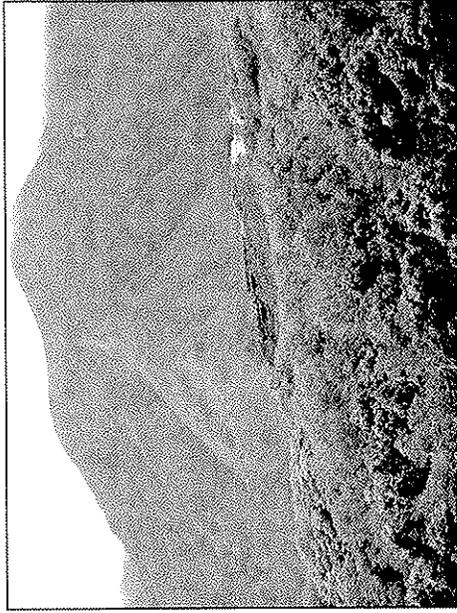


Figure 19. Pihana heiau from 'Iao Bridge view west.



Figure 20. Ground surface consists of sandy fill material.

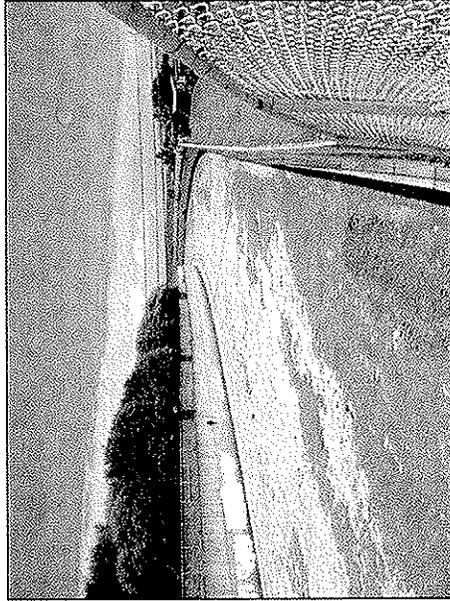


Figure 21. Channelized stream view east to Nehe Point.

During the site visit of October 8, 2009, WOC personnel identified areas where excavations for the bridge project will occur. The first area is located at the northeastern end of the project area where the guardrail will need to be set back approximately 10 feet (Figure 16). The second area would be on either end of both bridge abutments, to accommodate bridge widening. And lastly, excavations will be made to accommodate widening of those bridge piers located within the stream channel.

The bridge itself appeared to be in good condition. The piers of the bridge were painted with graffiti. A chain link fence has been constructed atop the western bridge railing for safety. The guardrail on the southern end of the bridge partially covers the construction date marked on the bridge. However, as the historic background section of this report indicates, the bridge was constructed in 1954, making it eligible to be recorded as a historic property as defined by the Hawai'i Revised Statutes (HRS) §6E-2. Construction dates of the guardrail and fence are unknown.

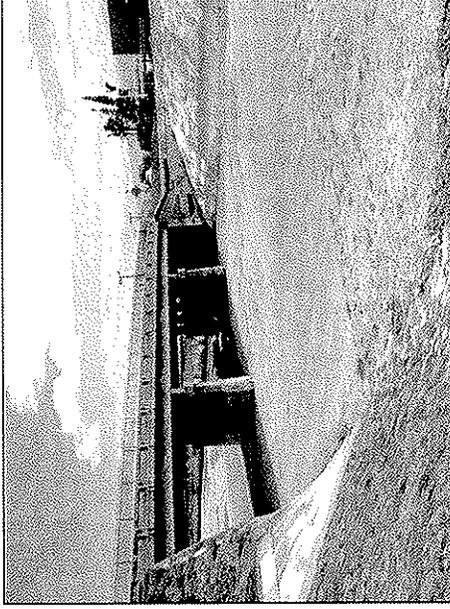


Figure 22. Iao Bridge and stream channel. Chain link fencing on western railing of bridge.

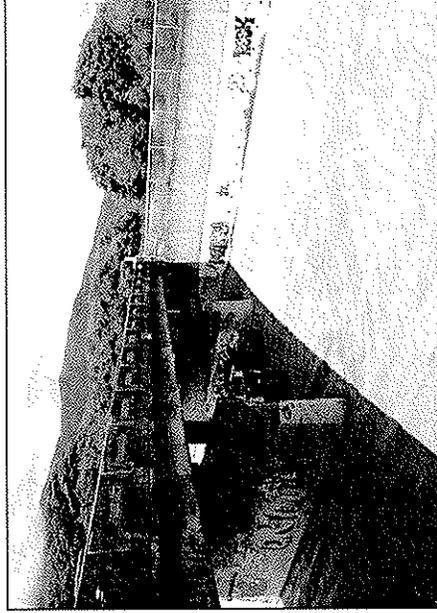


Figure 23. Iao Bridge view west, graffiti visible and seismic rockers visible atop bridge piers.

## Section 5 Summary and Mitigation Recommendations

In summary, the current project area includes a portion of the ʻĪao Stream, one of the streams and valleys of Na Wai Eha. The ʻĪao Stream and valley provided choice agricultural lands for pre-contact Hawaiians living in the area. The project area is also located in close proximity to the Halekii-Pihana State Monument and the Pihana *heiau* itself can be seen from the bridge. This location was a political center during and possibly before the 18<sup>th</sup> century. It has been recorded that Maui *ʻāliʻi* including Kahakii lived and surfed in Wailuku (Kamakau 1992: 83).

Research of previous archaeological studies indicates that taro *ʻioʻi* likely existed on the banks of the stream within the project area but with the construction of the ʻĪao Bridge in 1954 and the channelization of the stream for the flood control project in the 1970's, any archaeological remains have been destroyed due to the substantial alteration of the natural landscape and soils. Pre-contact human burials have also been documented in the sand dune system which the current project area crosses.

Results from the field inspection confirm sandy soils dominate the project area. Although the majority of the project area has undergone extensive ground alterations, there is a location at the northeastern end of the project area where a new guardrail will be installed in these sandy soils. In addition, excavation will take place at both *manuka* and *makai* sides of existing bridge abutments for bridge widening.

The bridge itself appeared to be in good condition. This bridge was constructed in 1954 and is eligible to be recorded as a historic property.

### 5.1 Recommendations

Due to previous archeological findings of pre-contact habitation features and cultural deposits as well as human burials in the vicinity of the project area, and due to the project area's proximity to the Halekii-Pihana State Monument, archaeological monitoring is recommended during ground disturbing activities for the bridge widening and sidewalk improvements project.

It is understood that the guardrail on the northeastern end of the roadway will need to be installed approximately 10 feet *makai* of the existing guardrail. Archaeological monitoring is recommended for ground disturbing activities associated with the installation of the new guardrail. In addition, bridge piers will be widened from existing bridge abutments in both *manuka* and *makai* directions approximately 10 feet. An archaeological monitor is recommended for ground disturbing activities associated with this pier widening. On-call archaeological monitoring is recommended for excavations that take place within the streambed itself as a part of bridge pier widening.

The ʻĪao Bridge was built in 1954 and is now 55 years old. It is eligible to be recorded on the State Inventory of Historic Properties. It may also be eligible for nomination and listing on the Hawaii National Register of Historic Places. Review and recordation of this bridge by the State Historic Preservations Division's Architecture branch may be required.

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# **APPENDIX C**

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## **Pre-consultation Comment and Response Letters**



DEPARTMENT OF THE ARMY  
U.S. ARMY CORPS OF ENGINEERS, HONOLULU DISTRICT  
FORT SHAFER, HAWAII 96858-5440

REPLY TO  
ATTENTION OF: CEPOINCECT

October 23, 2009

Civil Works Technical Branch

Mr. Earl Matsukawa, Project Manager  
Wilson Okamoto Corporation  
1907 South Beretania Street, Suite 400  
Honolulu, Hawaii 96826

Dear Mr. Matsukawa:

Thank you for the opportunity to review and comment on the Pre-Assessment Consultation for the Rehabilitation of Iao Stream Bridge Project (BR-STP-3400-5), Wailuku, Maui (no tax map keys provided). According to the Flood Insurance Rate Map, panel 150030190D dated March 16, 1995, the project site is located in the following flood hazard zones:

- a. Zone C. Areas of minimal flooding.
- b. Zone A6. Areas of the 100-year/1% annual chance flood where the base flood elevation is approximately 29 feet above mean sea level datum.

Your proposed project, however, may impact the existing Iao Stream Flood Control Project and proposed basin improvements. I ask that you schedule a meeting with Mr. Daniel Meyers of my staff (438-8875) and Ms. Nani Shimabuku (Project Manager: 438-2940) to discuss your proposed improvements.

Should you require additional information, please contact Ms. Jessie Dobinchick of my staff at (808) 438-8876.

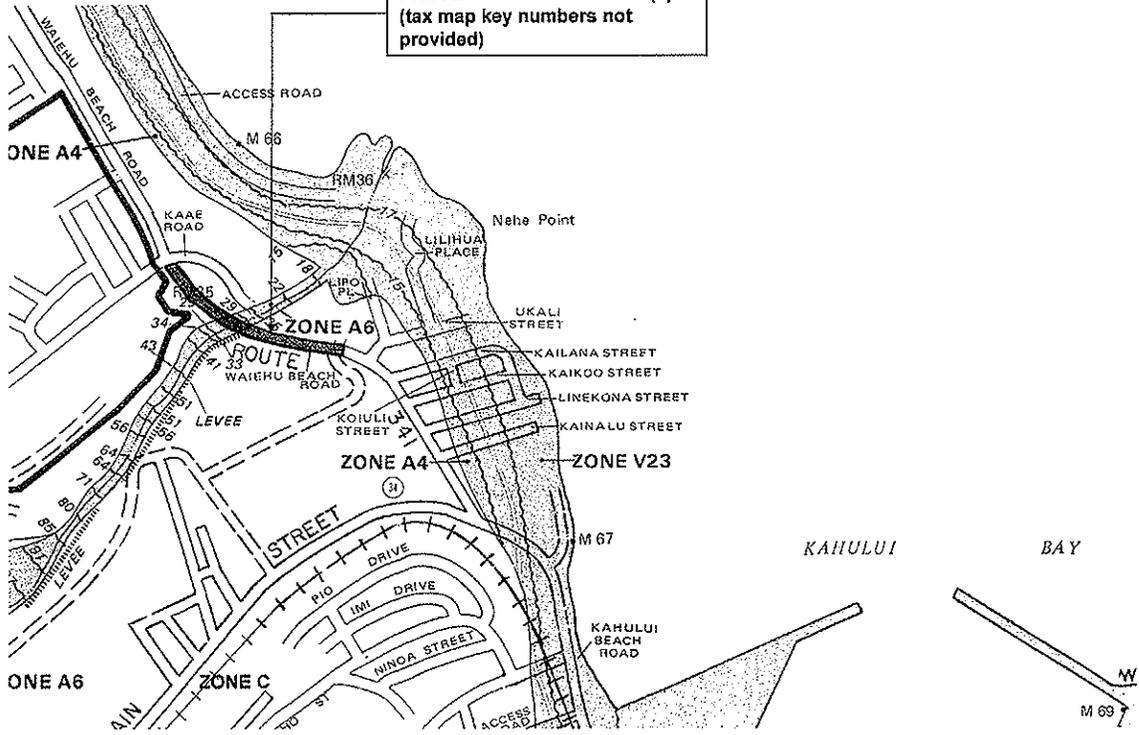
Sincerely,

Steven H. Yamamoto, P.E.  
Chief, Civil Works Technical Branch

Enclosures

NATIONAL FLOOD INSURANCE PROGRAM
<b>FIRM</b> FLOOD INSURANCE RATE MAP
MAUI COUNTY, HAWAII
PANEL 190 OF 400 <small>(SEE MAP INDEX FOR PANELS NOT PRINTED)</small>
COMMUNITY-PANEL NUMBER 150003 0190 D MAP REVISED: MARCH 16, 1995
 Federal Emergency Management Agency

APPROXIMATE LOCATION OF  
PROJECT NO. BR-STP-3400(5)  
(tax map key numbers not  
provided)



**NOTES TO USER**

This map is for use in determining the Special Flood Hazard Areas (SFHAs). It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all qualitative features outside Special Flood Hazard Areas.

Areas of special flood hazard (100-year flood) include Zones A, A1, 30, AE, AH, AO, AP9, V, V1, 30 AND VE.

Certain areas not in the Special Flood Hazard Areas (Zones A and V) may be protected by flood control structures.

Coastal base flood elevations (top yearly) and periods of the practices shown on this map.

For adjoining map panels, see separately printed index to Map Panels.

**INITIAL IDENTIFICATION:**

DECEMBER 6, 1977

FLOOD HAZARD BOUNDARY MAP REVISIONS:

FLOOD INSURANCE RATE MAP EFFECTIVE:

JUNE 1, 1989

FLOOD INSURANCE RATE MAP REVISIONS:

SEPTEMBER 8, 1989

Revised: MARCH 16, 1995 to delete floodable areas, to show special flood hazard areas, and to include previously flooded areas of map revision.

To determine if flood insurance is available in this community, contact your insurance agent, or call the National Flood Insurance Program, at (800) 638-6592.



APPROXIMATE SCALE IN FEET  
1000 0 1000

**KEY TO MAP**

- 500-Year Flood Boundary - - - - -
- 100-Year Flood Boundary - - - - -
- Zone Designations
- 100-Year Flood Boundary - - - - -
- 500-Year Flood Boundary - - - - -
- Base Flood Elevation Line With Elevation in Feet\*\*
- Base Flood Elevation in Feet Where Uniform Within Zone\*\*
- Elevation Reference Mark
- Zone D Boundary - - - - -
- River/Mile

\*\*Referenced to the National Geodetic Vertical Datum of 1979

**EXPLANATION OF ZONE DESIGNATIONS**

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
AO	Areas of 100-year shallow flooding, where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding, where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
ABB	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flood; the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity. (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity. (wave action); base flood elevations and flood hazard factors determined.



**WILSON OKAMOTO**  
CORPORATION  
1907 South Berlianna Street  
Aiea, Hawaii 96826 USA  
Phone: 808-946-2277  
FAX: 808-946-2253  
www.wilsonokamoto.com

7213-01  
February 2, 2011

Mr. Steven H. Yamamoto, P.E.  
U.S. Army Corps of Engineers, Honolulu District  
Department of the Army  
Fort Shafter, Hawaii 96858

**Subject:** Pre-Assessment Consultation  
Draft Environmental Assessment (EA) for Waiehu Beach Road,  
Rehabilitation of Iao Stream Bridge  
District of Wailuku, Island of Maui, Hawaii  
Federal Aid Project No. BR-STP-3400(S)

Dear Mr. Yamamoto:

Thank you for your letter dated October 23, 2009 (CEPOH-EC-T) regarding the subject Draft Environmental Assessment (EA) pre-assessment consultation. We offer the following responses in the respective order of your comments:

- a. We understand that the Flood Insurance Rate Maps (FIRM) panels 15000300383E and 15000300384E, were updated on September 25, 2009. According to the updated maps, the project site is located in Flood Zones X, AE, and AE Floodway. The Draft EA will include a description of these flood zones.
- b. We will contact your office to schedule a meeting to discuss the proposed improvements and the impacts it may have to the Iao Stream Flood Control Project.

Your letter, along with this response, will be reproduced and included in the forthcoming Draft EA. We appreciate your participation in the pre-assessment consultation review process.

Sincerely,

Earl Matsukawa, AICP  
Project Manager

cc: Ms. Li Nah Okita, State DOT, Highways Division



United States Department of the Interior

U.S. GEOLOGICAL SURVEY  
Pacific Islands Water Science Center  
677 Ala Moana Blvd., Suite 415  
Honolulu, HI 96813  
Phone: (808) 587-2400/Fax: (808) 587-2401

October 30, 2009

Mr. Earl Matsukawa, Project Manager  
Wilson Okamoto Corporation  
1907 South Berctania Street, Suite 400  
Honolulu, Hawaii 96826

Dear Mr. Matsukawa:

Subject: Pre-Assessment Consultation for Draft Environmental Assessment, Waiehu Beach Road, Rehabilitation of Iao Stream Bridge, District of Waiituku, Island of Maui, Hawaii, Project No. BR-STP-3400(5)

Thank you for forwarding the subject Pre-Assessment Consultation for Draft Environmental Assessment for review and comment by the staff of the U.S. Geological Survey Pacific Islands Water Science Center. We regret however, that due to prior commitments and lack of available staff, we are unable to review this document.

We appreciate the opportunity to participate in the review process.

Sincerely,  
*Stephen S. Anthony*  
Stephen S. Anthony  
Acting Center Director



1907 South Berctania Street  
Artesian Plaza, Suite 400  
Honolulu, Hawaii, 96826 USA  
Phone: 808-946-2277  
FAX: 808-946-2253  
www.wilsonokamoto.com

7213-01  
February 2, 2011

Mr. Stephen S. Anthony, Acting Center Director  
United States Department of Interior  
U.S. Geological Survey  
Pacific Islands Water Science Center  
677 Ala Moana Blvd., Suite 415  
Honolulu, Hawaii 96813

Subject: Pre-Assessment Consultation  
Draft Environmental Assessment (EA) for Waiehu Beach Road,  
Rehabilitation of Iao Stream Bridge  
District of Waiituku, Island of Maui, Hawaii  
Federal Aid Project No. BR-STP-3400(5)

Dear Mr. Anthony:

Thank you for your letter dated October 30, 2009 regarding the subject Draft Environmental Assessment (EA) pre-assessment consultation.

We note your department was unable to review this document due to prior commitments and lack of available staff.

Your letter, along with this response, will be reproduced and included in the forthcoming Draft EA. We appreciate your participation in the pre-assessment consultation review process.

Sincerely,  
*Earl Matsukawa*  
Earl Matsukawa, AICP  
Project Manager

cc: Ms. Li Nah Okita, State DOT, Highways Division



United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Pacific Islands Fish and Wildlife Office  
300 Ala Moana Boulevard, Room 3-122, Box 50088  
Honolulu, Hawaii 96850



In Reply Refer To:  
2010-1A-0010

Mr. Earl Matsukawa  
Project Manager  
Wilson Okamoto Corporation  
1907 South Beretania Street  
Suite 400  
Honolulu, Hawaii 96826

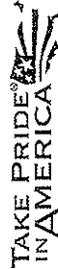
Subject: Technical Assistance for Iao Stream Bridge Improvements, Waiehu Beach Road,  
Waialuku, Maui, Hawaii

Dear Mr. Matsukawa:

The U.S. Fish and Wildlife Service has reviewed your October 16, 2009, request for technical assistance regarding the proposed improvements to Iao Stream Bridge on Waiehu Beach Road in Waialuku, Maui. The project entails improvements benefitting pedestrians, persons with disabilities, bicyclists, as well as motorists. We understand that additional details will be provided in a forthcoming draft Environmental Assessment and Biological Assessment. Based on the photographs enclosed in your letter, vegetation in the vicinity of the bridge appears to be composed entirely of intensively mowed grass.

Based on the information you provided and pertinent information in our files, threatened Newell's shearwater (*Puffinus newelli*) and the endangered Hawaiian petrel (*Pterodroma sandwichensis*) (collectively referred to as seabirds) have been observed in the vicinity of the proposed project. Seabirds may traverse the project area at night during the breeding season (February 1 through December 15). Any outdoor lighting, particularly when used during each year's peak fledging period (September 15 through December 15), could result in seabird disorientation, fallout, injury and/or mortality. We recommend you avoid night time construction, particularly between September 15 and December 15. To minimize potential project impacts to seabirds, we recommend all outdoor lights associated with the project be shielded so the bulb can be seen only from below.

To minimize erosion, sedimentation, and other adverse impacts to aquatic resources and nearby coral reef ecosystems, we recommend that applicable measures identified in the enclosed list of Standard Best Management Practices for aquatic resources be incorporated, as appropriate, into the draft Environmental Assessment and Biological Assessment.



Mr. Earl Matsukawa

We look forward to reviewing your draft Environmental assessment and Biological Assessment for the proposed project. If you have questions or would like additional information, please contact Dawn Greenlee, Fish and Wildlife Biologist (phone: 808/792-9469; fax: 808-792-9581).

Sincerely,

Loyel Mehrhoff  
Field Supervisor

Enclosure

**U.S. Fish and Wildlife Service  
Recommended Standard Best Management Practices**

The Fish and Wildlife Service recommends that the following measures be incorporated into projects to minimize the degradation of water quality and adverse impacts to fish and wildlife resources.

1. Turbidity and siltation from project-related work shall be minimized and contained to within the vicinity of the site through the appropriate use of effective silt containment devices and the curtailment of work during adverse tidal and weather conditions.
2. Dredging/filling in the marine environment shall be scheduled to avoid coral spawning and recruitment periods and sea turtle nesting and hatching periods.
3. Dredging and filling in the marine/aquatic environment shall be designed to avoid or minimize the loss of special aquatic site habitat (coral reefs, wetlands etc.) and any ecological functions unavoidably lost as a result of the project shall be replaced.
4. All project-related materials and equipment (dredges, barges, backhoes etc) to be placed in the water shall be cleaned of pollutants prior to use.
5. No project-related materials (fill, revertment rock, pipe etc.) should be stockpiled in the water (intertidal zones, reef flats, stream channels, wetlands etc.).
6. All debris removed from the marine/aquatic environment shall be disposed of at an approved upland or ocean dumping site.
7. No contamination (trash or debris disposal, non-native species introductions attraction of non-native pests etc.) of adjacent marine/aquatic environments (reef flats, channels, open ocean, stream channels, wetlands, beaches, forests etc.) shall result from project-related activities. This shall be accomplished by implementing a litter-control plan and developing a Hazard Analysis and Critical Control Point Plan (HACCP – see <http://www.haccp-nrm.org/Wizard/default.asp>) to prevent attraction and introduction of non-native species.
8. Fueling of project-related vehicles and equipment should take place away from the water and a contingency plan to control petroleum products accidentally spilled during the project shall be developed. Absorbent pads and containment booms shall be stored on-site, if appropriate, to facilitate the clean-up of accidental petroleum releases.
9. Any under-layer fills used in the project shall be protected from erosion with stones (or core-loc units) as soon after placement as practicable.
10. Any soil exposed near water as part of the project shall be protected from erosion (with plastic sheeting, filter fabric etc.) after exposure and stabilized as soon as practicable (with native or non-invasive vegetation matting, hydroseeding etc.).



1987 South Beretana Street  
Aiea Union Plaza, Suite 400  
Honolulu, Hawaii, 96826 USA  
Phone: 808-446-3253  
Fax: 808-446-3253  
www.wilsonokamoto.com

7213-01  
February 2, 2011

Dr. Loyd Mehrhoff, Field Supervisor  
United States Department of Interior  
Fish and Wildlife Service  
Pacific Islands Fish and Wildlife Office  
300 Ala Moana Blvd., Room 3-122, Box 50088  
Honolulu, Hawaii 96850

Attention: Ms. Dawn Greenlee

Subject: Pre-Assessment Consultation  
Draft Environmental Assessment (EA) for Waichu Beach Road,  
Rehabilitation of Iao Stream Bridge  
District of Wailuku, Island of Maui, Hawaii  
Federal Aid Project No. BR-STP-3400(3)

Dear Dr. Mehrhoff:

Thank you for your letter dated December 18, 2009 (Reference 2010-TA-0010) regarding the subject Draft Environmental Assessment (EA) pre-assessment consultation.

Night time construction will be minimized, particularly during the peak fledging period from September 15 to December 15. No new or replacement street lights are proposed for the project. If any night work is required, however, outdoor lights will be down shielded to mitigate potential impacts to seabirds.

Thank you for providing the list of Standard Best Management Practices for aquatic sites. As appropriate, the BMPs will be incorporated into the forthcoming Draft Environmental Assessment. For your information, an Erosion Control Plan and site-specific BMP plan will be prepared for the project and will include measures to mitigate potential water quality impacts.

Your letter, along with this response, will be reproduced and included in the forthcoming Draft EA. We appreciate your participation in the pre-assessment consultation review process.

Sincerely,

Earl Matsukawa, AICP  
Project Manager

cc: Ms. Li Nah Okita, State DOT, Highways Division

JANIS LINGZA  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

October 16, 2009



EARL L. UNDERWOOD  
GOVERNOR OF HAWAII  
HONOLULU, HAWAII 96813



1507 South Boreana Street  
Aiea, HI 96706  
Honolulu, Hawaii, 96826 USA  
Phone: 808-546-2277  
FAX: 808-846-2253  
www.wilsonokamoto.com

7213-01  
February 2, 2011

Mr. Ed Underwood, Administrator  
State of Hawaii  
Department of Land and Natural Resources  
Division of Boating and Ocean Recreation  
333 Queen Street, Suite 300  
Honolulu, Hawaii 96813

MEMORANDUM

TO:

DLNR Agencies:

- Div. of Aquatic Resources
- Div. of Boating & Ocean Recreation
- Engineering Division
- Div. of Forestry & Wildlife
- Div. of State Parks
- Commission on Water Resource Management
- Office of Conservation & Coastal Lands
- Land Division - Maui
- Historic Preservation

FROM:

Morris M. Atia *M. Atia*

SUBJECT: Pre-Assessment Consultation for Draft Environmental Assessment for Waiehu

Beach Road, Rehabilitation of Iao Stream Bridge

LOCATION: Island of Maui

APPLICANT: Department of Transportation, Highways Division

If transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by November 14, 2009.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

- We have no objections.
- We have no comments.
- Comments are attached.

Signed: *M. Atia*  
Date: 10/19/09

Subject: Pre-Assessment Consultation  
Draft Environmental Assessment (EA) for Waiehu Beach Road,  
Rehabilitation of Iao Stream Bridge  
District of Waiehu, Island of Maui, Hawaii  
Federal Aid Project No. BR-STP-3400(5)

Dear Mr. Underwood:

Thank you for your letter dated October 19, 2009 indicating that you have no comments to offer regarding the subject Draft Environmental Assessment (EA) pre-assessment consultation.

Your letter, along with this response, will be reproduced and included in the forthcoming Draft EA. We appreciate your participation in the pre-assessment consultation review process.

Sincerely,

*Earl M. Underwood*

Earl Matsukawa, AICP  
Project Manager

cc: Ms. Li Nah Okita, State DOT, Highways Division

RECEIVED  
OCT 20 10 49 AM '09  
DIVISION

00119090818-38808 DJJ



LAURA H. TIERLER  
ADMINISTRATIVE ASSISTANT  
COMMUNICATIONS SECTION

RECEIVED  
LAND DIVISION



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

October 16, 2009

2009 OCT 20 P 1:51

1:53  
1:18

MEMORANDUM

TO:

DLNR Agencies:

- Div. of Aquatic Resources
- Div. of Boating & Ocean Recreation
- Engineering Division
- Div. of Forestry & Wildlife
- Div. of State Parks
- Commission on Water Resource Management
- Office of Conservation & Coastal Lands
- Land Division - Maui
- Historic Preservation

FROM:

Morris M. Atta

SUBJECT:

Pre-Assessment Consultation for Draft Environmental Assessment for Waichu Beach Road, Rehabilitation of Iao Stream Bridge

LOCATION:

Island of Maui

APPLICANT:

Department of Transportation, Highways Division

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by November 14, 2009.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

- We have no objections.
- We have no comments.
- Comments are attached.

Signed: *Paul J. Conry*  
Date: 10/19/2009

PAUL J. CONRY, ADMINISTRATOR  
DIVISION OF FORESTRY AND WILDLIFE



WILDLIFE CONSERVATION SOCIETY  
1907 South Beretania Street  
Aiea, Hawaii, Suite 406  
Honolulu, Hawaii, 96826 USA  
Phone: 808-946-2277  
FAX: 808-946-2253  
www.wildlifeconsociety.com

7213-01  
February 2, 2011

Mr. Paul Conry, Administrator  
State of Hawaii  
Department of Land and Natural Resources  
Division of Forestry and Wildlife  
1151 Punchbowl Street  
Honolulu, Hawaii 96813

Subject: Pre-Assessment Consultation  
Draft Environmental Assessment (EA) for Waichu Beach Road,  
Rehabilitation of Iao Stream Bridge  
District of Waialuku, Island of Maui, Hawaii  
Federal Aid Project No. BR-STP-3400(5)

Dear Mr. Conry:

Thank you for your letter dated October 19, 2009 indicating that you have no objections to the proposed project discussed in the subject Draft Environmental Assessment (EA) pre-assessment consultation.

Your letter, along with this response, will be reproduced and included in the forthcoming Draft EA. We appreciate your participation in the pre-assessment consultation review process.

Sincerely,

Earl Matsukawa, AICP  
Project Manager

cc: Ms. Li Nah Okita, State DOT, Highways Division



LAUREN J. THEISER  
WILLIAM BALLOUR, JR.  
SUNAMU ERIZAWAY  
NEALS FUJIMURA  
CHIEF OF BUREAU  
DONALD K. KOSAKI, P.E.  
LAWRENCE H. HANE, R.O. J.D.  
KEN C. KAWAHARA, P.E.  
P.O. BOX 215

STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT  
HONOLULU, HAWAII 96822

October 20, 2009

Ref: RFD 2303.6

LEONIA LINSLEY  
OFFICE OF THE ATTORNEY GENERAL

Mr. Earl Matsukawa, Project Manager  
Wilson Okamoto Corporation  
1907 South Beretania Street, Suite 400  
Honolulu, HI 96826

Dear Mr. Matsukawa:

Request for Determination  
Waichu Beach Road/Iao Stream Bridge Rehabilitation  
Waialuku, Maui, TMK: (2) 3-4-029-999 and 3-4-030-999

Reference is made to your October 14, 2009, letter to the Commission on Water Resource Management (Commission) requesting a determination for the proposed Iao Stream Bridge Rehabilitation Project in Waialuku, Maui at TMK: (2) 3-4-029-999 and 3-4-030-999.

The Commission's Stream Protection and Management Branch has the responsibility to protect stream channels from alteration whenever practicable to provide for fishery, wildlife, recreational, aesthetic, scenic, and other beneficial instream uses in the State of Hawaii under the authorization of the State Water Code (Code), Chapter 174C, Hawaii Revised Statutes, and Chapter 15-169, Hawaii Administrative Rules (Protection of Instream Uses of Water).

Pursuant to the Code, §174C-71(3)(A), the Commission "shall require persons to obtain a permit from the Commission prior to undertaking a stream channel alteration." The term "stream channel" is defined in the Code, §174C-3, as a "watercourse with a definite bed and banks which periodically or continuously contains flowing water." Furthermore, the Code defines "stream" as any "natural watercourse in which water usually flows in a defined bed or channel."

Based on the information that you provided, the Commission will not require a Stream Channel Alteration Permit (SCAP) for the proposed project because maintenance of existing facilities are exempt from a stream channel alteration permit per HRS §174C-71(3)(A).

Please be advised that your proposal may require other agency approvals regarding wetlands, water quality, grading, stockpiling, and floodways. This letter should not be used for other regulatory jurisdictions or used to imply compliance with other federal, state, or county rules.

Should you have any questions, please contact Robert Cheong in the Stream Protection and Management Branch at 587-0266, or robert.k.cheong@hawaii.gov.

Sincerely,  
*Robert Cheong*  
KEN C. KAWAHARA, P.E.  
Deputy Director

cc: Duane Taniguchi, State Department of Transportation, Highways Division

PAVLA H. THURMAN  
INVESTIGATIVE SERVICES DIVISION  
COMMUNICATIONS UNIT  
HONOLULU, HAWAII 96822

RECEIVED  
LAND DIVISION

2009 OCT 29 AM 10:51

DEPT. OF LAND & NATURAL RESOURCES  
STATE OF HAWAII

STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION  
POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

October 16, 2009

2009 OCT 19 PM 1:36

MEMORANDUM

- TO:
- DLNR Agencies:
  - Div. of Aquatic Resources
  - Div. of Boating & Ocean Recreation
  - Engineering Division
  - Div. of Forestry & Wildlife
  - Div. of State Parks
  - Commission on Water Resource Management
  - Office of Conservation & Coastal Lands
  - Land Division - Maui
  - Historic Preservation

FROM: Morris M. Aua *M. Aua*

SUBJECT: Pre-Assessment Consultation for Draft Environmental Assessment for Waichu Beach Road Rehabilitation of Iao Stream Bridge

LOCATION: Island of Maui

APPLICANT: Department of Transportation, Highways Division

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by November 14, 2009.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

- We have no objections.
- We have no comments.
- Comments are attached.

Signed: *Lelewa T. Schooler*  
Date: *10.16.09*



WILSON OKAMOTO  
CONSULTANTS  
1907 South Bereiana Street  
Aiea, Hawaii, 96825 USA  
Phone: 808-846-2277  
FAX: 808-846-2253  
www.wilsonokamoto.com

7213-01  
February 2, 2011

Bill Tam, Deputy Director  
State of Hawaii  
Department of Land and Natural Resources  
Commission on Water Resource Management  
1151 Punchbowl Street, Room 227  
Honolulu, Hawaii 96813

Subject: Pre-Assessment Consultation  
Draft Environmental Assessment (EA) for Waiehu Beach Road,  
Rehabilitation of Iao Stream Bridge  
District of Waiuku, Island of Maui, Hawaii  
Federal Aid Project No. BR-STP-3400(5)

Dear Mr. Tam:

Thank you for your letter dated October 20, 2009 regarding the subject Draft Environmental Assessment (EA) pre-assessment consultation. We acknowledge that the Commission will not require a Stream Channel Alteration Permit (SCAP) for the proposed project, but that the project may require other agency approvals regarding wetlands, water quality, grading, stockpiling, and floodways.

Your letter, along with this response, will be reproduced and included in the forthcoming Draft EA. We appreciate your participation in the pre-assessment consultation review process.

Sincerely,

Earl Matsukawa, AICP  
Project Manager

cc: Ms. Li Nah Okita, State DOT, Highways Division

53557

LAND AND NATURAL RESOURCES  
DEPARTMENT OF LAND AND NATURAL RESOURCES



2009 OCT 16 10 55 AM  
RECEIVED  
STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION  
HONOLULU, HAWAII 96899



10/16/09 10:55 AM

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

October 16, 2009

MEMORANDUM

- TO: DLNR Agencies:
- Div. of Aquatic Resources
  - Div. of Boating & Ocean Recreation
  - Engineering Division
  - Div. of Forestry & Wildlife
  - Div. of State Parks
  - Commission on Water Resource Management
  - Office of Conservation & Coastal Lands
  - Land Division -Mau
  - Historic Preservation

FROM: Morris M. Atta *Morris M. Atta*

SUBJECT: Pre-Assessment Consultation for Draft Environmental Assessment for Waiehu Beach Road, Rehabilitation of Iao Stream Bridge

LOCATION: Island of Maui

APPLICANT: Department of Transportation, Highways Division

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by November 14, 2009.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

- We have no objections.
- We have no comments.
- Comments are attached.

Signed: *[Signature]*  
Date: 10/14/09



WILSON OKAMOTO  
KAMIO  
1907 South Beretania Street  
Aiea, HI 96706  
Honolulu, Hawaii, 96826 USA  
Phone: 808-946-2277  
FAX: 808-946-2253  
www.wilsonokamio.com

7213-01  
February 2, 2011

Mr. Daniel Quinn, Administrator  
State of Hawaii  
Department of Land and Natural Resources  
Division of State Parks  
P.O. Box 621  
Honolulu, Hawaii 96809

Subject: Pre-Assessment Consultation  
Draft Environmental Assessment (EA) for Waiehu Beach Road,  
Rehabilitation of Iao Stream Bridge  
District of Wailuku, Island of Maui, Hawaii  
Federal Aid Project No. BR-STP-3409(3)

Dear Mr. Quinn:

Thank you for your letter dated October 21, 2009 indicating that you have no comments to offer regarding the subject Draft Environmental Assessment (EA) pre-assessment consultation.

Your letter, along with this response, will be reproduced and included in the forthcoming Draft EA. We appreciate your participation in the pre-assessment consultation review process.

Sincerely,

*[Signature]*

Earl Matsukawa, AICP  
Project Manager

cc: Ms. Li Nah Okita, State DOT, Highways Division



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION  
POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

November 15, 2009

Wilson Okamoto Corporation  
1907 South Beretania Street Suite 400  
Honolulu, Hawaii 96826

Attention: Mr. Earl Matsukawa, Project Manager  
Ladies and Gentlemen:

Subject: Pre-Assessment Consultation for Draft Environmental Assessment for  
Waiehu Beach Road, Rehabilitation of Iao Stream Bridge

Thank you for the opportunity to review and comment on the subject matter. The  
Department of Land and Natural Resources' (DLNR), Land Division distributed or made  
available a copy of your report pertaining to the subject matter to DLNR Divisions for their  
review and comment.

Other than the comments from Commission on Water Resource Management, Division of  
Boating & Ocean Recreation, Land Division-Maui District, Division of Forestry & Wildlife,  
Division of State Parks, the Department of Land and Natural Resources has no other comments  
to offer on the subject matter. Should you have any questions, please feel free to call our office  
at 587-0433. Thank you.

Sincerely,

*Morris M. Atia*  
Morris M. Atia  
Administrator



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION  
POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

October 16, 2009

MEMORANDUM

TO: DLNR Agencies:  
 Div. of Aquatic Resources  
 Div. of Boating & Ocean Recreation  
 Engineering Division  
 Div. of Forestry & Wildlife  
 Div. of State Parks  
 Commission on Water Resource Management  
 Office of Conservation & Coastal Lands  
 Land Division - Maui  
 Historic Preservation

FROM: Morris M. Atia

SUBJECT: Pre-Assessment Consultation for Draft Environmental Assessment for Waiehu  
Beach Road, Rehabilitation of Iao Stream Bridge  
LOCATION: Island of Maui  
APPLICANT: Department of Transportation, Highways Division

Transmitted for your review and comment on the above referenced document. We would  
appreciate your comments on this document. Please submit any comments by November 14,  
2009.

If no response is received by this date, we will assume your agency has no comments. If  
you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

- We have no objections.
- We have no comments.
- Comments are attached.

Signed: *Morris M. Atia*  
Date: 11/17/09

RECEIVED  
LAND DIVISION  
2009 NOV -5 A 10:22  
DEPT. OF LAND &  
NATURAL RESOURCES  
STATE OF HAWAII



**WILSON OKAMOTO**  
PROJECT MANAGER  
1807 South Beretania Street  
Aiea Plaza, Suite 400  
Honolulu, Hawaii, 96826 USA  
Phone: 808-946-2277  
Fax: 808-346-2253  
www.wilsonokamoto.com

7213-01  
February 2, 2011

Mr. Russell Tsuji, Administrator  
State of Hawaii  
Department of Land and Natural Resources  
Land Division-Maui  
1151 Punchbowl Street  
Honolulu, Hawaii 96813

Subject: Pre-Assessment Consultation  
Draft Environmental Assessment (EA) for Waichu Beach Road,  
Rehabilitation of Iao Stream Bridge  
District of Wailuku, Island of Maui, Hawaii  
Federal Aid Project No. BR-STP-3400(5)

Dear Mr. Tsuji:

Thank you for your letter dated November 3, 2009, indicating that you have no comments to offer regarding the subject Draft Environmental Assessment (EA) pre-assessment consultation.

Your letter, along with this response, will be reproduced and included in the forthcoming Draft EA. We appreciate your participation in the pre-assessment consultation review process.

Sincerely,

Earl Masukawa, AICP  
Project Manager

cc: Ms. Li Nah Okita, State DOT, Highways Division



STATE OF HAWAII  
DEPARTMENT OF HAWAIIAN HOME LANDS

150 ALI'OLE RD.  
HONOLULU, HAWAII 96826

November 4, 2009

Mr. Earl Matsukawa, Project Manager  
Wilson Okamoto Corporation  
1907 South Beretania Street, Suite 400  
Honolulu, Hawaii 96826

Subject: Pre-Assessment Consultation for Draft Environmental  
Assessment  
Waiehu Beach Road, Rehabilitation of Iao Stream Bridge  
District of Wailuku, Island of Maui, Hawaii  
Project No. BR-STP-3400(5)

Aloha Mr. Matsukawa,

Thank you for the opportunity to provide pre-assessment comments prior to the Draft Environmental Assessment (DEA) for the Waiehu Beach Road, Rehabilitation of Iao Stream Bridge. The Department of Hawaiian Home Lands (DHHL) owns approximately 180 acres in Paukukalo (63 acres) and Wai'ehu Kou (117 acres), Maui and will be developing a Regional Plan for the area in 2010. The DHHL's property is adjacent to the proposed project.

As adjacent landowners, engaging in our own planning process, it is our responsibility to participate and plan appropriately for the larger region. In addition, it is our priority to ensure that DHHL's plans are as consistent as possible with other plans in the area.

Please consider the following comments on your proposed project:

1. A significant heiau and historic district is located adjacent to the project. The Environmental Assessment should acknowledge the likely presence of ancient structures and iwi in the sand dunes area and the possible impacts from construction and vibration.

Mr. Gerald Park  
October 9, 2009  
Page 2

2. The Paukukalo homestead is situated near the project area. Please consider the potential impacts of construction, noise, odors, vibrations, and traffic congestion that will result from the proposed project. We recommend that the contractor take photos to document existing conditions.
3. All proposed alternatives for the project should include a "complete street" that accommodates all modes of travel (vehicular, bus, bicycle, and pedestrian).
4. Please consult with the following organizations who may have programs that will be directly affected by the proposed project:
  - a. Paukukalo Hawaiian Homestead Community Association
  - b. Wai'ehu Kou Community Homestead Association
  - c. Wai'ehu Kou Residence Lots, Phase 2 Association
  - d. Wai'ehu Kou Phase 3 Association, Inc.
  - e. Wai'ehu Kou Phase 4
  - f. Trust for Public Lands
  - g. Wailuku Neighborhood Place
5. If use of Hawaiian home lands is required for the project, please contact our Land Management Division at 620-9450 to request use and access.

We thank you for the opportunity to comment on the project. We will continue, as an adjacent landowner, to do what we can to assist in your planning efforts. If you have any questions, please contact Kaleo Maruei at our Planning Office at 620-9485.

Aloha and mahalo,

Kaliiana H.R. Park, Chairman  
Hawaiian Homes Commission

Enclosures



587 South Berberis Street  
 Alhambra, CA 91803  
 Phone: 626-346-2277  
 FAX: 626-346-2253  
 www.wilsonokamoto.com

7213-01  
 February 2, 2011

Mr. Alapaki P. Nahale-a, Director  
 State of Hawaii  
 Department of Hawaiian Home Lands  
 P.O. Box 1870  
 Honolulu, Hawaii 96805

Subject: Pre-Assessment Consultation  
 Draft Environmental Assessment (EA) for Waichu Beach Road,  
 Rehabilitation of Iao Stream Bridge  
 District of Wailuku, Island of Maui, Hawaii  
 Federal Aid Project No. BK-STP-3400(5)

Dear Mr. Nahale-a:

Thank you for your letter dated November 4, 2009 regarding the subject Draft Environmental Assessment (EA) pre-assessment consultation. We offer the following responses in the respective order of your comments:

1. The Draft EA will include an Archaeological Literature Review and Field Inspection which will consider potential construction-related impacts to cultural resources.
2. Potential construction related impacts such as noise, air quality, and traffic congestion will be addressed in the forthcoming Draft EA. The project will not generate significant vibrations, such as those associated with pile driving or blasting. Therefore, vibration impacts to surrounding areas are not anticipated.
3. To the extent possible, the proposed project was developed to provide a complete street build-out using the available right-of-way. The proposed project will include multi-modal travel for pedestrians, bicycles, and vehicles.
4. Thank you for your suggestions. We will distribute a copy of the Draft EA to the organizations you have listed and will contact you to obtain mailing addresses and contract information
5. The use of DHHHL lands for construction staging activities is not anticipated.



7213-01  
 Letter to Mr. Alapaki P. Nahale-a  
 Page 2  
 February 2, 2011

Your letter, along with this response, will be reproduced and included in the forthcoming Draft EA. We appreciate your participation in the pre-assessment consultation review process.

Sincerely,

Earl Matsukawa, AICP  
 Project Manager

cc: Ms. Li Nah Okita, State DOT, Highways Division

LANA K. KING  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

November 19, 2009

Wilson Okamoto Corporation  
1907 South Beretania Street Suite 400  
Honolulu, Hawaii 96826

Attention: Mr. Earl Mataukawa, Project Manager

Ladies and Gentlemen:

Subject: Pre-Assessment Consultation for Draft Environmental Assessment for  
Waiehu Beach Road, Rehabilitation of Iao Stream Bridge

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources (DLNR), Land Division distributed or made available a copy of your report pertaining to the subject matter to Engineering Division for their review and comment.

The Department of Land and Natural Resources has no other comments to offer on the subject matter. Should you have any questions, please feel free to call our office at 587-0433. Thank you.

Sincerely,

*Morris M. Alta*  
Morris M. Alta  
Administrator

LANA K. KING  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

November 19, 2009

Wilson Okamoto Corporation  
1907 South Beretania Street Suite 400  
Honolulu, Hawaii 96826

Attention: Mr. Earl Mataukawa, Project Manager

Ladies and Gentlemen:

Subject: Pre-Assessment Consultation for Draft Environmental Assessment for  
Waiehu Beach Road, Rehabilitation of Iao Stream Bridge

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources (DLNR), Land Division distributed or made available a copy of your report pertaining to the subject matter to Engineering Division for their review and comment.

The Department of Land and Natural Resources has no other comments to offer on the subject matter. Should you have any questions, please feel free to call our office at 587-0433. Thank you.

Sincerely,

*Morris M. Alta*  
Morris M. Alta  
Administrator

LANA K. KING  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

October 16, 2009

MEMORANDUM

TO:

- DLNR Agencies:
  - Div. of Aquatic Resources
  - Div. of Boating & Ocean Recreation
  - Engineering Division
  - Div. of Forestry & Wildlife
  - Div. of State Parks
  - Commission on Water Resource Management
  - Office of Conservation & Coastal Lands
  - Land Division - Maui
  - Historic Preservation

FROM:

*Morris M. Alta*

SUBJECT: Pre-Assessment Consultation for Draft Environmental Assessment for Waiehu Beach Road, Rehabilitation of Iao Stream Bridge

LOCATION: Island of Maui

APPLICANT: Department of Transportation, Highways Division

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by November 14, 2009.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

- We have no objections.
- We have no comments.
- Comments are attached.

Signed: *Morris M. Alta*  
Date: 11/19/09

RECEIVED  
LAND DIVISION  
2009 NOV 18 A 10:15  
DEPT. OF LAND & NATURAL RESOURCES  
STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES  
ENGINEERING DIVISION

LD:MorrisAha  
Ref: PreAssessConsulRDARchablaeStreamBridge  
Maui.487

DEPARTMENT OF LAND AND NATURAL RESOURCES  
ENGINEERING DIVISION

**Project:** Pre-Assessment Consultation for Draft Environmental Assessment  
Waichu Beach Road, Rehabilitation of Iao Stream Bridge  
Waifuku, Maui, Hawaii

**ADDITIONAL COMMENTS**

For the proposed rehabilitation of Iao Stream bridge and related improvements, we offer the following suggestions:

1. If utilities (sewer, gas, water, etc.) are to be suspended along the bridge structure, they should be located and constructed to minimize flood damage, leakage and prevent snagging of debris.
2. The proposed bridge should not impede the storm water carrying capacity of the body of water it crosses.
3. A scour analysis should be conducted to ensure that the design of the structure will minimize erosion of the foundation. If the channel opening at the structure is widened, evaluate downstream reaches to provide for adequate capacity and erosion.

**COMMENTS**

- We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone ....
- Please take note that based on the maps provided it appears that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zones X , AE and AE Floodway (AEF). The Flood Insurance Program does not have any regulations for developments within Flood Zone X, however, it does regulate developments within Zones AE and AEF as indicated in bold letters below.
- Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is ....
- Please note that the project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tynan-Benn, of the Department of Land and Natural Resources, Engineering Division at (808) 597-0267.
- Please be advised that 44CFR indicates the minimum standards set forth by the NFIP. Your Community's local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:  
 Mr. Robert Sumitomo at (808) 768-8097 or Mr. Mario Sia Li at (808) 768-8098 of the City and County of Honolulu, Department of Planning and Permitting.  
 Mr. Frank DeManco at (808) 961-8042 of the County of Hawaii, Department of Public Works.  
 Mr. Francis Cerizo at (808) 270-7771 of the County of Maui, Department of Planning.  
 Mr. Mario Antonio at (808) 241-6620 of the County of Kauai, Department of Public Works.
- The applicant should include water demands and infrastructure required to meet project needs. Please note that projects within State lands requiring water service from the Honolulu Board of Water Supply system will be required to pay a resource development charge, in addition to Water Facilities Charges for transmission and daily storage.
- The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.
- Additional Comments:** Because portion of this project is being conducted in a flood zone designated as AEF, strict adherence to the NFIP regulations, specifically 44CFR §60.3(d)(3), must be followed.
- Other: " PLEASE SEE ATTACHED"

Should you have any questions, please call Ms. Suzie S. Agron of the Planning Branch at 587-4258.

Signed:   
 CARYN CHANG, ACTING CHIEF ENGINEER  
 Date: 11/17/09



1897 South Beretana Street  
Artesis Plaza, Suite 400  
Honolulu, Hawaii 96826 USA  
Phone: 808-946-2277  
FAX: 808-946-2255  
www.wilsonokamoto.com

7213-01  
February 2, 2011

Mr. Carty S. Chang, Chief Engineer  
State of Hawaii  
Department of Land and Natural Resources  
P.O. Box 11870  
Honolulu, Hawaii 96805

Attention: Ms. Suzie S. Agraan

Subject: Pre-Assessment Consultation  
Draft Environmental Assessment (EA) for Waiehu Beach Road,  
Rehabilitation of Iao Stream Bridge  
District of Wailuku, Island of Maui, Hawaii  
Federal Aid Project No. BR-STP-3400(5)

Dear Mr. Chang:

Thank you for your letter of November 17, 2009 regarding the subject Draft Environmental Assessment (EA) pre-assessment consultation. We offer the following responses in the order of your comments:

General

- a. We confirm that, based on the Flood Insurance Rate Maps (FIRM), the project is located in Flood Zones X, AE, and AE Floodway (AEF).
- b. We acknowledge that the project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR) since the project is being developed within a Special Flood Hazard Area.
- c. We further acknowledge that since a portion of the project falls within an AEF flood zone, strict adherence to the NFIP regulations, especially 44CFR 60.3(d)(3), is required. Our civil engineer has initiated consultation on this matter with Mr. Francis Ceizozo of the County of Maui, Department of Planning

Additional

1. There are no utilities suspended along the bridge structure.
2. The proposed project shall not impede the storm water carrying capacity of the body of water it crosses.
3. The existing Iao Stream bed in this segment of the stream is a concrete lined channel, therefore the proposed project will not require additional scour protection.



7213-01  
Letter to Mr. Carty S. Chang  
Page 2  
February 2, 2011

Your letter, along with this response, will be reproduced and included in the forthcoming Draft EA. We appreciate your participation in the pre-assessment consultation review process.

Sincerely,

Earl Matsukawa, AICP  
Project Manager

cc: Ms. Li Nah Okita, State DOT, Highways Division



Laura E. Thibodeau  
 Director  
 Department of Land and Natural Resources  
 Commission on Water Resource Management  
 1001 Kalia Road, Suite 1000  
 Honolulu, HI 96813  
 Phone: (808) 586-2500  
 Fax: (808) 586-2501  
 Email: laura.thibodeau@hawaii.gov

**STATE OF HAWAII**  
**DEPARTMENT OF LAND AND NATURAL RESOURCES**

STATE HISTORIC PRESERVATION DIVISION  
 601 KAMOKILA BOULEVARD, ROOM 555  
 KAPOLEI, HAWAII 96760

DATE: June 16, 2010

TO: Wilson, Okamoto Corporation  
 1907 South Beretania Street, Unit 400  
 Honolulu, HI 96826

LOG: 2009-5512  
 DOC: 1006RS39

SUBJECT: Section 106 (NEPA) Review / Pre-Assessment Consultation for Draft EA / Road and Bridge Rehabilitation and Improvements

Permit # (None)  
 Building Owner: Hawaii State Department of Transportation  
 Location: Waialea Beach Road between Kaala Road/Kuhio Place to Eha Street/Nakuwai Place  
 Tax Map Key: (2) 3-5 and (2) 3-4

This letter is in response to letters dated October 14, 2009 and October 16, 2009 by Wilson, Okamoto Corporation and the Land Division of the Department of Land and Natural Resources re a *Pre-Assessment Consultation for Draft Environmental Assessment Waialea Beach Road, Rehabilitation of Iao Stream Bridge, Project No. BR-57P-34005*. The project extends along approximately 24 miles. Proposed improvements are designed to benefit pedestrians, persons with disabilities, bicyclists, and motorists. Specific project elements include strengthening of the Iao Stream Bridge to seismic standards; upgrading bridge railings; replacing and adding new guardrails with end connections; ADA approved curb ramps and separated sidewalk; replacement of existing light poles with salt corrosion resistant units; utility relocation of utilities; and new signage and road striping. (The project will employ federal funds, hence the Section 106 designation.)

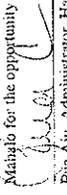
Re potential impacts:

- We acknowledge that the State Department of Transportation (DOT) is conducting an archaeological assessment.
- The DOT as lead agency has identified nearby two sites listed on the National and State Registers of Historic Places, namely Halekii-Pihana Heiau (No. 50-04-0592) and the Maui Irihaha Mission (No. 50-04-1606). We concur with the DOT that the project is far enough away to have no effect on these two sites.
- The Waialea Beach Road Bridge may be eligible for the Hawaii Register of Historic Places. A check in our office files of historic bridge inventories for Maui County dated 1989 and 1990 do not list this bridge so we do not have its date of construction. We would appreciate you providing us with this information.
- One other concern is maintenance of the historic open character of the roadway. It appears from the letters that the DOT does not intend to expand the right of way. The existing roadside consists of both paved and unpaved surfaces. We hope that the design for bikeways and sidewalks will not lead to complete coverage of the right of way with impervious surfaces.

If you have any questions, please contact Ross W. Stephenson, SHPD Historian, at (808) 692-8028 or ross.w.stephenson@hawaii.gov.

Sincerely,

Mahalo for the opportunity to comment.



Pia Au, Administrator, Hawaii Historic Preservation Division (SHPD)

6/30/10  
 Date

In the event that historic resources, including human skeletal remains, lava tubes, and lava blisters/bubbles are identified during construction activities, all work should cease in the immediate vicinity of the find, the find should be protected from additional disturbance, and the State Historic Preservation Division should be contacted immediately at (808) 692-8015.

cc: Department of Planning  
 County of Maui  
 250 South High Street  
 Wailuku, HI 96793



1507 South Beretania Street  
Articada Plaza, Suite 406  
Honolulu, Hawaii, 96825 USA  
Phone: 808-546-7277  
FAX: 808-945-2253  
www.wilsonokamoto.com

7213-01  
February 2, 2011

Dr. Pua Aiu, Administrator  
State of Hawaii  
Department of Land and Natural Resources  
State Historic Preservation Division  
601 Kaunokila Boulevard, Room 555  
Kapolei, Hawaii 96707

Subject: Pre-Assessment Consultation  
Draft Environmental Assessment (EA) for Waiehu Beach Road,  
Rehabilitation of Iao Stream Bridge  
District of Wailuku, Island of Maui, Hawaii  
Federal Aid Project No. BR-STP-3400(5)

Dear Dr. Aiu:

Thank you for your letter dated June 16, 2010 (Reference Log: 2009.3512, DOC: 1006RS39) regarding the subject Draft Environmental Assessment (EA) pre-assessment consultation. We provide the following responses in the respective order of your comments:

- The archaeological report will be included for your review and comment with the forthcoming Draft EA;
- Your concurrence with DOT's determination of "no effect" regarding Haeckii-Pihana Heiau (Site #50-04-0592) and Maui Jinsha Mission (Site #50-04-1606) is duly noted;
- Waiehu Beach Road Bridge was constructed in 1954. Reference to this date will be included in the Draft EA;
- Paved areas will be limited to the travel lanes, shoulders, bicycle and pedestrian lanes and will not extend to the road right-of-way; and
- In the event that any historic resources are identified during construction activities, all work shall cease in the immediate vicinity of the find and the SHPD shall be contacted immediately.

Your letter, along with this response, will be reproduced and included in the forthcoming Draft EA. We appreciate your participation in the pre-assessment consultation review process.

Sincerely,

Earl Matsukawa, AICP  
Project Manager

cc: Ms. Li Nah Okita, State DOT, Highways Division



CHARMAINE TAVARES  
MAYOR

OUR REFERENCE  
YOUR REFERENCE

**POLICE DEPARTMENT**  
COUNTY OF MAUI

55 MAHALANI STREET  
WAILUKU, HAWAII 96793  
(808) 244-6400  
FAX (808) 244-6411

October 19, 2009



GARY A. YABUTA  
CHIEF OF POLICE

CLAYTON N.Y.W. YONG  
DEPUTY CHIEF OF POLICE

**COPY**

TO : GARY YABUTA, CHIEF OF POLICE, COUNTY OF MAUI I AS-SEE WITH  
VIA : CHANNELS SGT. ORIKASA  
FROM : STEPHEN ORIKASA, ADMINISTRATIVE SERGEANT, ASSESSMENT  
WAILUKU PATROL DIVISION AC WYATT  
SUBJECT : RESPONSE TO A REQUEST FOR PRE-ASSESSMENT FOR DRAFT ENVIRONMENTAL ASSESSMENT COMMENTS REGARDING THE PROPOSED WAIHEHU BEACH ROAD, IAO STREAM BRIDGE PROJECT 10/19/09

Mr. Earl Matsukawa, AICP  
Project Manager  
Wilson Okamoto Corporation  
1907 S. Beretania Street, Suite 400  
Honolulu, HI 96826

Dear Mr. Matsukawa:

SUBJECT: Pre-Assessment Consultation for Draft Environmental Assessment  
Waiehu Beach Road, Rehabilitation of Iao Stream Bridge

Thank you for your letter of October 14, 2009, requesting comments on the above subject.

We have reviewed the report. Please refer to a copy of the communication from Sergeant Stephen Orikasa for our comments and recommendations. Thank you for giving us the opportunity to comment on project.

Very truly yours,

*AC WYATT*  
Assistant Chief Wayne Ribao  
for: GARY A. YABUTA  
Chief of Police

c: Jeffrey Hunt, Maui County Planning Department

This communication is submitted as a response to a request for comments by Mr. Earl Matsukawa, AICP (Project Manager), of the Wilson Okamoto Corporation, on behalf of the State of Hawaii, Department of Transportation (DOT), Highway Division in regards to the following:

SUBJECT : Pre-Assessment Consultation for Draft Environmental Assessment  
Waiehu Beach Road, Rehabilitation of Iao Stream Bridge  
District of Wailuku, Island of Maui, Hawaii  
Project No. BR-STP-3400(5)

RESPONSE:

In review of the submitted documents, concerns from the police perspective would be upon the safety of pedestrian and vehicular movement.

Improvements to include pedestrian walkways/corridor and bicycles lanes within the proposed project increases pedestrian safety, thus benefits the safety of adjacent vehicular movement.

There are residences, businesses, child care and an elderly care/living complex in close proximity to this project. During the construction phases, extreme efforts should be made to minimize noise, dust & debris so not to inhibit those whose health and well being may be affected. Adequate traffic control devices and personnel should also be utilized to minimize the impact of heavy equipment and vehicles traveling in and out of the area.

Waiehu Beach Road is a main roadway for the Waiehu/Waihee/Kahakuloa area. It is suggested that a traffic mitigation plan be in place prior to the commencement of this project, and at no time should the project area be completely sterile of vehicular and pedestrian movement, unless warranted to preserve the public's safety.



1967 South Beretama Street  
 Artistic Plaza, Suite 400  
 Honolulu, Hawaii, 96826 USA  
 Phone: 808-346-2277  
 Fax: 808-346-2278  
 www.wilsonokamoto.com

7213-01  
 February 2, 2011

Mr. Gary A. Yabuta, Chief of Police  
 County of Maui  
 Police Department  
 55 Mahalani Street  
 Wailuku, Hawaii 96793

Attention: Sergeant Stephen Orikasa  
 Subject: Pre-Assessment Consultation  
 Draft Environmental Assessment (EA) for Waiehu Beach Road,  
 Rehabilitation of Iao Stream Bridge  
 District of Wailuku, Island of Maui, Hawaii  
 Federal Aid Project No. BR-STP-3400(3)

Dear Chief Yabuta:

Thank you for your letter dated October 19, 2009 regarding the pre-assessment consultation for the subject Draft Environmental Assessment (EA) pre-assessment consultation. We offer the following responses in order of your comments:

- We appreciate your concurrence with the objectives of the proposed project to improve pedestrian, bicycle, and vehicular safety.
- The forthcoming Draft Environmental Assessment (DEA) will discuss impacts and mitigation measures to minimize noise, dust, and debris during construction.
- A traffic mitigation plan will be prepared for implementation prior to commencing construction of the proposed project.

Your letter, along with this response, will be reproduced and included in the forthcoming Draft EA. We appreciate your participation in the pre-assessment consultation review process.

Sincerely,

Earl Matsukawa, AICP  
 Project Manager

cc: Ms. Li Nah Okita, State DOT, Highways Division

**CONCLUSION:**

There are no objections to the commencement of this project at this time. Although, it is of utmost importance to be cognizant of any health and safety impacts, directly and indirectly, which may arise from this project.

Respectfully submitted for your review and approval.

Stephen T. Orikasa E#716  
 Administrative Sergeant/Wailuku Patrol Division  
 10/19/09 @ 0730 Hours

*Concern with Dept. of Transportation - bridge  
 contract will be key issue to  
 address for vehicular movement.  
 Complete design start  
 10/19/09 same day.*

CLAUDE MAINE JAVARIES  
Mayor

MILTON M. ARAKAWA, A.I.C.P.  
Director

MICHAEL M. MIYAMOTO  
Deputy Director

Telephone: (808) 270-7616  
Fax: (808) 270-7555



COUNTY OF MAUI  
**DEPARTMENT OF PUBLIC WORKS**  
200 SOUTH HIGH STREET, ROOM NO. 434  
WAILUKU, MAUI, HAWAII 96793

DALPH NAGAMINE, I.S., P.E.  
Development Services Administration

CARY YAMASHITA, P.E.  
Engineering Division

BRIAN HASHIRO, P.E.  
Highways Division

October 26, 2009

Mr. Earl Matsukawa, Project Manager  
WILSON OKAMOTO CORPORATION  
1907 South Beretania Street  
Artesian Plaza, Suite 400  
Honolulu, Hawaii 96826

Dear Mr. Matsukawa:

**SUBJECT: REHABILITATION OF IAO STREAM BRIDGE  
PRE-ASSESSMENT CONSULTATION FOR DRAFT  
ENVIRONMENTAL ASSESSMENT, WAIIEHU BEACH  
ROAD, WAILUKU, MAUI, HAWAII**

We reviewed the subject application and have the following comments:

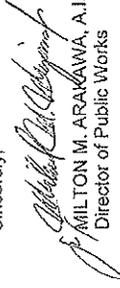
1. The shoulders of Waiehu Beach Road on the approaches to Iao Stream Bridge provide access for our Truck/Tractor w/Trailers, Dump Trucks, Water Wagons and Construction Equipment, such as bulldozers, wheel loaders, hydraulic excavators, etc. to the Iao Stream Flood Control Facility. It is imperative that we continue to have these accesses in order to properly maintain said Iao Stream Flood Control Facility.
2. Clear space under the bridge needs to continue to be provided for our construction equipment to pass under the bridge to maintain that portion of the Iao Stream Flood Control Facility from the bridge to the ocean. No ocean access is available, nor desirable due to concerns of potential petroleum contamination of equipment in the near shore waters and due to concerns of corrosion of the salt in the ocean, corroding construction equipment.
3. The Market Street improvements project will be starting construction shortly. Recommend this project start construction

Mr. Earl Matsukawa, Project Manager  
October 26, 2009  
Page 2

after completion of construction of the Market Street improvements. Otherwise both bridges over Iao Stream will be under construction at the same time.

Please call Michael Miyamoto at 270-7845 if you have any questions regarding this letter.

Sincerely,

  
MILTON M. ARAKAWA, A.I.C.P.  
Director of Public Works

MMA:MMM:jc

xc: Highways Division  
Engineering Division

S:\LUCAS\Z\Draft Comments\iao\_stream\_bridge\_rehab\_orig\_assessment\_rcr.wpd

7213-01  
February 2, 2011



1307 South Beretana Street  
Artificial Plaza, Suite 400  
Honolulu, Hawaii, 96826 USA  
Phone 808-546-2277  
FAX 808-546-2253  
www.wilsonokamoto.com

Mr. David Goode, Director  
County of Maui  
Department of Public Works  
200 South High Street Room No. 434  
Wailuku, Hawaii 96793

Attention: Mr. Michael Miyamoto

Subject: Pre-Assessment Consultation  
Draft Environmental Assessment (EA) for Waiehu Beach Road,  
Rehabilitation of Iao Stream Bridge  
District of Wailuku, Island of Maui, Hawaii  
Federal Aid Project No. BR-STP-3400(5)

Dear Mr. Goode:

Thank you for your letter dated October 26, 2009 regarding the subject Draft Environmental Assessment (EA) pre-assessment consultation. We offer the following responses in the order of your comments:

1. Access to the shoulders of Waiehu Beach Road on the approaches to Iao Stream Bridge will be maintained for access by trucks/tractors with trailers, dump trucks, water wagons, and construction equipment for the maintenance of the Iao Stream Flood Control facility.
2. The clear space under the bridge will continue to be provided for maintenance of the Iao Stream Flood Control facility.
3. Construction of the proposed project is anticipated to start in 2012. If this overlaps the completion of the Market Street Improvements project, further discussion to coordinate these construction projects can be pursued.

Your letter, along with this response, will be reproduced and included in the forthcoming Draft EA. We appreciate your participation in the pre-assessment consultation review process.

Sincerely,

Earl Matsukawa, AICP  
Project Manager

cc: Ms. Li Nah Okita, State DOT, Highways Division

CHERYL W. MAUI  
MAUI



Earl A. Medeiros  
Director  
Wm. S. A. Rohrer  
Deputy Director  
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DEPARTMENT OF TRANSPORTATION

CORNYLIUS MAUI  
340 South High Street  
Honolulu, Hawaii, USA 96826-2155

November 3, 2009

Mr. Earl Matsukawa  
Wilson Okamoto Corporation  
1907 South Beretania Street, Suite 400  
Honolulu, Hawaii 96826

Subject: Rehabilitation of the Iao Stream Bridge

Dear Mr. Matsukawa,

Thank you for the opportunity to comment on this project. We have no comments to make at this time.

Please feel free to contact me if you have any questions.

Sincerely,

Don Medeiros  
Director



1907 South Beretania Street  
Arlene St. Plaza, Suite 400  
Honolulu, Hawaii 96826 USA  
Phone: 808-546-2277  
FAX: 808-546-2253  
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7213-01  
February 2, 2011

Ms. Jo Anne Johnson, Director  
County of Maui  
Department of Transportation  
200 South High Street  
Wailuku, Hawaii 96793-2155

Subject: Pre-Assessment Consultation  
Draft Environmental Assessment (EA) for Waiehu Beach Road,  
Rehabilitation of Iao Stream Bridge  
District of Wailuku, Island of Maui, Hawaii  
Federal Aid Project No. BR-STP-3400(5)

Dear Ms. Johnson

Thank you for your letter dated November 3, 2009 indicating that you have no comments to offer regarding the subject Draft Environmental Assessment (EA) pre-assessment consultation.

Your letter, along with this response, will be reproduced and included in the forthcoming Draft EA. We appreciate your participation in the pre-assessment consultation-review process.

Sincerely,

Earl Matsukawa, AICP  
Project Manager

cc: Ms. Li Nah Okita, State DOT, Highways Division

CHARMAINE TAVAHES  
Mayor



JEFFREY K. ENG  
Director  
ERIC H. YAMASHIGE, PE, J.S.  
Deputy Director

**DEPARTMENT OF WATER SUPPLY**

COUNTY OF MAUI  
200 SOUTH HIGH STREET  
WAILUKU, MAUI, HAWAII 96793-2135  
www.mauwater.org

November 9, 2009

Mr. Earl Matsukawa, Project Manager  
Wilson Okamoto Corporation  
1907 South Beretania Street, Suite 400  
Honolulu, HI 96826

Re: Pre-Assessment Consultation for Draft Environmental Assessment  
Waichu Beach Road, Rehabilitation of Iao Stream Bridge  
Project No. BR-STP-3400(5)

Dear Mr. Matsukawa:

Thank you for consulting with the Department of Water Supply (DWS) in preparation of this Draft Environmental Assessment (DEA).

The Department's 18-inch waterline runs along the entire project section of Waichu Beach Road. There is a 12-inch and a 4-inch waterline at the Iha Street and Nakuwai Place intersection and an 8-inch and a 4-inch waterline at the Kuhio and Kahe Place intersection. The Department will not issue temporary construction meters for Central Maui projects. Construction plans need to be reviewed by our engineering division. Water valve covers must be fitted to match the finished grade of the roadway.

**Pollution Prevention**

To supplement measures as required by law to protect the stream during construction, we have attached sample best management practices for road and bridge construction. The DEA should identify mitigation measures to be implemented during construction, including the following:

1. Prevent cement products, oil, fuel and other toxic substances from falling or leaching into the water.
2. Properly and promptly dispose of all loosened and excavated soil and debris material from drainage structure work.
3. Retain ground cover until the last possible date.
4. Stabilize denuded areas by sodding or planting as soon as possible. Replanting should include soil amendments and temporary irrigation. Use high seeding rates to ensure rapid stand establishment.

*By Water, All Things Find Life*

The Department of Water Supply is an Equal Opportunity provider and employer. To file a complaint of discrimination, write: USDA, Director, Office of Civil Rights, Room 3205-H, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-0410. Or call (202) 726-5864 (voice and TDD).

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Earl Matsukawa  
Page 2

5. Avoid fertilizers and biocides, or apply only during periods of low rainfall to minimize chemical run-off.
6. Keep run-off on site.

Should you have any questions regarding system improvements for this project, please contact our engineering division at (808) 270-7835. For questions on water resources, please contact our Water Resources and Planning Division at (808) 244-8350.

Sincerely,

Jeffrey K. Eng, Director  
cehb

c: engineering division

attachments:

Selected BMPs from: "Guidance Specifying Management Measures For Sources of Nonpoint Pollution In Coastal Waters." U.S.EPA

C:\EA\_HIS\_STUD\Waichu Beach Road Rehab Iao Stream Bridge pre\_DEA.vpd



# Guidance Specifying Management Measures For Sources Of Nonpoint Pollution In Coastal Waters

## VII. ROADS, HIGHWAYS, AND BRIDGES

NOTE: Management Measures II.A and II.B of this chapter also apply to planning, siting, and developing roads and highways.<sup>6</sup>

### A. Management Measure for Planning, Siting, and Developing Roads and Highways

Plan, site, and develop roads and highways to:

- (1) Protect areas that provide important water quality benefits or are particularly susceptible to erosion or sediment loss;
- (2) Limit land disturbance such as clearing and grading and cut and fill to reduce erosion and sediment loss; and
- (3) Limit disturbance of natural drainage features and vegetation.

#### 1. Applicability

This measure is intended to be applied by States to site development and land disturbing activities for new, relocated, and reconstructed (widened) roads (including residential streets) and highways in order to reduce the generation of nonpoint source pollutants and to mitigate the impacts of urban runoff and associated pollutants from such activities. Under the Coastal Zone Act Reauthorization Amendments of 1990, States are subject to a number of requirements as they develop coastal NPS programs in conformity with this management measure and will have some flexibility in doing so. The application of management measures by States is described more fully in *Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidance*, published jointly by the U.S. Environmental Protection Agency (EPA) and the National Oceanic and Atmospheric Administration (NOAA) of the U.S. Department of Commerce.

#### 2. Description

The best time to address control of NPS pollution from roads and highways is during the initial planning and design phase. New roads and highways should be located with consideration of natural drainage patterns and planned to avoid encroachment on surface waters and wet areas. Where this is not possible, appropriate controls will be needed to minimize the impacts of NPS runoff on surface waters.

This management measure emphasizes the importance of planning to identify potential NPS problems early in the design process. This process involves a detailed analysis of environmental features most associated with NPS pollution, erosion and sediment problems such as topography, drainage patterns, soils, climate, existing land use, estimated traffic volume, and sensitive land areas. Highway locations selected, planned, and designed with consideration of these features will greatly minimize erosion and sedimentation and prevent NPS pollutants from entering watercourses during and after construction. An important consideration in planning is the distance between

<sup>6</sup> Management measure II.A applies only to runoff that emanates from the road, highway, and bridge right-of-way. This management measure does not apply to runoff and total suspended solid loadings from upland areas outside the road, highway, or bridge project.

a highway and a watercourse that is needed to buffer the runoff flow and prevent potential contaminants from entering surface waters. Other design elements such as project alignment, gradient, cross section, and the number of stream crossings also must be taken into account to achieve successful control of erosion and nonpoint sources of pollution. (Refer to Chapter 3 of this guidance for details on road designs for different terrains.)

The following case study illustrates some of the problems and associated costs that may occur due to poor road construction and design. These issues should be addressed in the planning and design phase.

#### CASE STUDY - ANNAPOLIS, MARYLAND

Poor road siting and design resulted in concentrated runoff flows and heavy erosion that threatened several house foundations adjacent to the road. Sediment-laden runoff was also discharged into Herring Bay. To protect the Chesapeake Bay and the nearby houses, the county corrected the problem by installing diversions, a curb-and-drain urban runoff conveyance, and a rock wall filtration system, at a total cost of \$100,000 (Munsey, 1992).

### 3. Management Measure Selection

This management measure was selected because it follows the approach to highway development recommended by the American Association of State Highway and Transportation Officials (AASHTO), Federal Highway Administration (FHWA) guidance, and highway location and design guidelines used by the States of Virginia, Maryland, Washington, and others.

Additionally, AASHTO has location and design guidelines (AASHTO, 1990, 1991) available for State highway agency use that describe the considerations necessary to control erosion and highway-related pollutants. Federal Highway Administration policy (FHWA, 1991) requires that Federal-aid highway projects and highways constructed under direct supervision of the FHWA be located, designed, constructed, and operated according to standards that will minimize erosion and sediment damage to the highway and adjacent properties and abate pollution of surface water and ground-water resources.

### 4. Practices

As discussed more fully at the beginning of this chapter and in Chapter I, the following practices are described for illustrative purposes only. State programs need not require implementation of these practices. However, as a practical matter, EPA anticipates that the management measure set forth above generally will be implemented by applying one or more management practices appropriate to the source, location, and climate. The practices set forth below have been found by EPA to be representative of the types of practices that can be applied successfully to achieve the management measure described above.

- 3.1. a.** Consider type and location of permanent erosion and sediment controls (e.g., vegetated filter strips, grassed swales, pond systems, infiltration systems, constructed urban runoff wetlands, and energy dissipators and velocity controls) during the planning phase of roads, highway, and bridges. (AASHTO, 1991; Hartigan et al., 1989)
- 3.1. b.** All wetlands that are within the highway corridor and that cannot be avoided should be mitigated. These actions will be subject to Federal Clean Water Act section 404 requirements and State regulations.

- 3.1. c.** Assess and establish adequate setback distances near wetlands, waterbodies, and riparian areas to ensure protection from encroachment in the vicinity of these areas.

Setback distances should be determined on a site-specific basis since several variables may be involved such as topography, soils, floodplains, cut-and-fill slopes, and design geometry. In level or gently sloping terrain, a general rule of thumb is to establish a setback of 50 to 100 feet from the edge of the wetland or riparian area and the right-of-way. In areas of steeply sloping terrain (20 percent or greater), setbacks of 100 feet or more are recommended. Right-of-way setbacks from major waterbodies (oceans, lakes, estuaries, rivers) should be in excess of 100 to 1000 feet.

- 3.1. d.** Avoid locations requiring excessive cut and fill. (AASHTO, 1991)
- 3.1. e.** Avoid locations subject to subsidence, sink holes, landslides, rock outcroppings, and highly erodible soils. (AASHTO, 1991; FRB, Campbell, 1988)
- 3.1. f.** Size rights-of-way to include space for siting runoff pollution control structures as appropriate. (AASHTO, 1991; Hartigan, et al., 1989)

Erosion and sediment control structures (extended detention dry ponds, permanent sediment traps, catchment basins, etc.) should be planned and located during the design phase and included as part of the design specifications to ensure that such structures, where needed, are provided within the highway right-of-way.

- 3.1. g.** Plan residential roads and streets in accordance with local subdivision regulations, zoning ordinances, and other local site planning requirements (International City Managers Association, Model Zoning/Subdivision Codes). Residential road and street pavements should be designed with minimum widths.

Local roads and streets should have right-of-way widths of 36 to 50 feet, with lane widths of 10 to 12 feet. Minimum pavement widths for residential streets where street parking is permitted range from 24 to 26 feet between curbs. In large-lot subdivisions (1 acre or more), grassed drainage swales can be used in lieu of curbs and gutters and the width of paved road surface can be between 18 and 20 feet.

- 3.1. h.** Select the most economic and environmentally sound route location. (FHWA, 1991)
  - 3.1. i.** Use appropriate computer models and methods to determine urban runoff impacts with all proposed route corridors. (Driscoll, 1990)
- Computer models to determine urban runoff from streets and highways include TR-55 (Soil Conservation Service model for controlling peak runoff); the P-8 model to determine storage capacity (Rainsrom and Walker); the FHWA highway runoff model (Driscoll et al., 1990); and others (e.g., SWMM, EPA's stormwater management model; HSP continuous simulation model by Hydrocomp, Inc.).
- 3.1. j.** Comply with National Environmental Policy Act requirements including other State and local requirements. (FHWA, T66-40.8A)
  - 3.1. k.** Coordinate the design of pollution controls with appropriate State and Federal environmental agencies. (Maryland DOE, 1983)

#### 4.1. Develop local official mapping to show location of proposed highway corridors.

Official mapping can be used to reserve land areas needed for public facilities such as roads, highways, bridges, and urban runoff treatment devices. Areas that require protection, such as those which are sensitive to disturbance or development-related nonpoint source pollution, can be reserved by planning and mapping necessary infrastructure for location in suitable areas.

#### 5. Effectiveness Information and Cost Information

The most economical time to consider the type and location of erosion, sediment, and NPS pollution control is early in the planning and design phase of roads and highways. It is much more costly to correct polluted runoff problems after a road or highway has already been built. The most effective and often the most economical control is to design roads and highways as close to existing grade as possible to minimize the area that must be cut or filled and to avoid locations that encroach upon adjacent watercourses and wet areas. However, some portions of roads and highways cannot always be located where NPS pollution does not pose a threat to surface waters. In these cases, the impact from potential pollutant loadings should be mitigated. Interactive computer models designed to run on a PC are available (e.g., FHWA's model, Driscoll et al., 1990) and can be used to examine and project the runoff impacts of a proposed road or highway design on surface waters. Where controls are determined to be needed, several cost-effective management practices, such as vegetated filter strips, grassed swales, and pond systems, can be considered and used to treat the polluted runoff. These mitigating practices are described in detail in the discussion on urban developments (Management Measure IV.A).

### B. Management Measure for Bridges

Site, design, and maintain bridge structures so that sensitive and valuable aquatic ecosystems and areas providing important water quality benefits are protected from adverse effects.

#### 1. Applicability

This management measure is intended to be applied by States to new, relocated, and rehabilitated bridge structures in order to control erosion, streambed scouring, and surface runoff from such activities. Under the Coastal Zone Act Reauthorization Amendments of 1990, States are subject to a number of requirements as they develop coastal NPS programs in conformity with this management measure and will have some flexibility in doing so. The application of management measures by States is described more fully in *Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidance*, published jointly by the U.S. Environmental Protection Agency (EPA) and the National Oceanic and Atmospheric Administration (NOAA) of the U.S. Department of Commerce.

#### 2. Description

This measure requires that NPS runoff impacts on surface waters from bridge decks be assessed and that appropriate management and treatment be employed to protect critical habitats, wetlands, fisheries, shellfish beds, and domestic water supplies. The siting of bridges should be a coordinated effort among the States, the FHWA, the U.S. Coast Guard, and the Army Corps of Engineers. Locating bridges in coastal areas can cause significant erosion and sedimentation, resulting in the loss of wetlands and riparian areas. Additionally, since bridge pavements are extensions of the connecting highway, runoff waters from bridge decks also deliver loadings of heavy metals, hydrocarbons, toxic substances, and deicing chemicals to surface waters as a result of discharge through scupper drains with no overland buffering. Bridge maintenance can also contribute heavy loads of lead, rust particles, paint, abrasive, solvents, and cleaners into surface waters. Protection against possible pollutant overloads can be afforded by minimizing the use of scuppers on bridges traversing very sensitive waters and conveying deck drainage to land for treatment. Whenever practical, bridge structures should be located to avoid crossing over sensitive fisheries and shellfish-harvesting areas to prevent washing polluted runoff through scuppers into the waters below. Also, bridge design should account for potential scour and erosion, which may affect shellfish beds and bottom sediments.

#### 3. Management Measure Selection

This management measure was selected because of its documented effectiveness and to protect against potential pollution impacts from siting bridges over sensitive waters and tributaries in the coastal zone. There are several examples of siting bridges to protect sensitive areas. The Isle of Palms Bridge near Charleston, South Carolina, was designed without scupper drains to protect a local fishery from polluted runoff by preventing direct discharge into the waters below. In another example, the Louisiana Department of Transportation and Development specified stringent requirements before allowing the construction of a bridge to protect destruction of fragile wetlands near New Orleans. A similar requirement was specified for bridge construction in the Tampa Bay area in Florida (ENR, 1991).

#### 4. Practices

As discussed more fully at the beginning of this chapter and in Chapter I, the following practices are described for illustrative purposes only. State programs need not require implementation of these practices. However, as a practical matter, EPA anticipates that the management measure set forth above generally will be implemented by applying one or more management practices appropriate to the source, location, and climate. The practices set forth below have been found by EPA to be representative of the types of practices that can be applied successfully to achieve the management measure described above.

Additional erosion and sediment control management practices are listed in the construction section for urban sources of pollution (Management Measure IV.A).

- a. Coordinate design with FHWA, USCG, COE, and other State and Federal agencies as appropriate.
- b. Review National Environmental Policy Act requirements to ensure that environmental concerns are met (FHWA, T6640.0A and 23 CFR 771).
- c. Avoid highway locations requiring numerous river crossings. (AASHTO, 1991)
- d. Direct pollutant loadings away from bridge decks by diverting runoff waters to land for treatment.

Bridge decks should be designed to keep runoff velocities low and control pollutant loadings. Runoff waters should be conveyed away from contact with the watercourse and directed to a stable storm drainage, wetland, or detention pond. Conveyance systems should be designed to withstand the velocities of projected peak discharge.

- e. Restrict the use of scupper drains on bridges less than 400 feet in length and on bridges crossing very sensitive ecosystems.

Scupper drains allow direct discharge of runoff into surface waters below the bridge deck. Such discharges can be of concern where the waterbody is highly susceptible to degradation or is an outstanding resource such as a spawning area or shellfish bed. Other sensitive waters include water supply sources, recreational waters, and irrigation systems. Care should be taken to protect these areas from contaminated runoff.

- f. Site and design new bridges to avoid sensitive ecosystems.

Pristine waters and sensitive ecosystems should be protected from degradation as much as possible. Bridge structures should be located in alternative areas where only minimal environmental damage would result.

- g. On bridges with scupper drains, provide equivalent urban runoff treatment in terms of pollutant load reduction elsewhere on the project to compensate for the loading discharged off the bridge.

#### 5. Effectiveness Information and Cost Information

Effectively controlling NPS pollutants such as road contaminants, fugitive dirt, and debris and preventing accidental spills from entering surface waters via bridge decks are necessary to protect wetlands and other sensitive ecosystems. Therefore, management practices such as minimizing the use of scupper drains and diverting runoff waters to land for treatment in detention ponds and infiltration systems are known to be effective in mitigating pollutant loadings. Tables 4-7 and 4-8 in Section II provide cost and effectiveness data for ponds, constructed wetlands, and filtration devices.

### C. Management Measure for Construction Projects

- (1) Reduce erosion and, to the extent practicable, retain sediment onsite during and after construction and
- (2) Prior to land disturbances, prepare and implement an approved erosion control plan or similar administrative document that contains erosion and sediment control provisions.

#### 1. Applicability

This management measure is intended to be applied by States to new, replaced, restored, and rehabilitated road, highway, and bridge construction projects in order to control erosion and offsite movement of sediment from such project sites. Under the Coastal Zone Act Reauthorization Amendments of 1990, States are subject to a number of requirements as they develop coastal NPS programs in conformity with this management measure and will have some flexibility in doing so. The application of management measures by States is described more fully in *Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidance*, published jointly by the U.S. Environmental Protection Agency (EPA) and the National Oceanic and Atmospheric Administration (NOAA) of the U.S. Department of Commerce.

#### 2. Description

Erosion and sedimentation from construction of roads, highways, and bridges, and from unstabilized cut-and-fill areas, can significantly impact surface waters and wetlands with silt and other pollutants including heavy metals, hydrocarbons, and toxic substances. Erosion and sediment control plans are effective in describing procedures for mitigating erosion problems at construction sites before any land-disturbing activity begins. Additional relevant practices are described in Management Measures III.A and III.B of this chapter.

Bridge construction projects include grade separations (bridges over roads) and waterbody crossings. Erosion problems at grade separations result from water running off the bridge deck and runoff waters flowing onto the bridge deck during construction. Controlling this runoff can prevent erosion of slope fills and the undermining failure of the concrete slab at the bridge approach. Bridge construction over waterbodies requires careful planning to limit the disturbance of streambanks. Soil materials excavated for footings in or near the water should be removed and relocated to prevent the material from being washed back into the waterbody. Protective berms, diversion ditches, and silt fences parallel to the waterway can be effective in preventing sediment from reaching the waterbody.

Wetland areas will need special consideration if affected by highway construction, particularly in areas where construction involves adding fill, dredging, or installing pilings. Highway development is most disruptive to wetlands since it may cause increased sediment loss, alteration of surface drainage patterns, changes in the substrate water table, and loss of wetland habitat. Highway structures should not restrict tidal flows into salt marshes and other coastal wetland areas because this might allow the intrusion of freshwater plants and reduce the growth of salt-tolerant species. To safeguard these fragile areas, the best practice is to locate roads and highways with sufficient setback distances between the highway right-of-way and any wetlands or riparian areas. Bridge construction also can impact water circulation and quality in wetland areas, making special techniques necessary to accommodate construction. The following case study provides an example of a construction project where special considerations were given to wetlands.

### CASE STUDY - BRIDGING WETLANDS IN LOUISIANA

To provide protection for an environmentally critical wetland outside New Orleans, the Louisiana Department of Transportation and Development (DOTD) required a special construction technique to build almost 2 miles of twin elevated structures for the Interstate 310 link between I-10 and U.S. Route 90. A technique known as "on-dry" construction was devised to work from the decks of the structures, building each section of the bridge from the top of the last completed section and using heavy cranes to push each section forward one bay at a time. The cranes were also used to position steel platforms, drive in support pilings, and lay deck slabs, alternating this procedure between each bay. Without this technique, the Louisiana DOTD would not have been permitted to build this structure. The twin 9,200-foot bridges took 485 days to complete at a cost of \$25.3 million (Engineering News Record, 1991).

### 3. Management Measure Selection

This management measure was selected because it supports FHWA's erosion and sediment control policy for all highway and bridge construction projects and is the administrative policy of several State highway departments and local governmental agencies involved in land development activity. Examples of erosion and sediment controls and NPS pollutant control practices are described in AASHTO guidelines and in several State erosion control manuals (AASHTO, 1991; North Carolina DOT, 1991; Washington State DOT, 1988). A detailed discussion of cost-effective management practices is available in the urban development section (Section II) of this chapter. These example practices are also effective for highway construction projects.

### 4. Practices

As discussed more fully at the beginning of this chapter and in Chapter I, the following practices are described for illustrative purposes only. State programs need not require implementation of these practices. However, as a practical matter, EPA anticipates that the management measure set forth above generally will be implemented by applying one or more management practices appropriate to the source, location, and climate. The practices set forth below have been found by EPA to be representative of the types of practices that can be applied successfully to achieve the management measure described above.

Additional erosion and sediment control management practices are listed in the construction section (Section III) of this chapter.

- 3.1 a. Write erosion and sediment control requirements into plans, specifications, and estimates for Federal aid construction projects for highways and bridges (FHWA, 1991) and develop erosion control plans for earth-disturbing activities.**

Erosion and sediment control decisions made during the planning and location phase should be written into the contract, plans, specifications, and special provisions provided to the construction contractor. This approach can establish contractor responsibility to carry out the explicit contract plan recommendations for the project and the erosion control practices needed.

- 3.1 b. Coordinate erosion and sediment controls with FHWA, AASHTO, and State guidelines.**

Coordination and scheduling of the project work with State and local authorities are major considerations in controlling anticipated erosion and sediment problems. In addition, the contractor should submit a general work schedule and plan that indicates planned implementation of temporary and permanent erosion control practices, including shutdown procedures for winter and other work interruptions. The plan also should include proposed methods of control on restoring borrow pits and the disposal of waste and hazardous materials.

- 3.1 c. Install permanent erosion and sediment control structures at the earliest practicable time in the construction phase.**

Permanent or temporary soil stabilization practices should be applied to cleared areas within 15 days after final grade is reached on any portion of the site. Soil stabilization should also be applied within 15 days to denuded areas that may not be at final grade but will remain exposed to rain for 30 days or more. Soil stabilization practices protect soil from the erosive forces of rainfall impact and flowing water. Temporary erosion control practices usually include seeding, mulching, establishing general vegetation, and early application of a gravel base on areas to be paved. Permanent soil stabilization practices include vegetation, filter strips, and structural devices.

Sediment basins and traps, perimeter dikes, sediment barriers, and other practices intended to trap sediment on site should be constructed as a first step in grading and should be functional before upslope land disturbance takes place. Structural practices such as earthen dams, dikes, and diversions should be seeded and mulched within 15 days of installation.

- 3.1 d. Coordinate temporary erosion and sediment control structures with permanent practices.**

All temporary erosion and sediment controls should be removed and disposed of within 30 days after final site stabilization is achieved or after the temporary practices are no longer needed. Trapped sediment and other disturbed soil areas resulting from the disposition of temporary controls should be permanently stabilized to prevent further erosion and sedimentation (AASHTO, 1991).

- 3.1 e. Wash all vehicles prior to leaving the construction site to remove mud and other deposits. Vehicles entering or leaving the site with trash or other loose materials should be covered to prevent transport of dust, dirt, and debris. Install and maintain mud and silt traps.**

- 3.1 f. Mitigate wetland areas destroyed during construction.**

Marshes and some types of wetlands can often be developed in areas where fill material was extracted or in ponds designed for sediment control during construction. Vegetated strips of native marsh grasses established along highway embankments near wetlands or riparian areas can be effective to protect these areas from erosion and sedimentation (FHWA, 1991).

- 3.1 g. Minimize the area that is cleared for construction.**

- 3.1 h. Construct cut-and-fill slopes in a manner that will minimize erosion.**

Cut-and-fill slopes should be constructed in a manner that will minimize erosion by taking into consideration the length and steepness of slopes, soil types, upslope drainage areas, and ground-water conditions. Suggested recommendations are as follows: reduce the length of long steep slopes by adding diversions or terraces; prevent concentrated runoff from flowing down cut-and-fill slopes by containing these flows within flumes or slope drain structures; and create roughened soil surfaces on cut-and-fill slopes to slow runoff flows. Wherever a slope face crosses a water seepage plane, thereby endangering the stability of the slope, adequate subsurface drainage should be provided.

- 3.1 i. Minimize runoff entering and leaving the site through perimeter and onsite sediment controls.**

- 3.1 j. Inspect and maintain erosion and sediment control practices (both on-site and perimeter) until disturbed areas are permanently stabilized.**

- k.** Divert and convey offsite runoff around disturbed soils and steep slopes to stable areas in order to prevent transport of pollutants off site.
- l.** After construction, remove temporary control structures and restore the affected area. Dispose of sediments in accordance with State and Federal regulations.
- m.** All storm drain inlets that are made operable during construction should be protected so that sediment-laden water will not enter the conveyance system without first being filtered or otherwise treated to remove sediment.

### 5. Effectiveness Information and Cost Information

The detailed cost and effectiveness information presented under the construction measure for urban development is also applicable to road, highway, and bridge construction. See Tables 4-15 and 4-16 in Section III.

### D. Management Measure for Construction Site Chemical Control

- (1) Limit the application, generation, and migration of toxic substances;
- (2) Ensure the proper storage and disposal of toxic materials; and
- (3) Apply nutrients at rates necessary to establish and maintain vegetation without causing significant nutrient runoff to surface water.

#### 1. Applicability

This management measure is intended to be applied by States to new, resurfaced, restored, and rehabilitated road, highway, and bridge construction projects in order to reduce toxic and nutrient loadings from such project sites. Under the Coastal Zone Act Reauthorization Amendments of 1990, States are subject to a number of requirements as they develop coastal NPS programs in conformity with this management measure and will have some flexibility in doing so. The application of management measures by States is described more fully in *Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidance*, published jointly by the U.S. Environmental Protection Agency (EPA) and the National Oceanic and Atmospheric Administration (NOAA) of the U.S. Department of Commerce.

#### 2. Description

The objective of this measure is to guard against toxic spills and hazardous loadings at construction sites from equipment and fuel storage sites. Toxic substances tend to bind to fine soil particles; however, by controlling sediment mobilization, it is possible to limit the loadings of these pollutants. Also, some substances such as fuels and solvents are hazardous and excess applications or spills during construction can pose significant environmental impacts. Proper management and control of toxic substances and hazardous materials should be the adopted procedure for all construction projects and should be established by erosion and sediment control plans. Additional relevant practices are described in Management Measure III.B of this chapter.

#### 3. Management Measure Selection

This management measure was selected because of existing practices that have been shown to be effective in mitigating construction-generated NPS pollution at highway project sites and equipment storage yards. In addition, maintenance areas containing road salt storage, fertilizers and pesticides, snowplows and trucks, and tractor mowers have the potential to contribute NPS pollutants to adjacent watercourses if not properly managed (AASHTO, 1988, 1991a). This measure is intended to safeguard surface waters and ground water from toxic and hazardous pollutants generated at construction sites. Examples of effective implementation of this measure are presented in the section on construction in urban areas. Several State environmental agencies are using this approach to regulate toxic and hazardous pollutants (Florida DER, 1988; Puget Sound Basin, 1991).

#### 4. Practices

As discussed more fully at the beginning of this chapter and in Chapter 1, the following practices are described for illustrative purposes only. State programs need not require implementation of these practices. However, as a practical matter, EPA anticipates that the management measure set forth above generally will be implemented by applying one or more management practices appropriate to the source, location, and climate. The practices set forth below have been found by EPA to be representative of the types of practices that can be applied successfully to achieve the management measure described above.

The practices that are applicable to this management measure are described in Section III.B.

#### 5. Effectiveness Information and Cost Information

The detailed cost and effectiveness data presented in the Section III.A. of this chapter describing NPS controls for construction projects in urban development areas are also applicable to highway construction projects.

### E. Management Measure for Operation and Maintenance

Incorporate pollution prevention procedures into the operation and maintenance of roads, highways, and bridges to reduce pollutant loadings to surface waters.

#### 1. Applicability

This management measure is intended to be applied by States to existing, restored, and rehabilitated roads, highways, and bridges. Under the Coastal Zone Act Reauthorization Amendments of 1990, States are subject to a number of requirements as they develop coastal NPS programs in conformity with this management measure and will have some flexibility in doing so. The application of measures by States is described more fully in *Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidance*, published jointly by the U.S. Environmental Protection Agency (EPA) and the National Oceanic and Atmospheric Administration (NOAA) of the U.S. Department of Commerce.

#### 2. Description

Substantial amounts of eroded material and other pollutants can be generated by operation and maintenance procedures for roads, highways, and bridges, and from sparsely vegetated areas, cracked pavements, potholes, and poorly operating urban runoff control structures. This measure is intended to ensure that pollutant loadings from roads, highways, and bridges are minimized by the development and implementation of a program and associated practices to ensure that sediment and toxic substance loadings from operation and maintenance activities do not impair coastal surface waters. The program to be developed, using the practices described in this management measure, should consist of and identify standard operating procedures for nutrient and pesticide management, road salt use minimization, and maintenance guidelines (e.g., capture and contain paint chips and other particulates from bridge maintenance operations, resurfacing, and pothole repairs).

#### 3. Management Measure Selection

This management measure for operation and maintenance was selected because: (1) it is recommended by FHWA as a cost-effective practice (FHWA, 1991); (2) it is protective of the human environment (Puget Sound Water Quality Authority, 1989); (3) it is effective in controlling erosion by revegetating bare slopes (ASHTO, 1991b); (4) it is helpful in minimizing polluted runoff from road pavements (Transportation Research Board, 1991), and (5) both Federal (Richardson, 1974) and State highway agencies (Minnesota Pollution Control Agency, 1989; Pitt, 1973) advocate highway maintenance as an effective practice for minimizing pollutant loadings.

Maintenance of erosion and sediment control practices is of critical importance. Both temporary and permanent controls require frequent and periodic cleanout of accumulated sediment. Any trapping or filtering device, such as silt fences, sediment basins, buffers, inlets, and check dams, should be checked and cleaned out when approximately 50 percent of their capacity is reached, as determined by the erodible nature of the soil, flow velocity, and quantity of runoff. Seasonal and climatic differences may require more frequent cleanout of these structures. The sediments removed from these control devices should be deposited in permanently stabilized areas to prevent further erosion and sediment from reaching drainages and receiving streams. After periods of use, control devices may require replacement of deteriorated materials such as straw bales and silt fence fabrics, or restoration and reconstruction of sediment basins and riprap installations.

Permanent erosion controls such as vegetated filter strips, grassed swales, and velocity dissipators should be inspected periodically to determine their integrity and continued effectiveness. Continual deterioration or damage to these controls may indicate a need for better design or construction.

#### 4. Practices

As discussed more fully at the beginning of this chapter and in Chapter 1, the following practices are described for illustrative purposes only. State programs need not require implementation of these practices. However, as a practical matter, EPA anticipates that the management measure set forth above generally will be implemented by applying one or more management practices appropriate to the source, location, and climate. The practices set forth below have been found by EPA to be representative of the types of practices that can be applied successfully to achieve the management measure described above.

- 4.1 a. *Seed and fertilize, seed and mulch, and/or sod damaged vegetated areas and slopes.*
  - 4.1 b. *Establish pesticide/herbicide use and nutrient management programs.*
- Refer to the Management Measure for Construction Site Chemical Control in this chapter.
- 4.1 c. *Restrict herbicide and pesticide use in highway rights-of-way to applicators certified under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) to ensure safe and effective application.*

4.1 d. *The use of chemicals such as soil stabilizers, dust palliatives, surfactants, and growth inhibitors should be limited to the best estimate of optimum application rates. All feasible measures should be taken to avoid excess application and consequent intrusion of such chemicals into surface runoff.*

4.1 e. *Sweep, vacuum, and wash residential/urban streets and parking lots.*

4.1 f. *Collect and remove road debris.*

4.1 g. *Cover salt storage piles and other deicing materials to reduce contamination of surface waters. Locate them outside the 100-year floodplain.*

4.1 h. *Regulate the application of deicing salts to prevent oversalting of pavement.*

4.1 i. *Use specially equipped salt application trucks.*

4.1 j. *Use alternative deicing materials, such as sand or salt substitutes, where sensitive ecosystems should be protected.*

4.1 k. *Prevent dumping of accumulated snow into surface waters.*

4.1 l. *Maintain retaining walls and pavements to minimize cracks and leakage.*

4.1 m. *Repair potholes.*

4.1 n. *Encourage litter and debris control management.*

#### 4.2 o. *Develop an inspection program to ensure that general maintenance is performed on urban runoff and NPS pollution control facilities.*

To be effective, erosion and sediment control devices and practices must receive thorough and periodic inspection checks. The following is a suggested checklist for the inspection of erosion and sediment controls (ASHTO Operating Subcommittee on Design, 1993):

- Clean out sediment basins and traps; ensure that structures are stable.
- Inspect silt fences and replace deteriorated fabrics and wire connections; properly dispose of deteriorated materials.
- Renew riprapped areas and reapply supplemental rock as necessary.
- Repair/replace check dams and brush barriers; replace or stabilize straw bales as needed.
- Regrade and shape berms and drainage ditches to ensure that runoff is properly channeled.
- Apply seed and mulch where bare spots appear, and replace matting material if deteriorated.
- Ensure that culverts and inlets are protected from siltation.
- Inspect all permanent erosion and sediment controls on a scheduled, programmed basis.

4.2 p. *Ensure that energy dissipators and velocity controls to minimize runoff velocity and erosion are maintained.*

4.2 q. *Dispose of accumulated sediment collected from urban runoff management and pollution control facilities, and any wastes generated during maintenance operations, in accordance with appropriate local, State, and Federal regulations.*

4.2 r. *Use techniques such as suspended tarps, vacuums, or booms to reduce, to the extent practicable, the delivery to surface waters of pollutants used or generated during bridge maintenance (e.g., paint, solvents, scrapings).*

4.2 s. *Develop education programs to promote the practices listed above.*

### 5. Effectiveness Information and Cost Information

Preventive maintenance is a time-proven, cost-effective management approach. Operation schedules and maintenance procedures to restore vegetation, proper management of salt and fertilizer application, regular cleaning of urban runoff structures, and frequent sweeping and vacuuming of urban streets have effective results in pollution control. Litter control, clean-up, and fix-up practices are a low-cost means for eliminating causes of pollution, as is the proper handling of fertilizers, pesticides, and other toxic materials including deicing salts and abrasives. Table 4-30 presents summary information on the cost and effectiveness of operation and maintenance practices for roads, highways, and bridges. Many States and communities are already implementing several of these practices within their budget limitations. As shown in Table 4-30, the use of road salt alternatives such as calcium magnesium acetate (CMA) can be very costly. Some researchers have indicated, however, that reductions in corrosion of infrastructure, damage to roadside vegetation, and the quantity of material that needs to be applied may offset the higher cost of CMA. Use of road salt minimization practices such as salt storage protection and special salt spreading equipment reduces the amount of salt that a State or community must purchase. Consequently, implementation of these practices can pay for itself through savings in salt purchasing costs. Similar programs such as nutrient and pesticide management can also lead to decreased expenditures for materials.

**CMA Eligible for Matching Funds**

Calcium magnesium acetate (CMA) is now eligible for Federal matching funds under the Bridge Program of the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991. The Act provides 80 percent funding for use of CMA on salt-sensitive bridges in order to protect against corrosion and to extend their useful life. CMA can also be used to protect vegetation from salt damage in environmentally sensitive areas.

Table 4-30. Effectiveness and Cost Summary for Roads, Highways, and Bridges Operation and Maintenance Management Practices

Management Practice	% Removal						Cost
	TSS	TP	TN	COD	Pb	Zn	
<b>MAINTAIN VEGETATION</b>							
For Sediment Control							Natural succession allowed to occur - Avg: \$100/ac/year Reported Range: \$50-\$200/ac/year
Average:	90	NA	NA	NA	NA	NA	
Reported Range:	50-100	NA	NA	NA	NA	NA	
Probable Range:	80-100	-	-	-	-	-	
For Pollutant Removal							Natural succession not allowed to occur - Avg: \$800/ac/year Reported Range: \$700-\$900/ac/year
Average:	60	40	40	50	50	50	
Reported Range:	0-100	0-100	0-70	20-80	0-100	50-60	
Probable Range:	0-100	0-100	0-100	0-100	0-100	0-100	
<b>PESTICIDE/HERBICIDE USE MANAGEMENT</b>							
Average:	NA						Generally accepted as an economical program to control excessive use
Reported Range:	NA						
Probable Range:							
<b>STREET SWEEPING</b>							
Smooth Street, Frequent Cleaning (One or More Passes Per Week)							Avg: \$20/curb mile Reported Range: \$10-\$30/curb mile
Average:	20	NA	NA	5	25	NA	
Reported Range:	20	NA	NA	0-10	5-35	NA	
Probable Range:	20-50	-	-	0-10	20-50	10-30	
Infrequent Cleaning (One Pass Per Month or Less)							
Average:	NA	NA	NA	NA	5	NA	
Reported Range:	NA	NA	NA	NA	0-10	NA	
Probable Range:	0-20	-	-	-	0-20	0-10	
<b>LITTER CONTROL</b>							
Average:	NA						Generally accepted as an economical approach to control excessive use
Reported Range:	NA						
Probable Range:							

**F. Management Measure for Road, Highway, and Bridge Runoff Systems**

Develop and implement runoff management systems for existing roads, highways, and bridges to reduce runoff pollutant concentrations and volumes entering surface waters.

- (1) Identify priority and watershed pollutant reduction opportunities (e.g., improvements to existing urban runoff control structures; and
- (2) Establish schedules for implementing appropriate controls.

**1. Applicability**

This management measure is intended to be applied by States to existing, resurfaced, restored, and rehabilitated roads, highways, and bridges that contribute to adverse effects in surface waters. Under the Coastal Zone Act Reauthorization Amendments of 1990, States are subject to a number of requirements as they develop coastal NPS programs in conformity with this management measure and will have some flexibility in doing so. The application of management measures by States is described more fully in *Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidance*, published jointly by the U.S. Environmental Protection Agency (EPA) and the National Oceanic and Atmospheric Administration (NOAA) of the U.S. Department of Commerce.

**2. Description**

This measure requires that operation and maintenance systems include the development of retrofit projects, where needed, to collect NPS pollutant loadings from existing, reconstructed, and rehabilitated roads, highways, and bridges. Poorly designed or maintained roads and bridges can generate significant erosion and pollution loads containing heavy metals, hydrocarbons, sediment, and debris that run off into and threaten the quality of surface waters and their tributaries. In areas where such adverse impacts to surface waters can be attributed to adjacent roads or bridges, retrofit management projects to protect these waters may be needed (e.g., installation of structural or nonstructural pollution controls). Retrofit projects can be located in existing rights-of-way, within interchange loops, or on adjacent land areas. Areas with severe erosion and pollution runoff problems may require relocation or reconstruction to mitigate these impacts.

Runoff management systems are a combination of nonstructural and structural practices selected to reduce nonpoint source loadings from roads, highways, and bridges. These systems are expected to include structural improvements to existing runoff control structures for water quality purposes; construction of new runoff control devices, where necessary to protect water quality; and scheduled operation and maintenance activities for these runoff control practices. Typical runoff controls for roads, highways, and bridges include vegetated filter strips, grassed swales, detention basins, constructed wetlands, and infiltration trenches.

Table 4-30. (Continued)

Management Practice	% Removal						Cost
	TSS	TP	TN	COD	Pb	Zn	
GENERAL MAINTENANCE (e.g., pothole and roadside repairs)							Generally accepted as an economical preventive maintenance program by local and State agencies
Average:	NA						
Reported Range:	NA						
Probable Range:							
PROTECTION OF SALT PILES							For salt storage building - Ave: \$30/ton salt Reported Range: \$10-\$70/ton salt
Average:	NA						
Reported Range:	NA						
Probable Range:	90-100 <sup>a</sup>						
MINIMIZATION OF APPLICATION OF DEICING SALTS							Generally accepted as an economical preventive maintenance program by local and State agencies
Average:	NA						
Reported Range:	NA						
Probable Range:	Deicing salts that are not applied to roads will not enter runoff <sub>a</sub>						
SPECIALLY EQUIPPED SALT APPLICATION TRUCKS							For spread rate control on truck - Ave: \$6,000/truck Reported Range: \$6,000/truck
Average:	NA						
Reported Range:	NA						
Probable Range:	Deicing salts that are not applied to roads will not enter runoff <sub>a</sub>						
USE OF ALTERNATIVE DEICING MATERIALS							CMA - Ave: \$650/ton Reported Range: \$650/ton (note: cost of salt \$30/ton)
Average:	NA						
Reported Range:	NA						
Probable Range:	Deicing salts that are not applied to roads will not enter runoff <sub>a</sub>						
CONTAIN POLLUTANTS GENERATED DURING BRIDGE MAINTENANCE							Varies with method of containment use
Average:	NA						
Reported Range:	NA						
Probable Range:	50-100 <sup>b</sup>						

NA = Not applicable.

<sup>a</sup>Measured as reduction in salt.

<sup>b</sup>Measured as reduction of all pollutants.

Table 4-31. Highway Runoff Constituents and Their Primary Sources

Constituents	Primary Sources
Particulates	Pavement wear, vehicles, atmosphere, maintenance
Nitrogen, Phosphorus	Atmosphere, roadside fertilizer application
Lead	Leaded gasoline (auto exhaust), tire wear (lead oxide filler material, lubricating oil and grease, bearing wear)
Zinc	Tire wear (filler material), motor oil (stabilizing additive), grease
Iron	Auto body rust, steel highway structures (guard rails, bridges, etc.), moving engine parts
Copper	Metal plating, bearing and bushing wear, moving engine parts, brake lining wear, fungicides and insecticides
Cadmium	Tire wear (filler material), insecticide application
Chromium	Metal plating, moving engine parts, brake lining wear
Nickel	Diesel fuel and gasoline (exhaust), lubricating oil, metal plating, bushing wear, brake lining wear, asphalt paving
Manganese	Moving engine parts
Cyanide	Anticake compound (ferric ferrocyanide, sodium ferrocyanide, yellow prussiate of soda) used to keep deicing salt granular
Sodium, Calcium, Chloride	Deicing salts
Sulphate	Roadway beds, fuel, deicing salts
Petroleum	Spills, leaks or blow-by of motor lubricants, antifreeze and hydraulic fluids, asphalt surface leachate

In colder regions where deicing agents are used, deicing chemicals and residues are the largest source of pollutants during winter months. Deicing salt (primarily sodium chloride, NaCl) is the most common used deicing agent. Other pollutants from deicing salt include sodium chlorate, ferric ferrocyanide (used to keep the salt from clumping), and other salts in the system. Table 4-33 summarizes potential environmental impacts caused by road salt. Other chemicals used as deicing substitutes include calcium magnesium acetate (CMA) and less frequently, urea and glycol compounds. Researchers have differing opinions on the environmental impacts of CMA compared to those of road salt (Cibowen Chemical Company, 1991; Salt Institute, undated; Transportation Research Board, 1993).

3. Management Measure Selection

This management measure was selected because of the demonstrated effectiveness of retrofit systems for existing roads and highways that were constructed with inadequate nonpoint source pollution controls or without such controls. Structural practices for mitigating polluted runoff from existing highways are described in the literature (Silverman, 1988).

4. Practices

As discussed more fully at the beginning of this chapter and in Chapter I, the following practices are described for illustrative purposes only. State programs need not require implementation of these practices. However, as a practical matter, EPA anticipates that the management measure set forth above generally will be implemented by applying one or more management practices appropriate to the source, location, and climate. The practices set forth below have been found by EPA to be representative of the types of practices that can be applied successfully to achieve the management measure described above.

- a. Locate runoff treatment facilities within existing rights-of-way or in medians and interchange loops.
- b. Develop multiple-use treatment facilities on adjacent lands (e.g., parks and golf courses).
- c. Acquire additional land for locating treatment facilities.
- d. Use underground storage where no alternative is available.
- e. Maximize the length and width of vegetated filter strips to slow the travel time of sheet flow and increase the infiltration rate of urban runoff.

5. Effectiveness Information and Cost Information

Cost and effectiveness data for structural urban runoff management and pollution control facilities are outlined in Tables 4-15 and 4-16 in Section III and discussed in Section IV of this chapter and are applicable to determine the cost and effectiveness of retrofit projects. Retrofit projects can often be more costly to construct because of the need to locate the required structures within existing space or the need to locate the structures within adjacent property that requires purchase. However, the use of multiple-use facilities on adjacent lands, such as diverting runoff waters to parkland or golf courses, can offset this cost. Nonstructural practices described in the urban section also can be effective in achieving source control. As with other sections of this document, the costs of loss of habitat, fisheries, and recreational uses must be weighed against the cost of retrofitting control structures within existing rights-of-way.

6. Pollutants of Concern

Table 4-31 lists the pollutants commonly found in urban runoff from roads, highways, and bridges and their sources. The disposition and subsequent magnitude of pollutants found in highway runoff are site-specific and are affected by traffic volume, road or highway design, surrounding land use, climate, and accidental spills.

The FHWA conducted an extensive field monitoring and laboratory analysis program to determine the pollutant concentration in highway runoff from 31 sites in 11 States (Driscoll et al., 1990). The event mean concentrations (EMCs) developed in the study for a number of pollutants are presented in Table 4-32. The study also indicated that for highways discharging into lakes, the pollutants of major concern are phosphorus and heavy metals. For highways discharging into streams, the pollutants of major concern are heavy metals—cadmium, copper, lead, and zinc.

Table 4-32. Pollutant Concentrations in Highway Runoff (Driscoll et al., 1990)

Pollutant	Event Mean Concentration for Highways With Fewer Than 30,000 Vehicles/Day* (mg/L)	Event Mean Concentration for Highways With More Than 30,000 Vehicles/Day* (mg/L)
Total Suspended Solids	41	142
Volatile Suspended Solids	12	39
Total Organic Carbon	8	25
Chemical Oxygen Demand	49	114
Nitrite and Nitrate	0.46	0.76
Total Kjeldahl Nitrogen	0.87	1.83
Phosphate Phosphorus	0.16	0.40
Copper	0.022	0.054
Lead	0.080	0.400
Zinc	0.080	0.329

\*Event mean concentrations are for the 50% median site.

Table 4-33. Potential Environmental Impacts of Road Salts

Environmental Resource	Potential Environmental Impact of Road Salt (NaCl)
Soils	May accumulate in soil. Breaks down soil structure, increases erosion. Causes soil compaction that results in decreased permeability.
Vegetation	Osmotic stress and soil compaction harm root systems. Spray causes foliage dehydration damage. Many plant species are salt-sensitive.
Ground Water	Mobile Na and Cl ions readily reach ground water. Increases NaCl concentration in well water, as well as alkalinity and hardness.
Surface Water	Causes density stratification in ponds and lakes that can prevent reoxygenation. Increases runoff of heavy metals and nutrients through increased erosion.
Aquatic Life	Monovalent Na and Cl ions stress osmotic balances. Toxic levels: Na - 500 ppm for stickleback; Cl - 400 ppm for trout.
Human/Mammalian	Sodium is linked to heart disease and hypertension. Chlorine causes unpleasant taste in drinking water. Mild skin and eye irritant. Acute oral LD <sub>50</sub> in rats is approximately 3,000 mg/kg (slightly toxic).



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7213-01  
February 2, 2011

Mr. Dave Taylor, Director  
County of Maui  
Department of Water Supply  
200 South High Street  
Wailuku, Hawaii 96793

Subject: Pre-Assessment Consultation  
Draft Environmental Assessment (EA) for Waiehu Beach Road,  
Rehabilitation of Iao Stream Bridge  
District of Wailuku, Island of Maui, Hawaii  
Federal Aid Project No. BR-STP-3400(3)

Dear Mr. Taylor:

Thank you for your letter dated November 9, 2009 regarding the subject Draft Environmental Assessment (EA) pre-assessment consultation. We offer the following response to your comments:

Thank you for the information regarding Department of Water Supply facility near the project site. The proposed project will be subject to Section 401 Water Quality Certification pursuant to the processing of a Department of the Army Permit for the proposed bridge improvements. We will incorporate your suggested best management practices (BMPs) into the BMP plan to be submitted to the Department of Health Clean Water Branch for certification.

Your letter, along with this response, will be reproduced and included in the forthcoming Draft EA. We appreciate your participation in the pre-assessment consultation review process.

Sincerely,

Earl Matsukawa, AICP  
Project Manager

cc: Ms. Li Nah Okita, State DOT, Highways Division

CHARMAINE TAVARIS  
Mayor



TAMARA HORCAJO  
Director  
ZACHARY Z. HELLM  
Deputy Director  
(808) 270-7230  
Fax (808) 270-7934

**DEPARTMENT OF PARKS & RECREATION**

700 Hali'a Nakoa Street, Unit 2, Wailuku, Hawaii 96793

November 13, 2009

Mr. Earl Matsukawa, Project Manager  
Wilson Okamoto Corporation  
1907 South Beretania Street, Suite 400  
Honolulu, Hawaii 96826

Dear Mr. Matsukawa:

**SUBJECT:** Waiehu Beach Road, Rehabilitation of Iao Stream Bridge  
District of Wailuku, Island of Maui, Hawaii  
Pre-Assessment Consultation for Draft Environmental Assessment

We have reviewed the Project Summary for the subject project and have no comments to the proposed action.

Thank you for the opportunity to review and comment. Should there be any questions, please contact Karla Peters, Parks Project Manager, at (808) 270-7981.

Sincerely,

TAMARA HORCAJO  
Director

TH:PTM:kp

c: Patrick Matsui, Chief of Parks Planning and Development  
Project Files



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FAX: 808-546-2253  
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7213-01  
February 2, 2011

Mr. Glenn Correa, Director  
County of Maui  
Department of Parks and Recreation  
700 Halia Nakoa Street, Unit 2  
Wailuku, Hawaii 96793

Attention: Ms. Karla Peters

**Subject:** Pre-Assessment Consultation  
Draft Environmental Assessment (EA) for Waiehu Beach Road,  
Rehabilitation of Iao Stream Bridge  
District of Wailuku, Island of Maui, Hawaii  
Federal Aid Project No. BR-STP-3400(5)

Dear Mr. Correa:

Thank you for your letter dated November 13, 2009 indicating that you have no comments to offer regarding the subject Draft Environmental Assessment (EA) pre-assessment consultation.

Your letter, along with this response, will be reproduced and included in the forthcoming Draft EA. We appreciate your participation in the pre-assessment consultation review process.

Sincerely,

Earl Matsukawa, AICP  
Project Manager

cc: Ms. Li Nah Okita, State DOT, Highways Division

CHARMAINE TANARES  
Mayor  
JEFFREY S. HUNT  
Director  
KATHLEEN ROSS AOKI  
Deputy Director



COUNTY OF MAUI  
**DEPARTMENT OF PLANNING**

November 18, 2009

Mr. Earl Matsukawa, Project Manager  
Wilson Okamoto Corporation  
1907 South Beretania Street, Suite 400  
Honolulu, Hawaii 96826

Dear Mr. Matsukawa:

**SUBJECT: ENVIRONMENTAL ASSESSMENT COMMENTS (EAC) FOR THE PREPARATION OF A DRAFT ENVIRONMENTAL ASSESSMENT (EA) FOR THE WAIHEHU BEACH ROAD, REHABILITATION OF IAO STREAM BRIDGE, LOCATED ALONG WAIHEHU BEACH ROAD BETWEEN KAAE ROAD/KUHIO PLACE TO EHA STREET/NUKUWAI PLACE, WAILUKU DISTRICT, MAUI, HAWAII; (EAC 2009/0040)**

The Department of Planning (Department) is in receipt of the above-referenced letter dated October 14, 2009, requesting pre-assessment comment on preparation of a Draft EA.

The Department has the following comments:

1. Please review the proposed project for consistency with the Draft Maui Island Plan 2030. The Maui Island Plan can be found at the following URL: <http://www.mauicounty.gov/index.asp?NID=1120>. The Maui Island Plan provides a guide for the future growth of the island to the year 2030. The Maui Island Plan establishes a vision and a set of long-range guiding principles, goals, objectives, policies, and maps to guide the growth and development of the island. The purpose of the Maui Island Plan, amongst others, is to, "Establish policies to manage change and to guide decisions about future land use and development and to protect natural and cultural resources;
2. The Department requests that the Applicant address any inconsistencies with the Maui Island Plan relative to the proposed project;
3. Any proposed actions should take into consideration that the area is culturally significant and may contain burial grounds and other traditional cultural properties;
4. Provide mitigation alternative analysis in order to minimize the expected increased sedimentation that may occur as a result of the proposed project, including the transport of sediment from the existing channel into near-store coastal waters;

250 SOUTH HIGH STREET, WAILUKU, MAUI, HAWAII 96793  
MAIN LINE (808) 270-7735; FACSIMILE (808) 270-7634  
CURRENT DIVISION (808) 270-8205; LONG RANGE DIVISION (808) 270-7214; ZONING DIVISION (808) 270-7253

Mr. Earl Matsukawa  
November 18, 2009  
Page 2

5. No Tax Map Key (TMK) numbers for the affected parcels were provided in your letter. Please provide all correct TMK numbers for all parcels affected by the project;
6. Please provide the Land Use Designations (State, Wailuku-Kahului Community Plan, and Zoning) for the project area. These designations shall be verified by the Department's Zoning Administration and Enforcement Division (ZAED). Please submit the attached *Zoning and Flood Confirmation Form* to ZAED identifying the affected TMK parcels; and
7. The project site is located within the County's Special Management Area (SMA), and an SMA Assessment may be required unless the Department of Transportation, Highways Division can exempt themselves under Chapter 266, Hawaii Revised Statutes.

Thank you for the opportunity to comment. Please include the Department on the distribution list for the Draft EA. Should you require further clarification, please contact Staff Planner Joseph Prutch at [joseph.prutch@mauicounty.gov](mailto:joseph.prutch@mauicounty.gov) or at (808) 270-7512.

Sincerely,

CLAYTON I. YOSHIDA, AICP  
Planning Program Administrator

for  
JEFFREY S. HUNT, AICP  
Planning Director

Attachment

xc: Aaron H. Shinmoto, PE, Planning Program Administrator (2)  
Joseph M. Prutch, Staff Planner

Project File  
General File

JSH:CHY:JMP:v6  
K:\WP\DOCS\PLANNING\EAC\2009\0040\_iaoStreamBridge\PreComments.doc



**ZONING AND FLOOD CONFIRMATION FORM**

APPLICANT INFORMATION (To be completed by Applicant)

APPLICANT		
TELEPHONE		E-MAIL
PROJECT NAME		
ADDRESS/LOCATION		
TAX MAP KEY NO(S)		
ZONING INFORMATION (To be completed by ZAED)		
COMMUNITY PLAN DESIGNATION(S)		
COUNTY ZONING(S)		
STATE LAND USE DISTRICT(S)		
SPECIAL DISTRICT(S)		
FLOOD INFORMATION (To be completed by ZAED)		
FLOOD HAZARD AREA ZONE(S)		
BASE FLOOD ELEVATION(S)	mean sea level, 1929 National Geodetic Vertical Datum; or	
For Flood Zone AO, FLOOD DEPTH		
FLOODWAY	<input type="checkbox"/> Yes <input type="checkbox"/> No	
FLOOD DEVELOPMENT PERMIT REQUIRED	<input type="checkbox"/> Yes <input type="checkbox"/> No	

\*For flood hazard area zones B or C, a flood development permit would be required if any work is done in any drainage facility or stream area that would reduce the capacity of the drainage facility, river, or stream, or adversely affect downstream property.

REMARKS/COMMENTS:

**FOR COUNTY USE ONLY**

Additional information required  Information submitted is correct  
 Required for Agricultural Subdivisions  Correction has been made and initiated  
 Agricultural Assessment RFS No. \_\_\_\_\_  
 Reviewed and Confirmed by: \_\_\_\_\_ (Date)

For: AARON SHINMOTO, Planning Program Administrator  
 Zoning Administration and Enforcement Division

S:\ALLI-FORMS\ZAED\ZoneFidConfForm.doc (Rev. 02.09)



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7213-01  
February 2, 2011

Mr. William Spence, Director  
County of Maui  
Department of Planning  
250 South High Street  
Kalana Paku'i Building, Suite 200  
Wailuku, Hawaii 96793

Attention: Mr. Clayton Yoshida

Subject: Pre-Assessment Consultation  
Draft Environmental Assessment (EA) for Waichui Beach Road,  
Rehabilitation of Iao Stream Bridge  
District of Wailuku, Island of Maui, Hawaii  
Federal Aid Project No. BR-STP-3400(5)

Dear Mr. Spence:

Thank you for your letter of November 18, 2009 regarding the subject Draft Environmental Assessment (EA) pre-assessment consultation. We offer the following responses in the order of your comments:

- 1 and 2. Discussion of the Draft Maui Island Plan 2030 will be included in Chapter 4 of the Draft EA.
3. The Draft EA will include a discussion of potential impacts of the proposed project on cultural resources and properties.
4. The proposed project will be subject to Section 401 Water Quality Certification, pursuant to the processing of a Department of the Army Permit for the proposed bridge improvements. A site-specific Best Management Practices (BMP) plan will be prepared in conjunction with that permit application. The Draft EA will discuss potential mitigation measures that may be included in the BMP plan.
5. As a roadway, the project site has not been assigned a Tax Map Key (TMK) number. The proposed improvements will occur within the existing roadway right-of-way and, as such, will not affect other properties.
6. Chapter 4 of the Draft EA will provide all applicable land use designations associated with the proposed project site and immediately adjoining areas.

7213-01

Letter to Mr. William Spence

Page 2

February 2, 2011



7. Chapter 6 will include the SMA permit in the list of required permits and approvals required for the project. We have consulted Ann Cua from your department regarding the concurrent review of the Draft EA and the County's SMA assessment.

Your letter, along with this response, will be reproduced and included in the forthcoming Draft EA. We appreciate your participation in the pre-assessment consultation review process.

Sincerely,

Earl Matsukawa, AICP  
Project Manager

cc: Ms. Li Nah Okita, State DOT, Highways Division

# **APPENDIX D**

---

## **Draft EA Comment and Response Letters**



DEPARTMENT OF THE ARMY  
U.S. ARMY CORPS OF ENGINEERS, HONOLULU DISTRICT  
FORT SHAFTER, HAWAII 96858-5440

REPLY TO  
ATTENTION OF: CEPOH-EC-T

NEIL ABSOROMBIE  
GOVERNOR



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

February 25, 2011

Civil Works Technical Branch

Ms. Li Nah Okita  
State of Hawaii  
Department of Transportation  
Highways Division  
601 Kamokila Boulevard, Room 609  
Kapolei, Hawaii 96707

Dear Ms. Okita:

Thank you for the opportunity to review and comment on the Draft Environmental Assessment (DEA) for the Waiehu Beach Road/Rehabilitation of Iao Stream Bridge Project, Wailuku, Maui. I concur with the flood hazard information provided on pages 2-6 and 2-7 of the DEA.

The document has been forwarded to Mr. George Young, Chief, Regulatory Branch for review and comments. He will reply to you under separate cover (telephone: 438-9258).

Should you require additional information, please contact Ms. Jessie Doblinchick of my staff at (808) 438-8876.

Sincerely,

/s/

Michael F. Wong, P.E.  
Chief, Civil Works Technical Branch

Copy Furnished:  
Mr. Earl Matsukawa, Project Manager  
Wilson Okamoto Corporation  
1907 South Beretania Street, Suite 400  
Honolulu, Hawaii 96826

GLENN M. OKIMOTO  
DIRECTOR  
DWAYNE DODDS  
JAMES T. BULLAY  
FRANK N. FUCHIGAMI  
ROBERT GRUBBE  
JACQUEE DRAGAGE  
IN REPLY REFER TO:  
HWY-DD 2.9212

AUG 31 2011

Mr. Michael F. Wong, P.E., Chief  
Department of the Army  
U.S. Army Corps of Engineers,  
Honolulu District  
Civil Works Technical Branch  
Fort Shafter, Hawaii 96858-5440

Dear Mr. Wong:

Subject: Draft Environmental Assessment (EA) for  
Waiehu Beach Road, Rehabilitation of Iao Stream Bridge  
District of Wailuku, Island of Maui, Hawaii  
Federal-Aid Project No. BR-STP-3400(5)

Thank you for your letter dated February 25, 2011, (CEPOH-EC-T) concurring with the flood hazard information provided on page 2-6 and 2-7 of the Draft EA.

Your letter, along with this response, will be reproduced and included in the forthcoming final EA. We appreciate your participation in the Draft EA review process.

If you have any questions, please contact Li Nah Okita, Project Manager, at 692-7581 of our Highway Design Section, Design Branch, Highways Division and reference HWY-DD 2.9212 as noted above.

Very truly yours,

  
GLENN M. OKIMOTO, Ph.D.  
Director of Transportation

c: Mr. Earl Matsukawa, Wilson Okamoto Corporation



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

REPLY TO  
ATTENTION OF:

March 9, 2011

Regulatory Branch

State of Hawaii  
Department of Transportation  
Highways Division  
Attention: Ms. Li Nah Okita  
601 Kamehala Boulevard, Room 609  
Kapolei, Hawaii 96707

File Number POH-2011-00062



**APPROVED JURISDICTIONAL DETERMINATION  
PERMIT REQUIRED**

Dear Ms. Okita:

This is in response to your letter dated February 17, 2011 requesting a Department of the Army (DA) review and comment on the Draft Environmental Assessment (DEA) for the proposed Rehabilitation of the Iao Stream Bridge along Waiehu Beach Road, Waiuku, Island of Maui, Hawaii. We have assigned the project the reference number POH-2011-00062. Please cite the reference number in any future correspondence concerning this project.

We completed our review of the submitted documents pursuant to Section 10 of the Rivers and Harbors Act of 1899 (Section 10) and Section 404 of the Clean Water Act (Section 404) and have determined that the submitted documents, accurately identify a water of the U.S. under the regulatory jurisdiction of U.S. Army Corps of Engineers (the Corps).

Section 10 requires that a DA permit be obtained from the Corps prior to undertaking any construction, dredging, or other activity occurring in, over, or under or affecting navigable waters of the U.S. For tidal waters, the shoreward limit of the Corps' jurisdiction extends to the Mean High Water Mark. Section 404 requires that a DA permit be obtained for the discharge (placement) of dredged and/or fill material into waters of the U.S., including wetlands. For tidally influenced waters, in the absence of adjacent wetlands, the shoreward limit of the Corps' jurisdiction extends to the High Tide Line, which in Hawaii may be approximated by reference to the Mean Higher High Water Mark. For non-tidal waters, the lateral limits of the Corps' jurisdiction extend to the Ordinary High Water Mark or the approved delineated boundary of any adjacent wetlands.

The perennial Iao Stream, with end terminus in the Pacific Ocean, is a water of the U.S., subject to Corps jurisdiction. The submitted documents indicate that the proposed 12' widening to permit a shoulder lane on the mauka and makai sides of the bridge will involve construction beneath the existing concrete invert slab via buildup of the existing pier footings and bridge abutments to reinforce the enlarged structure. Once the reinforcements have been constructed, the contractor will refill the hole with poured-in-place concrete to the existing grade of the invert. Therefore, in accordance with Section 404, a DA permit will be required prior to commencement of work activity resulting in the discharge of fill material waterward of the Ordinary High Water Mark of this water of the U.S.

We advise you to submit a DA Permit application and associated drawings that meet our drawing recommendations found at <http://www.poh.usace.army.mil/EC-R/EC-R.htm> to the Corps. In addition, supporting information submitted with the permit application should include sufficient information concerning the scope of work, including the use of Best Management Practices, i.e. silt fences and sandbag berms within the vicinity and in close proximity to potentially regulated bodies of water. The Corps will at that time review the application to ensure it complies with all necessary federal laws and regulations.

This letter contains an approved ID for the property in question and is valid for a period of five (5) years unless new information warrants revision of the determination before the expiration date. If you object to this determination, you may request an Administrative Appeal under Corps regulations at 33 Code of Federal Regulations (CFR) Part 331. We have enclosed a Notification of Appeal Process and Request for Appeal (NAP/REA) form. If you request to appeal this determination you must submit a completed REA form, according to instructions in the REA, to the Corps' Pacific Ocean Division office at the following address:

Thom Lichte, Appeals Review Officer  
U.S. Army Corps of Engineers  
Pacific Ocean Division, ATTN: CEPOD-PDC  
Building 525  
Fort Shafter, HI 96858-5440

We noted that the proposed bridge widening will require alteration to the existing stream channel to which it traverses. The stream channel is the primary constituent of the extensive Iao Stream Corps Flood Control Project and as such, will require approval from the Corps Chief of Engineers in accordance with 33 USC 408 prior to commencement of a work activity resulting in the significant modification or alteration to a locally or federally maintained Corps project. Please contact Mr. Derek Chow, Chief of the Honolulu District Corps Civil and Public Works Branch at 808.438.7009 or via email at [Derek.J.Chow@usace.army.mil](mailto:Derek.J.Chow@usace.army.mil) requesting review of the proposed bridge rehabilitation. Required documents for your submittal are enclosed.

Thank you for contacting us regarding this project and providing us with the opportunity to comment. Should you have any questions, please contact Ms. Jessie Pa'ahana at 808.438.0391 or via email at [Jessie.K.Paahana@usace.army.mil](mailto:Jessie.K.Paahana@usace.army.mil). You are encouraged to provide comments on your experience with the Honolulu District Regulatory Branch by accessing our web-based customer survey form at <http://www.per2.mwp.usace.army.mil/survey.html>.

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

Enclosures

Copy furnished (w/out enclosures):

Wilson Okamoto Co., Earl Masutawa, 1907 S. Bereania St., Suite 400, Honolulu, HI 96826  
US Army Engineer District, Honolulu, Derek Chow, Civil & Public Works Branch, Bldg. 230, Ft. Shafter, HI 96858-5440  
US Army Engineer District, Honolulu, Michael F. Wong, Civil Works Technical Branch, Bldg. 223, Ft. Shafter, HI 96858-5440

NEIL ABERCROMBIE  
GOVERNOR



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

SEP 07 2011

GLENN M. OKIMOTO  
DIRECTOR

Deputy Directors  
JASE T. BUTAY  
FORD N. FUCHIGAMI  
RANDY GRUENE  
JADINE URASAKI

IN REPLY REFER TO:

HWY-DD 2.9212

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

Dear Mr. Young:

Subject: Draft Environmental Assessment (EA) for the Waiehu Beach Road, Rehabilitation of Iao Stream Bridge  
District of Waiehu, Island of Maui, Hawaii  
Federal Aid Project No. BR-STP-3-400(S)

Thank you for your letter dated March 9, 2011 (POH-200-00062) determining jurisdiction over Iao Stream pursuant to Section 404 of the Clean Water Act, Section 10 of the Rivers and Harbors Act of 1899, and confirming that a Section 404 permit will be required.

An application for a Section 404 will be submitted for your review and approval for any discharge of fill material that will occur below the Ordinary High Water Mark. Further, we acknowledge that approval from the Corps of Engineers will be required pursuant to 33 USC 408 prior to commencement of a work activity resulting in significant modification or alteration of a Corps of Engineers project. Accordingly, a request for approval has been submitted to the Civil and Public Works Branch. With regard to Section 10, however, we wish to clarify that the project site is located approximately 0.3 miles inland of the mouth of Iao Stream at an elevation of approximately 19 feet above sea level. As such, the portion of Iao Stream where the project is located is not generally navigable or tidally influenced and should not require a permit pursuant to Section 10.

Your letter, along with this response, will be reproduced and included in the forthcoming Final EA. We appreciate your participation in the Draft EA review process.

Very truly yours,

GLENN M. OKIMOTO, Ph.D.  
Director of Transportation

c: Mr. Earl Matsukawa, Wilson Okamoto Corporation

Mr. Earl Matsukawa



United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Pacific Islands Fish and Wildlife Office  
300 Ala Moana Boulevard, Room 3-122, Box 50088  
Honolulu, Hawaii 96850



In Reply Refer To:  
2011-1A-0155

Mr. Earl Matsukawa  
Project Manager  
Wilson Okamoto Corporation  
1907 South Beretania Street, Suite 400  
Honolulu, Hawaii 96826

MAR 24 2011

Subject: Technical Assistance on the Draft Environmental Assessment for the Waiehu Beach Road and Iao Bridge Rehabilitation Project, Maui

Dear Mr. Matsukawa:

We received your letter on February 23, 2011, requesting review of the Draft Environmental Assessment (DEA) for the Waiehu Beach Road and Iao Stream Bridge rehabilitation project, Waiehu, Maui. The DEA describes structural improvements and widening of the existing Iao Stream Bridge, as well as widening and grading improvements to Waiehu Beach Road. Based on information you provided and pertinent information in our files, including data compiled by the Hawaii Biodiversity and Mapping Program, three species protected by the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq., as amended) may frequent the area and could be in the vicinity of the proposed project. To assist you with minimization and avoidance of impacts to these species, we offer the following recommendations:

- The endangered Hawaiian hoary bat (*Lasionycteris samoaensis*) roosts in both exotic and native woody vegetation and leaves young unattended in "nursery" trees and shrubs while foraging. If trees or shrubs suitable for bat roosting are cleared during the breeding season, there is a risk that young bats could inadvertently be harmed or killed. As a result, woody plants greater than 15 feet (4.6 meters) tall should not be removed or trimmed from May 15 to August 15.
- The threatened Newell's shearwater (*Puffinus auricularis newelli*) and endangered Hawaiian petrel (*Pterodroma phaeopygia sandwichensis*), collectively known as seabirds, may traverse the project area when flying between the ocean and their mountain nesting sites. Outdoor lighting, such as lighting used to illuminate construction areas for nighttime work, can adversely impact seabirds by causing disorientation that results in exhaustion or collision with objects, such as utility lines, guy wires, and structures that extend above surrounding vegetation.

As was explained in a telephone conversation on March 14, 2011, between Ian Bordenave, Fish and Wildlife Biologist, and Mr. Earl Matsukawa, Project Manager with Wilson Okamoto Corporation, there will be no permanent street lighting installed as part of this project. Mr. Matsukawa did state, however, that there may be a need to illuminate the bridge and roadway during some of the construction phase to offset traffic impacts because Waiehu Beach Road is the only route between lower Waiehu and the residential area of Waiehu. Therefore, some construction activity during nighttime hours may be necessary. Mr. Matsukawa also indicated the date has not yet been set for starting the project. To avoid causing detrimental impacts to listed seabirds during the construction phase of this project, it is our recommendation that nighttime construction work requiring artificial lighting take place between December, when the last birds are known to leave their colonies, and mid-March, when they begin returning to them. If construction activities must occur during the breeding season for these listed seabirds, please contact our office for further guidance.

We recommend these avoidance and minimization measures for listed species be incorporated into your final EA. Please contact Ian Bordenave, Fish and Wildlife Biologist, at (808) 792-9400 if you have any questions or comments.

Sincerely,

Loyal Mehrhoff  
Field Supervisor

KEELAH P. FUCHSBERG  
GOVERNOR



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

GLENN M. OKAMOTO  
DIRECTOR

DEPUTY DIRECTORS  
JACK T. BULTAVY  
FORD H. FUCHSBERG  
DANIEL CRANE  
JUDITH UYASAKI

IN REPLY REFER TO  
HWY-DD 2.9334

SEP - 1 2011

Dr. Loyal Mehrhoff, Field Supervisor  
United States Department of the Interior  
Fish and Wildlife Service  
Pacific Islands Fish and Wildlife Office  
300 Ala Moana Boulevard, Room 3-122  
Honolulu, Hawaii 96850

Dear Dr. Mehrhoff:

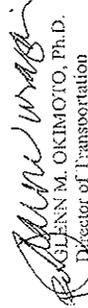
Subject: Draft Environmental Assessment (EA) for the Waichu Beach Road,  
Rehabilitation of Iao Stream Bridge  
District of Waialuku, Island of Maui, Hawaii  
Federal Aid Project No. BR-STP-3400(5)

Thank you for your letter dated March 24, 2011 (JA-0153) regarding the subject Draft EA.  
We offer you the following responses in the order of your comments:

1. No woody plants greater than 15 feet tall are located in areas where vegetation will be disturbed during construction. Hence, it is unlikely that the Hawaiian hoary bat will be affected.
2. The proposed project will not install any additional permanent street lighting. Existing street lighting will remain as is. If night time construction is required, the project will comply with your recommendation that such work be confined to the December to mid-March timeframe.
3. The avoidance and minimization measures for listed species as referenced in your letter will be included in the forthcoming Final EA.

Your letter, along with this response, will be reproduced and included in the forthcoming Final EA. We appreciate your participation in the Draft EA review process.

Very truly yours,

  
GLENN M. OKAMOTO, Ph.D.  
Director of Transportation

c. Mr. Earl Matsukawa, Wilson Okamoto Corporation



United States Department of the Interior

U.S. GEOLOGICAL SURVEY  
Pacific Islands Water Science Center  
677 Ala Moana Blvd., Suite 415  
Honolulu, Hawaii 96813  
Phone: (808) 587-2400/Fax: (808) 587-2401



NEEL ABERNETHY  
GOVERNOR



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
859 PUNAHOWI STREET  
HONOLULU, HAWAII 96813-5097

GLENN M. OKAMOTO  
DIRECTOR  
Deputy Directors:  
JADE T. BUTTAY  
FORD N. FUCHIGANE  
RANSY CRUINE  
JONNE URASAKI  
WRSPR REFER TO:

HWY-DD 2.9212

March 2, 2011

AUG 31 2011

Mr. Earl Matsukawa, AICP, Project Manager  
Wilson Okamoto Corporation  
1907 South Bericantia Street, Suite 400  
Honolulu, Hawaii 96826

Dear Mr. Matsukawa:

Subject: Draft Environmental Assessment, Waiehu Beach Road, Rehabilitation of Iao Stream  
Bridge, District of Wailuku, Island of Maui, Hawaii, Federal Aid Project No. BR-STP-  
3400(5)

Thank you for forwarding the subject Draft Environmental Assessment for review and comment  
by the staff of the U.S. Geological Survey Pacific Islands Water Science Center. We regret  
however, that due to prior commitments and lack of available staff, we are unable to review this  
document.

We appreciate the opportunity to participate in the review process.

Sincerely,

Stephen S. Anthony  
Center Director

cc: Ms. Li Nah Okita, State of Hawaii, Department of Transportation, Highways Division

Mr. Stephen S. Anthony, Center Director  
United States Department of the Interior  
U.S. Geological Survey  
Pacific Islands Water Science Center  
677 Ala Moana Boulevard, Suite 415  
Honolulu, Hawaii 96813

Dear Mr. Anthony:

Subject: Draft Environmental Assessment (EA) for  
Waiehu Beach Road, Rehabilitation of Iao Stream Bridge  
District of Wailuku, Island of Maui, Hawaii  
Federal-Aid Project No. BR-STP-3400(5)

Thank you for your letter dated March 2, 2011, regarding the subject Draft EA. We  
acknowledge that your department was unable to review this document due to prior  
commitments and lack of available staff.

Your letter, along with this response, will be reproduced and included in the forthcoming Final  
EA. We appreciate your participation in the Draft EA review process.

If you have any questions, please contact Li Nah Okita, Project Manager, at 692-7581 of our  
Highway Design Section, Design Branch, Highways Division and reference HWY-DD 2.9212 as  
noted above.

Very truly yours,

GLENN M. OKAMOTO, Ph.D.  
Director of Transportation

cc: Mr. Earl Matsukawa, Wilson Okamoto Corporation

STEVIE M. OKAMOTO  
DIRECTOR  
Debra Greco  
JILL T. BURT  
FORNAN FUCHSMAZ  
RANBY GRJANE  
JACQUE JANSINA  
NUMBER/PROJECT ID  
HWY-330 29335



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

SEP - 1 2011

TO: THE HONORABLE ALBERT "ALAPAKI" NAHALEA, CHAIRPERSON  
DEPARTMENT OF HAWAIIAN HOMELANDS

FROM: *Glenn M. Okamoto*  
GLENN M. OKAMOTO, P.E.D.  
DIRECTOR OF TRANSPORTATION

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (EA) FOR THE  
WAIEHU BEACH ROAD REHABILITATION OF  
IAO STREAM BRIDGE  
DISTRICT OF WAILUKU, ISLAND OF MAUI, HAWAII  
FEDERAL AID PROJECT NO.: BR-STP-3400(S)

Thank you for your letter dated March 28, 2011 acknowledging that your pre-assessment consultation comments have been addressed in the Draft EA and expressing your support for the proposed project.

Your letter, along with this response, will be reproduced and included in the forthcoming Final EA. We appreciate your participation in the Draft EA review process.

c: Mr. Earl Matsukawa, Wilson Okamoto Corporation

NEIL ABERCHROMBIE  
GOVERNOR

ALBERT "ALAPAKI" NAHALEA  
CHAIRMAN  
HAWAIIAN HOMELANDS COMMISSION  
ROBERT J. HALL  
DIRECTOR OF TRANSPORTATION



STATE OF HAWAII  
DEPARTMENT OF HAWAIIAN HOMELANDS  
PO BOX 189  
HONOLULU, HAWAII 96826

RECEIVED  
MAR 31 2011  
MEMBER SERVICES CORPORATION

March 28, 2011

Mr. Earl Matsukawa, AICP  
Project Manager  
Wilson Okamoto Corporation  
1507 South Beretania Street, Suite 400  
Honolulu, Hawaii 96826

Aloha Mr. Matsukawa:

Subject: Draft Environmental Assessment  
Waiehu Beach Road, Rehabilitation of Iao Stream  
Bridge, District of Wailuku, Island of Maui, Hawaii  
Federal Aid Project No. BR-STP-3400(S)

Maalo for the opportunity to provide comments regarding the subject project.

The department notes that its pre-consultation comments have been incorporated and Draft EA documents have been provided to Hawaiian homestead communities in the region.

The department supports this project to improve vehicular, pedestrian, and other forms of transportation between the Waihee-Paukukalo and Lower Wailuku regions. We have no other comments to offer.

If you have any questions, please contact Kaleo Manuel of our Planning Office at 620-9485.

Me ke aloha,

*Albert "Alapaki" Nahaie-a*  
Albert "Alapaki" Nahaie-a  
Chairman  
Department of Hawaiian Home Lands

Cc: State Department of Transportation

NEIL ABERCHROMBIE  
GOVERNOR  
STATE OF HAWAII

GLENNE M. OKIMOTO  
DIRECTOR  
Dorothy Dumas  
JANE T. RUTAY  
FORNUN FUCHIGAMI  
HANNY SORAME  
JACQUELINE USABAY  
KAREN Y. SEPER, TC

HWY-DDD 2.9212



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

AUG 31 2011

NEEL ASERCORNBIE  
GOVERNOR

LORETTA J. FUDDY, A.C.S.W., M.P.H.  
ACTING DIRECTOR OF HEALTH

JEFFREY M. ECKERD  
ACTING DIRECTOR OF HEALTH



STATE OF HAWAII  
DEPARTMENT OF HEALTH  
P. O. BOX 3378  
HONOLULU, HI 96814-3378

March 03, 2011

MAR 07 2011

TO: Li Nah Okita  
Department of Transportation, Highways Division

FROM: Jeffrey M. Eckerd, Acting Program Manager  
Indoor and Radiological Health Branch

SUBJECT: Draft Environmental Assessment  
Waiehu Beach Road, Rehabilitation of Iao Stream Bridge  
District of Wainuku, Island of Maui, Hawaii  
Federal Aid Project No. BR-STP-3400(5)

TO: THE HONORABLE LORETTA J. FUDDY, A.C.S.W., M.P.H.  
DIRECTOR OF HEALTH

ATTN: JEFFREY ECKERD  
ACTING ENVIRONMENTAL HEALTH PROGRAM MANAGER  
INDOOR RADIOLOGICAL HEALTH BRANCH

FROM: GLENNE M. OKIMOTO, Ph.D.  
DIRECTOR OF TRANSPORTATION

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (EA) FOR  
WAIEHU BEACH ROAD, REHABILITATION OF IAO STREAM BRIDGE  
DISTRICT OF WAILUKU, ISLAND OF MAUI, HAWAII  
FEDERAL-AID PROJECT NO. BR-STP-3400(5)

Thank you for your correspondence dated February 17, 2011. Based on our review, we have no comments at this time.

Should there be any questions, please contact me at 586-4701.

Thank you for your letter dated March 3, 2011, indicating that you have no comments regarding the subject Draft EA.

Your letter, along with this response, will be reproduced and included in the forthcoming Final EA. We appreciate your participation in the Draft EA review process.

If you have any questions, please contact Li Nah Okita, Project Manager, at 692-7381 or our Highway Design Section, Design Branch, Highways Division and reference HWY-DDD 2.9212 as noted above.

cc: Mr. Earl Matsukawa, Wilson Okamoto Corporation

RECEIVED  
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2011 MAR 22 A 9 53



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809  
Phone: (808) 587-0435  
Fax: (808) 587-0435

February 25, 2011

MEMORANDUM

TO: DLNR Agencies:  
 Div. of Aquatic Resources  
 Div. of Boating & Ocean Recreation  
 Engineering Division  
 Div. of Forestry & Wildlife  
 Div. of State Parks  
 Commission on Water Resource Management  
 Office of Conservation & Coastal Lands  
 Land Division --  
 Historic Preservation

*W. Unoki*

FROM: Charlene Unoki, Assistant Administrator  
SUBJECT: Draft Environmental Assessment for Waiehu Beach Road, Rehabilitation of Iao Stream Bridge  
LOCATION: Island of Maui  
APPLICANT: Wilson Okamoto Corporation on behalf of Department of Transportation

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by March 22, 2011.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

- ( ) We have no objections.
- ( ) We have no comments.
- (x) Comments are attached.

Signed: *[Signature]*  
Date: 3/21/11



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

March 23, 2011

Department of Transportation  
Highways Division  
601 Kamokila Boulevard Room 609  
Honolulu, Hawaii 96707

Attention: Ms. Li Nah Okita

Ladies and Gentlemen:

Subject: Draft Environmental Assessment for the Waiehu Beach Road, Rehabilitation of Iao Stream Bridge

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR), Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comment.

Other than the comments from Commission on Water Resource Management, Division of Aquatic Resources, Engineering Division, the Department of Land and Natural Resources has no other comments to offer on the subject matter. Should you have any questions, please feel free to call our office at 587-0414. Thank you.

Sincerely,

*W. Unoki*

Russell Y. Tsuji  
Administrator

Cc: Wilson Okamoto Corporation

LD



DEPARTMENT OF LAND AND NATURAL RESOURCES  
ENGINEERING DIVISION

LD:CharleneUnoeki  
Ref: DEARChabiaoStreamBridge  
Maui.533

STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809  
Phone: (808) 587-0433  
Fax: (808) 587-0485

RECEIVED DAK 3/23/11  
5:44 PM  
AMAK  
2011 MAR 15 A 10:11:54

( ) We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone \_\_\_\_\_.

( ) Please take note that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Zone \_\_\_\_\_.

( ) Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is \_\_\_\_\_.

( ) Please note that the project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyan-Benn, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.

Please be advised that 44CFR indicates the minimum standards set forth by the NFIP. Your Community's local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

- ( ) Mr. Robert Sumitomo (808) 768-8977 or Mr. Mario Siu Li at (808) 768-8988 of the City and County of Honolulu, Department of Planning and Permitting.
- ( ) Mr. Carter Romero at (808) 961-8943 of the County of Hawaii, Department of Public Works.
- ( ) Mr. Francis Cerizo at (808) 270-7771 of the County of Maui, Department of Planning.
- ( ) Ms. Wynne Ushigome at (808) 241-4890 of the County of Kauai, Department of Public Works.

( ) The applicant should include water demands and infrastructure required to meet project needs. Please note that projects within State lands requiring water service from the Honolulu Board of Water Supply system will be required to pay a resource development charge, in addition to Water Facilities Charges for transmission and daily storage.

( ) The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.

( ) Additional Comments: \_\_\_\_\_

(X) Other: Our previous comments dated November 17, 2009 which was attached in the Draft Environmental Assessment, still apply.

Should you have any questions, please call Ms. Suzie S. Agraan of the Planning Branch at 587-0258.

Signed: Carty S. Chang  
CARTY S. CHANG, CHIEF ENGINEER  
Date: 3/10/11

MEMORANDUM

TO: BLNK Agencies:  
Div. of Aquatic Resources  
Div. of Boating & Ocean Recreation  
Engineering Division  
Div. of Forestry & Wildlife  
Div. of State Parks  
Commission on Water Resource Management  
Office of Conservation & Coastal Lands  
Land Division -  
Historic Preservation

FROM: Charlene Unoeki, Assistant Administrator  
SUBJECT: Draft Environmental Assessment for Watchu Beach Road, Rehabilitation of Iao Stream Bridge

LOCATION: Island of Maui  
APPLICANT: Wilson Okamoto Corporation on behalf of Department of Transportation

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by March 22, 2011.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

- ( ) We have no objections.
- ( ) We have no comments.
- (X) Comments are attached.

Signed: [Signature]  
Date: 3/10/11



NEEL ABERCROMBIE  
COMMISSIONER OF LAND AND NATURAL RESOURCES



DIVISION OF AQUATIC RESOURCES - MAUI  
DEPARTMENT OF LAND & NATURAL RESOURCES  
130 Mahalani Street  
Waikuku, Hawaii 96793  
March 10, 2011



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809  
Phone: (808) 587-0433  
Fax: (808) 587-0453

February 25, 2011

RECEIVED  
281 MAR 10 P 3:04

STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES

MEMORANDUM

To: Alton Miyasaka, Aquatic Biologist  
From: <sup>SMC</sup> Skippy Hau, Aquatic Biologist  
Subject: Draft Environmental Assessment for Waiehu Beach Road, Iao Stream Bridge (DAR 3685) (Due March 22, 2011) Charlene Unoki, Land

TO: DLNR Agencies:  
 Div. of Aquatic Resources  
 Div. of Boating & Ocean Recreation  
 Engineering Division  
 Div. of Forestry & Wildlife  
 Div. of State Parks  
 Commission on Water Resource Management  
 Office of Conservation & Coastal Lands  
 Land Division  
 Historic Preservation

FROM: Charlene Unoki, Assistant Administrator  
SUBJECT: Draft Environmental Assessment for Waiehu Beach Road, Rehabilitation of Iao Stream Bridge  
LOCATION: Island of Maui  
APPLICANT: Wilson Okamoto Corporation on behalf of Department of Transportation

*Charlene Unoki*

I reviewed the draft environmental assessment and support the proposed improvements to the bridge.

The County Department of Public Works should maintain the Iao Stream Flood Control Facility. In the past several months, substrate removal with tractors has damaged the low-flow channel beneath the bridge. While removing the boulders, they shifted the concrete pad. Could this be corrected or patched?

During times of flow, I've continued to sample migrating stream animals by the Waiehu Bridge. After almost four years of below average rainfall and no flow during January or February of this year, March has been spectacular for opae recruitment. On March 7, I transported and released over 1400 opae (*Aplysia bisulcata*) at Iao State Park. I've also collected 'o'opu alama'o (*Lentipes concolor*) and 'o'opu nopolii (*Sicyopterus japonicus*) in addition to aholehole (*Kuhlia xenura*), introduced prawn (*Macrobrachium lar*) and guppies (*Poecilia reticulata*).

According to my records, May and June were the driest months in the past four years. I have also observed at least two people with wheel chairs (one electric powered) that have used the mauka crossing. Please check with State Parks Division for an update on the status of Hale Ki'i monument. The entrance is blocked with a locked yellow metal gate.

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by March 22, 2011.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

- We have no objections.
- We have no comments.
- Comments are attached.

Signed: *Charlene Unoki*  
Date: *2/28/11*

FILE ID: RFD-25076  
DOC ID: 14817

NEIL ABERCROMBIE  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

May 19, 2011

Department of Transportation  
Highways Division  
601 Kamokila Boulevard Room 609  
Honolulu, Hawaii 96707

Attention: Ms. Li Nani Okita  
Ladies and Gentlemen:

Subject: Draft Environmental Assessment for the Waiehu Beach Road,  
Rehabilitation of Iao Stream Bridge

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR), Land Division distributed or made available a copy of your report pertaining to the subject matter to Historic Preservation Division for their review and comment.

The Department of Land and Natural Resources has no other comments to offer on the subject matter. Should you have any questions, please feel free to call our office at 587-0414. Thank you.

Sincerely,

Charlene Unoki  
Assistant Administrator

Cc: Wilson Okamoto Corporation

WILLIAM J. JALA, JR.  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
COMMISSIONER OF WATER RESOURCES MANAGEMENT



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

May 19, 2011

RECEIVED  
MAY 20 2011  
WILSON OKAMOTO CORPORATION

Department of Transportation  
Highways Division  
601 Kamokila Boulevard Room 609  
Honolulu, Hawaii 96707

Attention: Ms. Li Nani Okita  
Ladies and Gentlemen:

Subject: Draft Environmental Assessment for the Waiehu Beach Road,  
Rehabilitation of Iao Stream Bridge

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR), Land Division distributed or made available a copy of your report pertaining to the subject matter to Historic Preservation Division for their review and comment.

The Department of Land and Natural Resources has no other comments to offer on the subject matter. Should you have any questions, please feel free to call our office at 587-0414. Thank you.

Sincerely,

Charlene Unoki  
Assistant Administrator

Cc: Wilson Okamoto Corporation

NEIL ABERCROMBIE  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
HISTORIC PRESERVATION DIVISION

KAHUUHEWA BUILDING  
601 KAMOKILA BLVD, KAPOLEI HI 96706

DATE: April 20, 2011

TO: Land Division  
Department of Land and Natural Resources  
Post Office Box 621  
Honolulu, HI 96809

LOC: 2011.0589  
DOC: 1104RS100

SUBJECT: National Historic Preservation Act (NHPA) Section 106 Review / Bridge Alteration and  
Enlargement  
Permit # (None)  
Building Owner: State of Hawaii Department of Transportation  
Location: Waiehu Beach Road between Kaze Road/Kuhio Place to Eha Street/Nakawai Place  
Tax Map Key: (2) 3-3 and (7) 3-4

This letter is in response to materials dated February 25, 2011 and received by our office on March 1, 2011, regarding alterations and enlargement proposed for the Waiehu Beach Road Bridge over Iao Stream. Included is a Draft Environmental Assessment, *Waiehu Beach Road, Rehabilitation of Iao Stream Bridge* (Wilson Okamoto Corporation, February 2011). The bridge is a concrete structure erected on two piers over a concrete channel. The project proposes to remove the existing balustrades, alter the abutments, and widen the bridge 3.75 feet on the mauka side and 8.25 feet on the moku side. Roadway approaches would also be widened to create a ten foot wide shoulder on the mauka side and eight foot shoulder on the moku side. A five foot wide sidewalk for pedestrians would be provided on the mauka side of the road. Bridge railings are to be 42 inches high and a separate 42 inch high railing would be installed to separate vehicles from pedestrians and bike riders. Finally, seismic upgrades would also be undertaken. The area of potential effect would be the bridge footprint and immediate environs.

The bridge was constructed in 1954 and features dual horizontal concrete railings common in highway bridge construction in the period. It is eligible for listing on the Hawaii Register of Historic Places under Criteria A (construction of roadways around the islands) and C (Architecture).

SHPD, in a letter dated June 16, 2010 (LOG 2009.5512 DOC 1006RS39) concurred that two archaeological sites listed on both the National and Hawaii Registers of Historic Places were far enough away so that the project would have no adverse effect on them. We did, however, express concerns about the historic nature of the roadway. We are especially concerned that replacing the balustrade design would have an adverse effect on historic property. Since the DOT wishes to replace the railings, we consider this an excellent opportunity to alter the prototype 1950s railing design to meet the current 42 inch height code and deal with safety concerns about the "puka" formed between the two horizontal concrete sections.

On Nimitz Highway in Honolulu, a similar balustrade was recently replaced with two concrete and two metal horizontal bars. The lower metal bar was centered in the puka between the upper and lower concrete bars and the upper metal bar placed atop the higher concrete bar section. We are suggesting that the puka could indeed be filled by a similar metal horizontal bar, but that instead of the top metal bar, the top concrete section be widened. This would retain the look of the original balustrade.

WILLIAM J. JALA, JR.  
COMMISSIONER OF WATER RESOURCES MANAGEMENT  
CITY HALL BUILDING  
FIRST FLOOR  
WILLIAM N. TANI  
DIRECTOR OF WATER  
2011 MAY 10 A 8:20  
STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
HISTORIC PRESERVATION DIVISION  
KAHUUHEWA BUILDING  
601 KAMOKILA BLVD, KAPOLEI HI 96706



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
HISTORIC PRESERVATION DIVISION

KAHUUHEWA BUILDING  
601 KAMOKILA BLVD, KAPOLEI HI 96706

DATE: April 20, 2011

TO: Land Division  
Department of Land and Natural Resources  
Post Office Box 621  
Honolulu, HI 96809

LOC: 2011.0589  
DOC: 1104RS100

SUBJECT: National Historic Preservation Act (NHPA) Section 106 Review / Bridge Alteration and  
Enlargement  
Permit # (None)  
Building Owner: State of Hawaii Department of Transportation  
Location: Waiehu Beach Road between Kaze Road/Kuhio Place to Eha Street/Nakawai Place  
Tax Map Key: (2) 3-3 and (7) 3-4

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NEIL ABESKOROVSKI  
GOVERNOR

GLENN M. CARMICHAEL  
DIRECTOR  
DENNY DUNCAN  
JACK Y. BUTRY  
ROGER N. FUCHSBERG  
SANDY GRUBBS  
JACQUE WILSON

IN REPLY REFER TO  
HWY-DD 2.9538



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

SEP - 1 2011

Any questions should be addressed to Ross W. Stephenson, SHPD Historian, at (808) 692-8028 (office), (808) 497-2233 (cell) or ross.w.stephenson@hawaii.gov.

Mahalo for the opportunity to comment.

*Angie Westfall*  
Angie Westfall  
Architecture Branch Chief

In the event that historic resources, including human skeletal remains, lava tubes, and lava blisters/bubbles are identified during construction activities, all work should cease in the immediate vicinity of the find, the find should be protected from additional disturbance, and the State Historic Preservation Division should be contacted immediately at (808) 692-8015.

TO: THE HONORABLE WILLIAM J. AILA, JR., CHAIRPERSON  
DEPARTMENT OF LAND AND NATURAL RESOURCES

ATTN: MR. RUSSELL Y. TSUII, ADMINISTRATOR  
LAND DIVISION

FROM: *Russell Y. Tsuii*  
JOHN M. OKIMOTO, Ph.D.  
DIRECTOR OF TRANSPORTATION

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (EA)  
FOR WAIHEHU BEACH ROAD  
REHABILITATION OF IAO STREAM BRIDGE  
DISTRICT OF WAILUKU, ISLAND OF MAUI  
FEDERAL AID PROJECT NO.: BR-STP-3400(5)

Thank you for your letters dated March 23, 2011 and May 19, 2011 regarding the subject Draft EA. We offer you the following response in the order of your comments:

Engineering Division:

We acknowledge your previous comments dated November 17, 2009 still apply. Furthermore, we are continuing to work with Mr. Francis Cerizo of the County of Maui Department of Planning regarding adherence to the National Flood Insurance Program (NFIP) regulations.

Division of Aquatic Resources:

Any issues regarding maintenance of the stream channel should be brought to the attention of the County of Maui Department of Public Works.

A Stream Biological and Water Quality Survey was prepared for the project by AECOS Inc. in December 2009. At that time, oopu and opae were observed in the upper reaches of Iao Stream. The Final EA will reflect that aolohole, introduced prawn, and guppies are also known species found within the stream.

The Hale Koi State Monument is under the jurisdiction of the Department of Hawaiian Home Lands (DHHL). We understand that due to a disagreement with an adjacent private land owner, DHHL has restricted access to the park. Any further inquiries regarding the park should be directed to the DHHL Maui District Office.

Commission on Water Resource Management:

We acknowledge that you have no objections to the subject project.

State Historic Preservation

Thank you for your concurrence of no adverse effect on the two archeological sites listed on the National and State Registers of Historic places, No. 50-04-0592 (Halekii-Pijana Heiau) and No. 50-04-1606 (Maui Jimsha Mission). With regard to your concern about the balustrade design, we have consulted with SHPD's Architecture Branch to determine an acceptable design to address both DOT's and SHPD's requirements. As a result of this consultation, the balustrade was redesigned and determined by SHPD to have a no adverse effect on historic property via a letter dated June 21, 2011 (Log: 2011.1706 Doc: 1106RS34, see attached).

Your letters, along with this response, will be reproduced and included in the forthcoming Final EA. We appreciate your participation in the Draft EA review process.

- c. Mr. Earl Masukawa, Wilson Okamoto Corporation
- Ms. Angie Westfall, State Historic Preservation Division, Architecture Branch



NEIL ABERCROMBIE  
DIRECTOR OF PLANNING

STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
HISTORIC PRESERVATION DIVISION  
KAHUHIIWEWA BUILDING  
601 KAMOKILA BLVD, KAPOLEI HI 96706

WILLIAM J. MCLAUGHLIN  
CHIEF ARCHITECT  
HAWAIIAN ARCHITECTURAL ASSOCIATION

GOV. HON. KEVIN IGHIGI  
GOVERNOR

WILLIAM H. TAN  
SPEECH WRITER

ANGUS KIMBLE  
DEPUTY GOVERNOR

DEAN K. LAYMAN  
DEPUTY GOVERNOR

COMMISSIONER OF LAND AND NATURAL RESOURCES

LESLIE W. STEPHENSON  
DIRECTOR OF HISTORIC PRESERVATION

ANGUS KIMBLE  
DEPUTY GOVERNOR

DEAN K. LAYMAN  
DEPUTY GOVERNOR

COMMISSIONER OF LAND AND NATURAL RESOURCES

DATE: June 21, 2011  
LOG: 2011.1706  
DOC: 1106RS34

TO: Myron Okubo  
Wilson, Okamoto Corporation  
1907 South Beretania Street, Unit 400  
Honolulu, HI 96826

SUBJECT: National Historic Preservation Act (NHFA) Section 106 Consultation  
Project: Waialae Beach Road Bridge over Iao Stream  
Building Owner: State of Hawaii, Department of Transportation  
Permit # (None)  
Location: Iao Bridge  
Tax Map Key: (2) 3-3 and (2) 3-4

RECEIVED  
JUN 30 2011

This letter is in response to your email of June 14, 2011 regarding bridge railing changes to be undertaken as part of a widening project of the Iao Stream bridge. The existing structure has two horizontal concrete bands as its balustrade design but is shorter than the current code requiring 42 inches in height. Your department has provided examples of replacement balustrades that include installing a metal bar across the lower gap and raising the overall balustrade by either placing another metal bar across the top or increasing the vertical width of the top concrete band. The area of potential impact would be the new, wider bridge footprint.

The bridge was constructed in 1954 and is eligible for listing on the Hawaii Register of Historic Places under Criterion A (Events -- construction of roads around the islands) and C (Architecture).

In our letter dated April 20 (LOG 2011.0589 DOC 1104RS100) we had asked you to examine both designs. Subsequent conversations with the State of Hawaii Transportation Highway Division has led us to pursue the option with the top rail.

We appreciate the efforts by your office to maintain the historic character of this bridge. SHPD thus determines that the project as now specified will have no adverse effect on historic property.

Any questions should be addressed to Ross W. Stephenson, SHPD Historian, at (808) 692-8028 (office), (808) 497-2233 (cell) or ross.w.stephenson@hawaii.gov.

Mauihale for the opportunity to comment.

*Angie Westfall*

Angie Westfall  
Architecture Branch Chief, Hawaii Historic Preservation Division



STATE OF HAWAII  
OFFICE OF HAWAIIAN AFFAIRS  
711 KAPIOLANI BOULEVARD, SUITE 500  
HONOLULU, HAWAII 96813

Li Nah Okita  
State of Hawaii Department of Transportation  
March 22, 2011  
Page 2 of 2

project does not impact the USACE Iao Stream Flood Control Project and proposed basin improvements.

OHA concurs with the anticipated "finding of no significant impact" determination within the DEA. Thank you for the opportunity to provide comments. Should you have any questions or concerns, please contact Koola Lindsey at 594-0244 or koolai@oha.org.

March 22, 2011

HRD11/4713B

Li Nah Okita  
State of Hawaii Department of Transportation  
Highways Division  
601 Kamokila Boulevard, Room 609  
Kapolei, Hawaii 9707

*Clyde W. Nāmu 'o*

Clyde W. Nāmu 'o  
Chief Executive Officer

C: OHA- Maui Island COC  
Earl Masukawa, Wilson Okamoto Corporation

RECEIVED

APR 04 2011

U.S. ARMY CORPS OF ENGINEERS

Re: Draft Environmental Assessment  
Iao Stream Bridge Rehabilitation  
Wailuku, Island of Maui

Aloha e Li Nah Okita,

The Office of Hawaiian Affairs (OHA) is in receipt of a February 17, 2011 request for comments on a draft environmental assessment (DEA) for the proposed rehabilitation of Iao Steam Bridge (project) on the Island of Maui.

Project activities include the widening of the existing bridge by approximately 8.25 feet, widening approach shoulders on both sides of the bridge, constructing a separate 5 foot wide sidewalk, guardrail removal and replacement and retrofitting the bridge to ensure compliance with current seismic standards.

OHA is aware that the Department of Hawaiian Home Lands (DHHL) Paukukalo and Wai'ehu Kuu residential communities (communities) are situated near the project area. In a November 4, 2009 letter to the DEA preparer, the DHHL requested that these communities be consulted on this project and afforded the opportunity to review the DEA. OHA supports this request and we advocate that any concerns expressed by these communities be afforded appropriate consideration. The DHHL letter and a June 16, 2010 letter from the Department of Land and Natural Resources-State Historic Preservation Division (DEA, Appendix C) both identify the presence of the Halekii-Pihana Heiau State Monument in the vicinity of the project area. While the SHPD has determined project activities will result in "no effect" to this Heiau, we do urge caution during project activities.

The DEA (Chapter 2.4) recognizes that the project area traverses the lower portion of the Iao Steam, which is part of the Na Wai Eha Surface Water Management Area. With this in mind, we will rely on the commitments in the DEA that best management practices will be implemented and employed for the duration of project activities to protect stream water quality. Coordination with the U.S. Army Corps of Engineers (USACE) should also occur to ensure this



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

GLENN M. OKIMOTO  
DIRECTOR

Directly Recourse  
MIE T. SAKAI  
RASHIYU OKIMOTO  
RASHIYU OKIMOTO  
HONOLULU, HAWAII  
HWY-DD 2.9336

IN REPLY REFER TO  
HWY-DD 2.9336

Mr. Namuo  
Page 2  
HWY-DD 2.9336  
SEP - 1 2011

Your letter, along with this response, will be reproduced and included in the forthcoming Final EA. We appreciate your participation in the Draft EA review process.

c: Mr. Earl Matsukawa, Wilson Okamoto Corporation

SEP - 1 2011

TO: CLYDE W. NAMUO, ADMINISTRATOR  
OFFICE OF HAWAIIAN AFFAIRS

FROM: *Glenn M. Okimoto*  
GLENN M. OKIMOTO, Ph.D.  
DIRECTOR OF TRANSPORTATION

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (EA)  
FOR THE WAEHU BEACH ROAD  
REHABILITATION OF IAO STREAM BRIDGE  
DISTRICT OF WAILUKU, MAUI, HAWAII  
FEDERAL AID PROJECT NO.: BR-STP-3400(5)

Thank you for your letter dated March 22, 2011 (HRD114713B) regarding the subject Draft EA. We offer you the following responses in the order of your comments:

1. The Department of Hawaiian Home Lands Paukalo and Waiehu Kou residential communities were consulted regarding this project. All communities received a copy of the subject Draft EA as well as an invitation to attend a public information meeting on the project held on March 23, 2011 at the Queen Liliuokalani Children's Center in Wailuku, Maui. We will continue to periodically consult with these communities throughout the duration of the project.
2. We acknowledge your concern regarding the Halekii-Pihana Heiau State Monument. Archeological monitoring will be conducted during ground disturbing activities for the project.
3. The project will be subject to best management practices determined through the National Pollutant Discharge Elimination System permit process as well as the Water Quality Certification process, both administered through the State Department of Health.
4. Coordination with the U.S. Army Corps of Engineers is ongoing to ensure that the project will not impact nor interfere with the Iao Stream Flood Control Project.
5. We appreciate your concurrence of the anticipated "finding of no significant impact" determination.

ALAN M. ARAKAWA  
Mayor  
KYLE K. GINOZA, P.E.  
Director  
MICHAEL M. MIYAMOTO  
Deputy Director



COUNTY OF MAUI  
DEPARTMENT OF  
ENVIRONMENTAL MANAGEMENT  
2200 MAIN STREET, SUITE 100  
WAILUKU, MAUI, HAWAII 96793

March 1, 2011

Ms. Li Nah Okita  
State of Hawaii  
Department of Transportation  
Highways Division  
601 Kamokila Boulevard, Room 609  
Kapolei, Hawaii 96707

Dear Ms. Okita:

SUBJECT: REHABILITATION OF IAO STREAM BRIDGE,  
WAIHEHU BEACH ROAD  
DRAFT ENVIRONMENTAL ASSESSMENT

We reviewed the subject application and have the following comments:

1. Solid Waste Division comments:
  - a. None.
2. Wastewater Reclamation Division (WWRD) comments:
  - a. Construction plans for the subject project have been received from Wilson Okamoto Corporation under transmittal dated February 8, 2011. All WWRD comments shall be satisfied prior to the division's approval of the subject proposed improvements.

If you have any questions regarding this memorandum, please contact Michael Miyamoto at 270-8230.

Sincerely,

*Kyle K. Ginoza*  
KYLE K. GINOZA, P.E.  
Director of Environmental Management

cc: Mr. Earl Matsukawa  
Wilson Okamoto Corporation

TRACY TAKAMINE, P.E.  
Solid Waste Division  
Wastewater Reclamation Division

RECEIVED  
MAR 5 3 2011  
SOLID WASTE DIVISION

NEL ABERCROMBIE  
Governor



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

AUG 3 1 2011

Mr. Kyle K. Ginoza, P.E., Director  
Department of Environmental Management  
County of Maui  
2200 Main Street, Suite 100  
Wailuku, Hawaii 96793

Dear Mr. Ginoza:

Subject: Draft Environmental Assessment (EA) for  
Waihehu Beach Road, Rehabilitation of Iao Stream Bridge  
District of Wailuku, Island of Maui, Hawaii  
Federal-Aid Project No. BK-STP-3400(S)

Thank you for your letter dated March 1, 2011, regarding the subject Draft EA. We offer you the following response in the order of your comments:

1. Solid Waste Division comments:  
We acknowledge that you have no comments on the subject project.
2. Wastewater Reclamation Division (WWRD) comments:  
Thank you for confirming receipt of the project's construction plans. We acknowledge that all of WWRD's comments will need to be satisfied prior to the division's approval of the subject proposed improvements.

Your letter, along with this response, will be reproduced and included in the forthcoming Final EA. We appreciate your participation in the Draft EA review process.

If you have any questions, please contact Li Nah Okita, Project Manager, at 692-7581 of our Highway Design Section, Design Branch, Highways Division and reference HWY-DD 2.9212 as noted above.

Very truly yours,

*Glenn M. Okamoto*  
GLENN M. OKIMOTO, Ph.D.  
Director of Transportation

cc: Mr. Earl Matsukawa, Wilson Okamoto Corporation

GLENN M. OKIMOTO  
DIRECTOR  
Deputy Directors  
JAKE Y. BATAI  
FOND K. PICHIRAKI  
HARVEY GRUENE  
JADUP JIRASAKI  
IN REPLY REFER TO:  
HWY-DD 2.9212

ALANI M. ARAKAWA  
MAYOR



**COUNTY OF MAUI**  
DEPARTMENT OF FIRE AND PUBLIC SAFETY  
FIRE PREVENTION BUREAU  
313 MANEA PLACE • WAILUKU, HAWAII 96793  
(808) 244-9161 • FAX (808) 244-1363

JEFFREY A. MURRAY  
CHIEF  
ROBEI J. M. SHIMADA  
DEPUTY CHIEF

NEIL ABERCROMBIE  
GOVERNOR



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

GLENN M. OKAMOTO  
DIRECTOR  
DANA OWENS  
JACK T. BULAY  
FORBIA FLORES  
KASOY GRUISE  
JACQUE LUKASANI  
IN REPLY REFER TO:  
HWY-DD 2.9533

AUG 31 2011

Date : March 22, 2011  
To : Department of Transportation  
Highways Division  
Attn: Ms. Li Nah Okita  
601 Kamohila Boulevard, Room 609  
Kapolei, HI 96707  
Subject : Draft Environmental Assessment  
Waiehu Beach Road, Rehabilitation of Iao Stream Bridge  
District of Wailuku, Island of Maui, Hawaii  
Federal Aid Project No. BR-STP-3400(5)

Mr. Kono Davis, Lieutenant  
Department of Fire and Public Safety  
Fire Prevention Bureau  
County of Maui  
313 Manea Place  
Wailuku, Hawaii 96793

Dear Lieutenant Kono:

Subject: Draft Environmental Assessment (EA) for  
Waiehu Beach Road, Rehabilitation of Iao Stream Bridge  
District of Wailuku, Island of Maui, Hawaii  
Federal-Aid Project No. BR-STP-3400(5)

Dear Ms. Okita,

Thank you for allowing the Fire Prevention Bureau the opportunity to comment on the (DEA) for the proposed Waiehu Beach Road, Rehabilitation of Iao Stream Bridge project. We have no specific comment at this time.

*PVI - our heaviest fire truck has a GVWR of 80,800 lbs. and there may be a possibility of multiple trucks on bridge at once for a vehicle accident that may require extrication.*

If there are any questions or comments, please feel free to contact me by mail or at 244-9161 ext. 25.

Sincerely,

*Kono Davis*

Kono Davis  
Lieutenant, Fire Prevention Bureau  
313 Manea Place  
Wailuku, HI 96793

cc: Wilson Okamoto Corporation  
1907 S. Beretania Street, Suite 400  
Honolulu, HI 96826  
Attn: Mr. Earl Matsukawa, AICP

Thank you for your letter dated March 22, 2011, indicating that you have no comments regarding the subject Draft EA. We acknowledge your concern regarding the presence of one or more of your heaviest vehicles on the rehabilitated bridge. We wish to clarify, however, that the load capacity of the bridge will not increase since improvements and widening will continue to be supported by the original girders. If the fire trucks you are referring to are considered to be "street legal" then the bridge will be able to handle the load as the bridge is designed to HS-20 loading standards.

Your letter, along with this response, will be reproduced and included in the forthcoming Final EA. We appreciate your participation in the Draft EA review process.

Very truly yours,

*Glenn Okamoto*  
GLENN OKAMOTO, Ph.D.  
Director of Transportation

c: Mr. Earl Matsukawa, Wilson Okamoto Corporation

ALAN M. ASAKAWA  
Mayor  
WILLIAM R. SPENCE  
Director  
MICHELE CHOUTEAU McLEAN  
Deputy Director



COUNTY OF MAUI  
**DEPARTMENT OF PLANNING**

March 21, 2011

Ms. Li Nah Okita  
State of Hawaii  
Department of Transportation, Highways Division  
601 Kamokila Boulevard, Room 609  
Kapolei, Hawaii 96707

Dear Ms. Okita:

**SUBJECT: COMMENTS ON THE DRAFT ENVIRONMENTAL ASSESSMENT FOR  
THE PROPOSED REHABILITATION OF IAO STREAM BRIDGE,  
FEDERAL AID PROJECT NO. BR-STP-3400(5) (EAC 2011/0002)**

The Department of Planning (Department) is in receipt of the above-referenced Request for Comments on the proposed Iao Stream Bridge improvements in the Wailuku district. At this time, the Department has no comments to offer.

Thank you for the opportunity to comment. Should you require further clarification, please contact Staff Planner Paul Fasi at [paul.fasi@mauicounty.gov](mailto:paul.fasi@mauicounty.gov) or at (808) 270-7814.

Sincerely,

CLAYTON I. YOSHIDA, AICP  
Planning Program Administrator

for WILLIAM SPENCE  
Planning Director

xc: Paul F. Fasi, Staff Planner  
2011 EAC File  
General File  
WPS-CIY PPF 83  
K:\WP\_DOCUMENTS\PLANNING\EAC\2011\0002-StateHawaii\DOT\EAC\comment\lr.doc

350 SOUTH HIGH STREET, WAILUKU, MAUI, HAWAII 96793  
MARK LINE (808) 270-7735, FACSIMILE (808) 270-7834  
CURRENT DIVISION (808) 270-8205, LONG RANGE DIVISION (808) 270-7214, ZONING DIVISION (808) 270-7255

NEIL ABERCROMBIE  
GOVERNOR



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

AUG 31 2011

Mr. William Spence, Director  
County of Maui  
Department of Planning  
250 South High Street  
Wailuku, Hawaii 96793

Dear Mr. Spence:

**Subject:** Draft Environmental Assessment (EA) for  
Waiehu Beach Road, Rehabilitation of Iao Stream Bridge  
District of Wailuku, Island of Maui, Hawaii  
Federal-Aid Project No. BR-STP-3400(5)

Thank you for your letter dated March 21, 2011, indicating that you have no comments regarding the subject Draft EA.

Your letter, along with this response, will be reproduced and included in the forthcoming Final EA. We appreciate your participation in the Draft EA review process.

Very truly yours,

  
GLENN OKIMOTO, Ph.D.  
Director of Transportation

c: Mr. Earl Matsukawa, Wilson Okamoto Corporation

GLENN OKIMOTO  
DIRECTOR

Deputy Directors:  
JADE T. BUTAY  
FORD H. FUCHIGAWA  
RANDY GURANE  
JADINE URASAKI

IN REPLY, REFER TO:

HWX-DD 2,5332



ALAN M. ARAKAWA  
Mayor

DAVID C. GOODE  
Director

ROWENA M. DAGDAG-ANDAYA  
Deputy Director

Telephone (808) 270-7845  
Fax (808) 270-7855

COUNTY OF MAUI  
DEPARTMENT OF PUBLIC WORKS  
200 SOUTH HIGH STREET, ROOM NO. 434  
WAILUKU, MAUI, HAWAII 96793

RALPH NAGAMINE, L.S., P.E.  
Development Services Administration

CARY YAMAKSHITA, PE  
Engineering Division

BRIAN HASHIRO, PE.  
Highways Division

March 9, 2011

RECEIVED  
MAR 15 2011  
COUNTY ENGINEERING DIVISION

Mr. Earl Matsukawa, A.I.C.P.  
WILSON OKAMOTO CORPORATION  
1907 South Beretania Street, Suite 400  
Honolulu, Hawaii 96826

Dear Mr. Matsukawa:

**SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR WAIHEHU  
BEACH ROAD, REHABILITATION OF IAO STREAM  
BRIDGE; FEDERAL AID PROJECT NO. BR-STP-3400 (5)**

We reviewed the subject application and have the following comments:

Comments from the Engineering Division:

1. Applicant shall have the U. S. Army Corps of Engineers review the drainage plan affecting Iao Stream. The Corps' response shall be provided to the Engineering Division for confirmation of action.
2. The applicant shall be responsible for all required improvements as required by Hawaii Revised Statutes, Maui County Code and rules and regulations.
3. As applicable, construction plans shall be designed in conformance with Hawaii Standard Specifications for Road and Bridge Construction dated 2005 and Standard Details for Public Works Construction, 1984, as amended.
4. As applicable, worksite traffic-control plans/devices shall conform to Manual on Uniform Traffic Control Devices for Streets and Highways, 2003.

Mr. Earl Matsukawa, A.I.C.P.  
March 9, 2011  
Page 2

5. The applicant shall coordinate the project with the U. S. Army Corps of Engineers as improvement may affect future Iao Stream flood-control project.

Please call Rowena M. Dagdag-Andaya at (808) 270-7845 if you have any questions regarding this letter.

Sincerely,

DAVID C. GOODE  
Director of Public Works

DCG:RMDA:ls

xc: Highways Division  
Engineering Division

S:\LUCAVCZ\m\waihhu\_bch\_rd\_rehab\_of\_iao\_stream\_bridge\_dea\_ls.wpd



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
668 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813-5037

AUG 31 2011

Mr. David C. Goode, Director  
Department of Public Works  
County of Maui  
200 South High Street, Room No. 434  
Waipuku, Hawaii 96793

Dear Mr. Goode:

Subject: Draft Environmental Assessment (EA) for  
Waiehu Beach Road, Rehabilitation of Iao Stream Bridge  
District of Waipuku, Island of Maui, Hawaii  
Federal-Aid Project No. BR-STP-3400(5)

Thank you for your letter dated March 9, 2011 regarding the subject Draft EA. We offer you the following response in the order of your comments:

1. The Hawaii Department of Transportation (HDOT) is coordinating with the U.S. Army Corps of Engineers on their review of proposed project in accordance with 33USDC 408. The results of the review will be shared with the County Department of Public Works Engineering Division.
2. HDOT will be responsible for the proposed improvements as required by Hawaii Revised Statutes, Maui County Code and regulations.
3. The project design will comply, as applicable, with the Hawaii Standard Specifications for Road and Bridge Construction dated 2005, as amended by the Special Provisions dated October 12, 2010, and Standard Details for Public Works Construction, 1984, as amended.
4. The project worksite traffic-control plans/devices will conform, as applicable, to the Manual on Uniform Traffic Control Devices for Streets and Highways, 2003.
5. DOT is coordinating the subject project with the U.S. Army Corps of Engineers as the proposed improvements may affect the Iao Stream flood-control project.

CLENNORIMOTO  
DIRECTOR  
Deputy Directors  
JANE T. BURTAY  
KORO A. FUCHIGAWA  
RANDY GRUBBE  
JACQUE LESINSKI  
IN SEKY REPRESENTY

HWY-DD 2.9212

Mr. David C. Goode, Director  
Page 2

HWY-DD 2.9212  
AUG 31 2011

Your letter, along with this response, will be reproduced and included in the forthcoming Final EA. We appreciate your participation in the Draft EA review process.

If you have any questions, please contact Li Nah Okita, Project Manager, at 692-7581 of our Highway Design Section, Design Branch, Highways Division and reference HWY-DD 2.9212 as noted above.

Very truly yours,

GLENN M. OKIMOTO, Ph.D.  
Director of Transportation

c: Mr. Eari Matsukawa, Wilson Okamoto Corporation

ALAN M. ARAKAWA  
Mayor



DEPARTMENT OF TRANSPORTATION

COUNTY OF MAUI  
200 South High Street  
Wailuku, Hawaii, USA 96793-2155

February 24, 2011

Mr. Earl Matsukawa  
Wilson Okamoto Corporation  
1907 South Beretania Street, Suite 400  
Honolulu, Hawaii 96826

Subject: Rehabilitation of the Iao Stream Bridge

Dear Mr. Matsukawa,

Thank you for the opportunity to comment on this project. We have no comments to make at this time.

Please feel free to contact me if you have any questions.

Sincerely,

*Jo Anne Johnson Winer*  
Jo Anne Johnson Winer  
Director

JO ANNE JOHNSON WINER  
Director  
MARC L. TAKAMORI  
Deputy Director  
Telephone (808) 278-7511

NEIL ABERCROMBIE  
GOVERNOR



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

AUG 31 2011

Ms. Jo Anne Johnson Winer, Director  
Department of Transportation  
County of Maui  
200 South High Street  
Wailuku, Hawaii 96793-2155

Dear Ms Winer:

Subject: Draft Environmental Assessment (EA) for  
Watchu Beach Road, Rehabilitation of Iao Stream Bridge  
District of Wailuku, Island of Maui, Hawaii  
Federal-Aid Project No. BR-STP-3400(5)

Thank you for your letter dated February 24, 2011, indicating that you have no comments regarding the subject Draft EA.

Your letter, along with this response, will be reproduced and included in the forthcoming Final EA. We appreciate your participation in the Draft EA review process.

If you have any questions, please contact Li Nah Okita, Project Manager, at 692-7581 of our Highway Design Section, Design Branch, Highways Division and reference HWY-DD 2.9212 as noted above.

Very truly yours,

*Glenn M. Okamoto*  
GLENN M. OKAMOTO, Ph.D.  
Director of Transportation

c: Mr. Earl Matsukawa, Wilson Okamoto Corporation

GLENN M. OKAMOTO  
DIRECTOR  
Deputy Directors  
JADE T. SUZUKI  
FORD N. FUCHIGANE  
RANDY GARDNER  
JACQUEE LARSSON  
N. REPLY FISHER, TO:

HWY-DD 2.9212

GLENN M. OKAMOTO  
DIRECTOR  
Deputy Directors:  
JANE T. BUTAY  
FRANCIS N. FUCHIGAMI  
RANDY GRANE  
JANIS URIBANG  
RUSSELL REBER, IV



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

HWY-DD 2.9212

NEIL ABERCROMBIE  
GOVERNOR

DAVID TAYLOR, PE.  
Director  
PAUL J. NEYER  
Deputy Director



DEPARTMENT OF WATER SUPPLY  
COUNTY OF MAUI  
200 SOUTH HIGH STREET  
WAILUKU, MAUI, HAWAII 96793-2155  
www.mauiwater.org



MAR 11 2011

March 4, 2011

Mr. Earl Matsukawa, Project Manager  
Wilson Okamoto Corporation  
1907 South Beretania Street, Suite 400  
Honolulu, HI 96826

Re: Draft Environmental Assessment  
Waiehu Beach Road, Rehabilitation of Iao Stream Bridge  
Project No. BR-STP-3400(5)

Dear Mr. Matsukawa:

Thank you for the opportunity to comment on this Draft Environmental Assessment (DEA). We note that our comment letter dated November 9, 2009 in the pre-assessment consultation is included in the DEA and that you will incorporate our suggested best management practices into the BMP plan for this project. We have no additional comments to the DEA.

Sincerely,  
*DET*  
David Taylor, Director  
emb

Mr. David Taylor, Director  
Department of Water Supply  
County of Maui  
200 South High Street  
Wailuku, Hawaii 96793-2155

Dear Mr. Taylor:

Subject: Draft Environmental Assessment (EA) for  
Waiehu Beach Road, Rehabilitation of Iao Stream Bridge  
District of Wailuku, Island of Maui, Hawaii  
Federal-Aid Project No. BR-STP-3400(5)

Thank you for your letter dated March 4, 2011, acknowledging that your pre-assessment consultation comments have been addressed in the Draft EA and that you have no additional comments.

Your letter, along with this response, will be reproduced and included in the forthcoming Final EA. We appreciate your participation in the Draft EA review process.

If you have any questions, please contact Li Nah Okita, Project Manager, at 692-7581 of our Highway Design Section, Design Branch, Highways Division and reference HWY-DD 2.9212 as noted above.

Very truly yours,

*Glenn M. Okamoto*  
GLENN M. OKAMOTO, Ph.D.  
Director of Transportation

c: Mr. Earl Matsukawa, Wilson Okamoto Corporation

"By Water All Things Find Life"



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

February 22, 2011

RECEIVED  
FEB 23 2011

WILSON OKAMOTO CORPORATION

AUG 3 1 2011

Ms. Li Nah Okita  
State of Hawaii -  
Department of Transportation  
601 Kamokila Boulevard, Room 609  
Kapolei, Hawaii 96707

Mr. Kyle Tamori, Staff Engineer  
Maui Electric Company, Ltd.  
210 West Kamehameha Avenue  
P.O. Box 398  
Kahului, Hawaii 96733-6898

Subject: Draft Environmental Assessment - Waiehu Beach Road, Rehabilitation of Iao Stream Bridge  
Waiehu Beach Road, Wailuku, Hawaii  
Tax Map Key: None, State of Hawaii Roadway

Dear Mr. Tamori:

Subject: Draft Environmental Assessment (EA) for  
Waiehu Beach Road, Rehabilitation of Iao Stream Bridge  
District of Wailuku, Island of Maui, Hawaii  
Federal-Aid Project No. BR-STP-3400(5)

Thank you for allowing us to comment on the Draft Environmental Assessment for the subject project.

Thank you for your letter dated February 22, 2011, indicating that you have no objections regarding the subject project.

In reviewing our records and the information received, Maui Electric Company has no objection to the subject project at this time.

Your letter, along with this response, will be reproduced and included in the forthcoming Final EA. We appreciate your participation in the Draft EA review process.

Should you have any questions or concerns, please call me at 871-2341.

If you have any questions, please contact Li Nah Okita, Project Manager, at 692-7581 of our Highway Design Section, Design Branch, Highways Division and reference HWY-DD 2.9212 as noted above.

Sincerely,

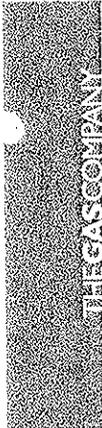
Kyle Tamori  
Staff Engineer

Very truly yours,

  
GLENN M. OKIMOTO, Ph.D.  
Director of Transportation

c: Wilson Okamoto Corporation - Mr. Earl Matsukawa

c: Mr. Earl Matsukawa, Wilson Okamoto Corporation



P.O. Box 3000  
Honolulu, Hawaii 96802-3000  
www.transportation.hawaii.gov

March 8, 2011

SEP 17 2011

Ms. Li Nah Okita  
State of Hawaii  
Department of Transportation  
Highways Division  
601 Kamokila Boulevard, Room 609  
Kapolei, Hawaii 96797

Dear Ms. Okita:

Subject: Draft Environmental Assessment  
Waiehu Beach Road, Rehabilitation of Iao Stream Bridge  
District of Waiahukū, Island of Maui, Hawaii  
Federal Aid Project No. BR-STP-3400 (5)

Per your letter on February 17, 2011, The Gas Company, LLC has no objections to the proposed Draft Environmental Assessment. It has been determined that the area is currently clear of utility gas facilities.

Thank you for the opportunity to comment on the Draft Environmental Assessment. Should there be any questions, or if additional information is desired, please call Chris Hail at 594-5553.

Sincerely,

The Gas Company, LLC

Charles E. Calvet, P.E.  
Manager, Engineering

CFC/ks  
11-130

cc: Mr. Earl Matsukawa, AICP, Wilson Okamoto Corporation

NEIL ABESCORBIE  
GOVERNOR



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

SEP - 1 2011

Mr. Charles E. Calvet, P.E., Manager, Engineering  
The Gas Company, LLC  
P.O. Box 3000  
Honolulu, Hawaii 96802-3000

Dear Mr. Calvet:

Subject: Draft Environmental Assessment (EA) for the Waiehu Beach Road,  
Rehabilitation of Iao Stream Bridge  
District of Waiahukū, Island of Maui, Hawaii  
Federal Aid Project No. BR-STP-3400(5)

Thank you for your letter dated March 8, 2011 indicating that you have no objections to the subject Draft EA. We appreciate your determination that the project area is clear of utility gas facilities.

Your letter, along with this response, will be reproduced and included in the forthcoming Final EA. We appreciate your participation in the Draft EA review process.

Very truly yours,

GLENN M. OKAMOTO, Ph.D.  
Director of Transportation

c: Mr. Earl Matsukawa, Wilson Okamoto Corporation

GLENN M. OKAMOTO  
DIRECTOR

POK/ANSC/CS  
JAKE Y. BRYAN  
FORDIN FUCHSBAUM  
PAMMY GRAYNE  
JADINE JARAMAN

IN REPLY REFER TO:  
HWY-1017 2,9337

Wilson Okamoto Corp.  
Attn: Mr. Earl Matsukawa  
1907 South Beretania Street, Suite 400,  
Honolulu, HI 96826.

March 19, 2011

Dear Mr. Matsukawa,

I am writing to you on behalf of the Maui Bicycle Alliance to comment on the **Waiehu Beach Road, Rehabilitation of Iao Stream Bridge Project (DEA)** as mentioned in the February 24, 2011 edition of the OEQC newsletter "The Environmental Notice".

The Maui Bicycle Alliance is a grassroots bicycling advocacy organization committed to improving conditions for bicycling in Maui County. We promote bicycling and advocate bicycle use in Maui County for health, recreation, sport and transportation purposes.

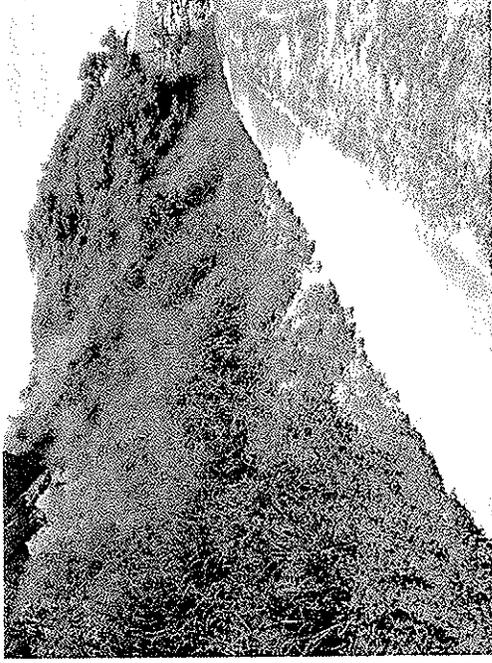
Overall, we *strongly support* the positive changes to the Waiehu Beach Road Bridge to accommodate bicycle and pedestrian travel. This has been long overdue in coming and greatly increases the safety of all non-motorized transportation through this important corridor.

We have reviewed the DEA and have inspected the project area and would like to add a few comments to the record.

On the mauka side of Waiehu Beach Road on the Waiehu side of the bridge, there is a noticeable amount of sand and debris that currently covers the sidewalk area as shown in the picture below.



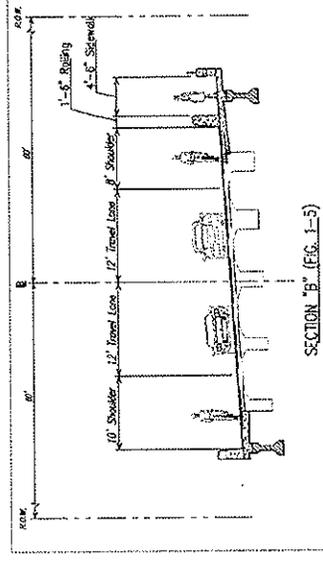
The current plans call for the sidewalk along the mauka side of Waiehu Beach Road similar to the sidewalk shown above.



Has any consideration been given to the increased need for maintenance and cleaning of the sidewalk area due to sand and other debris that collects on the sidewalk right now?

Could a short retaining wall be added to the mauka edge of this sidewalk to minimize the amount of debris that collects on this sidewalk area? (Consequently would this create any runoff and drainage issues?)

Also noted in the "Section B" cross section illustration shown on Figure 1-7, the rail height on the makai side of the bridge is relatively low compared to the height of the bicyclist pictured.



HELE ABERCROMBIE  
GOVERNOR



GLENNAL OKIMOTO  
DIRECTOR  
DASHA DILLON  
JACET BURAY  
FORN N. FUCHISAKI  
RANZU GRINEF  
JACINE JERUSALEM  
#IN REPLY REFER TO:

HWY-DD 2.9212

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
889 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813-5087

AUG 31 2011

Mr. Walter Enomoto, President  
Maui Bicycle Alliance  
293 S. Mokapu Street  
Kahului, Hawaii 96732

Dear Mr. Enomoto:

Subject: Draft Environmental Assessment (EA) for  
Waiehu Beach Road, Rehabilitation of Iao Stream Bridge  
District of Wailuku, Island of Maui, Hawaii  
Federal-Aid Project No. BR-STP-3400(5)

Thank you for your letter dated March 19, 2011, indicating your support for the subject project. We offer you the following response in the order of your comments.

1. Your suggestion of building a short retaining wall or comparable structure to minimize the amount of sand debris falling onto the sidewalk area will be taken into consideration during the design phase of the project.
2. The proposed bridge and pedestrian railings will be designed to meet the 2007 American Association of State Highway and Transportation Officials (AASHTO) standards of a minimum 42-inch height requirement for pedestrian railings. This supersedes the 54-inch minimum requirement you cited in your letter which is from the 2006 AASHTO standards.

Your letter, along with this response, will be reproduced and included in the forthcoming Final EA. We appreciate your participation in the Draft EA review process.

If you have any questions, please contact Li Nahi Okita, Project Manager, at 692-7581 or our Highway Design Section, Design Branch, Highways Division and reference HWY-DD 2.9212 as noted above.

Very truly yours,

GLENN M. OKIMOTO, Ph.D.  
Director of Transportation

c: Mr. Earl Matsukawa, Wilson Okamoto Corporation

The rail height should be compliant with AASHTO guidelines for bridge rail heights for bicycle usage. The last AASHTO specifications I show for bridge rail heights are a minimum of 54" from the surface deck. This is to avoid a taller cyclist from possibly falling over the bridge railing. Can you confirm this requirement?

If you could respond to our questions regarding the above comments via email, we would appreciate it very much.

We would like to thank you for your efforts to improve bicycle and pedestrian safety and usage in this well travelled area and we eagerly look forward to seeing this project through completion in 2012.

Aloha and Mahalo.

Walter Enomoto  
President  
Maui Bicycle Alliance

293 S. Mokapu St.  
Kahului, HI 96732

[mauibicyclealliance@hawaiiinter.net](mailto:mauibicyclealliance@hawaiiinter.net)

cc: d. deleon

# **APPENDIX E**

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## **Public Information Meeting Summary**

**WAIIEHU BEACH ROAD,  
IAO STREAM BRIDGE REHABILITATION PROJECT  
PUBLIC INFORMATION MEETING #1**

**MARCH 23, 2011**

**MEETING SUMMARY**

The public information meeting (PIM) was held at the Queen Liliuokalani Children's Center Patio from 6:00 to 8:30 P.M. The purpose of the meeting was to present the project studied in the Draft Environmental Assessment (EA); present key findings of the Draft EA; and solicit verbal and written comments.

**PRESENTATION SUMMARY**

**PROJECT DESCRIPTION**

Mr. Dan Meisenenthal from the State Department of Transportation (DOT) opened the meeting. He stated that the Draft EA was published on February 23, 2011 on the Office of Environmental Quality Control's (OEQC) website and that we are currently in the comment period for the document. The deadline for comments is March 24, 2011, but DOT has decided to extend that date until April 7, 2011. The purpose of this meeting is to present the project to the community and answer any questions they may have regarding the project.

Mr. Ed Sniffen from DOT presented the project. He explained that in addition to the Hawaii Environmental Impact Statement Law, Hawaii Revised Statutes Chapter 343, requirement, this project must also fulfill Section 106 of the National Historic Preservation Act because the area is archeologically and culturally significant.

The project extent is approximately a quarter mile long and the main purpose of this project is to upgrade and rehabilitate the Iao Stream Bridge as well as adjust the approaches to the bridge. The project site is located between Ena Street and Kuhio Place. The bridge is currently functionally obsolete. It supports two lanes of traffic, but does not accommodate all uses of the roadway, including bicyclists. The plan is to widen the bridge by 12 feet to accommodate all uses. Currently, the lanes are narrow, ranging from 11 to 12 feet with no shoulder lanes and very narrow pedestrian facilities. Improvements include widening the bridge to accommodate an 8-foot shoulder on the mauka side and a 10-foot shoulder on the makai side to allow multi-use shoulder areas. Also, the pedestrian facilities would be widened as well. To do so, we will need to widen the bridge on both sides as well as the approaches. As mentioned earlier, the shoulders will allow for multi-use, but will also provide for operational efficiencies such as allowing emergency responders to bypass gridlock or should the area need to be serviced, the traffic can be moved over to one side of the bridge.

The widening of the bridge and its approaches will not affect the dune area. Work will be contained to the State right-of-way and be maintained within the generally flat area. Work will

extend from 12 to 16 feet from the edge of travel lane or 5 to 6 feet from the edge of pavement. The widening of the bridge will also include widening the abutments and piers that support the bridge. This will entail work to be done in the stream/flood control project area itself. It was clarified that in the Draft EA, the excavation limits were illustrated as a square area where the excavation cuts would be straight down. However, it was determined that a larger area of excavation will be necessary as the slopes of those cuts would need to be laid back to make it safer and efficient from a construction standpoint. The excavation areas will approximately be 28-feet by 24-feet.

Mr. Sniffen explained that several topics were addressed in the EA regarding impacts and mitigation measures for this project. In addition, two studies were prepared, a Biological Assessment and an Archeology Literature Review, to support the findings of the EA. Currently, a finding of no significant impacts (FONSI) is anticipated for the project.

**CLARIFYING QUESTIONS**

- Question: What are the depths of the bridge footings?

Response: Approximately seven feet, but the depth of each individual footing tends to differ.

**ARCHAEOLOGY**

Ms. Colleen Medeiros from Cultural Surveys Hawaii (CSH) presented the findings from the archeological literature review and field inspection. She stated that the project is located in the Waiuku Ahupuaa and is a part of Na Wai Eha. Na Wai Eha includes the districts of Waihee, Waiehu, Waiuku, and Waikapuu. These were four stream valleys that were known to have extensive agricultural practices and large populations. This area was also a traditional seat of political power. The Puuone sand dune complex is also located within this area and extends from across the central isthmus, from Waikapuu to Waihee, and is known to contain lots of human burials. Research was done on LCAs along the valley floor closest to the bridge. A cluster of ten LCAs were found in what was known as Nehe, which is now in the vicinity of the Waiuku Town Center. This shows us that people were farming and living in the area and helps to determine the settlement pattern for the area. The Halekii and Pihana Heiaus are located on the sand dune, just west between the Hawaiian Homelands subdivision and the stream. This indicates that this was a traditionally significant area. The bridge itself was constructed in 1954 and is eligible to be listed as a historic property as it is older than 50 years.

Ms. Medeiros showed an exhibit depicting the movement of Iao Stream over the years due to erosion and human activity. Based on previous studies, a large range of archeological finds was discovered, which include everything from lei terracing, to grind stones, to human burials. It was a highly populated area. She also showed an exhibit depicting the LCAs in the area. She explained that a small cluster of LCAs located near the bridge were associated with 164 lot that were farmed. This is a lot in a fairly small area and it is further evidence of the traditional use of the area. Ms. Dagan stated that from their research, although this area had major significance in the history of Maui, the area of immediate impact is relatively small. It was recommended that monitoring occur during excavation because the areas of excavation are relatively small and in the stream bed. As the footings are in the stream bed, they would expect to find stream

bed deposits rather than sand deposits, however, the abutments appear to be located in sand. Nevertheless, a monitor should be present during the excavations in these areas as there is always a chance of finding subsurface cultural deposits. She noted that there is fill material along the flood control project area, but it is unknown how deep the fill material is or where the fill material came from, therefore monitoring is still recommended. She further noted that OSH will continue consulting the State Historic Preservation Department (SHPD) regarding this project.

#### CLARIFYING QUESTIONS

- Question: Was there any evidence of human remains or heiaus in the actual stream since Iao Stream has moved over the years? I was wondering if it is possible that it moved over and took another course which possibly disturbed any human remains or other culturally sensitive areas.
- Response: The area was mainly lined with loi so that's what it would have disturbed. Its natural course would have affected those. Through time, the stream has eroded some of the dune that Halekii and Pihana are on. As a result of natural stream erosion and some sand mining occurring on the dune, a part of Pihana has collapsed.
- Question: Do you have a back up plan in case when doing the abutments, you find significant cultural artifacts?
- Response: If any cultural material is discovered during monitoring, we do stop work and do strategic archeological recording which includes mapping the area and taking soil samples. If human remains are found, work is stopped and the SHPD notified.

#### PROJECT TIMELINE

Mr. Sniffen discussed the timeline for the project. He stated that construction is to start in the summer of 2012 and construction could take anywhere from a year to 18 months. There will be continuous access through the area during construction. There will also be night work. During rush hour periods, in the morning before 8:30 AM and in the afternoon after 3:30 PM, the road will be completely open. Between 8:30 AM and 3:30 PM, there will be alternating lane closures with flagmen directing traffic. DOT is aware that this is going to be an inconvenience to the community, but it is something that needs to be done. Night work will be done between 6:00 PM and 6:00 AM. The time frame of the project will be coordinated with other County projects such as the resurfacing of Kahikii. There is also a resurfacing of Waiehu Beach Road. There will not be three projects going on at the same time. They will try to space them out to impact the community as little as possible. The time frame is that the Draft EA will be accepted and then it will take approximately a year to start construction. The intent is to get this project obligated and advertised this federal fiscal year by August. The project will be advertised in October or November and construction would start 6 months after. He reiterated that DOT will coordinate this project so as it will not overlap other projects.

Mr. Meisenthal closed the presentation and thanked everyone for their attendance. He reminded everyone that the public comment period was extended to April 7, 2011 and that they can send their comments into OECC. Ms. Laura Mau from Wilson Okamoto Corporation

(WOC) noted that comment forms were available to them for their use at the sign in table or they could submit their own letters. She also mentioned that additional CD copies of the EA were available for anyone who was interested.

#### CLARIFYING QUESTIONS AND COMMENTS

- Comment: That's going to be a major nightmare. The way I am seeing it right now, you would almost need to leave the two lanes open during the day time hours and do the contra flow at night because there is so much traffic on that road. I use that road every day and we had a situation in Waiehu, closer to Waihee side, where they had a major sinkhole that they had to fix and it was a nightmare.
- Response: We understand it is a very busy road and we want to do everything that is possible to limit the impact, but we are hoping to get this project done in 12 to 18 months and these are the types of things that we are going to have to do. But we will get the road completely open, at least during those peak times. We will go from there, but we are always willing to adjust depending on the impacts.
- Comment: I am glad to see that you are willing to adjust because there are times when you are going to have to adjust. Just hearing that you are willing to adjust makes a big difference.
- Response: DOT Maui will be monitoring the situation. If they see backups during different periods we will make sure that we adjust the traffic control plan.
- Question: Since you are looking at starting in the Summer of 2012, I am assuming that because of the winter months, you will be doing the abutments and footings in the summer months and into the fall before the rain hits.
- Response: I would assume so, but it is up to the contractor to determine the schedule. The contractor will submit a detailed schedule to DOT with deadlines and it will ultimately be the contractor's responsibility to meet those deadlines.
- Comment: They would have to do it before the rainy season because a while back when they did work in the stream, they had rain come down and they lost several pieces of equipment including an excavator.
- Question: Is the funding already locked in, in terms of project funding?
- Response: Yes, 80% Federal and 20% State
- Question: What STIP is this project on?
- Response: STIP 2011. The funding is locked up. We already have the State and Federal appropriations for this project. We received approximately \$6.5 million from the Federal government.

- Question:** Because of the Complete Street Task Force, is there anything on record that this project is, even though it is not required, looking at the complete streets concept and implementing it with this project?

**Response:** Absolutely. Even though we do not have the Complete Street Task Force's recommendations locked up, it is DOT's policy to look at every project as a complete street.
- Comment:** I assume that the North Market Street, upper Iao Stream Bridge, at some point will also have to get looked at.

**Response:** All the bridges in our system are prioritized based on if they are functionally obsolete or structurally deficient. There are approximately 750 bridges formally in the system and another 50 or so informally that are maintained by the State. All of them are prioritized out until 2030 and I am not sure where that one falls on the list.
- Question:** When you speak of night work, do you have specific hours?

**Response:** The hours that we are looking at are from 6:00 PM to 6:00 AM the following morning. We want to be past the PM peak but finish before the AM peak. We still need to look at the volumes on the roadway to make sure we get those time periods. The thing that we have not looked up right now is the durations of night work. We are not going to have night work for the whole project. It is specifically for the abutments, etc. to ensure that they can be cured when it is cooler.
- Question:** What about weekends?

**Response:** We are not looking at any weekends.
- Comment:** My only concern is the contra flow during the daytime traffic. There are times when that traffic gets backed up all the way to when you are coming from Kahiki Highway and you make that turn coming up over the hill, traffic gets backed up all the way to there. I've seen it backed up there in the afternoon as well. So that is my major concern as far as being able to address those issues. As long as Freddy is going to be there and you folks are willing to adjust, that is a big plus because there are times when it gets extremely heavy.
- Response:** I can see that especially with the subdivisions and shopping centers all in the same area.
- Comment:** It's also going to affect Sack N Save and that whole area.
- Comment:** It's also going to have impacts to Waihee School and the school buses so I think that DOT will need to contact the DOE.
- Response:** Both lanes will be open from 6:00 AM to 8:30 AM so there should be no impacts.
- Comment:** I think that it will need to be extended to at least 9:00 AM. The afternoon time will also need to be adjusted because school traffic is from 2:00 PM to 4:30/5:00 PM and once you get past the school traffic, you have the people coming home from work. So it's really going to be a major impact. My suggestion is that from 9:00 AM to 2:00 PM you

- should have contra flow and the rest of the time the road should remain open. Also, once in a while there are school functions. There is one today that started about 5:00 PM or 5:30 PM and it will go on until about 8:30 PM. After that you will get that flux of people taking that route because a lot of the students do not reside in Waihee. They reside in Kinei, Kahului, Up Country, etc. and that's their major thoroughfare.

**Question:** I don't remember seeing it in the original notice, but because it is a flood control area, do you need to work with the Army Corps of Engineers?

**Response:** It is a part of the permitting process.
- Question:** There hasn't been any problem from their end with what you are going to do?

**Response:** No.
- Question:** Since you are in a flood plain, there is another organization that is involved too, I can't think of their name, but it has to do with any runoff or construction debris going into the stream during construction.

**Response:** DOH Clean Water. Anytime you are in a stream area, it triggers a 404 and 401 permit. 404 is the Federal side and 401 is the State side. You have to go through the clean water process and then go through the Corps of Engineers.
- Question:** What is your scope as far as containing all of the construction debris during the excavation of both the walls and footings?

**Response:** When we apply for the 401 and 404 permits, we have to show them that we are going to use Best Management Practices (BMPs) to contain any of the debris we generate from the project. We have not generated those BMPs yet as we are trying to get through the environmental portion first. Once we get through that, we'll start conversations with the Department of Health and generate those BMPs. Typically we would bid the project with general BMP, but they have been changing their policies and sometimes they require us to go in with specific BMPs that we cannot change in the future. We are trying to work with them on these issues.
- Comment:** This project is way overdue for cyclists and pedestrians and for anybody who lives in Waiehu Heights. This project will open up possibilities for a lot of people in the area as well as provide safety.

**Response:** We know it is going to be an inconvenience, especially while construction is going on and there will be times that we will have to make adjustments. But after the project is done, I think everyone in the community is going to really appreciate it. Safety is the number one priority for the DOT. This project is going to make that stretch of road so much safer for everyone who uses it, whether you're a car, a bicyclist, or a wheelchair.
- Comment:** For the night work, I know a lot of people who live in the subdivision on the Waialuku side of the project, how long would night work be going on for minimum distraction or noise for those people who live in the impacted area?

Response: Typically when we do night work, we try to do the noisier activities earlier and try to stop those by 9:00 or 10:00 PM. We then do the less noisy activities, such as pouring concrete, during the wee hours of the night. Any demolition work would be done earlier in the day and/or evening so there would be less impact. I am not sure how long the night work would go on, especially after hearing that there is a lot of traffic on the roadway during the day time and contra flow might be an issue. I am thinking that maybe we could look at doing most of the work at night if that is the big concern. For that stretch of road, for the bridge portion, what if we shut down completely during the night? Would that be a big impact?

Response: Yes, it would be huge because then the only way to get through for emergencies. If I am coming from Waihee and going toward Sack N Save, that means I would have to go all the way around through Happy Valley through that way and all the way around and vice versa. Now if the price of gas was 25 cents a gallon, I run diesel, I wouldn't have a problem, but when you got diesel at \$4.50 a gallon at the pump, I got a major problem. What my problem is too is that sometimes I get called out in the middle of the night and that becomes major.

Response: Part of the balancing act is whether the project lasts 12 months or 18 months. Whatever we try to do to accommodate the community may also extend the life of the project and it becomes more costly. We have to consider everything.

Response: If it needs to be closed for a few nights for an absolute emergency, I am sure the public could live with that, but if you are going to shut it down every night for a prolonged period of time, that's not going to fly. Sporadic closure, by necessity, I can only speak for myself, I wouldn't like it, but it would be acceptable.

Comment: I want to really thank you guys for coming out and having this meeting because for me it really makes a big difference.

- Question: I have one curious question, are all you guys from Honolulu?

Response: Yes, everyone except Freddy.

- Comment: I am just trying to understand because Waiuku people and Maui people, a lot of them are not here tonight, but sometimes when you are from Oahu you don't understand people on the neighbor islands and their attitudes and behaviors. So one of my concerns is that culturally, I have some interest, I'm going to write some stuff to you, because I am the gate keeper of the heiau and we do cultural practices up there. Your extension for about 12 to 18 months could impact some of the activities we have scheduled that we've been doing for 15 years. We got a track record. I don't mind working with you. I read your whole plan already. I took it off the internet. So I read everything, went through the whole thing and I like what I see. All I am looking for is open communication. And when you are talking about having a monitor on site, what is going to be the qualifications of the person who is the monitor? Where is that person coming from? What do they know about protocols? This is very important for me as a cultural practitioner and I can help you in whatever way I can and if I can't, I know other people on Maui. I am a Maui boy, but have been away for 25 years and have been practicing everything I do for the last 18 years. We have a group called a

Hale Mua which consists of many people which do cultural practices all the time and the heiau is one of our main locations. My interest is also that, if you are going to do any ground impact work, is it going to disturb the pohaku up there? The pohaku is a very dangerous place to be on. We go up there and we accept all liabilities up there. The State knows that we use it and if anything happens to us we don't go out and blame anyone. The point I am trying to make is keep an open communication and I think I already made myself known to Laura. So whatever I can do to help or get other people involved. Maui people think differently than Oahu people so keep that in mind. Particularly since I have been away for 25 years, I have no problem with open communication.

Question: Are there certain times of the year that are already prescheduled?

Response: Yes, March is a very important time for us. I will give you some dates to look at. Right now I am representing the Royal Order of Kamehameha and Hale Mua

Question: In the heiau, I am assuming you already have distinct photos of the all the pohaku and all of that in case there is disturbance during construction?

Response: We made some. But if there is anything that needs to be worked on here, I have access to individuals who have contacts with the Federal government that know how to do dry stacking. I walk the whole heiau all the time. I look at the pohaku to see how much it's changed, how much it's shifting.

- Question: How are you going to get the public's attention? I hope it is not going to be just through the newspaper because quite frankly people look at that and they go right on and don't even bother reading it. So my concern is getting as many people to the meeting as possible that is going to be impacted and then you will get a lot more, better input than from just who is here this evening.

Question: Who would you suggest?

Response: I can tell you that we did an extensive mail out for this meeting. I contacted Waiehu Terrace, Oimda Aiwohi for the DHHL subdivision, Waiehu Kou I, II, III, and IV, and I contacted all properties within a 500 foot radius of the project site. We also contacted the shopping center, a lot of the shops in the industrial area. We also did legal notices through Maui News and Star Advertiser and the notification through OEQC. If you or someone could provide me with the contact information for the Waituku Beach Lots and Waiehu Heights, and any other suggestions I would appreciate it.

Response: Waihee and Waiehu IV are connected so if you contacted Waiehu I, II, III, and IV, Waihee should have been contacted.

Question: What is the best way to contact Waihee?

Response: If you look on the sign-in sheet, my name is Brian Sarasin. You can call me or e-mail me and I'll get the word out for you.



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