

# DRAFT ENVIRONMENTAL ASSESSMENT

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## **Kapaa Stream Bridge, Kuhio Highway, and Mailihuna Road Intersection Project Kawaihau District, Island of Kauai, Hawaii**

Project No. HI STP SR56(1)

TMKs: [4] 4-6-014:024 por., 033 por., 090 por., 092 por.; [4] 4-7-003:001 por.; and 4-7-008:042 por.  
Kuhio Highway and Mailihuna Road Rights-of-Way

Submitted Pursuant to Hawaii Revised Statutes, Chapter 343



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

**July 2016**

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- E Historic Resource Inventory Form (Reconnaissance Level) for Kapaa Stream Bridge
- F Draft Cultural Impact Assessment for the Kapaa Stream Bridge Replacement Project, Kapaa and Kealia Ahupuaa, Kawaihau District, Kauai, June 2016
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# Acronyms and Abbreviations

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°F	degrees Fahrenheit
µg/m <sup>3</sup>	micrograms per cubic meter
AADT	average annual daily traffic
AASHTO	American Association of State Highway and Transportation Officials
ACM	asbestos-containing material
<i>ahupuaa</i>	traditional land division
amsl	above mean sea level
APE	Area of Potential Effects
BMP	Best Management Practice
CAA	Clean Air Act
CE	Categorical Exclusions
CEQ	Council of Environmental Quality
CER	computerized environmental report
CFR	<i>Code of Federal Regulations</i>
CFLHD	Central Federal Lands Highway Division
CIA	Cultural Impact Assessment
CO	carbon monoxide
CSH	Cultural Surveys Hawaii
CWA	Clean Water Act
CZM	Coastal Zone Management
DAR	Division of Aquatic Resources
dBA	A-weighted decibels
DLNR	Department of Land and Natural Resources
DOT	U.S. Department of Transportation
EA	Environmental Assessment
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FFY	Federal Fiscal Year
FHWA	Federal Highway Administration
FWCA	Fish and Wildlife Coordination Act
FWPCA	Federal Water Pollution Control Act
HAR	Hawaii Administrative Rules
HDOH	Hawaii Department of Health
HDOT	Hawaii Department of Transportation
HTL	high-tide line
HRS	Hawaii Revised Statutes
<i>iwi kupuna</i>	ancestral remains
KIUC	Kauai Island Utility Cooperative
<i>kupuna</i>	elder
LBP	lead-based paint

<i>makai</i>	oceanward
<i>mauka</i>	mountainward
MBTA	Migratory Bird Treaty Act
MOA	Memorandum of Agreement
MP	milepost
mph	miles per hour
MSAT	mobile source air toxics
n/a	not available
N/A	not applicable
NBIS	National Bridge Inventory Standards
NEPA	National Environmental Policy Act
NFA	No Further Action
NHPA	National Historic Preservation Act
NHO	Native Hawaiian Organization
NHS	National Highway System
NMFS	National Marine Fisheries Service
NO <sub>2</sub>	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
OEQC	Office of Environmental Quality Control
OP	Office of Planning
PM <sub>2.5</sub>	particulate matter <2.5 microns
PM <sub>10</sub>	particulate matter <10 microns
ppb	parts per billion
ppm	parts per million
SHPD	State Historic Preservation Division
SHPO	State Historic Preservation Officer
SIHP	State Inventory of Historic Properties
SMA	Special Management Area
SO <sub>2</sub>	sulfur dioxide
SPCC	spill prevention, control, and countermeasure
STIP	Statewide Transportation Improvement Program
SWCA	SWCA Environmental Consultants
TMK	Tax Map Key
USACE	U.S. Army Corps of Engineers
U.S.C.	United States Code
USCG	U.S. Coast Guard
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WOUS	Waters of the United States
WPA	Works Progress Administration
WQC	water quality certification

# Project Summary

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Table PS-1 contains a description of the project and applicable land-use designations.

TABLE PS-1

**Project Summary**

Project Name	Kapaa Stream Bridge & Mailihuna Intersection Improvements, Kuhio Highway (State Route 56), District of Kawaihau, Island of Kauai
Proposing/Determination Agency	State of Hawaii Department of Transportation
Tax Map Key(s)	[4] 4-6-014:024 (por.); [4] 4-6-014:033 (por.); [4] 4-6-014:090 (por.); [4] 4-6-014:092 (por.), [4] 4-7-003:001 (por.); [4] 4-7-003:002 (por.); [4] 4-7-008:042 (por.); Kuhio Highway right-of-way; Mailihuna Road right-of-way. See Figures 1-3 and 1-4.
Existing Uses of the Project Corridor	Roadway through mixed uses, including residential, vegetated, and adjacent to public facilities
State Land Use	Agricultural, Conservation, and Urban Districts
Special Management Area	Yes
Kauai General Plan	Urban Center and Park Designations
Zoning	Agriculture, Residential, and Open Districts
Proposed Project	<p>Improvements to the Mailihuna Road intersection: The existing three-legged intersection on Mailihuna Road, which currently has stop control only would be reconfigured to improve safety. The two alternatives assessed in the document are (a) to construct traffic signals and new turn lanes and (b) to construct a roundabout. No change in the highway capacity or alignment is proposed. Also under consideration is a walkway on the <i>mauka</i> side of the highway extending from the intersection to the north side of the bridge. An existing private driveway which has direct access to the intersection would be relocated so that access is from Mailihuna Road, approximately 110 feet <i>mauka</i> of the intersection.</p> <p>Replacement of the existing bridge, which conveys flows of the Kapaa Stream: The existing two-span bridge would be replaced with a longer and wider single-span bridge with no change in the highway alignment. The new bridge would continue to carry two travel lanes (one lane in each direction), with a typical section consisting of two 12-foot-wide lanes, shoulders on both sides, and crash-tested railings. A temporary two-lane bypass would be provide <i>makai</i> (oceanward) of the highway throughout the construction period. The project also includes scour protection measures, supporting walls and slopes, utility relocations, and temporary staging areas.</p>
Anticipated Impacts:	No significant long-term environmental or community impacts are anticipated from the construction and operation of the proposed alternative. Construction activities are anticipated to have short-term noise, traffic, and air quality impacts that will be mitigated through implementation of Best Management Practices (BMPs). The project’s relatively minimal footprint and scope would not result in substantial change to the landscape. Vehicular, bicyclist, and pedestrian access to the beach and park would be maintained and there would be no permanent impacts to beach and park access.
Anticipated Determination:	Finding of No Significant Impact under Chapter 343, Hawaii Revised Statutes

# Preface

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The proposed project involves replacement of Kapaa Stream Bridge, which is located on Kuhio Highway, Route 56 in the Kawaihau District, County of Kauai. As the proposed project would involve the use of State funds and State lands (comprising the Kuhio Highway right-of-way, under the jurisdiction of the State of Hawaii Department of Transportation), land within a shoreline setback area, and land in the Conservation District, compliance with Hawaii Revised Statutes (HRS) Chapter 343 is required. This Draft Environmental Assessment (EA) has been prepared pursuant to HRS Chapter 343 (as amended), and Hawaii Administrative Rules (HAR) Title 11, Chapter 200.

The project would also use Federal funding provided by the U.S. Department of Transportation Federal Highway Administration (FHWA). Use of Federal funds subjects the project to environmental documentation requirements set forth under the National Environmental Policy Act (NEPA) of 1969, (42 U.S. Code Section 4321), the Council of Environmental Quality Regulations, 40 *Code of Federal Regulations* (CFR) Parts 1500-1508, and 23 CFR Parts 625, 640, 712, 771, and 790, Environmental Impact and Related Procedures. To comply with NEPA, the FHWA is preparing environmental documentation for their records, which will be consistent with the findings of this EA.

# Introduction

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## 1.1 Proposing Agency and Action

The State of Hawaii Department of Transportation (HDOT), proposes improvements to (1) the intersection of Kuhio Highway and Mailihuna Road and (2) the Kapaa Stream Bridge on the island of Kauai. The environmental review for this project is being conducted in accordance with Chapter 343 of the Hawaii Revised Statutes (HRS) and Hawaii Administrative Rules (HAR) 11-200.

This project would reconfigure the intersection by installing traffic signals with new turn lanes or constructing a roundabout. The existing two-span bridge would be replaced with a slightly longer and wider single-span bridge along the same alignment. This project would improve safety for pedestrians and bicyclists, improve operational efficiency at the intersection, improve mobility for highway users, address existing structural deficiencies, and meet current bridge design standards for roadway width, load capacity, bridge railing and transitions, and bridge approaches.

## 1.2 Project Overview

The project is located along Kuhio Highway (Route 56) at Milepost (MP) 9.8 (see Figures 1-1 and 1-2). The bridge and highway are under the jurisdiction of HDOT, while Mailihuna Road is under the jurisdiction of the County of Kauai. Kapaa Stream Bridge crosses the Kapaa Stream, which flows into the Pacific Ocean. Tax Map Key (TMK) information for the affected properties is shown on Figures 1-3 and 1-4, and project site photos are provided as Figure 1-5.

Mailihuna Road is a two-lane undivided collector with a total roadway width of approximately 28 feet and a posted speed of 15 miles per hour (mph). The intersection of Kuhio Highway and Mailihuna Road is three-legged, with stop controls only on Mailihuna Road. *Makai* (oceanward) of the intersection, an unpaved driveway provides public access to the shore from Kuhio Highway. The unmarked beach access crosses Ke Ala Hele Makalae (a shared-use path) and is wide enough to accommodate traffic heading to and from the beach. In addition to public roads, there is a private driveway on the *mauka* (mountainward) side of the intersection.

Kapaa Stream Bridge, built in 1953, is a two-lane, two-span bridge, 150 feet long and 38.5 feet wide. Concrete piers and abutments on timber piles support the concrete deck, with an asphaltic concrete driving surface. The concrete bridge rail transitions to a metal guardrail on both sides of the roadway.

Kuhio Highway is classified as an urban principal arterial and is listed on the National Highway System (NHS). Within the vicinity of Mailihuna Road, Kuhio Highway is a two-lane, undivided road with paved shoulders and a posted speed of 40 mph. Average annual daily traffic (AADT) is approximately 12,600 vehicles. For long-range planning purposes, AADT in the 2036 design year is estimated at approximately 15,000 vehicles.

Kuhio Highway is the primary route to the Anahola, Kilauea, and Princeville areas. The highway provides the only regional access for all of Kauai's East and North Shore communities, a route that is vital for economic development, emergency response and safety, and general welfare. The highway also provides connectivity to other modes of transportation, including Lihue Airport and Nawiliwili Harbor.

In addition to being a regional highway, Kuhio Highway is the main corridor for local circulation in the town of Kapaa. The highway is used by bicyclists, pedestrians, and bus riders. Mailihuna Road serves as a primary access route for Kapaa Elementary School and Kapaa High School.

## 1.3 Project Purpose and Need

The purpose of the project is to improve (1) the intersection of Kuhio Highway and Mailihuna Road and (2) the Kapaa Stream Bridge. Improvement of both components are required to maintain a safe and functional regional transportation system for highway users.

**Intersection of Kuhio Highway and Mailihuna Road.** The project is needed because the intersection experiences traffic operations, safety, local access, and drainage deficiencies. The existing bridge also does not meet the current (2014) American Association of State Highway Transportation Officials (AASHTO) structural and design standards for load capacity, bridge railing and transitions, and bridge approaches.

The intersection has the following deficiencies:

- Northbound traffic on Kuhio Highway must bypass delays at the intersection (caused by vehicles turning left onto Mailihuna Road) by encroaching on the paved shoulder and unpaved driveway. After bypassing the delay, vehicles merging back onto the paved roadway cause potential conflicts with vehicles from Mailihuna Road turning left onto Kuhio Highway.
- Non-motorized modes of transportation, such as pedestrians and bicyclists, experience unsafe conditions while trying to cross Kuhio Highway at the intersection. The lack of marked crosswalks, signage, or lighting may result in poor visibility of non-motorized modes, especially at night.
- Multiple turning movements occurring in the same area also contribute to unsafe conditions for roadway users. Kapaa High School is in the vicinity and creates a large number of pedestrians accessing the beach, which requires crossing Kuhio Highway.
- Peak-hour traffic causes long delays along Mailihuna Road and queues during after-school and evening peaks.
- Heavy rains cause flooding on the shoulder of Kuhio Highway.

**Kapaa Stream Bridge.** The U.S. Department of Transportation requires that bridges are inspected every 2 years. The National Bridge Inventory Standards (NBIS) inspection produces a “sufficiency rating,” which is a single number that can vary from a high score of 100 to a low score of 0, with scores higher than 50 indicating that a bridge meets current engineering design standards. Ratings do not imply that the bridge is unsafe to operate, only indicate whether improvements are needed. Based on the most recent 2013 bridge inspection report, the Kapaa Stream Bridge has a sufficiency rating of 45.2 and is considered structurally deficient.

The existing bridge has the following deficiencies:

- The service life of the existing bridge has expired.
- The inventory load rating (daily carrying capacity) is 30.8 tons, which is below the minimum standard of 36 tons.
- Pavement at the approaches exhibit signs of distress in the form of longitudinal and transverse cracks.
- HDOT identified the Kapaa Stream Bridge as scour critical, where removal of streambed material by swiftly moving water around bridge abutments and piers could potentially affect structural stability.

## 1.4 Purpose of the Environmental Assessment

This Draft Environmental Assessment (EA) discloses the environmental and cultural impacts that may result from the project’s implementation, and commits to specific mitigation measures. The Draft EA is prepared to satisfy the requirements of HRS Chapter 343 and Hawaii Administrative Rules (HAR) Title 11, Chapter 200, Environmental Impact Statement (EIS) Rules, and other environmental compliance requirements. The

proposed project triggered the rules and regulations for environmental review because the project occurs on State lands and uses State funds, and uses land in a shoreline area and classified as Conservation District.

## 1.5 Public Comment on the Environmental Assessment

The Hawaii Office of Environmental Quality Control (OEQC) notifies the public that the Draft EA is available for review in its bimonthly bulletin, the *OEQC Environmental Notice*. Official announcement by the OEQC will initiate a 30-day review and comment period.

### Request for Comments

Interested members of the public are invited to submit written comments on the Draft EA to:

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## 1.6 Permits, Approvals, and Compliance Required or Potentially Required

The following requirements must be met to implement the proposed project:

### 1.6.1 Federal

- National Environmental Policy Act (NEPA)
- Department of the Army Permit (Section 10 of the Rivers and Harbors Act; Section 404 of the Clean Water Act [CWA]), U.S. Army Corps of Engineers (USACE)
- Section 106 Consultation (National Historic Preservation Act [NHPA]), Hawaii Department of Land and Natural Resources (DLNR), State Historic Preservation Officer (SHPO)
- Section 7 Consultation (Endangered Species Act [ESA]), U.S. Fish and Wildlife Service (USFWS); National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Services (NMFS)
- Essential Fish Habitat Consultation (Magnuson-Stevens Fishery Conservation and Management Act), NMFS
- Section 4(f) (U.S. DOT Act), FHWA

### 1.6.2 State

- Section 401 CWA Water Quality Certification, State of Hawaii Department of Health (HDOH)
- Section 402 CWA National Pollutant Discharge Elimination System (NPDES) Permit, HDOH
- Stream Channel Alteration Permit, DLNR Commission on Water Resource Management
- Coastal Zone Management (CZM) Federal Consistency Review, Office of Planning, Hawaii Department of Business, Economic Development, and Tourism
- Conservation District Use Permit (HAR §13-5), DLNR
- Historic Preservation Review (HRS Chapter 6E), DLNR State Historic Preservation Division (SHPD)
- Americans with Disabilities Act Review (HRS §103-50), HDOH, Disability and Communication Access Board
- Community Noise Permit/Variance, HDOH

### 1.6.3 County

- Special Management Area (SMA) (HRS Chapter 205A), Kauai Planning Department
- Compliance with floodplain management requirements, Kauai Department of Public Works
- Grading, grubbing, and stockpiling permits, Kauai Department of Public Works

## 1.7 References

American Association of State Highway and Transportation Officials (AASHTO). 2014. *AASHTO LRFD Bridge Design Specifications, Customary U.S. Units, 7th Edition, with 2015 Interim Revisions*.

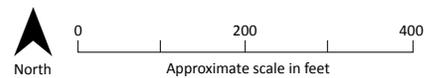




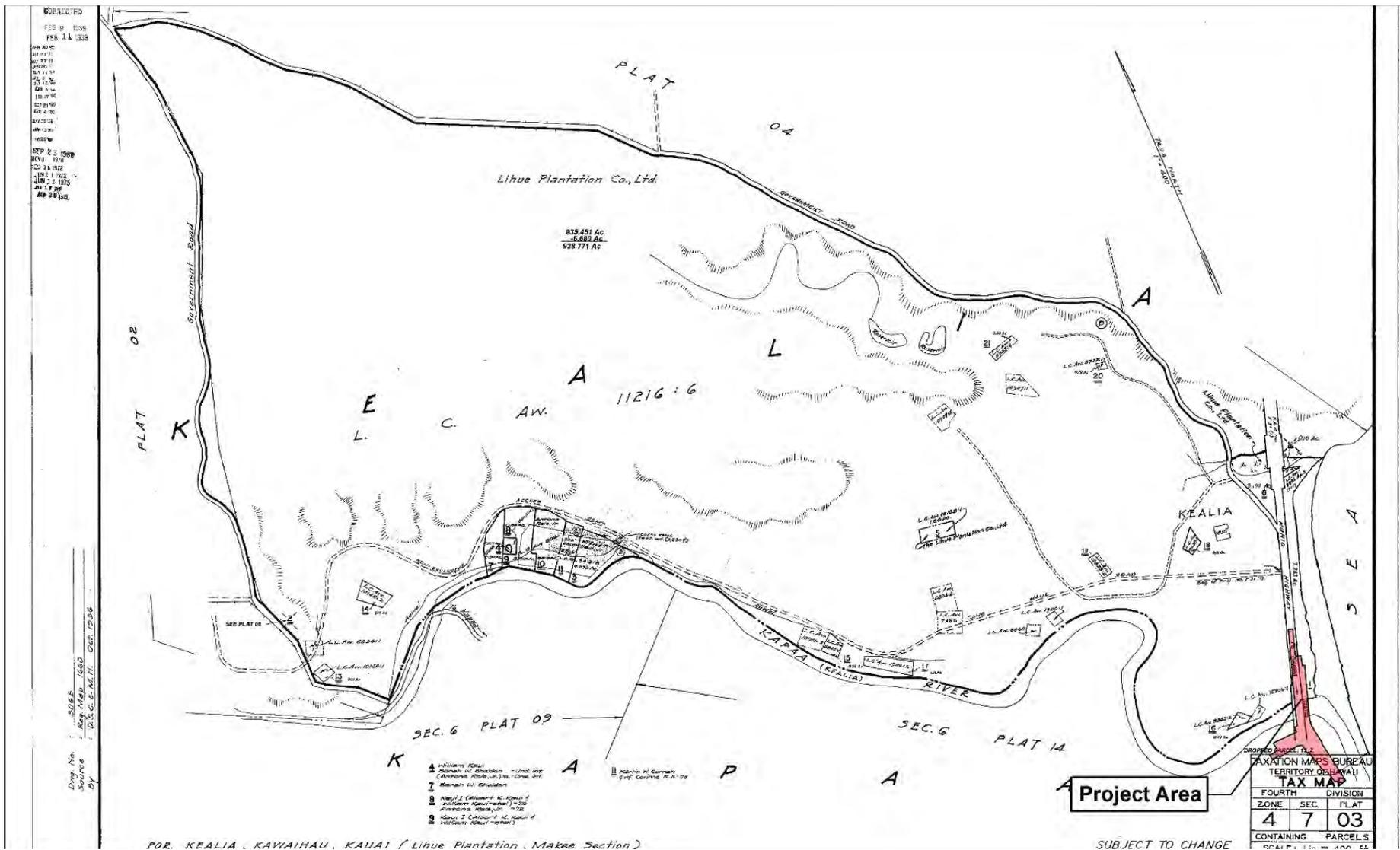
Source: Archaeological Reconnaissance Report for the Kapa'a Stream Bridge, Kapa'a and Keālia, Kawaihau, Kaua'i  
 Base Map: Google Earth Aerial Imagery (2013)  
 Data Sources: CSH

**LEGEND**

 Project Area



**FIGURE 1-2**  
**Project Area Map**  
*Kapaa Stream Bridge*  
*Hawaii Bridges Program –*  
*Central Federal Lands Highway Division and*  
*Hawaii Department of Transportation*



Source: Hawai'i TMK Service; Archaeological Reconnaissance Report for the Kapa'a Stream Bridge, Kapa'a and Kealia, Kawaihau, Kauai  
 Base Map: Tax Map Key [4] 4-7-03  
 Data Sources: CSH

**FIGURE 1-3  
 Tax Map Key 1  
 Kapa'a Stream Bridge  
 Hawaii Bridges Program –  
 Central Federal Lands Highway Division and  
 Hawaii Department of Transportation**

Note: TMKs: [4] 4-6-014: (various parcels), 4-7-003:001 por., and 4-7-008:042 por.





Kapaa Bridge on Kuhio Highway looking northeast.



Mauka side of Kapaa Bridge looking east.

FIGURE 1-5  
**Project Area Photos**  
*Kapaa Stream Bridge*  
*Hawaii Bridges Program –*  
*Central Federal Lands Highway Division and*  
*Hawaii Department of Transportation*

# Project Description

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## 2.1 Project Location

The Mailihuna Road intersection and Kapaa Stream Bridge are located on Kuhio Highway (Route 56), at MP 9.8 in the Kawaihau District on the island of Kauai (see Figure 1-1). Kuhio Highway is an urban principal arterial and is listed on the NHS, and serves as the primary route to the northern areas of Kauai, including Anahola, Kilauea, and Princeville. Mailihuna Road is under the jurisdiction of the County of Kauai; Kapaa Stream Bridge and Kuhio Highway are under the jurisdiction of HDOT. Figure 2-1 shows the limits of the proposed project.

### 2.1.1 Surrounding Land Uses

The project is located on the eastern coast of Kauai in an area of moderately narrow stretches of beach. The land surrounding the project area is not substantially developed. The largest establishment near the project area is a complex of athletic fields belonging to Kapaa High School—soccer field, track, and baseball diamond—located approximately 980 feet to the southwest. St. Catherine Cemetery lies immediately to the south, on the *mauka* side of the highway.

There is one private property to the northwest of the intersection, which is currently being used as a residence. The private property runs northwest from the intersection, in between the Mailihuna Road right-of-way and Kapaa Stream property. A second private property owner is located to the southwest of the intersection. The northern portion of the property is undeveloped while the southern portion is occupied by St. Catherine Cemetery. A third private property is located immediately north of the bridge, on the *mauka* side of the highway, which is currently undeveloped.

Recreational uses predominate on the *makai* side of the highway. Ke Ala Hele Makalae, the bicycle and pedestrian shared-use path, runs parallel to Kuhio Highway and crosses Kapaa Stream approximately 70 feet downstream from the highway bridge. Kealia Beach Park is located on the northern side of the stream, with an unnamed beach located to the south. Both the shared-use path and Kealia Beach Park are under the jurisdiction of the County of Kauai while the unnamed beach to the south of the stream is under the jurisdiction of the State of Hawaii.

To the north and northwest of the project area, the land is primarily used for agricultural purposes. The land owner, Kealia Properties, LLC, is in the conceptual stage of developing a 150-unit gap housing project to the east of Kealia Store. An environmental impact statement is being prepared for the project.

### 2.1.2 Other Nearby State and County Projects

The HDOT Statewide Transportation Improvement Program (STIP) report for 2015 through 2018 identified proposed sidewalk construction activities by the County of Kauai on Mailihuna Road as part of its Kawaihau Road (Route 5860), Hauaala Road (Route 5865), and Mailihuna Road (Route 5870) Complete Street and Safety Improvements project. Planning, design, and construction activities are anticipated to be performed from 2016 to 2017.

## 2.2 Existing Conditions along the Project Corridor

### 2.2.1 Right-of-Way and Surrounding Elevations

Kuhio Highway is owned by HDOT and the existing ROW is 100 feet wide, adjacent to the existing bridge. Permanent bridge widening would occur within the existing ROW. However, improvements to the intersection would extend beyond the existing ROW. Kapaa Stream Bridge is at an elevation of 18 feet above mean sea level (amsl).

Mailihuna Road is owned and maintained by the County of Kauai and the existing ROW is 40 feet wide just west of the intersection. The roadway rises up from the coastal area, cutting up the side of the plateau that Kapaa High School sits on. There are extreme grades on both sides of the roadway with steep embankments dropping to the Kapaa Stream on the north and steep cuts up to the plateau on the south. The plateau is at an elevation of 100 feet amsl and the coastal area is at 20 feet amsl.

## 2.2.2 Roadway Dimensions, Approaches, and Operation

Kuhio Highway is a two-lane undivided highway with 12-foot-wide lanes and shoulders of varying widths (approximately 4 to 8 feet) on each side. Mailihuna Road meets Kuhio Highway at the intersection, with a stop sign only on Mailihuna Road. There is a private driveway at the northwestern corner of the intersection. Mailihuna Road is a two-lane undivided road with a total width of approximately 24 feet. Mailihuna Road's approach to Kuhio Highway is straight and steep, with a downgrade of approximately 7 percent. There is also a steep fill slope on the northern side and steep cut slope on the southern side of the road. The posted speed is 40 mph on Kuhio Highway, and 15 mph on Mailihuna Road.

## 2.2.3 Bridge Structure and Approaches

Kapaa Stream Bridge, built in 1953, is a two-lane, two-span bridge that is approximately 150 feet long and 38.5 feet wide. The concrete deck, with an asphaltic concrete driving surface, is supported by concrete piers and abutments on timber piles. The bridge has a 2-foot, 6-inch-high, reinforced concrete parapet consisting of two 10-inch-high horizontal concrete rails with a 10-inch space between them. On the top surface of the top rail, two horizontal metal rails have been added to give an overall height of 3 feet, 8 inches. Inboard of each concrete parapet is a 4-foot-wide sidewalk. Each sidewalk has an added thrie beam guardrail at the curb, where the guardrails extend past the ends of the bridge.

## 2.2.4 Utilities

Providers with utilities or services within the project area include the following:

- Kauai Island Utility Cooperative (KIUC)—Electric/Power
  - Overhead double 57-kilovolt lines on the *mauka* side that run parallel to the bridge and power poles
  - 12-kilovolt conduit attached to the bridge
- Hawaiian Telecom—Telecommunications
  - Duct underground and conduit attached to the *mauka* side of the bridge
- Sandwich Isles Communications—Telecommunications
  - Fiber optic cable/duct underground and conduit attached to the *mauka* side of the bridge
- Oceanic Time Warner Cable—Telecommunications/Cable
  - Utility to be confirmed
- HDOT—Street Lighting

## 2.3 Proposed Project

The proposed project would reconfigure the Kuhio Highway/Mailihuna Road Intersection to improve safety. Two alternative designs are being considered and both are evaluated in this Draft EA. One alternative is to add full traffic and pedestrian signals and crosswalks with new turn lanes. A second alternative is to construct a single-lane roundabout. An alternative being considered is a walkway on the *mauka* side of the highway between the intersection and the north side of the bridge. As part of the intersection improvements, a private driveway would be relocated approximately 110 feet further *mauka* on Mailihuna Road. The proposed project would also replace the deficient Kapaa Stream Bridge with a single-span bridge. Figures 2-2 and 2-3 show preliminary plans of the intersection improvement, and Figure 2-4 shows the proposed driveway relocation plan. Figure 2-5 shows proposed typical roadway and approach sections while

Figures 2-6 and 2-7 show (1) the proposed bridge plan and (2) preliminary design, respectively. The project limits extend beyond the intersection and bridge to include the approach roadways and potential staging areas (see Figure 2-1). Along Kuhio Highway, the length of the project limits is approximately 1,600 feet, while its width extends beyond the HDOT right-of-way. Along Mailihuna Road, the project limit for the signalized intersection alternative would be approximately 150 feet up the steep grade *mauka* of the intersection. The project limit for the roundabout alternative would extend further along Mailihuna Road, with a length of 350 feet, and would require substantially more right-of-way for the County of Kauai. Where Kapaa Stream crosses beneath the bridge, the project limits would extend approximately 60 to 80 feet *mauka* and *makai* of the bridge, to include considerations for construction and hydraulics. Section 2.3.4 discusses the acquisition of temporary and permanent easements.

HDOT and AASHTO standards and regulations govern the design criteria and construction methods and procedures for the proposed project. The design is based on both HDOT and AASHTO criteria (see Table 2-1). The posted speed limit of 15 mph on Mailihuna Road near the Kapaa High School and 40 mph along Kuhio Highway would remain. The final design would meet or exceed AASHTO criteria (see Table 2-1). A design exception would be triggered only if AASHTO minimum criteria are not met.

TABLE 2-1  
Project Design Criteria

Design Criteria	Existing Conditions	Standards		Proposed
		AASHTO	State	
Design Speed	Posted speed = 40 mph min	Rural 30 mph (minimum)	Urban 25 mph (minimum)	Design speed = 40 mph Posted speed = 40 mph
Travel Way Width (feet)	12	10	11	12
Shoulder Width (feet)	4-8	8	10	8 (roadway) Bridge shoulders not yet designed
Bridge Width (feet)	38.5	Match approach roadway width	N/A	42.3 (includes bridge rail)

Note:  
N/A = not applicable

HDOT's *Design Criteria for Bridge and Structures* (2014) and AASHTO's *Implementation for Load and Resistance Factor Rating of Highway Bridges* (6th Edition) (2014, including all subsequent revisions) would be followed for structure design.

The project would use HDOT's *Design Criteria for Highway Drainage* (HDOT, 2010) to govern the hydraulic evaluation, analysis, and design. The project would consider incorporating low-impact development concepts, such as directing stormwater drainage into grass swales adjacent to the bridge and highway.

The approach travel lanes and shoulders would be designed to AASHTO and HDOT guidelines (*A Policy on Geometric Design for Highways and Streets* [AASHTO, 2011] and *Hawaii Statewide Uniform Design Manual for Streets and Highways* [HDOT, Highways Division, 1980], and all subsequent amendments).

### 2.3.1 Intersection Improvements

Several intersection alternatives were developed and assessed during the planning stage of the project (see also Section 2.5, below). Of these alternatives, the environmental impacts of two design configurations are evaluated in this Draft EA in order to clarify anticipated differences and assist in identifying the preferred alternative.

### Signalized Intersection Alternative

In this alternative, the intersection at Mailihuna Road and Kuhio Highway would be reconfigured by adding full traffic and pedestrian signals and crosswalks (see Figure 2-2). A left-turn pocket would be added to the northbound side of Kuhio Highway before Mailihuna Road, providing approximately 180 feet of storage for vehicles waiting to turn. In addition, a right-turn pocket, approximately 150 feet in length, would be added to the southbound side of the highway. The right-turn lane would allow greater separation between vehicles that are traveling at different speeds as vehicles decelerate before making the right turn.

Marked crosswalks and pedestrian push buttons would be provided on all approaches, and improved signage and street lighting would be installed, addressing the need to improve safety and mobility for non-motorized modes crossing Kuhio Highway.

The installation of drainage infrastructure, such as catch basins, grated drain inlets, drain manholes, pipe culverts, and an outlet, at the southwest corner of the intersection would prevent flooding and control runoff during heavy rains, thereby improving traffic operations and safety.

### Single-Lane Roundabout Alternative

This alternative would construct a single-lane roundabout in the location of the existing Mailihuna Road intersection (Figure 2-3). The single circulating lane would be 18 feet wide, and the inscribed circle diameter would be at least 130 feet. The roundabout would include splitter islands and marked crosswalks on each approach.

The roundabout would seek to alleviate congestion and reduce delay on the eastbound stop-controlled approach by providing yield-control on all legs. Its design would eliminate conflicting left-turn movements from northbound Kuhio Highway and from eastbound Mailihuna Road, because only right turns are made into and out of the roundabout.

The roundabout alternative would require substantial reconstruction of Mailihuna Road for the approach to tie in vertically at an 8 percent maximum profile grade. Retaining walls would be required along Mailihuna Road, measuring approximately 350 feet long with an average height of 10 feet.

The installation of drainage infrastructure, such as catch basins, grated drain inlets, drain manholes, pipe culverts, and an outlet, at the southwest corner of the intersection would prevent flooding and control runoff during heavy rains, thereby improving traffic operations and safety.

### Alternatives Comparison

Table 2-2 summarizes operational and maintenance considerations between the signalized and roundabout alternatives. The environmental impacts of the two alternatives are discussed in Chapter 3.

TABLE 2-2.

**Comparison of Operational and Maintenance Elements**

Elements	Signalized Intersection	Roundabout
Intersection Traffic Operations	<ul style="list-style-type: none"> <li>– For the project year 2036, the intersection would continue to operate at Level of Service (LOS) B; overall and all approaches, with average vehicle delays of up to 20 seconds during the morning and evening peak hours</li> <li>– During the midday and weekend peaks, the southbound approach would operate at LOS C (with average vehicle delays of 28 seconds during the weekend peak hour).</li> <li>– During the midday and weekend peaks, southbound queues on Kuhio Highway could extend to over 400 feet.</li> </ul>	<ul style="list-style-type: none"> <li>– In the opening year, driver familiarity would adversely affect the operations until drivers become accustomed to the movements through the roundabout.</li> <li>– By 2036, regular users would likely gain familiarity. The roundabout would potentially operate with LOS A on the Kuhio Highway approaches during all peak hours. Longer northbound queues would occur during the midday or evening peak (approximately 200 feet) while longer southbound queues would be approximately 575 feet and occur during the midday peak.</li> <li>– The Mailihuna Road approach is expected to operate at LOS E during the midday peak, with average vehicle</li> </ul>

TABLE 2-2.  
**Comparison of Operational and Maintenance Elements**

Elements	Signalized Intersection	Roundabout
	<ul style="list-style-type: none"> <li>– Adequate traffic signal timing and phasing/timing would be necessary to achieve operational efficiencies.</li> <li>– Maintaining the appropriate traffic signal phasing/timing would also be necessary.</li> </ul>	<ul style="list-style-type: none"> <li>delays of approximately 36 seconds. Queue lengths on the eastbound approach would generally be less than 200 feet, except during the midday peak when it is estimated to be 300 feet.</li> <li>– Space would be limited for vehicle maneuverability in the event of traffic incidences within the roundabout.</li> </ul>
Safety	<ul style="list-style-type: none"> <li>– Potential for vehicular collisions due to stop conditions associated with the traffic signal.</li> <li>– Improved vehicular safety with turning movements into and from Mailihuna Road.</li> <li>– Improved pedestrian safety with traffic signal controlled pedestrian movements.</li> </ul>	<ul style="list-style-type: none"> <li>– Driver familiarity and expectations with roundabout is expected to improve over time.</li> <li>– Pedestrian safety is improved as designated crosswalks are provided on each leg and splitter islands allow for pedestrian refuges between opposing directions of traffic.</li> <li>– Potential for certain types of vehicular collisions (such as head on crashes and left-turn/angle crashes) is reduced due to the channelized directional free flow movements of the configuration.</li> </ul>
Construction	<ul style="list-style-type: none"> <li>– Overhead power distribution lines may be impacted by the intersection configuration. One or two poles may need to be relocated.</li> </ul>	<ul style="list-style-type: none"> <li>– The roundabout encroaches on the high-voltage transmission line on the southeast corner of the intersection and would require relocation of this pole and line.</li> <li>– Overhead power distribution lines would be impacted by the intersection reconfiguration along Mailihuna Road.</li> </ul>
Long-term maintenance	<ul style="list-style-type: none"> <li>– Traffic signals require long-term maintenance, including the traffic signal detection system phasing and timing.</li> <li>– Maintenance of highway lighting and signing at the intersection.</li> <li>– Degradation of metal on the eastern side of the island is a maintenance issue due to the corrosive coastal environment. The lifespan of a metal traffic signal system would likely be reduced.</li> </ul>	<ul style="list-style-type: none"> <li>– Maintenance of highway lighting at the intersection and approaches, as well as landscaping, if provided in the circle.</li> <li>– Additional pavement and concrete items (curbs, gutters, median cover) to maintain and replace in the future.</li> <li>– Limited space for alternate routing of vehicles during periodic repairs and repaving.</li> </ul>

### 2.3.2 Driveway Relocation

There is an existing residential driveway which accesses the Kuhio Highway adjacent to the Mailihuna Road intersection in a configuration that is considered nonstandard with respect to current access control guidelines. The driveway services residential properties in the valley, on the south side of the Kapaa Stream. The project proposes to relocate the driveway so that ingress and egress occurs at a location approximately 110 feet *mauka* of the intersection. This component of the project would include construction of the paved driveway, walls needed to retain slopes because of the steep grade, and replacement guardrails on Mailihuna Road with a break for the new driveway (see Figure 2-4).

### 2.3.3 Replacement Bridge

The existing Kapaa Stream Bridge would be demolished and replaced with a single-span bridge with a total length of approximately 190 feet, a deck width of 42.3 feet, and a superstructure depth of 6 feet. The specific bridge profile would be determined during final design. Each of the two travel lanes is expected to have a width between 11 and 12 feet. Shoulders would be provided on both sides, with width varying

depending on the design of pedestrian accommodation. The proposed design would comply with roadway width and bridge standards, live load and seismic requirements, and applicable crash test requirements for bridge railings (see Figures 2-5 through Figure 2-7).

The foundation is anticipated to consist of drilled shafts (approximately 4 feet in diameter), offset behind the existing abutment footing. The top portion of the existing abutment would be removed to allow the new girders to extend between the new abutments. The remainder of the existing abutments would be left in place to serve as a retaining/channel wall, a secondary role that they are currently performing. New bridge abutments would be designed for the estimated total scour depths with appropriate scour protection. The existing center pier would be cut at the mudline to reduce obstruction to stream flow and improve hydraulics. The remaining structure of the center pier would be abandoned in place. Unlike the existing bridge, the replacement would be designed as a clear span with no in-stream pier.

The new bridge would be designed to meet the current AASHTO loading requirements. Bridge railings would consist of a concrete beam and post with metal rail. Both the bridge railings and transitions would meet the standard for crashworthiness of TL-3, that is, be able to withstand the impact of a car or light truck traveling 62 mph (AASHTO, 2009). This bridge rail meets all the safety requirements and closely resembles the existing bridge rail.

Conventional concrete retaining walls would need to be installed on the *mauka* side of the bridge at both approaches because of a grade difference between the roadway elevation and surrounding natural flood area.

### 2.3.4 Mauka Walkway

The existing Kapaa Stream Bridge has a 4-foot-wide sidewalk on each side of the bridge structure in the space between the concrete bridge railings and guardrails. A walkway is being considered on the *mauka* side of the replacement bridge, continuing along Kuhio Highway to the Mailihuna Road intersection. The walkway would tie into an existing concrete sidewalk on the north side of the bridge which extends to the Kealia Road intersection. The design of the walkway would comply with the Americans with Disabilities Act. There would be no walkway on the *makai* side of the replacement bridge. Pedestrians traveling on the *makai* side of Kuhio Highway would be able to use Ke Ala Hele Makalae, the parallel shared use path.

### 2.3.5 Construction Activities

#### 2.3.5.1 Construction

The proposed projects would involve typical roadway and bridge construction activities, including the following:

- Install temporary erosion control measures
- Install temporary roadways and bridge
- Relocate utilities
- Demolish existing bridge structure
- Erect structural members such as beams and columns
- Pour concrete
- Excavate, place fill, grade, and pave
- Construct retaining walls
- Install traffic signals or the roundabout
- Install permanent erosion control measures
- Install highway appurtenances such as signing, roadside barriers, and pavement markings

Construction equipment anticipated to be used in the construction of the bridge foundations, abutments, and superstructure include the following:

- Bulldozers
- Pile drivers

- Augers for possible drilled shaft construction
- Excavators
- Cranes
- Dump trucks
- Hydraulic rams
- Dewatering pumps and hoses

Additional equipment will be used as necessary. The majority of the construction materials would likely come from within the state of Hawaii. In addition, materials for the bridge superstructure (such as girders and reinforcement) and temporary bridges would likely come from Honolulu.

The proposed project would construct the new bridge and demolish the existing in three stages. The first would install erosion and sedimentation control measures in stream/land, construct the temporary bypass road and stream crossing, and route traffic to that temporary bypass. The second would demolish the existing bridge and construct the new bridge and roadway approaches. The third would route traffic to the new bridge, remove the temporary bypass road and stream crossing, and complete permanent erosion control measures.

A temporary, 24-foot-wide, two-lane bypass road and temporary bridge would be used to direct traffic around the bridge replacement site. The bypass road and temporary bridge would be constructed between the Kapaa Stream Bridge and Ke Ala Hele Makalae, the shared use path (see Figure 2-8). The bypass road would provide a 10-foot-wide lane in each direction, 2-foot-wide shoulders, and barriers, as needed. The posted speed of the temporary bypass road would be 25 mph.

Following the completion of the temporary bypass bridge and rerouting of traffic, the existing Kapaa Stream Bridge would be demolished. Demolition would include the metal guardrail, concrete railings, concrete deck slab, concrete girders, and the single pier foundation. The abutments would be partially removed to an elevation which would accommodate the placement and clearance of the new bridge superstructure (girders). The pier foundation (including column and footing) would be removed to the mud line to accommodate future navigation and minimize hydraulic affects within the channel.

The demolition process is often called reverse construction. The deck elements (railings, deck slab) would be removed by saw-cutting it into manageable sections that could be handled by deck supported equipment and placed into trucks to be hauled away. Concrete would likely be chipped into smaller pieces using a hoe-ram attachment on a backhoe or similar equipment. Concrete and other debris would be removed with backhoes and dump trucks. Reinforcing steel would be removed with cranes, backhoes and dump trucks. Cranes will be used for reach across the river to lift bridge girders and deck for removal, and precautions will be taken to avoid debris falling into the stream during demolition. Removal of the pier foundation (including column and footing) would require an isolation and confinement structure sized as needed to dewater the demolition area.

The demolition of the bridge would require existing utilities to relocate to the temporary bridge or overhead. Coordination of the relocation of all utilities will continue through the final design and construction progress of the project.

Demolition plans and specifications would be developed as part of construction in accordance with applicable agency regulations. Demolition debris would require disposal at an approved landfill. Recycling of demolition debris may be considered, as appropriate.

The location of new bridge drilled shaft foundations and abutments would be beyond the existing bridge abutments, away from the Kapaa Stream. It is anticipated the construction would occur in the dry and typical temporary erosion and sedimentation control measures would be implemented. However, if work is necessary within the stream or High Tide Line (HTL), an isolation and confinement structure (cofferdams or similar) would be constructed where needed for dewatering below the HTL and would be sized as needed to dewater the bridge construction area. The size and location of the isolation and confinement structure will

account for tidal fluctuations anticipated during the construction window. The isolation and confinement structure would be removed immediately after it is no longer needed.

The Kapaa Stream Bridge replacement construction would involve work within the streambed, which is considered part of the Waters of the U.S. (WOUS). All or portions of the bridge construction area would be dewatered before in-stream work using an isolation and confinement structure or other method, as appropriate for the location. The area to be disturbed below the HTL and detailed dewatering plans would be determined before application for the CWA Section 404/401 and other required permits. Disposal of any dredged material and water from dewatering activities would require approval.

### 2.3.5.2 Maintenance of Traffic During Construction

Temporary traffic control plans would be developed and implemented to keep the Kuhio Highway open to road users during the majority of construction activities. Two-way travel would be accommodated on the existing road or temporary roadways during construction. Temporary stream crossings would be sized and placed over the stream channel to accommodate the 5-year flood flow.

Periodically, construction activities may necessitate restricting the road to one lane of travel. Road use would be maintained by implementing an alternate one-way movement of travel through the construction area. Provisions would be made for this alternate one-way movement using such methods as flagger control, a flag transfer, a pilot car, or traffic control signals. Provisions would be made to restrict these alternate one-way movement of travel conditions to the extent possible.

Full closure of Kuhio Highway may be needed for brief periods during certain construction activities. Provisions would be made to restrict these full closures to when road use is minimal, such as nighttime periods, although no nighttime work would occur between September 15 and December 15, the seabird peak fallout period. Provisions would also be made to restrict these full closures to a period of hours, and no full, 24-hour closures are proposed. The public would be notified well in advance of all closures. Emergency and incident responders would be allowed access through the construction area at all times. The Ke Ala Hele Makalae would remain open to continue to allow for foot and bicycle traffic through the project area.

Provisions to accommodate pedestrian traffic at the intersection as it is reconstructed would be part of the temporary traffic control planning strategies, as described in the FHWA Manual of Uniform Traffic Control Devices (2009).

### 2.3.5.3 Construction Staging Areas

Personnel and equipment would be staged within the project limits. A potential staging area is located in a grassy area along the northern approach to the bridge, *mauka* of the highway. This potential staging area is approximately 25 feet in width and 450 feet in length.

## 2.3.6 Properties Affected by the Project

The proposed project would require the temporary and permanent acquisition of property outside of the existing right-of-way. The signalized intersection alternative would require temporary construction parcels only. The roundabout alternative would require a slightly small area for temporary construction parcels, but would also require permanent easements and the acquisition of additional right-of-way.

**Signalized Intersection Alternative.** Table 2-3 shows affected properties for bridge replacement and intersection improvements under the signalization alternative. The project would require six construction parcels (or temporary easements) for the temporary bypass, construction staging, and construction zones. In aggregate, the construction parcels would cover a total of 1.48 acres and temporarily affect five property owners including the County of Kauai, State of Hawaii, and three private property owners. Construction parcels would be coordinated through HDOT. No additional right-of-way or permanent easements for maintenance would be needed for this alternative.

TABLE 2-2

**Affected Properties: Signalized Intersection Alternative**

Tax Map Key (TMK)	Property Owner	Land Use	Estimate of Area Needed (Acres)	Project Requirement
(4) 4-7-003: 001	County of Kauai	Undeveloped	0.20	Construction Parcel (Temporary Bypass)
(4) 4-7-003: 002	Kealia Properties, LLC	Undeveloped	0.16	Construction Parcel (Construction, Staging)
(4) 4-6-014: 024	Ralph G. Oswald	Undeveloped/ Sidewalk	0.40	Construction Parcel (Driveway Work, Intersection Construction)
(4) 4-6-014: 033	Roman Catholic Church	Undeveloped	0.04	Construction Parcel (Intersection, Mailihuna Road Construction)
(4) 4-6-014: 092	State of Hawaii	Undeveloped	0.54	Construction Parcel (Temporary Bypass, Intersection Construction)
(4) 4-6-014: 090	State of Hawaii	Undeveloped	0.14	Construction Parcel (Temporary Bypass, Intersection Construction)

**Roundabout Alternative.** Table 2-4 shows affected properties for bridge replacement and intersection improvements under the roundabout alternative. The project would require six construction parcels (or temporary easements) for the temporary bypass, construction staging, and construction work zones. In aggregate, the construction parcels would cover a total of 1.2 acres and temporarily affect four property owners: the County of Kauai, State of Hawaii, and two private property owners. Construction parcels would be coordinated through HDOT. For access to maintain retaining walls, permanent easements would be needed for 0.18 acre of land that is owned by the State of Hawaii and two private property owners. The existing highway right-of-way would need to be expanded by 0.29 acre to accommodate the roundabout and retaining wall. Acquisition of additional right-of-way would affect the State of Hawaii and one private property owner.

TABLE 2-4

**Affected Properties: Roundabout Alternative**

Tax Map Key (TMK)	Property Owner	Land Use	Estimate of Area Needed (Acres)	Project Requirement
(4) 4-7-003: 001	County of Kauai	Undeveloped	0.20	Construction Parcel (Temporary Bypass)
(4) 4-7-003: 002	Kealia Properties, LLC	Undeveloped	0.16	Construction Parcel (Construction, Staging)
(4) 4-6-014: 031	State of Hawaii	Undeveloped	0.01	Permanent Easement (Retaining Wall Maintenance Access)
(4) 4-6-014: 031	State of Hawaii	Undeveloped	0.03	Right-of-Way (Intersection)
(4) 4-6-014: 024	Ralph G. Oswald	Sidewalk	0.05	Permanent Easement (Retaining Wall Maintenance Access)
(4) 4-6-014: 024	Ralph G. Oswald	Undeveloped/ Driveway	0.34	Construction Parcel (Driveway Work, Intersection Construction)
(4) 4-6-014: 033	Roman Catholic Church	Undeveloped	0.12	Permanent Easement (Intersection Construction and Retaining Wall Maintenance Access)
		Undeveloped	0.07	Right-of-Way (Intersection and Retaining Wall)

TABLE 2-4

**Affected Properties: Roundabout Alternative**

Tax Map Key (TMK)	Property Owner	Land Use	Estimate of Area Needed (Acres)	Project Requirement
(4) 4-6-014: 092	State of Hawaii	Undeveloped	0.19	Right-of-Way (Intersection)
		Undeveloped	0.28	Construction Parcel (Intersection Construction)
		Undeveloped	0.08	Construction Parcel (Temporary Bypass, Intersection Construction)
(4) 4-6-014: 090	State of Hawaii	Undeveloped	0.14	Construction Parcel (Temporary Bypass, Intersection Construction)

## 2.4 No Action Alternative

The No Action Alternative would not modify the intersection and retains the existing bridge with no changes. The intersection would not be improved to increase operational efficiency and safety. The bridge would not be replaced to meet current design standards for roadway width and load capacity. Deficiencies in bridge railings, transitions, and bridge approaches would not change.

Under the No Action Alternative, environmental impacts resulting from the intersection improvement and bridge replacement activities would continue as under current conditions; intersection improvement and bridge replacement costs would not be incurred by HDOT. However, the intersection would continue to experience vehicular accidents associated primarily with vehicles turning left from Mailihuna Road onto the northbound lane of Kuhio Highway. Unsafe conditions for pedestrians and bicyclists trying to cross Kuhio Highway at the intersection would continue. Furthermore, the existing bridge would continue to deteriorate, requiring regular inspection and increasing maintenance to maximize its useful lifespan. Eventually, the bridge may no longer provide a safe support for highway traffic and could face load restrictions and closure.

## 2.5 Intersection Alternatives Considered and Dismissed

### 2.5.1 Add Turn Lanes

This alternative would shift a portion of the northbound lane in the *makai* direction to create a left-turn pocket on Kuhio Highway before it intersects Mailihuna Road (Figure 2-9). This alternative would also add a northbound merge lane after Mailihuna Road to assist motorists accelerate and merge into the northbound through lane. The lane merge is constrained by the distance to the existing bridge. This distance is substandard according to AASHTO guidelines, which call for a 300-foot-long merge distance at a design speed of 40 mph (AASHTO, 2011). To meet the AASHTO guidelines, the bridge would need to be further widened to accommodate an auxiliary lane. Adding a receiving lane would benefit the intersection by allowing one or two vehicles to wait for a safe gap before merging into northbound traffic. This space would be used by northbound traffic only; southbound vehicles entering the beach access driveway would be restricted.

On Mailihuna Road, a slight dip in the road *mauka* of Kuhio Highway would be filled in to improve the efficiency of inbound and outbound traffic. When vehicles approach this dip, they slow down slightly to maneuver the change in pavement elevation. Addressing this dip would improve sight distance and traffic flow safely leaving Mailihuna Road.

To address pedestrian and bicycle safety, this alternative would modify the existing pavement markings in and out of Mailihuna Road by adding crosswalks on Mailihuna Road and on the northern leg of Kuhio

Highway. Raised or striped islands would be provided for pedestrian refuge at the crosswalks. Mailihuna Road would remain stop-controlled, and Kuhio Highway would remain uncontrolled.

This alternative was dismissed because there are no improvements to pedestrian and bicyclist safety on the southern leg of Kuhio Highway, which is in closer proximity to Kapaa High School, a primary source of pedestrians accessing the beach. Furthermore the alternative does not substantially address the need to minimize unsafe conditions to pedestrians as a result of existing turning movements at the intersection. Lastly, this alternative would not address the need to improve traffic delay for left-turning vehicles from Mailihuna Road onto Kuhio Highway.

### **2.5.2 Traffic Signals with Existing Lane Channelization**

This alternative is similar to the alternative presented in the Signalized Intersection alternative in Section 2.3.1, in that it provides full traffic and pedestrian signals and crosswalks. However, this alternative would not construct turn lanes on Kuhio Highway—neither a left-turn pocket on the northbound side nor a right-turn pocket on the southbound side (Figure 2-10). A traffic analysis found that intersection operations would experience improvements similar to the proposed project without dedicated turn lanes.

This alternative was dismissed because vehicles waiting to make the left turn onto Mailihuna may still delay northbound through traffic on Kuhio Highway and cause motorists to bypass the delay by encroaching on the paved shoulder and unpaved driveway. Therefore, the alternative does not address this deficiency.

## **2.6 Bridge Alternatives Considered and Dismissed**

### **2.6.1 Rehabilitation**

Bridge rehabilitation was considered as an alternative to replacing the existing bridge. This alternative would include widening the existing bridge to accommodate two 12-foot-wide travel lanes and two 8-foot-wide shoulders. This would require strengthening the existing girders using fiber reinforced polymer, demolishing the existing sidewalks and deck overhang, and constructing a new deck extension with bridge railings, new paving, new expansion joints, and composite blocking behind girders for seismic retrofit.

The current condition and capacity of the existing timber piles that support the abutments and center pier are unknown so the adequacy of the existing foundations cannot be determined. A retrofit to the existing foundation would be required to make this a viable option. The center pier foundation would need to be extended with a concrete cap on both the upstream and downstream sides and would be connected to new drilled shafts. This would require driving sheet piles in the stream to provide an isolation and confinement structure, such as a cofferdam. Such a structure would need to be sealed at the base using a chemical grout to provide a dry environment for the foundation work. The abutment foundations would also require the addition of drilled shafts using a construction process that would likely require excavating the entire approach roadway.

Although this alternative would create a wider bridge cross section, it would not increase hydraulic capacity because the span would not be lengthened or raised. Because the new footing enlarges and encapsulates the existing pier footing, hydraulics capacity would be decreased by the larger obstruction within the stream. This alternative was dismissed because of substantially higher costs related to addressing scour and existing condition of the center pier's support, greater anticipated environmental impacts, and inability to meet hydraulics design criteria compared to the proposed project.

## **2.7 Temporary Bypass Alternatives Considered and Dismissed**

### **2.7.1 Single-lane Bypass Road with Signal**

This bypass alternative involves a single-lane temporary bypass road and bridge, located adjacent to the highway with a traffic signal to allow alternating traffic. Based on a preliminary traffic analysis, a single-lane

temporary bypass road with signal could be a viable option for an AADT of approximately 8,000. However the Kapaa Stream Bridge is located on a portion of the highway where the current AADT exceeds 10,000 vehicles (see Section 1.2) and a capacity of 8,000 vehicles is not sufficient. Therefore, this option was considered unfeasible.

### 2.7.2 Phased Construction

Phased construction with a single-lane temporary bypass road would involve cutting the slab bridge and continuing to provide one travel lane on the existing bridge, while a portion is demolished and reconstructed. A second travel lane would be provided by a temporary bypass road. Phased construction was dismissed because it would impact the traveling public and substantially increase the construction duration and cost of the project.

## 2.8 Statewide Transportation Improvement Program

The STIP provides a multiyear listing of State and County transportation projects and identifies those projects slated for Federal funding. It is a multimodal transportation improvement program that is developed using existing transportation plans and policies, as well as current highway, transit, and transportation programming processes. The STIP delineates the funding categories and the Federal and local share required for each project. Although projects are on the STIP, that does not necessarily mean those projects would be planned, designed, or constructed within the fiscal period because of unforeseen occurrences such as project readiness or project priorities.

The current STIP, which covers the period from Federal Fiscal Year (FFY) 2015 to FFY 2018 (and FFY 2019 to FFY 2020, for information purposes only), was published by HDOT on October 27, 2014. The Kuhio Highway (Route 56) Mailihuna Road Intersection Improvements and Kapaa Stream Bridge Project is listed on the STIP as a System Preservation project.

## 2.9 Preliminary Cost and Schedule

In 2015, estimated construction cost for the replacement bridge was \$11.6 million. Intersection improvements with signalization and new turn lanes was estimated to cost \$0.9 million and the roundabout was estimated to cost \$2.4 million.

Construction is anticipated to begin in mid-2017. The project with signalized intersection is expected to have a construction period of approximately 19 months. Construction of the project with roundabout is expected to have a longer, 22-month duration because of more extensive grading, construction of retaining walls, and construction phasing. The construction schedule would be updated and refined as the project progresses through design and permitting.

## 2.10 References

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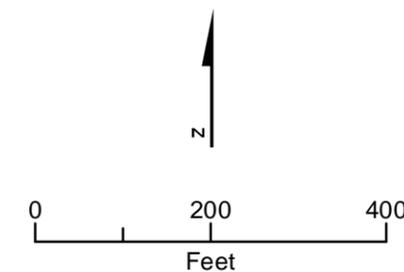
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University of Hawaii. 2013. School of Ocean and Earth Science and Technology - Coastal Geology Group. Available at <http://www.soest.hawaii.edu/coasts/publications/hawaiiCoastline/kauai.html>. March 28, 2013. Accessed October 2014.



- LEGEND
- Approximate Project Limits
  - Approximate Location of Temporary Bypass Road
  - High Tide Line
  - Waters of the U.S. and Flow Directions

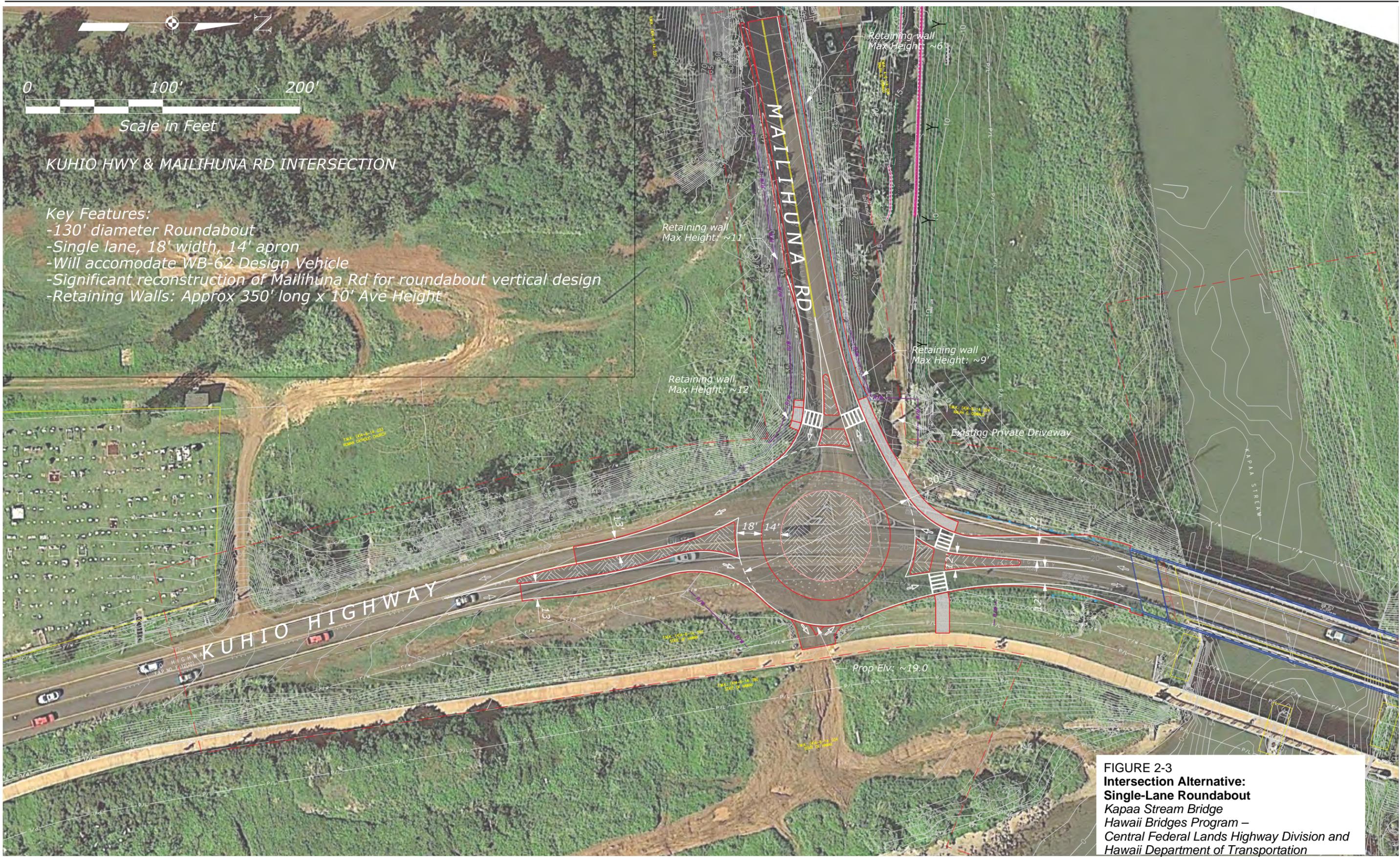
- Notes:
1. High-Res Imagery Source: Google Earth 12/16/2013
  2. Low-Res Imagery Source: Digital Globe 08/26/2011
  3. Imagery base map is not orthorectified; therefore project features may not properly align with the imagery.



**FIGURE 2-1**  
**Project Limits**  
 Kapaa Stream Bridge  
 Hawaii Bridges Program –  
 Central Federal Lands Highway Division and  
 Hawaii Department of Transportation



**FIGURE 2-2**  
**Intersection Alternatives:**  
**Signalized Intersection**  
 Kapaa Stream Bridge  
 Hawaii Bridges Program –  
 Central Federal Lands Highway Division and  
 Hawaii Department of Transportation



**KUHIO HWY & MAILIHUNA RD INTERSECTION**

- Key Features:**
- 130' diameter Roundabout
  - Single lane, 18' width, 14' apron
  - Will accomodate WB-62 Design Vehicle
  - Significant reconstruction of Mailihuna Rd for roundabout vertical design
  - Retaining Walls: Approx 350' long x 10' Ave Height

**FIGURE 2-3**  
**Intersection Alternative:**  
**Single-Lane Roundabout**  
 Kapaa Stream Bridge  
 Hawaii Bridges Program –  
 Central Federal Lands Highway Division and  
 Hawaii Department of Transportation

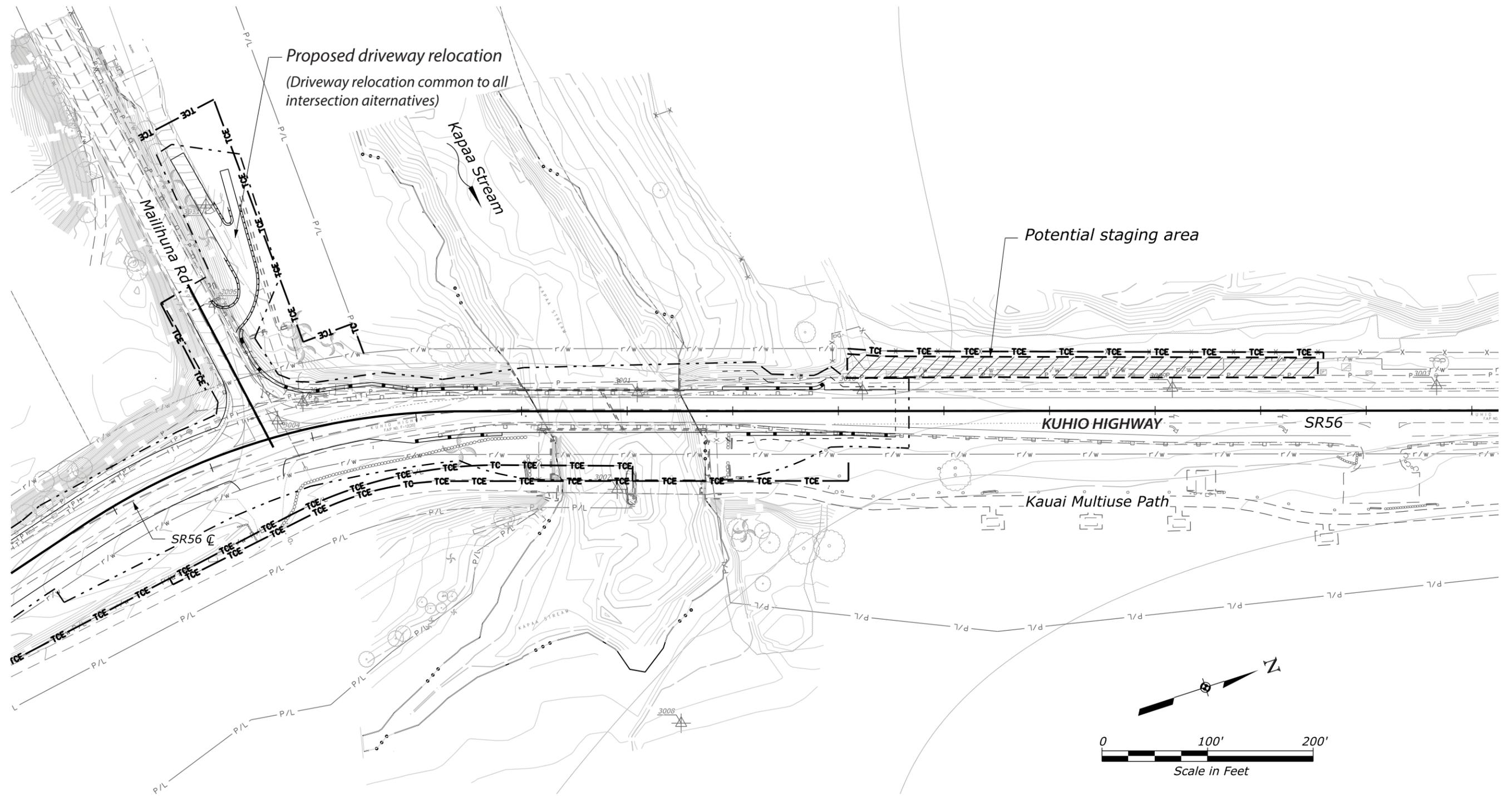
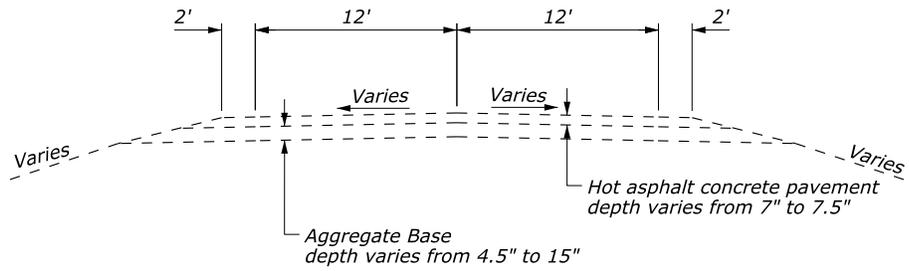
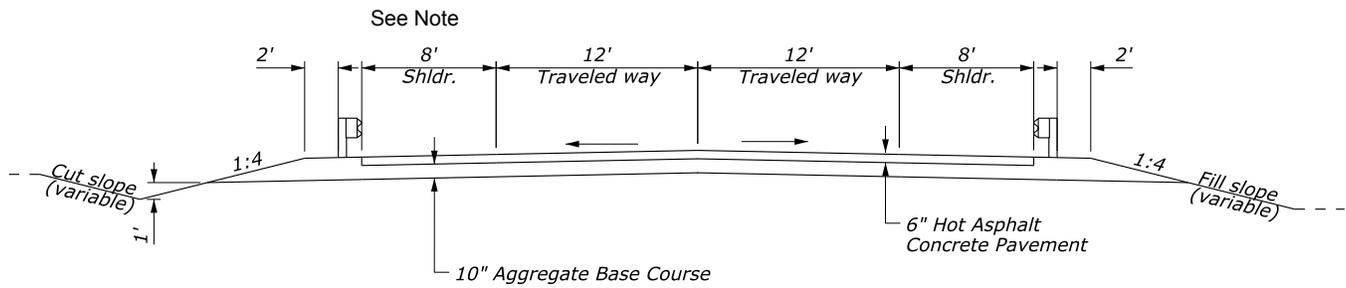


FIGURE 2-4  
**Driveway and Staging Area**  
 Kapaa Stream Bridge  
 Hawaii Bridges Program –  
 Central Federal Lands Highway Division and  
 Hawaii Department of Transportation



**EXISTING TYPICAL SECTION**



**PROPOSED TYPICAL SECTION**

Note: Study of mauka walkway in progress

FIGURE 2-5  
**Typical Sections (Roadway/Approach)**  
 Kapaa Stream Bridge  
 Hawaii Bridges Program –  
 Central Federal Lands Highway Division and  
 Hawaii Department of Transportation

STATE	PROJECT	SHEET NO.
HI	HI STP SR56 (1)	T1

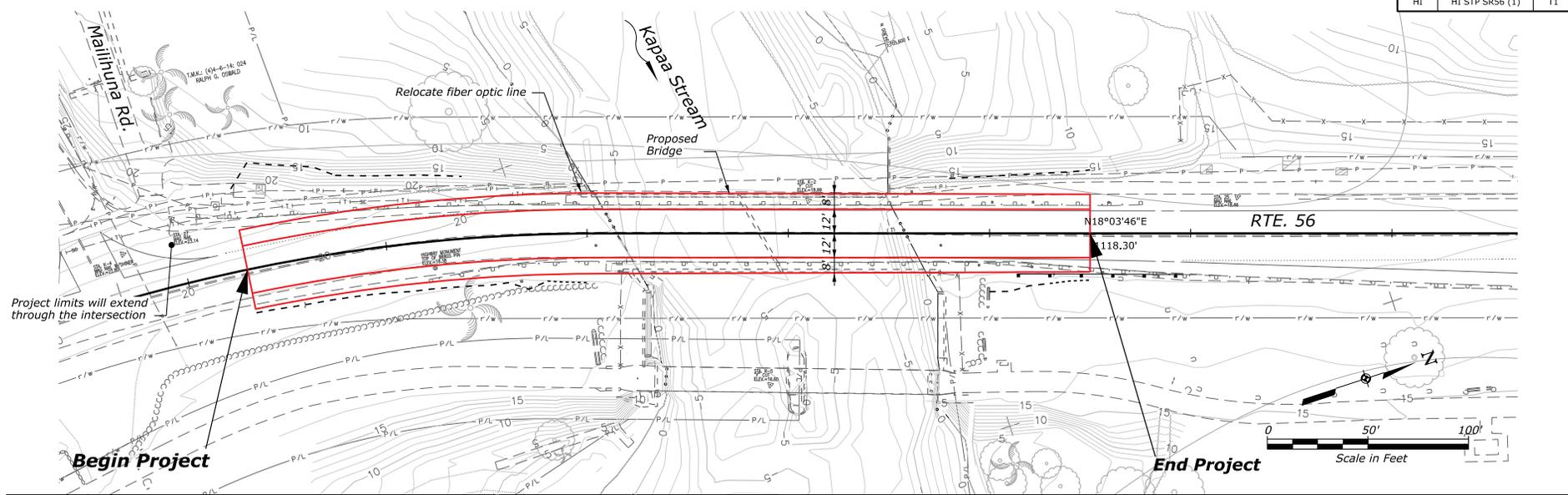
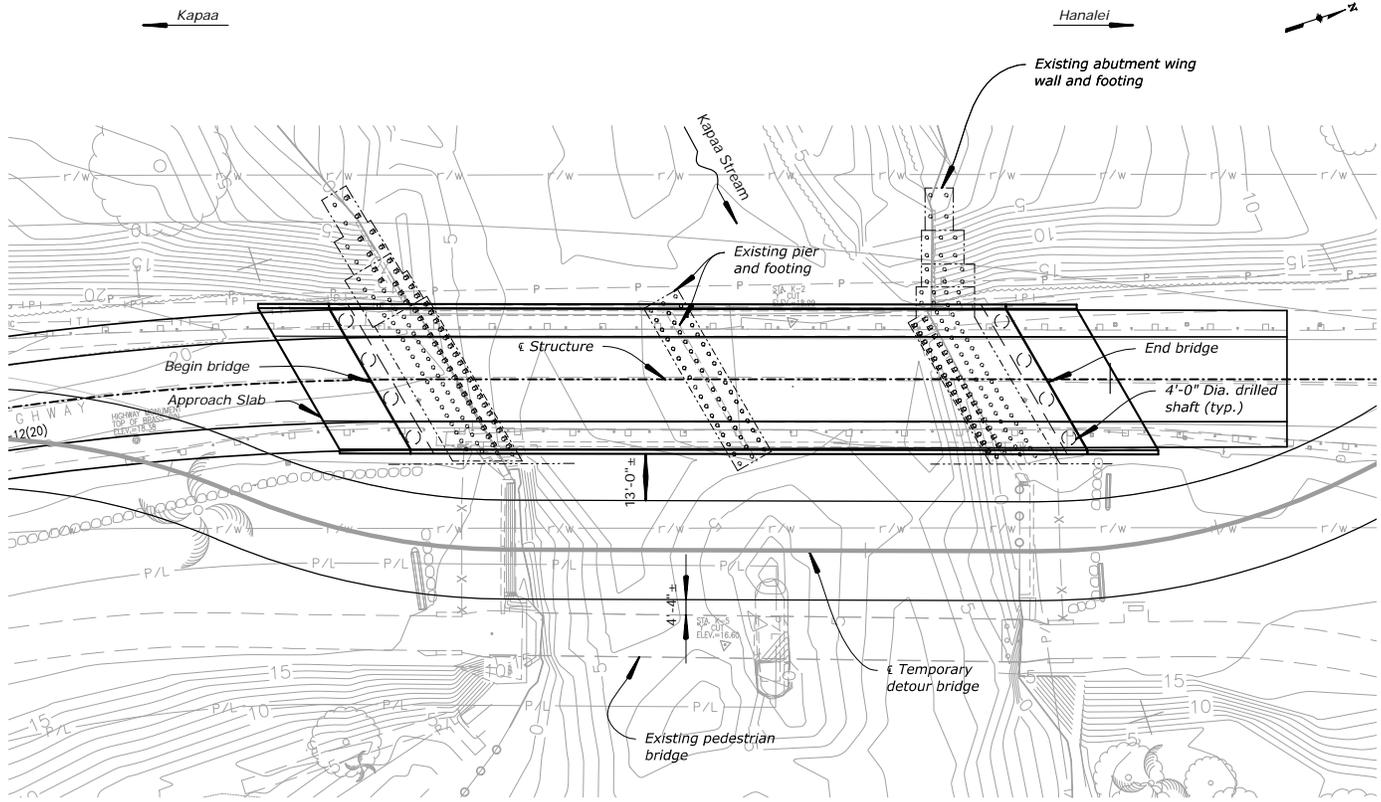
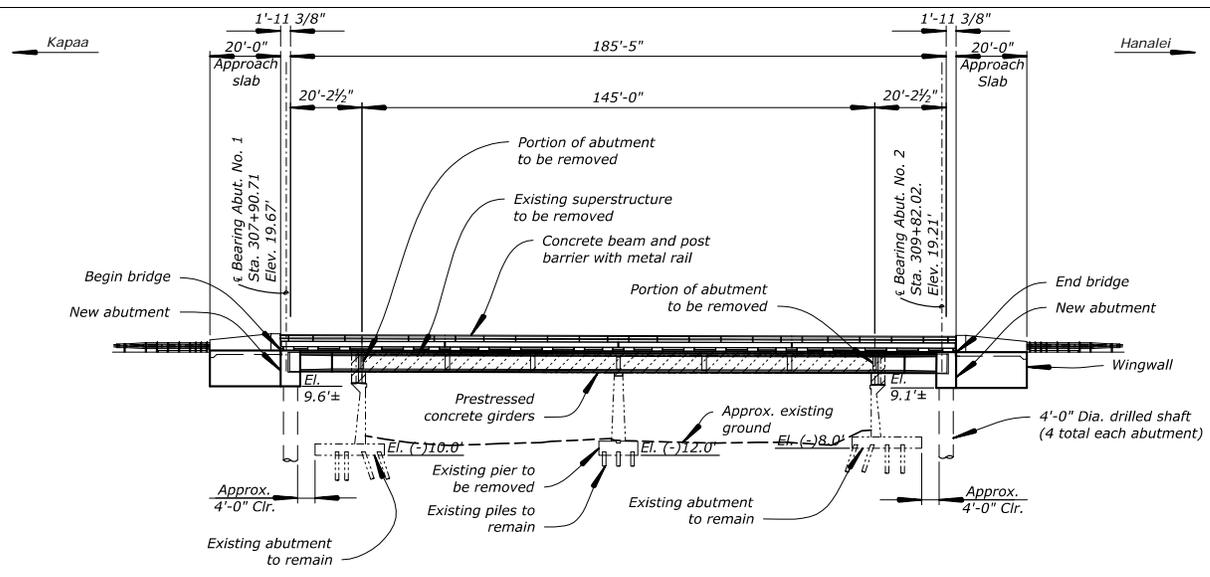


FIGURE 2-6  
**Plan**  
 Kapaa Stream Bridge  
 Hawaii Bridges Program -  
 Central Federal Lands Highway Division and  
 Hawaii Department of Transportation

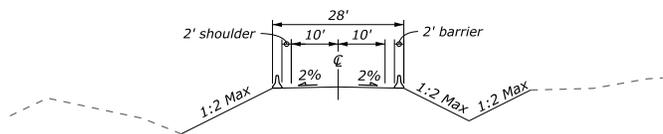
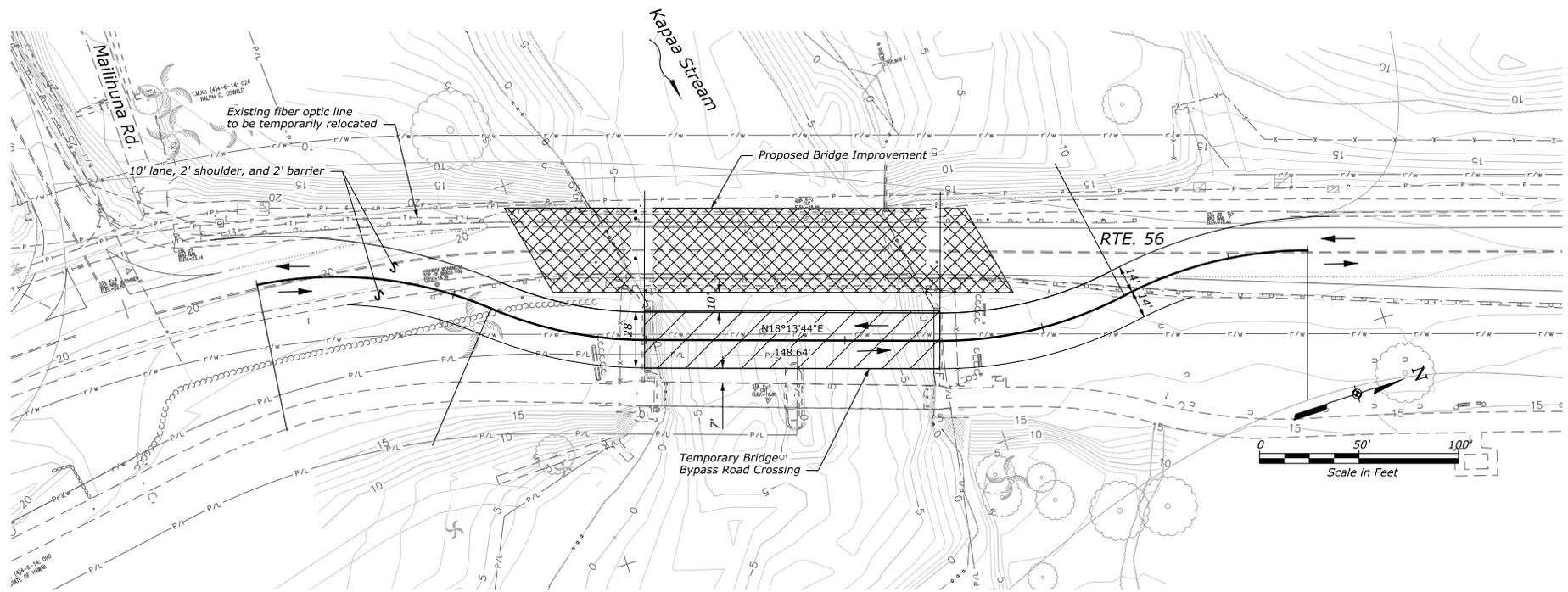


PLAN



ELEVATION

**FIGURE 2-7**  
**Bridge Design (Preliminary)**  
 Kapaa Stream Bridge  
 Hawaii Bridges Program –  
 Central Federal Lands Highway Division and  
 Hawaii Department of Transportation



**TYPICAL SECTION**

**FIGURE 2-8**  
**Temporary Bypass**  
 Kapaa Stream Bridge  
 Hawaii Bridges Program -  
 Central Federal Lands Highway Division and  
 Hawaii Department of Transportation



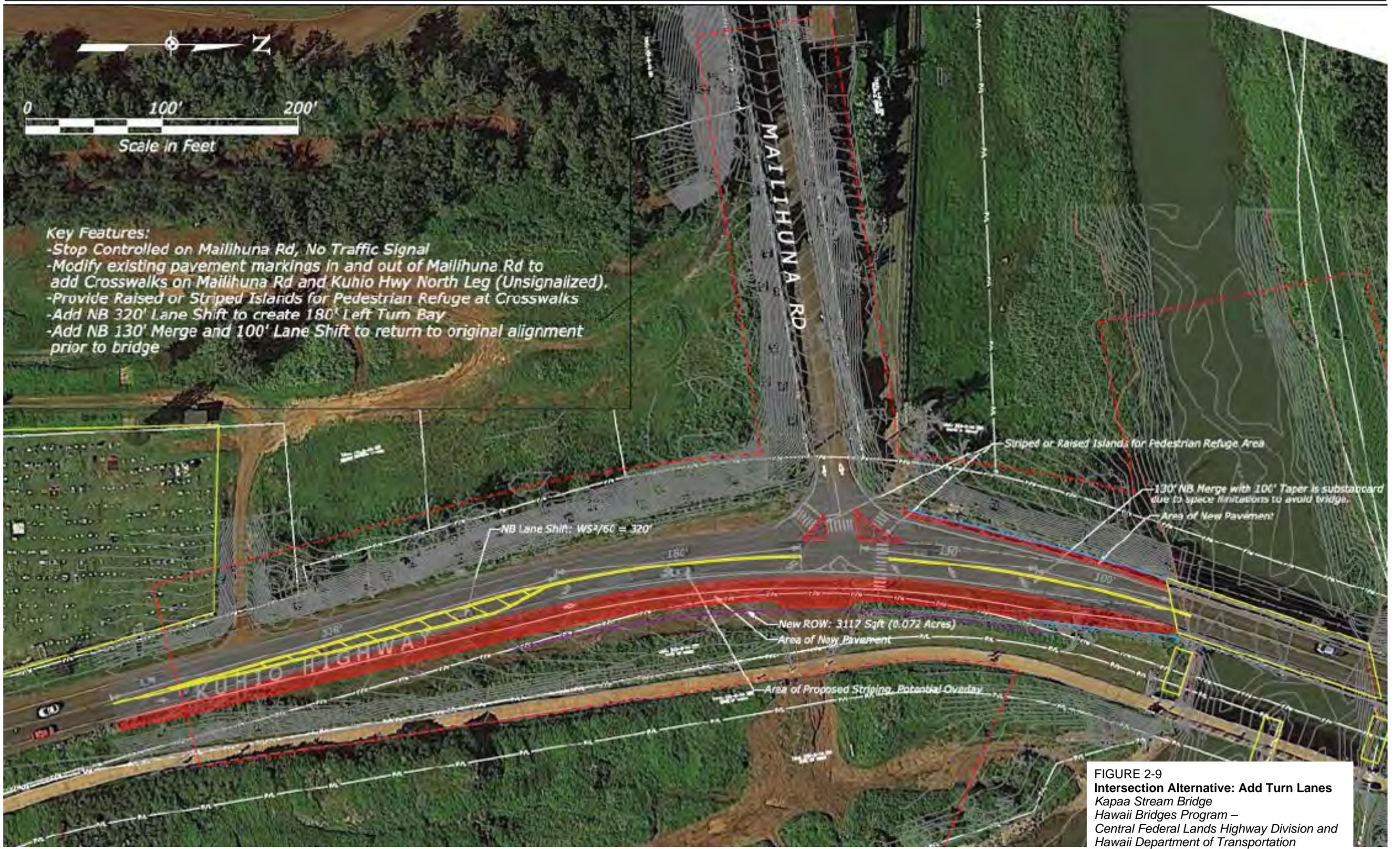
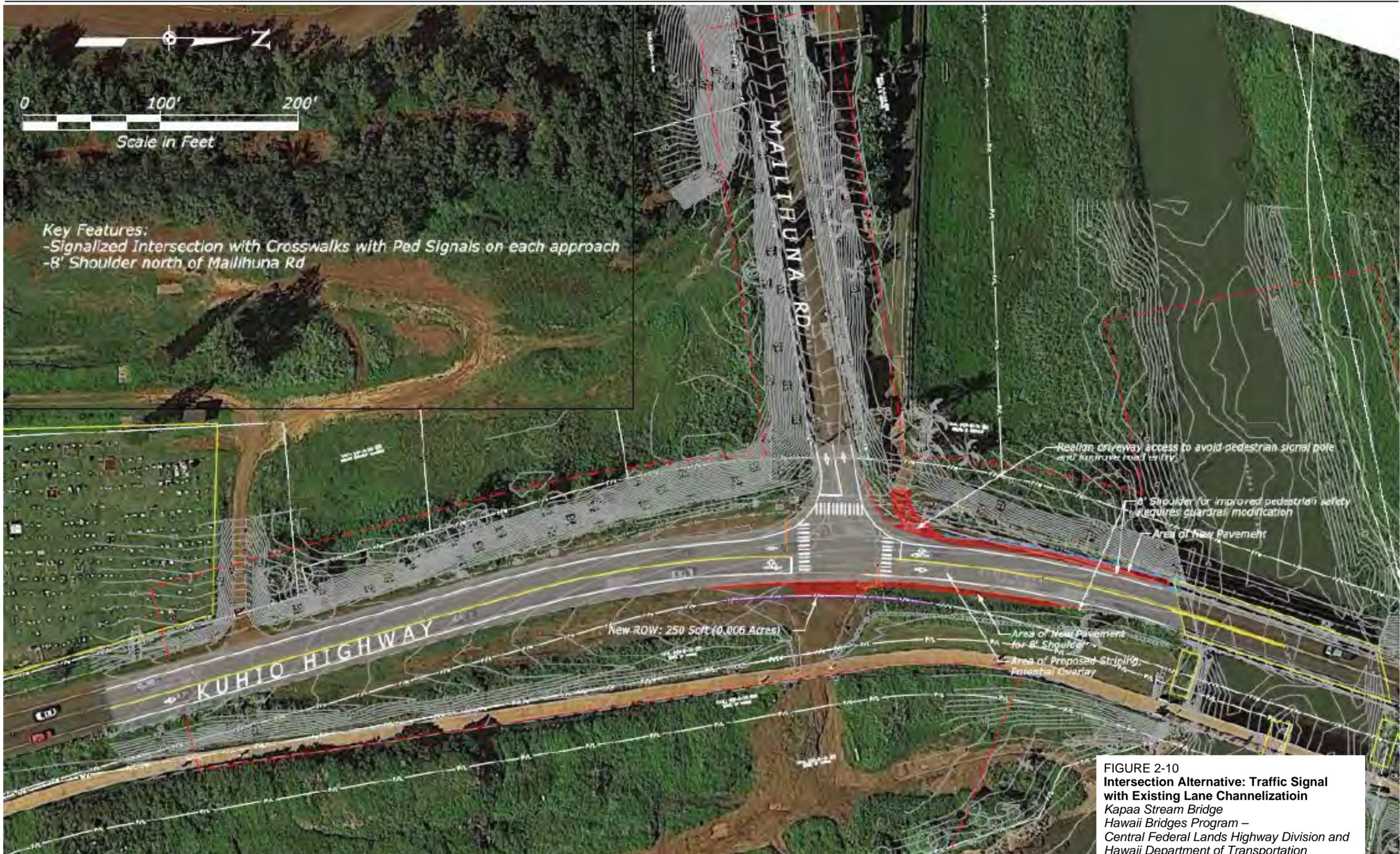


FIGURE 2-9  
 Intersection Alternative: Add Turn Lanes  
 Kapaa Stream Bridge  
 Hawaii Bridges Program –  
 Central Federal Lands Highway Division and  
 Hawaii Department of Transportation



**Key Features:**  
 -Signalized Intersection with Crosswalks with Ped Signals on each approach  
 -8' Shoulder north of Maillihuna Rd

**FIGURE 2-10**  
**Intersection Alternative: Traffic Signal with Existing Lane Channelization**  
 Kapaa Stream Bridge  
 Hawaii Bridges Program –  
 Central Federal Lands Highway Division and  
 Hawaii Department of Transportation

# Affected Environment, Impacts, and Mitigation

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Chapter 3 describes the affected environment, impacts, and mitigation for relevant resources areas. Resources that are not present (or otherwise don't apply) that are not discussed further include potable water or wastewater disposal. Public safety is discussed within Section 3.15, Roads and Traffic.

## 3.1 Topography, Geology, and Soils

### 3.1.1 Existing Conditions

The island of Kauai is composed of a single basalt shield volcano built by the extrusion of lava of the Waimea Canyon Volcanic Series, more than two million years ago. After this main shield-building phase, there was renewed volcanic activity known as the Koloa Volcanic Series, characterized as thick flows of dense basalt extruded from groups of vents aligned in northern-southern trends in various locales. Along streams, drainage ways, and low-lying areas, erosion of the upper Koloa and Waimea Canyon Volcanic Series has deposited alluvial sediments. These sediments generally are unconsolidated to moderately consolidated, and are non-calcareous soil deposits.

The area of Kapaa Stream Bridge can be characterized as fairly flat, with irregularly shaped gulches and small valleys in the uplands, through which small tributary streams run including Kapahi, Makaleha, and Moalepe. The U.S. Department of Agriculture Soil Survey Geographic Database (SSURGO, 2001) and soil survey data gathered by Foote et al. (Foote et al., 1972) indicate four soil types in the project area (see Figure 3-1):

- **Beaches (BS):** This soil occurs as sandy, gravelly, or cobbly areas on all islands. It is washed and rewashed by ocean waves. The beaches consist mainly of light-colored sands derived from coral and seashells. A few of the beaches, however, are dark colored because their sands are from basalt and andesite.
- **Mokuleia Series (Mr) and (Mta):** This series consists of well-drained soils along the coastal plains on the islands of Oahu and Kauai. These soils formed in recent alluvium deposited over coral sand. They are shallow and nearly level. Elevations range from nearly sea level to 100 feet. The annual rainfall amounts to 15 to 40 inches on Oahu and 50 to 100 inches on Kauai. The mean annual soil temperature is 74 degrees Fahrenheit (°F). Mokuleia soils are geographically associated with Hanalei, Jaucas, and Keaau soils.
- **Lihue Series (LhE2):** This series consists of well-drained soils on uplands on the island of Kauai. These soils developed in material weathered from basic igneous rock. They are gently sloping to steep. Elevations range from nearly sea level to 800 feet. The annual rainfall amount to 40 to 60 inches. The mean annual soil temperature is 73° F. Lihue soils are geographically associated with Ioleau and Puhī soils.

Kapaa Stream Bridge is at an elevation of 18 feet amsl. As part of the project's field exploration program, four borings were drilled for the replacement bridge. Two additional borings were drilled for the proposed bypass bridge. The findings of the geotechnical investigations led to a recommendation for deep foundations such as drilled shafts for the replacement bridge.

### 3.1.2 Potential Impacts and Mitigation Measures

The proposed project is not constrained by geological and topographic site conditions. There are no farmlands within the project area.

To address subsurface conditions, site preparation includes materials such as clean gravel and well-graded granular structural fill material as backfill for excavations. To address the presence of soft subgrade soils found in geotechnical investigations and the potential for settlement, deep foundations are being considered in the final design. Roadway sections would be designed to standard HDOT specifications that consist of asphalt and base course over sub-base course material.

Construction of the intersection improvement, bridge and roadway approaches would involve land disturbance that could result in soil erosion.

**Signalized Intersection Alternative.** Signalizing the intersection and adding turn lanes would occur within the existing right-of-way which is relatively flat and would require minimal grading. The erosion potential would be relatively low given the small area of disturbance (approximately 1 acre).

**Roundabout Alternative.** The roundabout would have a larger footprint than the signalized intersection. The *mauka* (western) portion of the roundabout at the foot of Mailihuna Road would require substantial cuts into a bluff. A new retaining wall would be needed to support the cut slope and a drainage system engineered to address changes in landform and stormwater flow.

**Mitigation Measures.** To minimize the potential for construction-related erosion impacts, best management practices (BMPs) would be developed as part of the project's engineering and design in accordance with the Kauai County Code for grading, grubbing, and stockpiling (Kauai County Code, Chapter 22, Article 7). See Section 3.2, Climate and Air Quality, and Section 3.3, Hydrology and Water Quality, for a list of applicable BMPs.

## 3.2 Climate and Air Quality

### 3.2.1 Existing Conditions

Climate in the project area is moderated by elevation and prevailing northwest tradewinds. The average maximum daily temperature is approximately 80°F, with an average minimum of 67°F. Mean annual rainfall for the project area is approximately 84.5 inches. Rainfall is typically highest in November and December and lowest in June (Giambelluca et al., 2013). The closest rainfall gage to the site experienced above-average rainfall in 2015 through the end of September (NOAA, National Weather Service, Weather Forecast Office Honolulu, 2015).

Kauai, like the rest of the state, meets the standards set by the Clean Air Act (CAA) and is within an attainment area. HDOH operates a network of air quality monitoring stations at locations around the state. The only monitoring station on Kauai is located approximately 10 miles east-southeast of the project site in the Niumalu subdivision, near Lihue. As reported in the Annual Summary of Air Quality Data for 2014 (HDOH, 2015) (the latest year for which annual data are available), the pollutants monitored at the Niumalu station were particulate matter less than 2.5 microns (PM<sub>2.5</sub>), nitrogen dioxide (NO<sub>2</sub>), and sulfur dioxide (SO<sub>2</sub>). Carbon monoxide (CO) monitoring was shut down as of April 25, 2013. The readings at this location show that criteria pollutant levels were below state and federal ambient air quality standards (see Table 3-1).

TABLE 3-1

Island of Kauai Air Monitoring Station (Niumalu) Data (2014)

Pollutant	Annual Mean	Federal Air Quality Standard (Primary)	State Air Quality Standard
PM <sub>2.5</sub> (24-hour)	4.5 µg/m <sup>3</sup>	35 µg/m <sup>3</sup>	None
NO <sub>2</sub> (Annual)	0.002 ppm	53 ppb	0.04 ppm
SO <sub>2</sub> (1-hour)	0.002 ppm	75 ppb	None
SO <sub>2</sub> (3-hour)	0.002 ppm	0.50 ppm <sup>a</sup>	0.50 ppm
SO <sub>2</sub> (24-hour)	0.002 ppm	None	0.14 ppm

Notes:

<sup>a</sup> Federal secondary standard

Source: State of Hawaii Annual Summary 2014 Air Quality Data, Hawaii Department of Health, September 2015

µg/m<sup>3</sup> = micrograms per cubic meter

ppb = parts per billion

ppm = parts per million

Air quality in the project area is currently affected primarily by emissions from mobile sources (traffic on Kuhio Highway and Mailihuna Road). The primary mobile sources of emission are all types of vehicles, which generate pollutants (primarily nitrogen oxide and CO) when traveling or idling on roadways within and adjacent to the project limits.

## 3.2.2 Potential Impacts and Mitigation Measures

### 3.2.2.1 Short-term, Construction-related Emissions

Air quality impacts are not expected to differ between the signalized intersection and roundabout alternatives.

Short-term impacts on air quality may result from project construction. BMPs would be employed to minimize emissions. The following two types of pollutants are common: (1) fugitive dust from vehicular movement and soil disturbance and (2) exhaust emissions from onsite construction equipment. Overall air quality impacts are expected to be insignificant because the project is in an unpopulated area, and the expected 17-month construction period is of limited duration.

Fugitive Dust. BMPs for dust control would be implemented to minimize air quality impacts during the project construction phase. BMPs to protect air quality include the following (Kauai County Code, Chapter 22, Article 7):

- Use water, dust fences, disturbance area limitations, and revegetation to minimize dust emissions.
- Stabilize all disturbed areas with erosion control measures.
- Cover open-bodied trucks whenever hauling material that can be blown away.
- Revegetate disturbed area as soon as possible after construction.
- Stabilize construction entrances to avoid offsite tracking of sediment.

Exhaust Emissions. Emissions from engine exhausts of onsite mobile and stationary construction equipment could also affect air quality. Emission impacts can be minimized by requiring the Contractor to use vehicles that are properly maintained. Nitrogen oxide emissions from diesel engines can be relatively high compared to emissions from gasoline-powered equipment; however, the standard for nitrogen oxide is set on an annual basis and is unlikely to be violated by emissions from short-term use of construction equipment. CO emissions from diesel engines are low and are expected to be insignificant compared to vehicular emissions generated on the highway.

Construction activities would employ fugitive dust emission control measures in compliance with the provisions of HAR Chapter 11-60.1, "Air Pollution Control," Section 11-60.1-33 on Fugitive Dust.

### 3.2.2.2 Long-term Impacts on Air Quality

The purpose of this project is to improve the intersection of Mailihuna Road and Kuhio Highway and replace Kapaa Stream Bridge. This project has been determined to generate minimal air quality impacts for CAA criteria pollutants (see Section 3.2) and has not been linked with any special mobile source air toxics (MSAT) concerns. As such, this project would not result in changes in traffic volumes, vehicle mix, basic project location, or any other factor that would cause an increase in MSAT impacts of the project from the No Action Alternative.

U.S. Environmental Protection Agency (USEPA) regulations for vehicle engines and fuels would cause overall MSAT emissions to decline substantially over the next several decades. Based on regulations now in effect, an analysis of national trends with USEPA's Motor Vehicle Emission Simulator model forecasts a combined reduction of over 80 percent in the total annual emission rate for the priority MSAT from 2010 to 2050. Vehicle miles of travel are projected to increase by over 100 percent. This would both reduce the background level of MSAT and possibly generate minor MSAT emissions from this project.

## 3.3 Wetlands, Hydrology, and Water Quality

### 3.3.1 Surface Water and Groundwater

Kapaa Stream is in the Kapaa Watershed, which encompasses roughly 16.5 square miles. The State of Hawaii and the U.S. Geological Survey (USGS) identify Kapaa Stream, traversing the survey area, as a perennial stream (Figure 1-1). The total length of this perennial stream is approximately 59.2 miles according to the *Atlas of Hawaiian Watersheds & Their Aquatic Resources* (Parham et al., 2008). The stream flows west, perpendicular to the highway through the study area and terminates in the Pacific Ocean. The mouth of Kapaa Stream is shaped by a variety of natural conditions, and likely shifts throughout the year. Natural conditions influencing elevation and physical features near the mouth include stream flow, sediment deposition, ocean tide, and wave action.

The survey area covers approximately 8.2 acres, stretching south of Mailihuna Road and north of mile post 10 near the gravel beach park parking lot. The survey area encompasses the former cane haul road bridge, located immediately *makai* of the Kapaa Stream Bridge, which is part of the Kauai bike and pedestrian path. Elevations in the survey area range from sea level to roughly 30 feet above sea level.

The National Wetlands Inventory program identifies three wetland and water types within the survey area:

- Riverine, Lower Perennial, Unconsolidated Bottom, Permanently Flooded (R2UBH)
- Palustrine, Emergent, Persistent, Seasonally Flooded (PEM1C)
- Palustrine, emergent, Persistent, Seasonal-Tidal (PEM1R)

A marine water (Marine, Intertidal, Unconsolidated Shore, Irregularly Flooded - M2USP) is identified immediately east of the survey area.

Groundwater was encountered in the borings at depths ranging from 15.8 to 17.8 feet. The depth to groundwater can be expected to vary with water level in the stream, seasonal rainfall, and tidal influence.

### 3.3.2 Wetlands

Biologists with SWCA Environmental Consultants (SWCA) evaluated ten wetland sampling points within the survey area on September 29, 2014, to delineate wetlands and other WOUS. Appendix A presents methods and results. The biologists used methods for determining the presence of wetlands pursuant to the 1987 *Corps of Engineers Wetland Delineation Manual* and the 2012 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Hawai'i and Pacific Islands Region* (USACE, 1987 and 2012). Based on these documents, jurisdictional wetlands are identified using the following three criteria:

- Hydric soils—soils that are permanently or seasonally saturated by water
- Hydrophytic vegetation—plants adapted to life in water or waterlogged conditions
- Wetland hydrology—areas that are periodically inundated or have soils saturated to the surface at some time during the growing season

The boundaries of potential non-wetland Waters of the U.S. were delineated by recording the location of the HTL (see Section 3.3.3).

As shown in Table 3-2, SWCA delineated approximately 1.98 acres of tidal, non-wetland WOUS (Riverine, Tidal [R1]) below the high tide line, and 0.31 acre of tidal wetlands (Palustrine Emergent Marsh [PEM], Tidal). Figure 3-2 shows the survey points and delineation results. Non-wetland Waters of the U.S. are discussed in Section 3.3.3.

TABLE 3-2

**Potential Waters of the U.S Delineated in the Survey Area**

WOUS ID	Type	Size (Acres)
1	Riverine, Tidal (R1)	1.98
2	Palustrine Emergent Marsh [PEM], Tidal	0.28
3	Palustrine Emergent Marsh [PEM], Tidal	0.02
4	Palustrine Emergent Marsh [PEM], Tidal	0.01
<b>R1 Subtotal</b>		<b>1.98</b>
<b>PEM Subtotal</b>		<b>0.31</b>
<b>Total Waters of the U.S.</b>		<b>2.29</b>

Three individual wetland areas were delineated (Figure 3-2). Wetland W02 is shown in Photo 3-1; wetland W03 is shown in Photo 3-2, and wetland W04 is shown in Photo 3-3. The dominant plants observed at the three wetland locations included California grass (*Urochloa mutica*) (FACW), coconut (*Cocos nucifera*) (FACU), and tropical almond (*Terminalia catappa*) (FAC). Hydric soils were identified in three of the ten sampling points. Of the three wetland sampling points, the NRCS soil map identified one hydric soil in the survey area, Mokuleia clay loam, a poorly drained variant (Mta) (NRCS, 2012). Hydric soil indicators of the delineated wetlands included Redox Dark Surface, Muck, a problematic hydric soil (fluvial sediments within floodplains). Wetland hydrology indicators observed were Saturation (A3) and High Water Table (A2).



Photo 3-1. Wetland W02, PEM, Tidal



Photo 3-2. Wetland W03, PEM, Tidal



Photo 3-3. Wetland W04, PEM, Tidal

### 3.3.3 Non-wetland Waters

A single perennial non-wetland water (Kapaa Stream) was identified in the survey area (Figure 3-2). This segment of Kapaa Stream was determined to be tidally influenced because of the close proximity to the ocean and the presence of marine/estuarine biota (e.g., Hawaiian flagtail [*Kuhlia* spp.]) observed during SWCA's field work (SWCA, 2015) and from previous surveys (AECOS, 2002; Parham et al., 2008). The high tide line was determined using several factors. Near the Kapaa Stream Bridge and Ke Ala Hele Makalae, where the banks of the drainage are cemented, SWCA determined that the high tide line at the top of the vertical concrete wall (Photo 3-4). In the remainder of the survey area the high tide line was determined at the line of debris and shells deposited along the shore, as well as the vegetation line (Photo 3-5). The MHHW, located at 1.017 feet (0.31 meter) above mean sea level. In total, approximately 1.98 acres (0.80 hectare) of tidal, non-wetland Waters of the U.S. was delineated in the survey area (Figure 3-2).



Photo 3-4. Ke Ala Hele Makalae and Kapaa Stream Bridge showing modifications to the left bank



Photo 3-5. Looking upstream toward Kapaa Stream Bridge. Note: high tide line is shown by yellow lines.

The mouth of Kapaa Stream is shaped by a variety of natural conditions, and likely shifts throughout the year. Natural conditions influencing elevation and physical features near the mouth include stream flow, sediment deposition, ocean tide, and wave action.

### 3.3.4 Water Quality

HAR Chapters 11-54 and 11-55 outline a number of requirements related to water quality in the state of Hawaii. These include an anti-degradation policy; designated uses of waters, which must be maintained; water quality criteria, which must be met during construction and operation; and permitting requirements.

The Federal CWA requires states to collect and review surface water quality data and related information, and to prepare and submit to USEPA biennial lists of waterbodies that are impaired (that is, not meeting state water quality standards). The current list is included in the 2014 *State of Hawaii Water Quality Monitoring and Assessment Report* (HDOH, 2014a). According to the Report, insufficient data exist to determine whether Kapaa Stream is an impaired waterway, but most uses were attained and one use not attained. As of the 2014 Integrated Report, initiating Total Maximum Daily Load development for Kapaa Stream was a low priority.

The classification of water use of Kapaa Stream is mapped as Inland Class 2 on the *Water Quality Standards Map of the Island of Kauai* (HDOH, 2014b). Use categories classify waters for the purpose of applying the water quality standards, as well as the selection or definition of quality parameters and uses to be protected. Class 2 waters are to be protected for uses compatible with the protection and propagation of fish, shellfish, and wildlife, and with recreation in and on these waters. In addition, Class 2 waters are to be protected for agricultural and industrial water supplies, shipping, and navigation use (HDOH, 2014c).

### 3.3.5 Potential Impacts and Mitigation Measures

#### 3.3.5.1 Short-term Construction Impacts

The project would involve demolition, excavation, grading, and construction in the stream and on the streambanks. There may be temporary impacts to WOUS associated with the water diversion structure for construction. Waterborne erosion would be mitigated by implementing BMPs in place during construction. Because new disturbances would exceed 1 acre, an NPDES permit (Notice of Intent Form C) would be obtained under CWA Section 402. An approved erosion control plan would be held onsite.

BMPs to protect water quality include the following (Kauai County Code, Chapter 22, Article 7):

- Minimize sedimentation or other pollution discharge to the stream through BMPs and/or erosion control measure.
- Stabilize all disturbed areas with erosion control measures.
- Use check dams to slow runoff water velocities.
- Revegetate disturbed area, including streambanks, as soon as possible after construction.
- Stabilize construction entrances to avoid offsite tracking of sediment.
- All project-related materials and equipment placed in the water should be free of pollutants.
- Fueling of land-based vehicles and equipment should take place at least 50 feet away from the water, preferably over an impervious surface.

A temporary bypass road and prefabricated modular steel bridge would route traffic around the bridge sites during construction. No temporary fill would be placed below the HTL to construct the bypass.

Accidental spills or releases of hazardous materials during construction could degrade the quality of stormwater runoff and reach Kapaa Stream. Temporary stormwater control measures would be implemented to protect water quality in the stream. The potential for accidental spills or releases is low and, if they did occur, would be attended to and cleaned up immediately.

All or portions of the bridge construction area would be dewatered before in-stream work using an isolation and confinement structure or other method, as appropriate for the location and construction phase. The dewatering structure would be constructed where needed for dewatering between the HTLs and would be sized as needed to dewater the bridge construction area. The size and location of the dewatering structure will account for tidal fluctuations anticipated during the construction window. The dewatering structure would be removed immediately after it is no longer needed. The area to be temporarily disturbed within the HTLs will be determined before applying for the CWA Section 404 and other required Permits.

Federal (Section 404) and State (Stream Channel Alteration) permits would be needed for discharges or fill in regulated waters. Collecting and disposing groundwater would be conducted in accordance with applicable permit requirements.

#### 3.3.5.2 Long-term Impacts on Waters of the U.S. and Water Quality

No permanent fill would be placed below the HTL to construct the bypass. However, removal of sediment followed by placement of small areas of riprap may be required for protection of the replacement bridge and streambanks. If bank protection is determined to be required during later design phases, it will be included in the CWA 404 permit application.

The bridge replacement and intersection projects would not change the general drainage pattern of stormwater flows. Within the existing project area, there are 3.2 acres of permeable surfaces and 1.6 acres of impermeable surfaces, the latter consisting primarily of road surface.

**Signalized Intersection Alternative.** A signalized intersection would result in a net increase in impermeable area of 0.2 acre (or approximately 8,700 square feet). The increase is because of widened approaches to the wider bridge deck and the addition of turn lanes at the improved intersection.

**Roundabout Alternative.** The roundabout is expected to result in a net increase of 0.1 acre (or approximately 4,350 square feet) in the amount of impermeable area because of expanded road surfaces. The roundabout alternative would convert a slightly small surface area from permeable to impermeable if the circle is landscaped.

Because the project area is surrounded by undeveloped land, the slight increases in impervious surface area for both alternatives would not have a significant adverse effect on stormwater runoff entering the streams.

## 3.4 Natural Hazards

### 3.4.1 Flooding

Kapaa Stream Bridge is located within Zone AE, which is a Federal Emergency Management Agency (FEMA)-mapped floodplain. Therefore, the hydrologic design for the replacement bridge is based on both the 1-in-50-year and 1-in-100-year storm event, and based on the Kuhio Highway classification as an Arterial and applicable FHWA Hydraulic Engineering Circulars. For purposes of the hydraulic analysis of the existing bridge and replacement bridge, the 1-in-100-year storm event scenario (the more conservative of the two) was used.

### 3.4.2 Seismic Activity

Earthquakes in the Hawaiian Islands are primarily associated with volcanic eruptions from the expansion or shrinkage of magma reservoirs, rather than shifts in the earth's crust. The island of Kauai is periodically subject to episodes of seismic activity of varying intensity, but available historical data indicates that the number of major earthquakes occurring on Kauai have generally been fewer and of lower intensity compared with other islands, such as the Big Island.

The AASHTO LRFD Bridge Design Specifications (2014) provide minimum design criteria to address potential damages from seismic disturbances. The recommended seismic response parameters for use in design represent ground motion corresponding to an exceedance probability of approximately 7 percent in 75 years for an earthquake with an approximate 1,000-year return period. The AASHTO LRFD Bridge Design Specification scale is from Seismic Zone 1 through 4, where 1 is the lowest level for potential seismic induced ground movement. Kauai is designated Seismic Zone 1.

### 3.4.3 Tsunami

Tsunamis potentially destructive to the Hawaiian Islands may originate anywhere around the rim of the Pacific Ocean and may also be locally generated by earthquakes on or near the island. Approximately 50 tsunamis have been reported in the Hawaiian Islands since the early 1800s. The State of Hawaii Civil Defense established tsunami inundation zones and maps for all coastal areas in Hawaii. The Kapaa Stream Bridge project area is located within the tsunami evacuation zone (NOAA, 2015).

### 3.4.4 Potential Impacts and Mitigation Measures

The impacts of natural hazards are not expected to differ substantially between the signalized intersection alternative and the roundabout alternative.

The existing bridge does not meet the 1-in-100-year storm criteria. Results of hydraulic calculations indicate that the existing bridge will experience pressure flow conditions during the 1-in-100-year storm. The existing bridge will not provide the 2-foot minimum design freeboard during the 1-in-100-year storm. The analysis also indicates that overtopping will not occur at Kapaa Stream Bridge, but will occur north of the bridge along Kuhio Highway.

Likewise, the proposed bridge will not meet the 100-year criteria. Similar to the existing bridge, the replacement bridge would not be overtopped but would experience pressure flow conditions during the 1-in-100-year storm. Because the proposed bridge will not provide the 2-foot minimum freeboard specified by the HDOT criteria, a design exception will be required.

The hydraulic analysis also found that the single-span replacement bridge (and removal of the in-stream pier associated with the existing bridge) would not cause a rise in the 100-year water surface elevation and would meet FEMA's and the County of Kauai's flood hazard and No-Rise requirements. Therefore, the new structure would not adversely affect flood conditions in the stream.

HDOT currently does not evaluate the future threat of sea level rise (SLR) when constructing within the coastal zone. The School of Ocean and Earth Science and Technology (SOEST) at the University of Hawaii is studying the potential threat of sea level rise on the islands. SOEST has projected a schedule of global mean SLR based on published best- and worst-case scenarios that SOESTs suggests could be adopted in Hawaii in lieu of a local analysis (Table 3-3).

TABLE 3-3  
Schedule of Sea-level Rise 2011 to 2100

Sea Level Rise	Worst case	Best Case
1 foot	2040	2050
2 feet	2050	2070
3 feet	2070	2090

SOURCE:

<http://www.soest.hawaii.edu/coasts/sealevel/index.html>

(accessed May 23, 2016)

The proposed Kapaa Stream Bridge would be designed for a life span of 75 years and the elevation of the proposed bridge deck is approximately 18 feet. It is anticipated that SLR would not affect the use of the bridge during its lifetime under the best-case scenario (best-case SLR of 3 feet by 2090), nor under the worst-case scenario if 1 foot per 10 years is assumed out to 2090 (giving a worst-case SLR of 5 feet by 2090). However, adjacent roadways with elevations less than 18 feet could be affected by SLR before the Kapaa Stream Bridge. It is anticipated that SLR will be addressed in the design if a future bridge is required to cross Kapaa Stream at the existing bridge location.

## 3.5 Noise

### 3.5.1 Existing Conditions

Traffic on Kuhio Highway is the primary noise generator. A quantitative noise analysis was not performed because the project does not meet Federal or State criteria for when a noise analysis is needed; specifically, the proposed project would not increase highway capacity and does not meet the classification of a Type I or Type II project as defined in 23 CFR 772.5.

### 3.5.2 Potential Impacts and Mitigation Measures

The noise impacts of the signalized intersection alternative and the roundabout alternatives are expected to be substantially similar.

#### 3.5.2.1 Construction-related Noise

Construction noise impacts are unavoidable, but would be temporary. Noise levels produced during construction would be a function of the methods employed during each stage of construction. Equipment likely to be used include drill rig, crane, excavator, backhoe, front-end loader, grader, forklift, semi-trucks, dump trucks, concrete trucks, compactors, paving equipment, and compressors. The FHWA *Construction Noise Model User's Guide* (2006) indicates that the loudest equipment generally emits noise in the range of 80 to 90 A-weighted decibels (dBA) at a distance of 50 feet, which exceeds permissible levels.

Per HAR Chapter 11-46-3, the project area is comprised of land use located in the Class A Zoning District (conservation and public space) where maximum permissible sound levels are 55 dBA during the daytime (7 am to 10 pm) and 45 dBA at night (10 pm to 7 am). Construction noise is expected to exceed the

State's "maximum permissible" property line noise levels, and a Community Noise Permit would be obtained from HDOH under HAR Chapter 11-46, Community Noise Control. For HDOH to issue a noise permit, the application would describe construction activities for the project. Specific permit restrictions required for construction projects includes the following:

- No permit shall allow construction activities creating excessive noise before 7 am and after 6 pm of the same day.
- No permit shall allow construction activities that emit noise in excess of 95 dBA except between 9 am and 5:30 pm of the same day.
- No permit shall allow construction activities that exceed the allowable noise levels on Sundays and on certain holidays. Pile driving and other activities exceeding 95 dBA would be prohibited on Saturdays.

The HDOH noise permit generally does not limit the noise level generated at the construction site, but rather the times at which high-volume construction can take place. However, before issuing the permit, HDOH may require noise mitigations to be incorporated into construction plans, for example, maintenance and proper muffling of construction equipment and onsite vehicles that exhaust gas or air. HDOH may also require the contractor to conduct noise monitoring. In addition to the noise permit, a noise variance may be requested from HDOH for specific occasions when work hours need to be extended into the evenings and/or on weekends to implement the overall construction schedule.

### 3.5.2.2 Long-term Noise Impacts

Replacing Kapaa Stream Bridge would not change highway capacity or operational conditions (that is, the posted speed limit). Therefore, noise levels after the project is completed are expected to be unchanged.

## 3.6 Hazardous Materials

### 3.6.1 Existing Conditions

A regulatory database computerized environmental report (CER) was acquired in the form of an EDR Radius Map Report with GeoCheck®. The CER is a download from select Federal and State standard source environmental databases that identifies sites within a search radius of up to 1 mile. CER data lists were reviewed to determine whether any sites could present a hazard during construction. The CER (included in Appendix B) did not identify any sites within the 1-mile radius that are suspected to represent a material negative environmental impact.

The CER identified 1 site and 11 orphan sites (sites whose location was not available in the CER) suspect or having potential to represent a material negative environmental impact. The one site mapped is a state hazardous waste site with benzo[a]pyrene in the groundwater. However, clean-up at the site is complete, and the site was listed as No Further Action (NFA) with unrestricted residential use.

A further review of the orphan sites determined that many of the same sites were listed multiple times, and only 4 distinct orphan sites were included in the 11 orphan site listings. One of the 4 sites was only listed in the Facility Index System/Facility Registry System database, with no reported release of hazardous materials or petroleum products. Another of the orphan sites was listed in the SPILLS database for a transformer leak. However, the spill site is approximately 0.9 mile south of the proposed project site and listed as NFA with clean-up complete. The remaining 2 orphan sites were listed for leaking underground storage tanks (LUSTs). The status or clean-up efforts for the LUST sites was not reported. However, both sites are located further than 1 mile south of the proposed project site. Therefore, no sites were identified as a potential concern of a material negative environmental impact for the proposed project.

There is potential for the bridge to contain asbestos-containing material (ACM) and lead-based paint (LBP). Potential ACM on bridge structures includes abutment forms, waterproof membranes between the deck and the paving, geo-textiles, asbestos cement pipes and conduits, textured surfaces, and asbestos concrete.

LBP may be present in paint chips or waste generated during removal of paint from bulk material, including striping paint grindings from asphalt pavement.

### 3.6.2 Potential Impacts and Mitigation Measures

The CER was obtained for a study area that encompassed the signalized intersection alternative and the roundabout alternative; therefore its findings would apply to both. The potential for hazardous materials and hazardous wastes would be substantially the same for both alternatives with the expectation that standard construction methods would be employed in either alternative.

Based on the results of the CER, no hazardous materials are anticipated to be encountered within the proposed project site. Project construction would require the removal of the existing structure. Construction-related activities would also require use of hazardous materials, including lubricants of various weights and viscosities, hydraulic fluid for transit and construction equipment, and cleaning products, and materials used for corrosion protection such as paint or other coatings on exposed steel. In addition, the proposed project would not impact the identified sites of potential concern.

A hazardous materials spill plan would be developed that describes spill prevention measures regarding the location of refueling and storage facilities and the handling of hazardous materials. The hazardous materials spill plan would describe actions to be taken in case of a spill. The contents and requirements of the hazardous materials spill plan include the following:

- The project manager and heavy equipment operators would perform daily pre-work equipment inspections for cleanliness and leaks. All heavy equipment operations would be postponed or halted should a leak be detected, and they would not proceed until the leak is repaired and the equipment is cleaned.
- Absorbent material manufactured for containment and cleanup of small hazardous materials spills would be kept at the project site.
- In the event of a large hazardous materials spill or if unanticipated hazardous materials are encountered within the project site, the HDOH Hazard Evaluation and Emergency Response Office and the HDOT Hazard Evaluation and Environmental Response Office would be contacted immediately.

A survey would be performed to determine whether ACM, LBP, or both are present. If asbestos is present or suspected, an Asbestos Abatement Plan would be prepared to establish the appropriate protocols for abatement. If LBP is identified, work practices (in accordance with applicable State and Federal regulations) would be implemented before removing LBP to contain debris, control airborne dust, and properly dispose of materials with LBP.

## 3.7 Flora

### 3.7.1 Existing Conditions

SWCA biologists conducted field reconnaissance surveys of the project area on September 17 and 29, 2014 (see Appendix C). Representative portions of the area were driven or walked, to describe vegetation types and wetlands or streams, as well as known or suspected threatened, endangered, or candidate plant species. No State- or Federally-listed threatened, endangered, or candidate plant species were recorded in the survey area. Three native Hawaiian plants were seen during the survey:

- Kipukai (*Heliotropium curassavicum*)
- Naupaka (*Scaevola taccada*)
- Pohuehue (*Ipomoea pes-caprae* ssp. *Brasiliensis*)

The vegetation in the survey is composed of the following three main vegetation types:

- **Strand Vegetation:** This vegetation type occurs near the shoreline in the *makai* portion of the survey area, which is strongly influenced by salt spray, saline soil, strong winds, low moisture, high rates of

evaporation, and other shoreline processes. Pohuehue is the most abundant plant in the northeast portion of the survey area, forming low-growing mats along the sand dunes. To the south of Kapaa Stream, non-native California grass (*Urochloa mutica*) is dominant, forming dense mats. Naupaka and wedelia (*Sphagneticola trilobata*) are also common throughout the Strand Vegetation. Tree heliotrope (*Tournefortia argentea*) and coconut (*Cocos nucifera*) are widely scattered along the southern side of the stream, whereas a small ironwood (*Casuarina equisetifolia*) grove is on the northern side, adjacent to the bridge.

- **Ruderal Vegetation:** This vegetation type occurs in and along the highway right-of-way and adjacent to parking areas. It is dominated by a mix of non-native plants. Abundant and common herbaceous species found in the Ruderal Vegetation type are Guinea grass (*Urochloa maxima*), swollen fingergrass (*Chloris barbata*), wire grass (*Eleusine indica*), Bermuda grass (*Cynodon dactylon*), *Macroptilium atropurpureum*, khaki weed (*Alternanthera pungens*), Dallis grass (*Paspalum dilatatum*), and *Ipomoea obscura*. These weedy areas are likely mowed occasionally. On the *mauka* side of the survey area, trees and shrubs are more common, including small stands of koa haole (*Leucaena leucocephala*) and ironwood, as well as scattered castor bean (*Ricinus communis*) and pluchea (*Pluchea* spp.).
- **Emergent Wetland:** This vegetation type is dominated by a dense mat of the non-native California grass. It occurs on the *mauka* side of the bridge immediately adjacent to Kapaa Stream. On the southern side of the stream, California grass is interspersed with bulrush (*Schoenoplectus* sp.). It appears to be the non-native kaluha or California bulrush (*Schoenoplectus californicus*), which looks very similar to the indigenous akiaki (*Schoenoplectus tabernaemontani*).

### 3.7.2 Potential Impacts and Mitigation Measures

The study area for the biological survey encompassed the signalized intersection alternative and the roundabout alternative. Potential impacts on botanical resources would be the same for both alternatives.

Some trees in the project limits may be trimmed or cut down. The following BMPs related to floristic resources would be implemented:

- Natural vegetation, especially grass, would be retained where possible.
- Native plant species, such as naupaka and pohuehue, would be considered for restoration of areas affected by construction, as appropriate.
- Construction traffic would be routed to avoid existing or newly planted vegetation.
- Natural vegetation would be protected with fencing, tree armoring, and retaining walls or tree wells, as appropriate.
- Removed vegetation would not be deposited along the banks of any watercourse.
- All removed vegetation would be disposed away from the project site within 3 months of being removed.
- All construction equipment would be washed before construction to prevent introduction of invasive species seeds from earthmoving or hauling.

The vegetation types and species identified during the survey are not unique. No threatened or endangered plants were found. In addition, no designated plant critical habitat occurs nearby. Based on the lack of sensitive botanical resources and implementation of BMPs, the proposed project is not expected to have a significant adverse impact on botanical resources.

## 3.8 Fauna

SWCA biologists also investigated the presence of known or suspected threatened, endangered, or candidate wildlife species during the September 11, 2014, field survey (see Appendix C).

### 3.8.1 Avifauna

The bird species observed in and near the project area are species typically found in disturbed lowland areas. In all, 10 bird species were documented. These birds, status, and protection under the Migratory Bird Treaty Act (MBTA) are summarized in the following Table 3-4:

TABLE 3-4  
Birds Observed

Common Name	Scientific Name	Status	Protection Under the MBTA
Cattle egret	<i>Bubulcus ibis</i>	NN	Yes
Chestnut munia	<i>Lonchura malacca</i>	NN	
Common myna	<i>Acridotheres tristis</i>	NN	
Domestic chicken	<i>Gallus gallus</i>	NN	
Hawaiian gallinule	<i>Gallinula galeata sandvicensis</i>	E,E	Yes
Japanese white-eye	<i>Zosterops japonicas</i>	NN	
Pacific golden-plover	<i>Pluvialis fulva</i>	M	Yes
Sanderling	<i>Calidris alba</i>	M	Yes
Spotted dove	<i>Streptopelia chinensis</i>	NN	
Zebra dove	<i>Geopelia striata</i>	NN	

Status: E = endemic, NN = non-native established species, M = migrant, E = endangered

Two species of migrant shorebirds, the Pacific golden-plover (*Pluvialis fulva*) and sanderling (*Calidris alba*), were observed foraging on the sand downstream of the bridge. One species of waterbird, the endangered Hawaiian gallinule, was observed foraging along the vegetated streambank upstream of the bridge. These three species are protected under the MBTA. One non-native bird protected under the MBTA, the cattle egret (*Bubulcus ibis*), was observed.

Seabirds, particularly the endangered Hawaiian petrel (*Pterodroma sandwichensis*), threatened Newell's shearwater (*Puffinus auricularis newelli*), and proposed endangered band-rumped storm-petrel (*Oceanodroma castro*), may fly over the project area at night while travelling to and from their upland nesting sites to the ocean. These species nest inland in the mountainous interior of Kauai. No suitable nesting sites for these species are present in the project area.

### 3.8.2 Mammalian Species

#### 3.8.2.1 Hawaiian Hoary Bat

The endangered Hawaiian hoary bat or 'ope'ape'a (*Casiurus cinereus semotus*) is the only native terrestrial mammal species that is still present within the Hawaiian Islands. A survey specifically for Hawaiian hoary bats was not conducted, but suitable habitat for roosting and foraging were noted during the biological survey. Hawaiian hoary bats typically roost in dense canopy foliage or in the subcanopy when canopy is sparse, with open access for launching into flight. The bats have been observed roosting in coconut and ironwood trees and potentially roost in these tree species within the vicinity of the project area. The bats forage in open, wooded, and linear habitats with a wide range of vegetation types. These animals are insectivores and are regularly observed foraging over streams, reservoirs, and wetlands, and up to 300 feet offshore. The stream corridor in the project area is considered suitable bat foraging habitat.

### 3.8.2.2 Other Terrestrial Mammals

Dogs (*Canis familiaris*) and cats (*Felis catus*) were not observed during the biological survey, but are likely to enter the project area. Other mammals that can be expected onsite include mice (*Mus musculus*) and rats (*Rattus spp.*).

### 3.8.3 Terrestrial Invertebrates

Two species of introduced bees were observed during the biological survey: the Sonoran carpenter bee (*Xylocopa sonorina*) and the honey bee (*Apis mellifera*). Non-native garden spiders (*Argiope appensa*) were also present.

### 3.8.4 Fish and Aquatic Invertebrates

Fish and aquatic species within the Kapaa Stream in and near the project area were observed during the September 2014 biological survey. Furthermore, a review of the Hawaii DLNR Division of Aquatic Resources (DAR) Watershed Atlas (Parham et al., 2008) and a previous stream survey (AECOS, 2002) was performed to obtain species previously observed. The resulting list of fish and aquatic species from these sources and their status are summarized in Table 3-5.

TABLE 3-5  
Aquatic Species Observed

Common Name	Scientific Name	Status	Observation Source
<b>Mollusks</b>			
Asiatic flume clam	<i>Corbicula fluminea</i>	NN	AECOS, 2002
Hapawai	<i>Neritina vespertina</i>	E	AECOS, 2002
Melanid snail	<i>Melanoides tuberculata</i>	NN	AECOS, 2002
<b>Crustacea</b>			
Crayfish	<i>Procambarus clarkia</i>	NN	Parham et al, 2008
Opae kalaole	<i>Atyoida bisulcata</i>	E	Parham et al, 2008
Opae oehaa	<i>Macrobrachium grandimanus</i>	I	Parham et al, 2008
Tahitian prawn	<i>Macrobrachium lar</i>	NN	AECOS
<b>Insects</b>			
Asian dragonfly	<i>Crocothemis severilla</i>	NN	AECOS
<b>Fish</b>			
Anaholehole, Hawaiian flagtail	<i>Kuhlia spp.</i>	E/I	SWCA, AECOS
Ama, mullet	<i>Mugilidae</i>	n/a	AECOS
Goby	<i>Gobiid sp.</i>	n/a	Parham et al, 2008, SWCA
Guppy	<i>Poecilla reticulata</i>	NN	AECOS
Kaku, great barracuda	<i>Sphyraena barracuda</i>	I	AECOS
Mexican molly	<i>Poecillis mexicana</i>	NN	AECOS
Mosquito fish	<i>Gambusia affinis</i>	NN	AECOS
Oopu Naniha	<i>Stenogobius hawaiiensis</i>	E	AECOS
Oopu Nakea	<i>Awaous stamineus</i>	E	AECOS

TABLE 3-5  
**Aquatic Species Observed**

Common Name	Scientific Name	Status	Observation Source
Papio	?	I	AECOS
Swordtail	<i>Xiphophorus helleri</i>	NN	Parham et al, 2008
Tilapia	<i>Oreochromis sp./ Sarotherodon sp.</i>	NN	SWCA, AECOS
<b>Amphibia</b>			
Tadpoles	--	NN	SWCA, AECOS

Status: E = endemic, I = indigenous, NN = non-native established species

Note:

n/a= not available

For the entire Kapaa Stream, Parham et al. (2008) documented five native crustaceans (including both 'ōpae kala'ole [*A. bisulcata*] and 'ōpae 'oeha'a [*M. grandimanus*]), which were seen in the estuary. Eighteen species of fish, including all five native amphidromous gobioid species, were listed by Parham et al. (2008) as occurring in Kapaa Stream. In addition, two endemic Neritina mollusks have been recorded (Parham et al. 2008). All these native animals are amphidromous, and so must pass through the estuarine part of the stream twice in their life cycles.

### 3.8.5 Marine Mammals and Turtles

No endangered Hawaiian monk seals or threatened green sea turtles (*Chelonia mydas*) were observed during the survey; however, these animals may haul out or bask on the beach or be found in the marine waters nearby. The proposed critical habitat for monk seal includes terrestrial habitat 15 feet (5 meter) inland from the shoreline and marine habitat from the shoreline seaward to the 1,640-foot (500-meter) depth contour. As defined by the USFWS, the shoreline is the upper reaches of the wash of the waves, other than storm or seismic waves, at high tide during the season in which the highest wash of the waves occurs, usually evidenced by the edge of vegetation growth or the upper limit of debris.

### 3.8.6 Potential Impacts and Mitigation Measures

The signalized intersection alternative and the roundabout alternative are expected to have substantially similar impacts on faunal resources.

#### 3.8.6.1 State- and Federally listed Species

**Hawaiian Hoary Bats.** Bats may roost in coconut and ironwood trees present in the project area, or they may forage throughout the area. Direct impacts to bats would occur only if a juvenile bat too small to fly but too large to be carried by a parent were present in a tree that is trimmed or cut down. The possibility of adversely affecting Hawaiian hoary bats as a result of the proposed project is small. However, the following measures would be taken to avoid impacts:

- Any fences that are erected as part of the project would have barbless top-strand wire to prevent entanglements of the Hawaiian hoary bat on barbed wire. No fences in the survey area were observed with barbed wire; however, if fences are present within the project limits, the top strand of barbed wire would be removed or replaced with barbless wire.
- If trees taller than 15 feet would be trimmed or removed as a result of this project between June 1 and September 15, when juvenile bats that are not yet capable of flying and may be roosting in the trees, a qualified biologist would ensure no juvenile bats are in the affected trees.

**Seabirds.** Threats to the endangered Hawaiian petrel, threatened Newell's shearwater, and proposed endangered band-rumped storm-petrel include the attraction of adults and newly fledged juveniles to bright

lights while transiting between their nest sites and the ocean. Juvenile birds are particularly vulnerable to light attraction and are sometimes grounded when they become disoriented by lights. Many of the grounded birds are vulnerable to mammalian predators or to being struck by vehicles. With implementation of the following mitigation measures, the project would not likely adversely impact the seabirds:

- Construction activity would be restricted to daylight hours during the seabird peak fallout period (September 15 to December 15), to avoid the use of nighttime lighting that could attract seabirds.
- All outdoor lights would be shielded to prevent upward radiation.
- Outside lights that are not needed for security and safety would be turned off from dusk through dawn during the peak fallout period (September 15 to December 15).

**Waterbirds.** The four endangered waterbirds could be present in the survey area at any time. Based on known distribution and habitat requirements, any of these species could also breed in or near the survey area. Breeding for Hawaiian ducks, Hawaiian coots, and Hawaiian gallinules is not restricted to a particular season. The breeding season for the Hawaiian stilt is between February and August.

Direct impacts to waterbirds could occur in association with construction related activities (e.g., human activity, noise, and removal of vegetation). Disturbance of nesting adults could result temporary or permanent abandonment of nests, ducklings, and/or chicks, and ultimately nest failure from egg predation or thermal stress. Disturbance to rearing areas can also result in mortality due to exposure or trauma. Temporary displacement of birds as a result of construction could cause changes to their roosting and foraging patterns leading to increased expended energy and risk of predation. Potential impacts would be minor based on the small amount of habitat to be disturbed by the project. Additionally, potential impacts would occur approximately 1,000 feet from foraging habitat, and adjacent foraging and roosting habitat is available for displaced water birds. The possibility of adversely affecting water birds as a result of the proposed project is likely small; however, the following measures would be taken to avoid impacts.

- Although not expected because of the lack of suitable nesting habitat within the project area, if a waterbird nest with eggs or chicks/ducklings is discovered, work would cease within 100 feet of the nest until the chicks/ducklings have fledged. Waterbird nests, chicks, or broods found in the project area before or during construction would be reported to the USFWS within 48 hours.
- If an endangered Hawaiian waterbird is present or lands in the area during on-going activities, then all activities within 100 feet of the bird would cease, and the bird would also not be approached. Work may continue after the bird leaves the area of its own accord.

**Nene.** The action area<sup>1</sup> contains habitats that could provide nesting and foraging habitat for the nene. Direct impacts could occur during vegetation removal if a nest is damaged or goslings are separated from adults. However, with implementation of conservation measures and the listed BMPs, adverse impacts are unlikely.

The permanent removal of nesting habitat would constitute a long-term indirect impact. This impact would be discountable because of the small amount of habitat removed under the proposed project and the availability of adjacent nesting habitat for displaced nene to use.

In the short term, the human noise and disturbance associated with construction activities could temporarily displace nene from roosting or foraging habitats, or both. This displacement could alter an individual's typical foraging and roosting patterns, forcing it to expend energy to search for new foraging and roosting locations. Displacement from roosting or foraging habitat could lead to increased predation and car strikes on individual nene if a nene is forced to change its behavior and search for suitable habitat.

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<sup>1</sup> The ESA defines an action area as the area within which all of the ESA direct and indirect impacts of the project would occur (50 CFR 402.02). In other words, it is the geographic area that would be affected by noise and light from construction and maintenance of the project, which is typically larger than the project area (see Appendix C).

With implementation of the following conservation measures and BMPs, the project would not likely adversely impact the nene:

- A biologist familiar with the nesting behavior of the nene should survey the area before the initiation of any work, or after any subsequent delay in work of 3 or more days (during which birds may attempt nesting).
- All regular onsite staff would be trained to identify nene, and should know the appropriate steps to take if nene are present onsite.
- If a nene is found in the area during ongoing activities, all activities within 100 feet of the bird would cease, and the bird would also not be approached. If a nest is discovered, contact USFWS. If a nest is not discovered, work may continue after the bird leaves the area of its own accord.

**Hawaiian Monk Seal.** Construction-related activities (such as noise, movements of equipment, and lights) could cause short-term impacts to seals basking and could temporarily displace monk seals from hauling-out and foraging within the Kapaa action area. This displacement could alter an individual's typical foraging and rest patterns, forcing it to expend energy to search for new foraging and haul-out locations. Displacement from haul-outs or foraging habitat could lead to increased predation and boat strikes on individual monk seals if a seal is forced to search for other suitable habitat. However, evidence suggests that Hawaiian monk seals have less sensitive hearing in water than other pinnipeds, and above-water communication largely occurs through short-ranged signals (NMFS, 2014). In addition, evidence from seal behavior suggests that basking seals are surprisingly tolerant of human activity. The thick vegetation between the existing Kapaa Stream Bridge and the ocean may buffer any visual or noise disturbance to basking seals. When seals are disturbed, the likely response is to return to the water, with no long-term consequences.

Construction activities may also temporarily discourage monk seals from using the action areas as a pupping location. Because successful reproduction is important to maintain abundance of this species, conservation measures would be taken should a nursing mother and pup occur in the action area. Disturbance as a result of harassment by construction workers is not expected to occur because workers would be instructed not to intentionally interact with the species.

Indirect harm from the accidental introduction of contaminants or construction-related debris into Kapaa Stream has the potential to reduce water quality in the ocean. However, the potential for these impacts would also be unlikely and discountable by ensuring appropriate BMPs are in place. These include fueling equipment away from the water, inspecting and cleaning all equipment before daily operations, training personnel for emergency spill prevention, and cleaning up.

The primary threats to monk seals (entanglement in fishing gear, impact from boats, and predation by fishermen) are not expected to increase as a result of the proposed project.

Because all impacts on the Hawaiian monk seal would be discountable or insignificant, the proposed project may affect, but is not likely to adversely affect, individuals or populations of the species.

**Green Sea Turtle.** Green sea turtles could use two habitats in the action areas: the nearshore waters for foraging and the sandy beach for hauling-out to rest/bask and for reproduction.

In the short term, construction activities (specifically, noise, and light) may temporarily displace sea turtle individuals from the beach or marine habitats in the action areas. This displacement could alter an individual's typical foraging and rest patterns, forcing it to expend energy to search for new foraging and basking locations. Displacement from haul-outs and foraging habitat could lead to increased predation and boat strikes on individual turtles if forced to search for suitable habitat. Because there is a thickly vegetated buffer zone between the existing Kaapa Stream Bridge and the beach, it is unlikely that basking turtles would be disturbed, should they haul-out on these beaches. If they are disturbed, the likely response would be to return to the shallow water's edge and swim away. Usually this has little consequence, unless there are predators or boats in the area.

Noise and light from construction may also temporarily discourage turtles from using the area as a nesting location. With regard to noise, the main concern would be very loud low-frequency sounds during the nesting period. Increased lighting during the breeding season evening hours is likely to dissuade turtles from emerging to lay eggs on afflicted beaches. Furthermore, artificial lighting is known to disorient hatchlings, which orient toward brighter lights after emerging from their nest. The conservation measures regarding nighttime lighting, such as restricting construction work to daylight hours and shielded lights, would minimize the impact of lighting, reducing it to an unlikely and discountable impact. Disturbance as a result of harassment by construction workers is not expected to occur because workers would be informed not to intentionally interact with the species.

Indirect harm from the accidental introduction of contaminants or construction-related debris into Kaapa Stream has the potential to reduce water quality in the ocean. However, the potential for these impacts would also be unlikely and discountable by ensuring appropriate BMPs are in place. To avoid exacerbating the incidence of fibropapilloma tumors in green sea turtles as a result of the proposed project, BMPs would be implemented to avoid increased nitrogen or other nutrient loads to nearshore waters, which are known to promote algae growth into the surrounding waters (Smith et al., 2010).

Other major causes of human related turtle mortality (impact from boat propellers, gill net entanglement, fishing activities) are not likely to increase as a result of the proposed project.

Because all impacts on green sea turtles would be discountable or insignificant with BMPs, the proposed project may affect, but is not likely to adversely affect, individuals or populations of the species.

### **Mitigation Measures and Best Management Plans**

The following mitigation measures and BMPs will be implemented to protect the Monk Seal and Green Sea Turtle:

- Do not begin construction activities if a monk seal or turtle is in the construction area or within 150 feet of the construction area. Construction can only begin after the animal voluntarily leaves the area. If the species is noticed after work has already begun, that work may continue only if, in the best judgement of the project supervisor, that there is no way for the activity to adversely affect the animal(s).
- Remove any construction-related debris that may pose an entanglement threat to monk seals and turtles from the construction area at the end of each day and at the conclusion of the construction project.
- Do not attempt to feed, touch, ride, or otherwise intentionally interact with any monk seals or sea turtles.
- Shield lighting to reduce direct and ambient light to potential nearby beach habitat.
- Use lights with a wavelength (yellow) that are not as attractive to hatchling turtles, wherever possible.

The following BMPs to protect marine water quality are recommended by NOAA. The applicability of these BMPs to the proposed project would depend on the site-specific construction means and methods chosen.

- Develop a contingency plan to control toxic materials should be developed.
- Store appropriate materials to contain and clean potential spills at the work site, and make them readily available.
- Use pollutant-free project-related materials and equipment in the water.
- For project manager and heavy equipment operators, perform daily pre-work equipment inspections for cleanliness and leaks. All heavy equipment operations should be postponed or halted should a leak be detected, and they should not proceed until the leak is repaired and the equipment is cleaned.
- Fuel land-based vehicles and equipment at least 50 feet away from the water, preferably over an impervious surface. Fueling of vessels should be done at approved fueling facilities.

- Minimize turbidity and siltation from project-related work and contain through the appropriate use of erosion control practices, effective silt containment devices, and curtailment of work during adverse weather and tidal/flow conditions.
- Develop a plan to prevent debris and other wastes from entering or remaining in the marine environment during the project.

### 3.8.6.2 Critical Habitat

The Kapaa action area falls within recently designated critical habitat for the Hawaiian monk seal. Effects on the three essential critical habitat features consist of temporary construction impacts to water quality (turbidity, siltation, pollutants, and debris) and noise and light disturbances. Impacts on water quality would be discountable because of BMP measures that would maintain water quality. Low levels of light and noise from the construction activities could impact critical habitat; however, the conservation measures on nighttime lighting listed in Section 3.8.6.1 would minimize the impact of lighting, reducing it to an unlikely and discountable impact. Noise levels elevated to the point at which monk seals behavior is disrupted would be unlikely because of the distance of the critical habitat from the construction activities and the dense vegetation that would screen the noise before it reached the critical habitat. Noise and light effects would occur in the short term, and would cease after construction is completed.

Because all impacts on the Hawaiian monk seal critical habitat would be discountable or insignificant, the proposed project is not likely to destroy or adversely modify critical habitat of the species.

### 3.8.6.3 Migratory Birds

SWCA observed four bird species federally protected under the MBTA during the biological survey: the migratory Pacific golden-plover and sanderling, the endangered Hawaiian gallinule, and the introduced cattle egret. Construction may temporarily displace some of these bird species, but long-term impacts are not expected. These birds (likely limited to a few individuals) are expected to find suitable foraging habitat in nearby areas. The temporary displacement of these individuals at the project site is not expected to affect their survival or the overall species' populations.

### 3.8.6.4 Aquatic Resources

None of the species recorded in the lower or estuarine portion of Kapaa Stream are Federally or State-listed threatened, endangered, or candidate species. However, native fishes and aquatic invertebrates have been recorded in the stream, and the potential exists for project activities to impact these animals near and downstream of the construction activities.

Because the native amphidromous species travel to and from the sea as part of their life cycle, habitat alteration near the site should be minimized to the maximum extent practicable. As such, precautions should be taken not to impede upstream and downstream movement of these species.

While the type and extent of impacts would depend on the final project design, the mitigation measures described in Sections 3.3.5 and 3.6.2 would be implemented to reduce potential impacts to aquatic resources in the area.

## 3.9 Archaeological Resources

### 3.9.1 Existing Conditions

The project sits within the ahupuaa (traditional land division) of Kapaa and Kealia, part of the ancient Puna District. Human occupation in the area ranges from pre-Contact times to the Plantation Era. Historic accounts suggest a fairly sparse population in Kapaa, with Hawaiians living in a series of small settlements along a path that is the present-day Kuhio Highway. This path traversed a narrow sand berm that created the *makai* boundary of an inland swamp. Agricultural fields were located on the *mauka* side of the swamp in valleys.

In the 1860s, a nearby ranch and dairy began operation. A decade later, the Makee Sugar Plantation was established, with a mill at Kapaa and a railroad adjacent to the present-day Kuhio Highway and Kapaa

Stream Bridge. A pineapple cannery was established in Kapaa in the early 1900s and made use of the railroad infrastructure. Railroad transport shifted to truck transport in the 1950s, and a cane haul road was constructed near the project area at the intersection of Hauaala Road and Kuhio Highway.

A pedestrian survey and subsurface testing were conducted by Cultural Surveys Hawaii (CSH) archaeologists in June 2015 (see Appendix D). A 100-percent-coverage pedestrian inspection of the project area was undertaken using systematic sweeps spaced 5 meters apart. The subsurface testing program was backhoe-assisted and involved two linear test excavations measuring approximately 9 to 7 meters (29.5 to 23 feet) long and 0.6 meter (2 foot) wide on the eastern side of the bridge, along the shoulder of the highway. No archaeological resources were identified in the project area during field work or subsurface testing.

Four historic cultural resources were identified during field investigations (see Figure 3-3):

- State Inventory of Historic Properties (SIHP) #50-30-08-2278: Kapaa Stream Bridge
- SIHP #50-30-08-2279: Ditch and culvert (a possibly historic water control complex)
- SIHP #50-30-08-0789A Sub-Feature 1: Railroad bridge foundation
- SIHP #50-30-08-2075: Historic bridge foundation

All four resources are discussed in Section 3.10, Historic Architecture resources.

The project APE is outside the boundary of the St. Catherine's Cemetery historic property (SIHP #50-30-08-B002). A driveway that is informally used for access is located within the project area, but historical aerial photography indicates that the driveway was initially constructed for access to homes and was not related to the cemetery. The official vehicular entrance is located at the far southern end of the cemetery and unaffected by the proposed project.

### 3.9.2 Potential Impacts and Mitigation Measures

The signalized intersection alternative and the roundabout alternative are located within the project's Area of Potential Effect (APE) as defined for the Archeological Inventory Survey (AIS) and shown in Figure 3-3 and in Appendix D. Because the roundabout would have a larger footprint, this alternative would involve a greater area of ground disturbance than the signalized intersection. However, the existing intersection delimits the location of both alternatives, and the potential impacts on archaeological resources are expected to be substantially similar.

Based on the background information, it is anticipated that pre-Contact and historic cultural layers associated with occupation, habitation, and agriculture would most likely be encountered during any subsurface activities in the project area, including human burials and associated cultural layers. The plantation era infrastructure still extant within the vicinity of the project area suggests a possibility of encountering significant plantation era cultural resources.

No further archaeological fieldwork is proposed for this project. However, archaeological monitoring will be conducted for ground disturbance and excavation activities during construction. If cultural resources or human remains are inadvertently discovered during construction, construction activities will cease immediately and the contractor will comply with State law and administrative rules for handling them.

## 3.10 Historic Architectural Resources

### 3.10.1 Existing Conditions

Four historic architectural resources were identified within the project area:

- SIHP #50-30-08-2278: Kapaa Stream Bridge
- SIHP #50-30-08-2279: Ditch and culvert
- SIHP #50-30-08-0789A Sub-Feature 1: Kealia Stream Bridge pier
- SIHP #50-30-08-2075: Historic bridge foundation

The Kapaa Stream Bridge (SIHP #50-30-08-2278) is a concrete T-beam bridge built in 1953. SIHP #50-30-08-2279 consists of two features: an earthen ditch remnant and a concrete culvert. It is unclear whether these features were built during the construction of the Kuhio Highway in 1953, or more recently. The Kealia Stream Bridge pier (SIHP #50-30-08-0789A Sub-Feature 1) is the only remaining portion of the historic Kealia Stream Bridge. It is a mortared basalt and concrete pier that is partially collapsed and located under a modern pedestrian bridge. SIHP #50-30-08-2075 consists of remnant abutments of the former Kealia Bridge of the old Kauai Belt Road, located between SIHP #50-30-08-2278 (Kapaa Stream Bridge) and SIHP #50-30-08-0789A Sub-Feature 1 (Kealia Stream Bridge).

### Significance Assessment

The Kapaa Stream Bridge (SIHP #-2278) is included in the November 2013 Hawaii State Historic Bridge Inventory and Evaluation by MKE Associates, LLC, and Fung Associates, Inc. This inventory describes the bridge as a typical post-war bridge that falls under “program comments.” The status refers to common post-war bridges built after 1945 and covered by the Advisory Council for Historic Preservation program comments. However, program comments were never developed for Hawaii and this bridge must be analyzed on its own merits.

The Kapaa Stream Bridge was evaluated by Mason Architects as not eligible for inclusion in the Hawaii or National Register of Historic Places (See Appendix E). This bridge is a common type with other examples on Kauai. It does not contribute significantly to an understanding of the development of Kuhio Highway. Although it was designed by William Bartels, it is not a particularly distinctive example of a tee beam bridge; nor is it considered a significant achievement of its designer. The historic ditch and culvert (SIHP #-2279), a possibly historic water control complex, was evaluated for significance under §13-275-6 Criterion “d” (have yielded, or is likely to yield, information important for research on prehistory or history), and determined eligible to both the Hawaii and National Registers under Criterion D. The cultural resource possesses integrity of location, design, and materials. The AIS sufficiently documented the information content of SIHP #-2279 within the APE (see Appendix D).

SIHP #-0789A, Sub-Feature 1, consists of the remnant portions of the original Kealia Stream Bridge Crossing and part of the first railroad system constructed ca. 1891 to transport sugar cane. The bridge crossing remnants lack integrity of design, materials, workmanship, feeling, and association; therefore, SIHP #-0789A is evaluated as not a significant cultural resource as it is not eligible for listing on the National Register and Hawaii Register pursuant to 36 CFR 60.4 and HAR §13-198-8.

SIHP #-2075 consists of the remnant abutments of the former Kealia Bridge of the old Kauai Belt Road. Because the bridge remnants lack integrity of design, materials, workmanship, feeling, and association, SIHP #-2075 is evaluated as not eligible for listing on the National Register and Hawaii Register pursuant to 36 CFR 60.4 and HAR §13-198-8.

## 3.10.2 Potential Impacts and Mitigation Measures

Because no eligible historic architectural properties are located within the project APE, the proposed project would result in “no historic properties affected” in accordance with Federal regulations (36 CFR 800.5) and “no effect” in accordance with HAR §13-13-275-7.

## 3.11 Cultural Resources

### 3.11.1 Existing Conditions

Act 50, Session Laws of Hawaii, 2000, requires that a proposed project’s impact on the community’s cultural practices be disclosed in the environmental review process. CSH conducted a Cultural Impact Assessment (CIA) for the project (see Appendix F).

CSH conducted historic research of the project area to identify cultural resources and traditional cultural practices. Background research for the CIA yielded elements of the area's cultural history:

- Kapaa literally translates to “the solid or the closing.” Kealia, the *ahupuaa* (or traditional land division) on the north of the stream, means “the salt encrustation.”
- The earliest foreign accounts of life in Kealia appear on the 1830s when missionary censuses recorded a total population of 283 people, including approximately 264 adults and 18 children. The population of Kealia then declined to 143 persons with the introduction of foreign diseases accounting for the decline. Kapaa's population at this time was unknown.
- Mahele documentation provides insight into habitation and agricultural patterns. Kapaa was designated as Crown Lands, while Kealia was granted to the alii (chief) Miriam Keahikuni Kekauonohi, the granddaughter of Kamehameha, one of Liholiho's wives, and the governor of Kauai from 1842 to 1844. Seventeen land claims were made in Kealia and 15 were awarded. Six claims were awarded in the vicinity of the project area. Approximately 67 cultivation *loi* (irrigated terrace) were claimed within the *kuleana* (land claim). *Auwai* (ditch), *koele* (small land unit farmed by a tenant for the chief), and *loko* (ponds) were referenced in land claims, exemplifying the rich agricultural within the *ahupuaa*.
- The first large-scale enterprise in Kapaa and Kealia was formed in 1877 with the Makee Sugar Plantation and the Hui Kawaihau. Makee was given land to build a mill in Kapaa and agreed to grind sugar cane grown by Hui members. The mill subsequently moved to Kealia and its smokestack and landing were still present into the 1900s. Railroad construction for the plantation began in the mid-1890s. The rail line was part of a 20-mile network of plantation railroads with some segments of portable track leading into Kealia Valley.

In August 2015, CSH began an outreach effort to obtain knowledge about land use history, cultural sites, and traditional Hawaiian or other cultural practices in the vicinity of the project area. Approval of interview transcriptions and summaries from Kenneth Ponce and Puanani Rogers is pending. Other community members did not participate in full interviews, but shared their *mana'o* (thoughts) in writing or by phone conversation, as follows:

- On the north side of the bridge, you may find burials on both sides. On the south side, you may find burials on the *makai* side, but should have no problem on the *mauka* side. (Uncle Valentine Ako, *kupuna* [elder])
- *Mauka* of the bridge on the Kealia side is where a Native Hawaiian village was. Several burials over the years have been found there. There is an extensive sand deposit next to the river there. AMFAC used to sand mine there for their roads and disturbed burials there. DLNR Aquatic Division buried a whale back there not far off the highway. I am sure the Kapaa Stream was a source of native fish at one time, but with the urban expansion, the stream might be too polluted today. The plantation railroad ran through this area too. (Milton Chang, cultural descendant of the area)
- *'Iwi* might be “beneath sand layers due to battles, village wars, etc. that occurred during Pre-Christian contacts. Thus should these be unearthed, discovered or the like, please ensure all protocols are followed by the Kauai Burial Council and/or committees handling the proper relocation of such sacred *'iwi*.” (Auntie Beverly Muraoka, *kupuna* and *kumu hula* [teacher of the traditional art of hula])

### 3.11.2 Potential Impacts and Mitigation Measures

Potential impacts on cultural resources are expected to be substantially the same for the signalized intersection alternative and the roundabout alternative.

Previous archaeology indicates several burials have been found in the vicinity of the project area. Community consultation also indicated knowledge of *iwi kupuna* (ancestral remains) in the vicinity of the project area. Based on these findings, there is a high possibility *iwi kupuna* may be present within the

project area and that land disturbing activities during construction may inadvertently uncover burials or other cultural finds. Archaeological monitoring will be conducted during construction activities involving ground disturbance. Should burials or other cultural artifacts be encountered, all construction work will cease immediately and the appropriate agencies notified pursuant to applicable law in HRS Chapter 6E.

During the construction period, cultural practices and gathering activities near the bridge (if any) would be temporarily restricted for safety reasons. All permitted activities would resume once the improvements have been completed. The intent of the project is to improve access in a way that is respectful of historic and cultural resources.

## 3.12 Population and Demographic Factors

### 3.12.1 Existing Conditions

The project area is adjacent to the northeastern portion of Kapaa and approximately 0.4 mile south of Kealia, both residential neighborhoods. There are seven census tracts in the northern and eastern areas of Kauai, as follows:

- Census Tract 401, Hanalei
- Census Tract 402, Wailua-Anahola
- Census Tract 403, Kapaa
- Census Tract 404, Puhi-Hanamaulu
- Census Tract 405, Lihue
- Census Tract 406, Koloa-Poipu

Approximately 86 percent of the island's population resides within the seven census tracts (see Table 3-6). For this region, the U.S. Census counted a combined population of 57,589 in 2010. Compared to 2000, the region experienced a net increase of 7,849 persons, or 15.8 percent. Census Tract 402, which bounds the town of Kapaa to the north and south, maintains the largest 2010 population among the seven census tracts, with a total population of 12,607, while Census Tract 403 (which includes the town of Kapaa) indicated a 2010 population of 8,385, which is the third largest population. Census Tract 401 experienced a 23.3 percent increase in population from 2000 to 2010, the second largest increase of the seven census tracts.

TABLE 3-6  
Resident Population, Selected Census Tracts, 2000 and 2010

Census Tract	Area	2000 Population	2010 Population	Net Change	Percent Change
401	Hanalei	6,348	7,828	1,480	23.3%
402	Wailua-Anahola	10,873	12,607	1,734	15.9%
403	Kapaa	7,652	8,385	733	9.6%
404	Puhi-Hanamaulu	6,860	8,740	1,880	27.4%
405	Lihue	5,162	5,943	781	15.1%
406	Koloa-Poipu	5,404	5,683	279	5.2%
Region	Northern/Eastern Kauai	49,740	57,589	7,849	15.8
County	Kauai	58,463	67,091	8,628	14.8%

Source: 2010 U.S. Census

### 3.12.2 Potential Impacts and Mitigation Measures

There would be no difference in impacts on population and demographic factors between the signalized intersection alternative and the roundabout alternative.

The proposed project would improve an existing intersection and replace an existing bridge, with no change in the operating or carrying capacity of either. Therefore, the project is not expected to affect the number of area residents or demographic characteristics. However, the population distribution on Kauai supports the need for a well-functioning regional highway system, where approximately 43 percent of the island's residents live to the north of Kapaa Stream Bridge or immediately to the south. Improving the transportation infrastructure would meet the mobility needs of a significant proportion of Kauai's population.

**Environmental Justice.** The project involves the improvement of an intersection and replacement of an existing structure that is adjacent to the northeastern portion of Kapaa and adjoining one residential property. 70 to 80 percent of the adjacent population is a minority population (USEPA, 2015). The household income-to-poverty-level ratio for 80 to 90 percent of the adjacent population was less than two (USEPA, 2015). This project would replace an aging bridge facility and construct a safer intersection; therefore, it would not have a disproportionately high or adverse impact on minority and/or low-income populations, but rather improve public infrastructure within the community.

## 3.13 Economic and Fiscal Resources

### 3.13.1 Existing Conditions

The Kauai economy has transformed over time from a plantation economy to a modern economy with a mix of tourism, diversified agriculture, construction, retail, and professional businesses. As reported in the 2013 edition of County Business Patterns, Kauai had a total of 1,986 business establishments with 25,186 paid employees and an annual payroll of more than \$880 million.

The largest industries in terms of jobs are trade (retail and wholesale) and services. In 2013, hotels and food services accounted for 8,372 jobs, retail trade had 3,992, and healthcare and social assistance had 3,038. The town of Kapaa, surrounding the project area, and the Princeville resort area, located north of the project area, are significant employment centers to the Kauai economy.

The national economic recession of the late 2000s had a ripple effect on tourism and the island's primary economic engine. However, economic conditions have since improved and the unemployment rate in August 2015 for Kauai County was 3.8 percent (Ycharts, 2015), compared to a 3.5 percent unemployment rate statewide (State of Hawaii Department of Labor and Industrial Relations, 2015) and 6.1 percent nationwide (U.S. Bureau of Labor Statistics, 2015).

### 3.13.2 Potential Impacts and Mitigation Measures

Preliminary cost estimates (in 2015 dollars) are \$12.5 million to construct the project with a signalized intersection and \$14.0 million to construct the project with a roundabout. These estimates are for capital expenses only and do not include long-term costs for operations and maintenance.

#### 3.13.2.1 Economic Impacts

The proposed project is anticipated to have several types of economic impacts. One type is construction-related employment and income. With preliminary estimated costs ranging from \$12.5 to \$14.0 million for the bridge replacement with intersection improvements, the project is expected to support a number of construction workers for the duration of the project. Unless the economy expands substantially and existing firms are working at full capacity, this project is more likely to help sustain existing employment and income levels than to create new jobs. However, because project funds are coming from (Federal) sources outside the region, wages paid to workers on this project (direct income), payments to suppliers (indirect income),

and their subsequent expenditures (induced income) would have positive cumulative impact as monies circulate through the local economy.

### 3.13.2.2 Fiscal Impacts

Public funds are needed for long-term operations and maintenance of all bridge structures. In the case of the project, the existing bridge structure has exceeded its normal lifespan. Replacing the bridge would allow HDOT to extend the timeframe for major bridge repair. Design improvements would reduce ongoing maintenance costs. These changes would provide long-term fiscal benefits to HDOT.

## 3.14 Visual and Aesthetic Resources

### 3.14.1 Existing Conditions

The 2000 *Kaua'i General Plan* (General Plan) identifies important scenic resources, such as major land forms, open spaces, viewing points, and scenic drives. The Plan's Kawaihau Planning District Heritage Resources map was reviewed to identify resources that may be affected by the project. Long stretches of Kuhio Highway, including the section from Kealia to immediately south of the Kapaa Stream that encompasses the Mailihuna Road intersection and Kapaa Stream Bridge, are identified as scenic roadway corridors.

The setting of the intersection and bridge is adjacent to the moderately narrow stretches of Kealia Beach to the north of the stream and an unnamed beach to the south of the stream. The land surrounding the project area is not substantially developed. The largest developments in the vicinity are the Kapaa High School athletic fields complex and St. Catherine Cemetery, which lies immediately to the south and *mauka* of Kuhio Highway. There is one private property owner to the northwest of the intersection, and the private property runs from the intersection northwest, in between Mailihuna Road and the Kapaa Stream. Ke Ala Hele Makalae runs parallel to Kuhio Highway, approximately 70 feet downstream from the Kapaa Stream Bridge. Kealia Beach Park is located on the north side of the stream.

In general, although the project site is located near the athletic fields complex, the project area is not visible to its users because of thick intervening vegetation around the perimeter of the complex. Other than users of Kuhio Highway, the greatest number of viewers that do have views of the project area are users of the Ke Ala Hele Makalae and people visiting the beaches *makai* of the project area.

Photo 3-6 shows a view of the Kuhio Highway and Mailihuna Road intersection in 2014, with the viewpoint facing south. Photos 3-7 and 3-8 show views of the Kapaa Stream Bridge in 2014 from the northern and southern approaches, respectively. Photo 3-9 shows Ke Ala Hele Makalae *makai* of the existing Kapaa Stream Bridge, from the northern approach.



Photo 3-6. Kuhio Highway and Mailihuna Road Intersection, current condition. Photo facing south.



*Photo 3-7. Kapaa Stream Bridge, current condition. Photo facing southwest from northern approach.*



*Photo 3-8. Kapaa Stream Bridge, current condition with the Ke Ala Hele Makalae bridge to the right. Photo facing northwest from southern approach.*



*Photo 3-9. Ke Ala Hele Makalae makai of the Kapaa Stream Bridge. Photo facing southeast from the Kapaa Stream Bridge.*

### 3.14.2 Potential Impacts and Mitigation Measures

The project could result in temporary visual impacts during the construction period as a result of dust, heavy equipment at the project site, and the temporary bypass road upon which vehicles would be traveling. These impacts would be minimal and temporary.

Although the bridge component of the project would result in visual changes to the project area, as shown in the visual simulation (Photos 3-10 and 3-11), features of the new structure would be substantially similar in character to the existing structure. From the vantage point shown in the simulation, the new bridge railing would be the most noticeable visual feature, but in general, this and other design changes would be considered minimal and would not affect the quality of views toward the bridge. The new railing design would echo the character of the existing railing. Other project features such as lane-width alterations would be even less noticeable when compared to existing conditions. Frequent bridge users may notice that the bridge is wider and note the addition of the shoulders. In addition, the center support structure on the existing bridge would be removed but not replaced, resulting in a more visually open waterway under the bridge.



*Photo 3-10. Existing Kapaa Stream Bridge.*



*Photo 3-11. Visual simulation of proposed replacement bridge.*

The project would not result in a substantial change to the existing landscape or result in a noticeable change to the project viewshed, because the changes would be relatively minimal in scale and scope. Though users of the nearby bicycle and pedestrian path would have a clear view of the project site, their exposure to the site would be relatively brief, because they are transient viewers passing through the area on foot or bicycle. Beach users remain near the project site for longer periods of time compared to users of the bicycle and pedestrian path, but their attention is focused primarily to the east, toward the ocean.

Views from the bridge would not change significantly after the new bridge is constructed. Like the existing bridge, there would be a lower concrete railing topped by an upper metal railing with a combined height of 42 inches, the required height for bicyclist safety. The narrow metal railing in the upper portion would minimize obstructions in motorists' sightlines and maintain the continuity of coastal and ocean views.

Improvements at the Mailihuna Road intersection would result in a change to the visual context of the project site. The signalized intersection alternative and the roundabout alternative would have different impacts on the visual landscape and visual experience of the landscape.

**Signalized Intersection Alternative.** This alternative would maintain the linear viewing experience of highway travel parallel to the coastline. The visual elements of the intersection would be in keeping with standard traffic signal design.

**Roundabout Alternative.** In contrast, the roundabout adds circular movement through the environment. In the context of the project area's rural character, the roundabout may be perceived as a less urban visual element, compared to the introduction of traffic signals. The roundabout also provides opportunity for distinctive design through landscaping or other decorative features. Any decision to incorporate decorative elements would need to be evaluated against long-term maintenance costs.

## 3.15 Roads and Traffic

### 3.15.1 Existing Conditions

Kuhio Highway connects Lihue and the northern coast of Kauai through the town of Kapaa. From Lihue to the Kapaa Stream Bridge (just north of Mailihuna Road), the roadway is classified as an urban principal arterial and is listed on the NHS (CH2M, 2015). For approximately 5 miles beyond the bridge, the roadway is classified as an urban minor arterial. Within the vicinity of Mailihuna Road, Kuhio Highway is a two-lane, undivided road with paved shoulders and posted speed limit of 40 mph.

Mailihuna Road is on the northern side of the town of Kapaa, and extends *mauka* from Kuhio Highway. It is functionally classified as a major collector and is a narrow, two-lane, undivided roadway with narrow shoulders and vegetation on both sides. Mailihuna Road has a posted speed limit of 15 mph near the high school and elementary school.

*Makai* of the intersection, an unpaved driveway provides public access to the shore from Kuhio Highway. This access crosses the shared use path, and although unmarked, is wide enough to accommodate traffic heading to the beach and coming from the beach at the same time. The approaches from Mailihuna Road and from the shore-access driveway are stop-controlled.

In addition to public roads, a private driveway on the *mauka* side of the intersection also has access to all directions via a stop-controlled approach.

Intersection traffic volumes reach three distinct peaks during the day (CH2M, 2015). The first is the morning peak hour of traffic, which occurred between 7:15 am and 8:15 am; the second, a midday peak hour, occurred between 11:15 am and 12:15 pm. The afternoon/evening peak hour occurred between 2 pm and 3 pm. Based on known peak-hour volumes and assuming these volumes can be expanded to estimate AADT volume, the daily traffic volume on Kuhio Highway is approximately 12,600 vehicles.

## 3.15.2 Potential Impacts and Mitigation Measures

### 3.15.2.1 Development in the State Highway Right-of-Way

The bridge project would affect approximately 290 feet of Mailihuna Road and 1,500 feet of Kuhio Highway. The majority of the intersection improvement and replacement bridge would be constructed and operated within the right-of-way of the existing highway facility. The proposed project, therefore, would predominantly occur in areas previously impacted by construction of the original structure in 1953 and subsequent highway upgrades and repairs. For the signalized intersection alternative, no additional right-of-way would be needed. The roundabout alternative would require additional right-of-way of approximately 0.3 acre (or 13,100 square feet).

### 3.15.2.2 Traffic Impacts

**Short-term Construction-related Impacts.** Construction is expected to extend approximately 19 months. A temporary bypass road—including a temporary stream crossing—would be constructed to maintain traffic flow during construction. The temporary bypass would be located adjacent to, and *makai* of, the existing bridge. It would consist of two travel lanes, thereby accommodating travel in both directions. The bypass is being design for a travel speed of 30 mph (compared to the highway speed of 40 mph). While motorists would be required to slow down, which may result in slightly longer travel times, traffic flow is not expected to be impeded. Construction related activities are not anticipated to impact use of the shared use path located *makai* of the replacement bridge.

**Traffic Control.** A traffic management plan would be developed by the contractor before construction and submitted to HDOT for review and approval. Components of the traffic plan may include public notices and electronic signboards to inform motorists about the work schedule and to help with travel planning. All temporary signs, signals, and pavement markings would conform to standards contained in the FHWA *Manual on Uniform Traffic Control Devices* (2009 as revised; adopted 2010).

**Emergency Services.** Kuhio Highway is a lifeline transportation facility for police, fire, and emergency medical services. The project includes a temporary bypass road adjacent to the existing structure designed to carry conventional loads, thereby resulting in no adverse impact to emergency services access. The contractor would be required to make provisions for emergency access and maintain full access during non-working hours. Emergency services, including police, fire, and ambulance services, would be notified before implementation of any required roadway closures or detours.

**Relationship to Other Transportation Improvement Projects.** The HDOT STIP report for 2015 through 2018 identified sidewalk construction activities on Mailihuna Road as part of its Kawaihau Road (Route 5860), Hauaala Road (Route 5865), and Mailihuna Road (Route 5870) Complete Street and Safety Improvements project. Based on the STIP, planning, design, and construction activities are anticipated to be performed from 2016 to 2017.

## 3.16 Parks and Recreation Facilities

### 3.16.1 Beaches and Parks

Kealia Beach Park is a 7.24-acre County of Kauai park located *makai* of the project area and immediately north of the Kapaa Stream. Its facilities include small pavilions with picnic tables, a lifeguard station, and a vehicle parking lot for beachgoers. Kealia Beach Park was not acquired or developed with Land and Water Conservation Funds.

A beach area owned by the State of Hawaii and not maintained is located immediately *makai* of the project area and south of the Kapaa Stream Bridge. While no facilities were observed in this area, unpaved roads used by vehicular traffic for beach and pedestrian access are present.

### 3.16.2 Ke Ala Hele Makalae – Kauai Shared Use Path

Ke Ala Hele Makalae is a shared use path for walkers, joggers, skaters, bicyclists, and people using other forms of non-motorized transportation (County of Kauai, 2013). Currently covering a distance of more than 11 miles from Lydgate Park to Ahihi Point (Donkey Beach), it is a transportation corridor connecting a string of beach parks and providing access to swimming, surfing and fishing spots along the coast. Opened in 2009, the portion of the shared use path in the project area ranges from approximately 60 to 70 feet *makai* of Kuhio Highway and crosses the Kapaa Stream and provides access to Kealia Beach Park.

### 3.16.3 Potential Impacts and Mitigation Measures

The temporary bypass road, constructed to maintain traffic flow, would be located between the existing bridge and the bike/pedestrian bridge. The southern and northern approaches of the temporary bypass road both cross into the northern portions of the unnamed beach and Kealia Beach Park. However, the southern approach would not impact beach use or access, while the northern approach would temporarily impact approximately 3,263 square feet of the southernmost area at Kealia Beach Park. This area consists primarily of an area cordoned off by boulders and an approximately 625-square-foot area of the southernmost portion of the parking lot. Once the bridge replacement is complete, the temporary bypass would be removed and the area would be restored to preconstruction status. Construction related activities are not anticipated to impact use of Ke Ala Hele Makalae located *makai* of the replacement bridge. There would be no long-term impacts to park and recreation facilities (see also Section 4.1.3).

The unpaved vehicular road along the coast, accessed at the Mailihuna Road intersection, would not be affected in the long-term. Traffic volumes are understood to be relatively low and vehicles would continue to use the intersection in either the signalized or roundabout configuration. Currently, the beach access road crosses the shared use path, in a manner similar to driveways crossing the path through more urban sections of its alignment. With construction of a roundabout, the distance between the shared use path and the intersection would be reduced to approximately 20 feet because this configuration will occupy more *makai* land. This means less queuing space for vehicles waiting to enter the roundabout. This condition would be mitigated by the low volume of traffic using this leg of the intersection; however, signage may be needed to prevent vehicles from stopping on the path itself.

## 3.17 Solid Waste Management

### 3.17.1 Existing Conditions

The County of Kauai, Department of Public Works, Solid Waste Division operates the primary refuse collection system. The County is responsible for regulating the disposal of all solid waste with the exception of hazardous materials. Refuse collection crews operate out of three baseyards on Kauai.

The island has a single landfill located in Kekaha. The 34-acre Kekaha Landfill Phase II site opened in 1993 and was allowed by the State to have its height limit increased to 60 feet in 1998. The facility also serves as a drop-off point for segregated recoverable waste (such as cardboard, newspaper, glass, and aluminum cans). The landfill, with the addition of the vertical expansion, is projected to reach capacity in several years. The County has identified a landfill site north of Lihue, *makai* of Maalo Road, and is currently preparing an EIS.

### 3.17.2 Potential Impacts and Mitigation Measures

The signalized intersection alternative and roundabout alternative are not expected to have substantial differences in potential solid waste impacts.

Solid-waste impacts are expected to be short-term and related to construction activities. Removing the existing bridge would generate debris consisting primarily of concrete slabs, asphalt pavement, and metal guardrails, posts, and fastenings. The contractor would be required to dispose of or recycle all materials at approved sites and with proper handling during transport. The contractor would be required to have a waste disposal plan that specifies proper removal and disposal of all debris from the project area. Project-

related waste material would be a small proportion of the island-wide total, and is not expected to have a significant impact on the County's solid waste facilities.

## 3.18 Electrical and Telecommunications Systems

### 3.18.1 Electrical System

KIUC is the local electrical utility company, providing electrical power to service customers on the island. Pole-mounted overhead double 57-kilovolt lines on the *mauka* side of Kuhio Highway run parallel to the Kapaa Stream Bridge. In addition, a 12-kilovolt line runs parallel and attached to the *mauka* side of the bridge.

### 3.18.2 Telecommunications Systems

Hawaiian Telcom provides land-line telecommunications service to customers on the island. Telecommunication lines run parallel and attached to the *mauka* side of the bridge and underground parallel to the highway.

Oceanic Time Warner Cable provides wired cable television service to customers on the island. The cable television distribution system run parallel and attached to the *mauka* side of the bridge and underground parallel to the highway.

Sandwich Isles Communications has an existing fiber optic ductline system that runs parallel and attached to the *mauka* side of the bridge and underground parallel to the highway.

### 3.18.3 Highway Lighting and Power

There are highway lights located along the *mauka* side of Kuhio Highway.

### 3.18.4 Potential Impacts and Mitigation Measures

Impacts on electrical and telecommunications systems would be the same for the signalized intersection alternative and roundabout alternative.

Utilities would remain functional during construction but there may be temporary and short-term interruptions, limited to the extent possible. Further coordination with utility owners would occur before and during construction. Temporary impacts on utilities would be negligible because service would be maintained during construction, and there would be no long-term adverse impacts related to utilities.

## 3.19 Secondary and Cumulative Impacts

Replacement of Kapaa Stream Bridge is a self-contained project. It would not change the capacity of the existing highway and it is not expected to have secondary impacts such as population change, land development, or effects on public facilities and services. The County of Kauai has proposed sidewalk construction activities on Mailihuna Road as part of its Kawaihau Road (Route 5860), Hauaala Road (Route 5865), and Mailihuna Road (Route 5870) Complete Street and Safety Improvements project. The subject project is independent of any future County roadway projects, and would neither compel nor preclude their implementation. There would be no cumulative adverse impacts to resources such as water quality and wildlife from this project interacting with the proposed County project. Any nearby safety improvements would be a beneficial cumulative impact when coupled with the safety improvements associated with the intersection improvements proposed in this EA.

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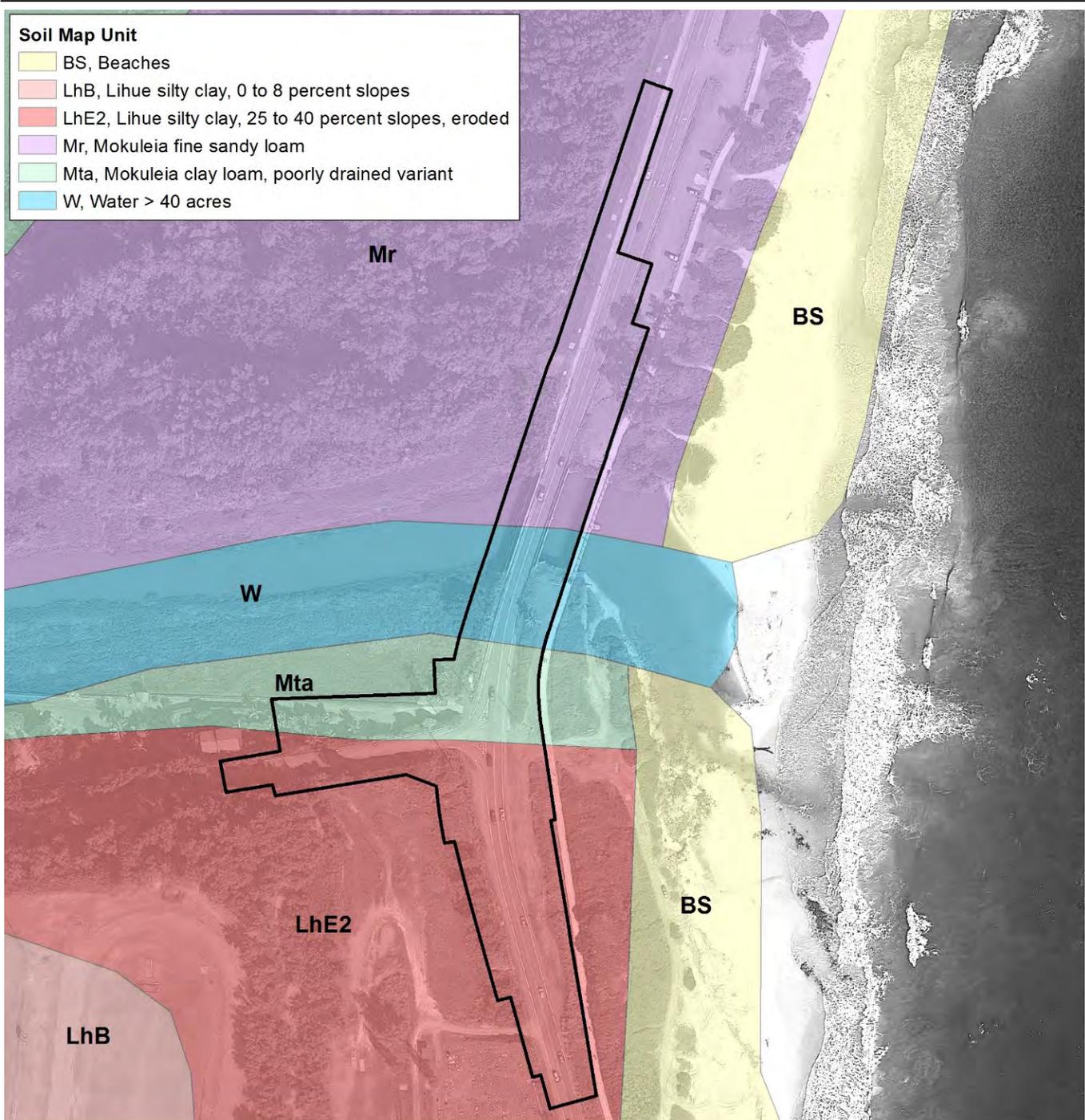
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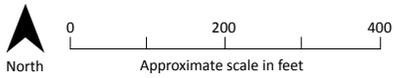
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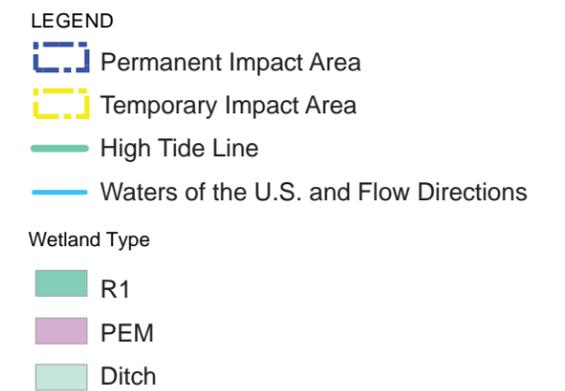
Base Map: Google Earth Aerial Imagery (2013)  
 Data Sources: CSH, SSURGO



**LEGEND**

Survey Area

**FIGURE 3-1**  
**Soils**  
*Kapaa Stream Bridge*  
*Hawaii Bridges Program –*  
*Central Federal Lands Highway Division and*  
*Hawaii Department of Transportation*



- Notes:
1. High-Res Imagery Source: Google Earth 12/16/2013
  2. Low-Res Imagery Source: Digital Globe 08/26/2011
  3. Imagery base map is not orthorectified; therefore project features may not properly align with the imagery.

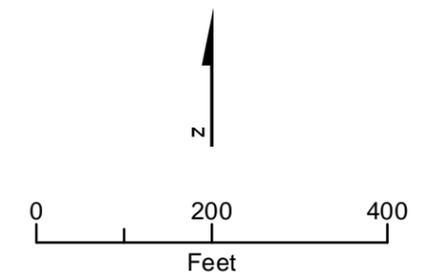
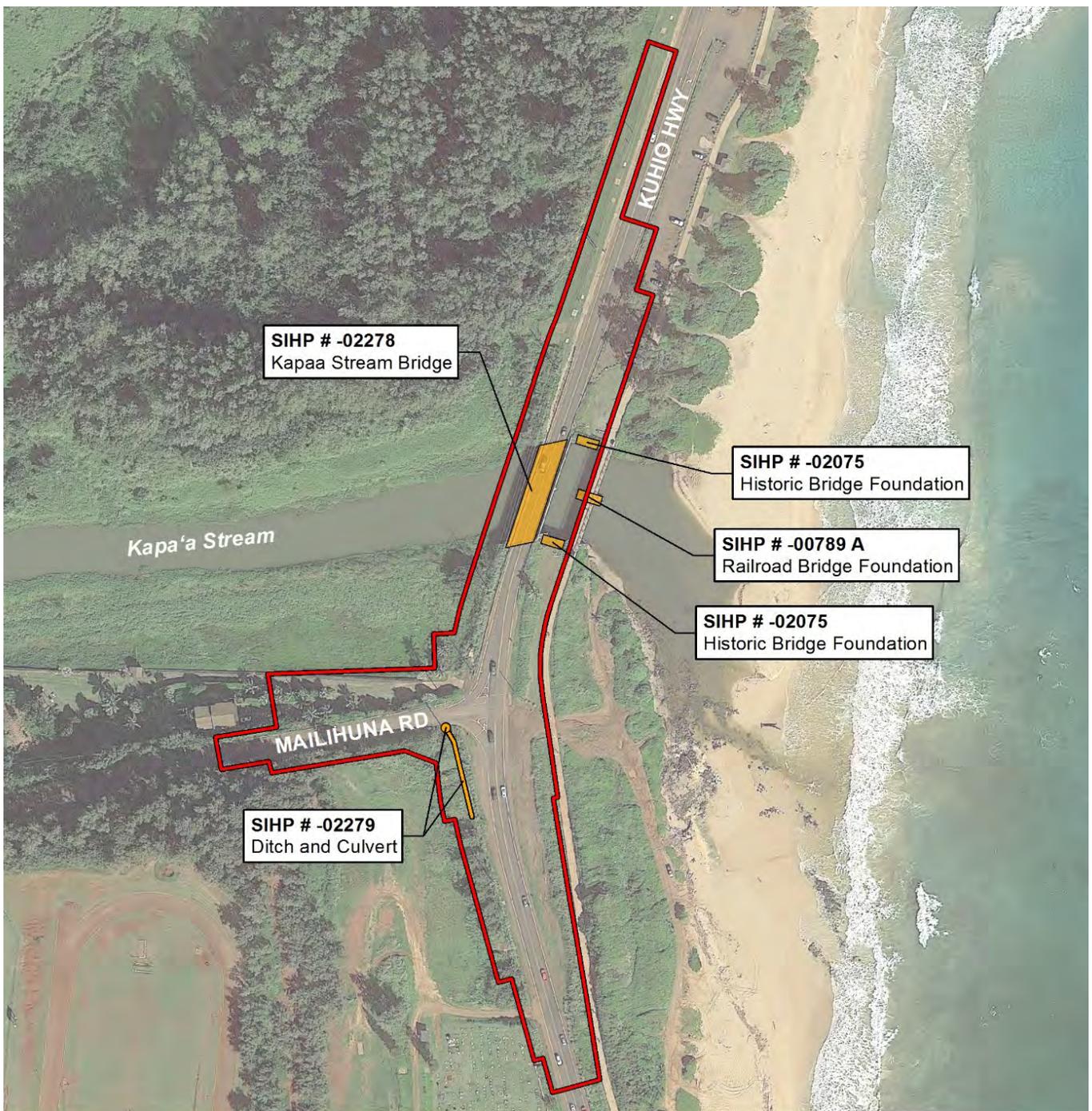
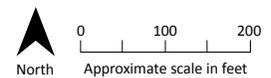


FIGURE 3-2  
**Waters of the U.S.**  
 Kapaa Stream Bridge  
 Hawaii Bridges Program –  
 Central Federal Lands Highway Division and  
 Hawaii Department of Transportation



Base Map: USGS Topographic Map, Kapaa (1996) Quadrangle  
 Data Sources: CSH



**LEGEND**

-  Project Area
-  Cultural Resources

**FIGURE 3-3**  
**Cultural Resources**  
 Kapaa Stream Bridge  
 Hawaii Bridges Program –  
 Central Federal Lands Highway Division and  
 Hawaii Department of Transportation



Existing Bridge



Visual Simulation

FIGURE 3-4  
**Visual Simulation**  
*Kapaa Stream Bridge*  
*Hawaii Bridges Program –*  
*Central Federal Lands Highway Division and*  
*Hawaii Department of Transportation*

## SECTION 4

# Relationships to Plans, Policies, and Controls

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The plans and policies relating to the proposed project range from broad program guidance to land use controls governing the project site. Construction of the proposed improvements is consistent with the various plans, policies, and regulatory controls, as discussed herein.

## 4.1 Federal

The proposed project would include the use of Federal funds through the FHWA. As a result, the proposed project needs to be consistent with various Federal statutory and regulatory requirements.

### 4.1.1 National Environmental Policy Act of 1970

The proposed project would be partially funded by the FHWA; this Federal funding subjects the project to the environmental review requirements of NEPA, prescribed under 40 CFR Parts 1500 – 1508 (Council on Environmental Quality [CEQ]). The FHWA serves as the lead Federal agency, or Administrator, responsible for the project's compliance with NEPA documentation and processing requirements, as provided in 23 CFR 771, Environmental Impact and Related Procedures.

The NEPA determination of significant impacts is related to the type of NEPA document and process that would be required to comply with NEPA for a proposed project. There are three types of environmental documents under NEPA: (1) Categorical Exclusions (CE), (2) EA, and (3) EIS. A CE is appropriate where there are no significant impacts on the environment, an EA when the significance of the effects are not clearly established, and an EIS when the action would have a significant impact on the environment.

Significance is defined in the CEQ regulations (40 CFR 1508.27). A significant impact is assessed in terms of an impact's context and intensity. Context refers to the environment and the level of relative abundance of resources in the project area. Intensity refers to the specific impact, or how much of the resource(s) would be used or affected by the project.

FHWA Regulations for Environmental Impact and Related Procedures (23 CFR 771.117(a)) specify that CEs are actions that meet the definition contained in 40 CFR 1508.4 and act as follows:

- Do not induce significant impacts to planned growth or land use for the area
- Do not require the relocation of significant numbers of people
- Do not have a significant impact on any natural, cultural, recreational, historic, or other resources
- Do not involve significant air, noise, or water quality impacts
- Do not have significant impacts on travel patterns
- Do not otherwise, either individually or cumulatively, have any significant impacts

Specific actions that meet these criteria are listed in 23 CFR 771.117(c); this list includes "bridge rehabilitation, construction or replacement or construction of grade separation to replace existing at-grade railroad crossings" (23 CFR 771.117(c)(28)).

Consistent with their regulations for NEPA compliance, and as further justified by the findings of this EA, the FHWA anticipates issuing a CE.

### 4.1.2 Section 106 of the National Historic Preservation Act of 1966

The NHPA of 1966, as amended (PL 89-665, codified as 16 United States Code [U.S.C.] 470), recognizes the nation's historic heritage and establishes a national policy for the preservation of historic properties as well as the National Register of Historic Places. Section 106 of the NHPA of 1966 (16 U.S.C. 470f) requires that Federal agencies consider the effects of their projects on historic properties and allow the Advisory Council on Historic Preservation a reasonable opportunity to comment on such projects. Use of Federal funds sets

forth the need for Section 106 consultation. The purpose of the Section 106 consultation process is to evaluate the potential for effects on existing historic sites, if any, resulting from the project. Findings relating to historic properties are discussed in Sections 3.9 and 3.10 of this document.

The Section 106 review process encompasses good faith effort in ascertaining the existence and location of historic properties near and within the project site, establishing an APE of the project, identifying whether a potential for adverse effects on historic properties by the project exists, and developing a reasonable and acceptable resolution in the monitoring and treatment of any historic sites that is agreed upon by the agency, the SHPO (DLNR SHPD), and consulting government agencies, community associations, and Native Hawaiian organizations and families. Documentation of Section 106 consultation may be found in Appendix G.

Meetings were held with the SHPD on September 9 and December 10, 2014, and March 12, 2015, to provide an overview of the CFLHD Hawaii Bridge Program, discuss the general parameters for historic preservation review, and discuss 30 percent design plans and possible effects and mitigation. The Section 106 consultation process was formally initiated by letters to potential consulting parties dated August 26, 2015. A legal notice requesting public input to the Section 106 process was published in *The Garden Island* on August 29, 2015. Members of the project planning team discussed the project with the Kauai Historic Preservation Review Commission at its regularly scheduled meeting on October 1, 2015. The Historic Hawaii Foundation provided comments by letter dated December 9, 2015 related to the eligibility status of Kapaa Stream Bridge and potential impacts on St. Catherine's Cemetery.

In a letter to the SHPD dated July 8, 2016, the FHWA conveyed its conclusion that historic properties identified in the APE are not eligible for the National or Hawaii Registers of Historic Places (see also Section 3.9 and 3.10). The FHWA determined that the undertaking will result in a No Historic Properties Affected finding in accordance with Federal regulations (36 CFR 800.5) and in a No Effect finding in accordance with HAR §13-13-275-7 because no resources are eligible for the National or Hawaii Registers (see Appendix G).

#### 4.1.3 Section 4(f) of the Department of Transportation Act of 1966

Section 4(f) of the Department of Transportation Act of 1966 (49 U.S.C. 303 and 23 U.S.C. 138) permits the use of publicly-owned park land, recreational area, wildlife and waterfowl refuge, or land of an historic site of National, State, or local significance for a transportation project only if (1) there is no prudent and feasible alternative to using that land and (2) the project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use. The purpose of Section 4(f) requirements is to preserve significant parkland recreation areas, refuges, and historic and archaeological sites by limiting the circumstances where such land can be used for transportation projects.

There are two 4(f) properties adjacent to the project area: Kealia Beach Park and Ke Ala Hele Makalae (the coastal shared use path).

**Kealia Beach Park.** The project would not permanently incorporate land from 7.2-acre Kealia Beach Park. The construction of a temporary bypass road would result in temporary occupancy of approximately 3,260 square feet of the southern-most area at the beach park. However, the Section 4(f) statute notes that if the five conditions in 23 CFR 774.13(d), commonly known as the "temporary occupation exception criteria" are met, then the temporary occupancy is considered minimal so as to not constitute a use within the meaning of Section 4(f).

- (i) *Duration must be temporary, i.e., less than the time needed for construction of the project, and there should be no change in ownership of the land*

**Finding:** The total timeline for construction of the proposed action is estimated at approximately 19 months. The temporary occupancy of Kealia Beach Park because of project actions is anticipated to be up to 15 months in duration. There would be no change in ownership of the parkland that would be temporarily occupied.

- (ii) *Scope of the work must be minor, i.e., both the nature and the magnitude of the changes to the Section 4(f) resource are minimal*

Finding: The temporary bypass would be located adjacent to the existing bridge, where its alignment would cross an area cordoned off by boulders and approximately 625 square feet at the southern-most end of the parking lot. There would be no changes to Kealia Beach Park as a result of temporary project construction actions.

- (iii) *There are no anticipated permanent adverse physical impacts, nor will there be interference with the activities or purpose of the resource, on either a temporary or permanent basis*

Finding: There would be no permanent adverse impacts to Kealia Beach Park resulting from project construction. Vehicular, bicyclist, and pedestrian access to the beach park during construction would be maintained and there would be no change to user experience of the beach itself. Project construction would not interfere with the activities at the beach park either on a permanent or temporary basis.

- (iv) *The land being used must be fully restored, i.e., the resource must be returned to a condition that is at least as good as it was prior to the project*

Finding: Once the bridge replacement is complete, the temporary bypass would be removed completely and the area of Kealia Beach Park to be used during construction would be restored.

- (v) *There must be documented agreement of the appropriate Federal, State, or local officials having jurisdiction over the resource regarding the above conditions*

Finding: The FHWA will coordinate with the Kauai Department of Parks and Recreation and anticipates a Temporary Occupancy Exception/No Section 4(f) Use letter to serve as documented agreement by the County that regulatory conditions have been met and that temporary occupancy of Kealia Beach Park would not constitute a “use” as defined under Section 4(f).

**Ke Ala Hele Makalae.** The shared use path is for walkers, joggers, bicyclists, and other people using non-motorized forms of transportation and is classified as a linear park administered by the Kauai Department of Parks and Recreation. The proposed project is not anticipated to impact the shared use path. The path itself would not be physically impacted, nor would there be any interference to the use of the path during construction or any project-related permanent or temporary proximity impacts.

#### 4.1.4 Uniform Relocation Assistance and Real Property Acquisition Act of 1970

The Uniform Relocation Assistance and Real Property Acquisition Act of 1970 (42 U.S.C. 4601 et seq. and 49 CFR 24), as amended by the Uniform Relocation Act Amendments of 1987 is commonly referred to as the Uniform Act. The Uniform Act provides important protection and assistance for people affected by Federally funded projects. The law was enacted by Congress to ensure that people whose real property is acquired, or who move as a result of projects receiving Federal funds, would be treated equitably and would receive assistance in moving from the property they occupy.

This project would be constructed mostly within the existing right-of-way, but would also require temporary and permanent easements, and potentially additional right-of-way (see Section 2.3.4). Displacement of persons or businesses is not anticipated. All applicable and appropriate measures would be followed in acquiring property interests consistent with the requirements of the Uniform Act.

#### 4.1.5 Endangered Species Act of 1973

The ESA of 1973 (16 U.S.C. 1531-1544) establishes a process for identifying and listing threatened and endangered species. It requires Federal agencies to carry out programs for the conservation of Federally listed endangered and threatened plants and wildlife and designated critical habitats for such species, and prohibits actions by Federal agencies that would likely jeopardize the continued existence of those species

or result in the destruction or adverse modification of designated critical habitat. Section 7 of the ESA requires consultations with Federal wildlife management agencies, such as the USFWS and NMFS.

To begin consultations with agencies that have authority over protected species, the FHWA-CFLHD sent a letter requesting a list of threatened and endangered species, candidate species, plants and animals of concern, and critical habitats in the vicinity of the proposed bridge project. USFWS responded by letter dated December 22, 2014, providing the location-specific biological information and recommended standard BMPs. Discussions continued through meetings held with the USACE on December 11, 2014, and with USFWS, USEPA, NOAA-NMFS, and DLNR-DAR on March 13, 2015.

A Biological Assessment was prepared for the Kapaa Stream Bridge project (see Appendix C) and will be submitted to USFWS and NOAA-NMFS for review as part of the informal Section 7 consultation process.

#### **4.1.6 Migratory Bird Treaty Act**

The MBTA of 1918, as amended (16 U.S.C. 760), protects migratory wild birds found in the U.S. The MBTA makes it unlawful to pursue, hunt, take, capture, possess, sell, purchase, barter, import, export, or transport any migratory bird or any part, nest, or egg of any such bird, unless authorized under a permit issued by the Secretary of the U.S. Department of the Interior.

Consultation related to the MBTA is occurring as part of ongoing coordination with resource agencies.

#### **4.1.7 Fish and Wildlife Coordination Act**

The Fish and Wildlife Coordination Act (FWCA) (16 U.S.C. 661-667e) calls for conservation of wildlife resources related to projects where the “waters of any stream or other body of water” are impounded, diverted, or modified by any agency under a Federal permit or license. The law requires consultation with USFWS and State fish and wildlife agencies for the purpose of “preventing loss of and damage to wildlife resources.”

Consultation related to the FWCA is occurring as part of ongoing coordination with resource agencies.

#### **4.1.8 Magnuson-Stevens Fishery Conservation and Management Act**

The Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1802 et seq.) promotes the conservation and management of U.S. fishery resources and ensures sustainable domestic fisheries in Federal waters. The act requires compliance with regional fisheries management plans developed by the Western Pacific Regional Fisheries Management Council and managed by the NMFS. Four types of Essential Fish Habitat (EFH) occur in the project area: bottomfish and seamount groundfish, pelagic fishery, crustaceans, and coral reef ecosystems.

An EFH assessment was prepared for the project. Although Kapaa Stream is not within an actual mapped and designated EFH area, the assessment was conducted because of potential impacts to Kealia Bay, where the four types of EFH exist. The project is not expected to result in any measurable changes in habitat in the ocean offshore of the mouth of the stream. Minor temporary increases in sedimentation and turbidity in the stream are expected to occur during the installation and removal of isolation and confinement structures, such as cofferdams. The assessment concluded that the project May Affect, But is Not Likely to Adversely Affect designated EFH. Identified adverse effects would be minimal and temporary, and likely limited to the stream during any phase of construction. The consultation process with NMFS is ongoing.

#### **4.1.9 Clean Water Act of 1972**

The Federal Water Pollution Control Act (FWPCA) (33 U.S.C. §§1251 et seq.), is the Federal statute regulating the discharge of water pollution. Congress revised the FWPCA into the CWA in 1972. The goals of the CWA include (1) “the discharge of pollution into the navigable waters be eliminated by 1985,” (2) “the discharge of toxic pollutants in toxic amounts be prohibited,” and (3) an “interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and... recreation in and on the water... by July 1, 1983” (CWA §101a, 33 U.S.C. §1251a).

Section 404 of the CWA regulates discharge of dredge and fill material in the WOUS, including wetlands, and requires a Department of the Army permit from USACE. Section 401 of the CWA directs States to establish water quality certification (WQC) programs; in Hawaii, the Section 401 WQC is administered by HDOH, Clean Water Branch. As described in Section 3.3, the project would involve work within WOUS at Kapaa Stream Bridge. It is anticipated that this work would result in discharge, as regulated under Section 404 and 401 of the CWA. A Section 404 Department of the Army Permit and Section 401 WQC will be pursued as appropriate.

Section 402 of the CWA requires an NPDES permit for point source discharges, including storm water discharges associated with construction activities. The permit is required for construction activities that disturb 1 acre or more and discharge storm water from the project site to WOUS. NPDES permits are issued by the HDOH Clean Water Branch.

#### **4.1.10 Rivers and Harbors Act of 1899**

Because work would occur over a stream influenced by tidal action, the project would fall under the jurisdiction of Sections 9 and 10 of the Rivers and Harbors Act of 1899. The USACE and the USCG entered into a Memorandum of Agreement (MOA) in 1973 that described the responsibilities of each agency relative to permitting bridge work within water influenced by the ebb and flow of tides. The MOA stipulated that the USCG is responsible for issuing bridge permits approving the location and plans of all new bridges, modification of existing bridges, international bridges, and causeways in or over navigable waterways of the United States influenced by tidal action that may affect the movement of shipping. The USACE maintains authority to regulate dredge and fill activities associated with the bridge's construction. However, if the bridge construction is authorized under Section 9 of the Rivers and Harbors Act, a Nationwide Permit 15 (USCG Approved Bridges) would apply.

By email dated December 18, 2015, USCG District 14, Waterways Management, stated that no action or permit is required from the U.S. Coast Guard for this project.

#### **4.1.11 Clean Air Act of 1970**

The CAA and amendments (42 U.S.C. §7401 et seq.) is the comprehensive Federal law that regulates air emissions from area, stationary, and mobile sources. This law authorizes USEPA to establish National Ambient Air Quality Standards to protect public health and the environment.

Over the long term, this project would not result in any meaningful changes in traffic volumes, vehicle mix, location of the existing facility, or any other factor that can cause an increase in emissions impacts. As such, this project would generate minimal air quality impacts for the CAA criteria pollutants and would not be linked with any special MSAT concerns (see Section 3.2.2).

#### **4.1.12 Floodplain Management, Executive Orders 11988 and 12148**

Executive Order 11988, Floodplain Management, dated May 24, 1977 requires Federal agencies to take action to reduce the risk of flood loss, restore the natural and beneficial values of floodplains, and minimize the impacts of floods on human safety, health, and welfare. Executive Order 12148, July 20, 1979, amended Executive Order 11988. The main feature of the amendment added that agencies with responsibilities for Federal real estate properties and facilities shall, at a minimum, require the construction of Federal structures and facilities to be in accordance with the criteria of the National Flood Insurance Program.

Kapaa Stream Bridge is located within a floodplain mapped by FEMA designated as a Zone AE floodplain. As described in Section 3.4.4, the proposed bridge would meet or exceed the flow capacity of the existing bridge and would not cause a rise in the 100-year water surface elevation. Compliance with these executive orders would be documented by the FHWA as part of the NEPA CE.

#### **4.1.13 Protection of Wetlands, Executive Order 11990**

Executive Order 11990, Protection of Wetlands, dated 1977 requires Federal agencies to avoid, preserve, or mitigate effects of new construction projects on lands that have been designated wetlands.

A study to determine and delineate wetlands and other Waters of the U.S. identified approximately 1.98 acres of tidal, non-wetland WOUS (Riverine, Tidal [R1]) below the high tide line, and 0.31 acre of tidal wetlands (Palustrine Emergent Marsh [PEM], Tidal).

#### **4.1.14 Invasive Species, Executive Order 13112**

Executive Order 13112 (64 Federal Register 6183), issued in 1999, requires Federal agencies to implement policies to minimize the spread of invasive species. Federal agencies cannot authorize, fund, or carry out action(s) that are likely to cause or promote the introduction or spread of invasive species, unless it has been determined (1) that the benefits of the action outweigh the potential harm caused by invasive species and (2) that all feasible and prudent measures to minimize risk of harm will be taken. Vegetation disturbed during construction would be replaced as part of the project and the spread of noxious weeds would be managed through the implementation of BMPs as part of the project.

#### **4.1.15 Coastal Zone Management Act (16 U.S.C. §1456(C)(1))**

In 1972, the U.S. Congress enacted the Federal Coastal Zone Management Act to ensure that each Federal agency undertaking an activity within or outside the coastal zone that affects any land or water use or natural resource of the coastal zone shall be carried out in a manner which is consistent to the maximum extent practicable with the enforceable policies of approved State management programs. Each Federal agency carrying out an activity subject to the Act shall provide a consistency determination to the relevant State agency designated under Section 1455(d)(6) of this title at the earliest practicable time.

The State administers the enforcement of this Act, and therefore, the discussion of the project's consistency with CZM objectives is discussed in Section 4.2.4.

#### **4.1.16 Environmental Justice, Executive Order 12898**

Executive Order 12898, Environmental Justice, was signed on February 11, 1994. The intent of Executive Order 12898 (full title: Federal Actions to Address Environmental Justice to Minority and Low-income Populations) is to avoid disproportionately high adverse human health or environmental effects of projects on minority and low-income populations. Executive Order 12898 also requires Federal agencies to ensure that minority and low-income communities have adequate access to public information related to health and the environment.

Guidance from CEQ indicate minority populations should be identified where either (1) the minority population of the affected area exceeds 50 percent or (2) the minority population percentage of the affected area is meaningfully greater than the minority population percentage of the general population. Minorities are defined as members of the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic. U.S. Census Bureau poverty status data are used to identify low-income populations. Poverty status is assigned to individuals and families whose income is below the poverty threshold appropriate for that person's family size and composition, as reported in the U.S. Census Bureau, 2010 Census of Population and Housing.

The intersection and bridge are located adjacent to the northeastern portion of Kapaa and adjoining two private properties. The construction and operation of the proposed project would not result in adverse effects on minority and low-income populations.

#### **4.1.17 Title VI of the Civil Rights Act of 1964**

Title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d and 49 CFR 21) establishes that no person shall, on the grounds of race, color, or national origin be excluded from participation in, be denied the benefit of, or subjected to discrimination under any program or activity receiving Federal financial assistance.

The project would adhere to the Title VI requirements.

#### 4.1.18 Section 6(f) of the Land and Water Conservation Act

Section 6(f) of the Land and Water Conservation Act requires that the conversion of lands or facilities acquired with the Land and Water Conservation Fund be coordinated with the Department of the Interior, usually entailing replacement in kind (36 CFR 59.3).

There are no 6(f) properties in the project area.

## 4.2 State of Hawaii

### 4.2.1 Hawaii State Plan

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

The proposed project supports and is consistent with the following State Plan objectives:

#### *Facility Systems – Transportation*

*(a)(1) An integrated multi-modal transportation system that services statewide needs and promotes the efficient, economical, safe, and convenient movement of people and goods.*

*(a)(2) A statewide transportation system that is consistent with and will accommodate planned growth objectives throughout the State.*

*(b)(2) Coordinate state, county, federal, and private transportation activities and programs toward the achievement of statewide objectives.*

*(b)(3) Encourage a reasonable distribution of financial responsibilities for transportation among participating governmental and private parties.*

*(b)(6) Encourage transportation systems that serve to accommodate present and future development needs of communities.*

*(b)(10) Encourage the design and the development of transportation systems sensitive to the needs of affected communities and the quality of Hawaii's natural environment.*

#### *Facility systems – in general*

*(a) Planning for the State's facility systems in general shall be directed towards achievement of the objective of water, transportation, waste disposal, and energy and telecommunication systems that support statewide social, economic, and physical objectives.*

*(b)(1) Accommodate the needs of Hawaii's people through coordination of facility systems and capital improvement priorities in consonance with state and county plans.*

Discussion: As the facility owner, it is HDOT's mission to provide a safe, efficient, and accessible transportation system for the public. HDOT recognizes the need to provide for the replacement of the existing bridge. Improvements to the intersection, replacement bridge, and appurtenant features would be designed using current AASHTO guidelines that have been adopted by HDOT for planning and engineering for highway projects in Hawaii.

### 4.2.2 State Functional Plans

The Hawaii State Plan directs appropriate State agencies to prepare functional plans for their respective program areas. There are twelve State Functional Plans that serve as the primary implementing vehicle for the goals, objectives, and policies of the State Plan.

## State Transportation Functional Plan

The 1991 State Transportation Functional Plan identified the four most critical issues of transportation: congestion, economic development, funding, and education. Objectives, policies, and implementing actions were identified for each issue. The following objectives and policies apply to the project:

*Objective I.A. Expansion of the transportation system.*

*Policy I.A.1. Increase transportation capacity and modernize transportation infrastructure in accordance with existing master plans and laws requiring accessibility for people with disabilities.*

*Policy I.A.2. Improve regional mobility in areas of the State experiencing rapid urban growth and road congestion.*

Discussion: The mission of HDOT is to provide a safe, efficient, and accessible transportation system for the public. HDOT recognizes the need to provide for the replacement of the existing bridge and improve the intersection. The replacement bridge would be designed using current AASHTO guidelines that have been adopted by HDOT for planning and engineering for highway projects in Hawaii.

### 4.2.3 State Land Use Law

The State Land Use Commission, pursuant to HRS Chapters 205 and 205A and HAR Chapter 15-15 is empowered to classify all lands in the State into one of four land use districts: Urban, Rural, Agricultural, and Conservation. The lands surrounding the project limits are classified in the Agricultural, Conservation and Urban Districts (Figure 4-1). No change in land use classification would be needed.

### 4.2.4 Coastal Zone Management Program and Federal Consistency Determination

In 1977, Hawaii enacted HRS Chapter 205A, Hawaii Coastal Zone Management Program, to carry out the State's CZM policies and regulations under the Federal Coastal Zone Management Act (see Section 4.1.14). The CZM area encompasses the entire state, including all marine waters seaward, to the extent of the State's police power and management authority, including the 12-mile U.S. territorial sea and all archipelagic waters.

As a result, the project is within the CZM area and subject to being consistent with the CZM program objectives and policies. The Hawaii Coastal Zone Management Program focuses on ten policy objectives:

- **Recreational Resources.** To provide coastal recreational opportunities accessible to the public and protect coastal resources uniquely suited for recreational activities that cannot be provided elsewhere.

Discussion: A segment of the temporary bypass road during construction activities would be located on the southwestern-most corner of the Kealia Beach Park Parking Lot. The bypass road would exist only temporarily during construction activities and would not affect access to coastal recreation opportunities. A coastal access road on the *makai* side of the Mailihuna Road intersection is anticipated to remain open for public use during construction and would remain accessible via the reconfigured intersection following project completion.

- **Historic Resources.** To 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.

Discussion: Studies focusing on archaeological, historic, and cultural perspectives were conducted for this project, but no significant historic resources were found within the APE that would be adversely affected by the proposed construction. The project will adhere to State laws and regulations if there are inadvertent cultural finds during construction,

- **Scenic and Open Space Resources.** To protect, preserve, and where desirable, restore or improve the quality of coastal scenic and open space resources.

Discussion: The project would be developed to be visually compatible with the surrounding environment. The project is located along the shoreline and on a roadway identified as a scenic corridor in the Kauai General Plan. The intersection improvements and replacement bridge would not negatively impact coastal scenic resources and is not anticipated to obstruct views of the rural landscape.

- Coastal Ecosystems. To protect valuable coastal ecosystems, including reefs, from disruption and to minimize adverse impacts on all coastal ecosystems.

Discussion: BMPs would be implemented during the project construction to avoid impacts to coastal ecosystems.

- Economic Uses. To provide public or private facilities and improvements important to the State's economy in suitable locations; and ensure that coastal dependent development such as harbors and ports, energy facilities, and visitor facilities are located, designed, and constructed to minimize adverse impacts in the coastal zone area.

Discussion: By creating a safer intersection at Mailihuna Road for all users, the project would result in improved access to public beach facilities and the Ke Ala Hele Makalae.

- Coastal Hazards. To reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence, and pollution.

Discussion: The project is located in a tsunami evacuation zone and floodplain, and is subject to coastal hazards. Intersection improvements and the replacement of the bridge would correct deficiencies that currently exist relative to coastal hazards.

- Managing Development. To improve the development review process, communication, and public participation in the management of coastal resources and hazards.

Discussion: A general public announcement was made regarding the FHWA-CFLHD Hawaii Bridge Program, which covers a number of State highway bridges on three islands. A public information meeting was held on September 17, 2015. There will be additional opportunity for the public to review and comment on the project through the HRS 343 environmental review process.

- Public Participation. To stimulate public awareness, education, and participation in coastal management; and maintain a public advisory body to identify coastal management problems and provide policy advice and assistance to the CZM program.

Discussion: The project does not contain a public participation component for programmatic coastal management issues. Project-specific input will be elicited through the HRS Chapter 343 EA process.

- Beach Protection. To protect beaches for public use and recreation; and locate new structures inland from the shoreline setback to conserve open space and to minimize loss of improvements due to erosion.

Discussion: The project is located along the coastline and a segment of the temporary bypass road would be located on the southwestern portion of the Kealia Beach Park Parking Lot. The bypass road would be temporarily located there during construction activities only and would not affect the use of Kauai beaches for public recreation.

- Marine Resources. To implement the State's ocean resources management plan.

Discussion: Although the project is not expected to affect marine resources directly, BMPs would be implemented to prevent degradation of the aquatic environment, including the quality of state marine waters.

Other key areas of the CZM program include (1) a permit system to control development within an SMA managed by each County and the Office of Planning (see Section 4.3.3) and (2) a Shoreline Setback Area that

serves as a buffer against coastal hazards and erosion and protects view-planes and marine and coastal resources. Finally, a Federal Consistency provision requires that Federal activities, permits, and financial assistance be consistent with the Hawaii CZM program.

The proposed project is located within the County of Kauai SMA. The proposed project involves the placement, construction, or removal of materials near the coastline but does not have the potential to significantly affect coastal resources. The proposed project is consistent with the CZM objectives that are relevant to preserving the existing highway infrastructure. FHWA will submit their Federal Consistency determination to the Office of Planning for their concurrence.

#### 4.2.5 Act 50, Cultural Practices

Hawaii Act 50 (2000) sought to “promote and protect cultural beliefs, practices, and resources of Native Hawaiians and other ethnic groups” and requires the proposing agency/applicant under HRS Chapter 343 to consider cultural practices in a CIA. The CIA is being completed for the proposed project in compliance with this requirement, as discussed in Section 3.11. A Draft CIA is included in Appendix F of this document.

#### 4.2.6 HRS Chapter 6E

HRS Chapter 6E and HAR 13-275 through 284 delineate the State’s historic preservation review process. §6E-8 requires that the SHPD be given an opportunity to review the effect that a State or County project may have on historic properties. The proposed project may not commence until the SHPD has given written concurrence. Consultation pursuant to HRS 6E is occurring in tandem with Section 106 (see Section 4.1.2). Documentation related to the HRS Chapter 6E consultation process is included in Appendix G.

### 4.3 County of Kauai

#### 4.3.1 Kauai General Plan

The General Plan is a policy document for the long-range comprehensive development of the County of Kauai and also provides the direction for future growth through 2020. The current General Plan was adopted in November 2000.

Chapter 7 of the General Plan relates to Public Facilities and Services. Relevant to this project is the following policy:

*7.1.5(a) Use General Plan policies concerning rural character, preservation of historic and scenic resources, and scenic roadway corridors as part of the criteria for long-range highway planning and design. The goal of efficient movement of through traffic should be weighted against community goals and policies relating to community character, livability, and natural beauty.*

Discussion: The existing intersection would be improved and the bridge would be replaced with minimal footprint impacts. The design acknowledges the project’s rural setting and the importance of maintaining a natural environment, while also meeting current standards for intersection operational efficiency, bridge engineering, and overall functionality.

#### 4.3.2 Zoning

County zoning provides the most detailed set of regulations affecting land development before actual construction. Zoning is typically limited to lands classified in the Urban District under the State land use system. The project areas is classified within the Urban Centers and Park Districts. As shown in Figure 4-2 and based on available real property information, the project site is comprised of Agriculture, Residential, and Open Districts. The Agriculture District establishes means by which land needs for existing and potential agriculture can be both protected and accommodated, while providing the opportunity for a wider range of the population to become involved in agriculture by allowing the creation of a reasonable supply of various sized parcels. The Open District was established to create and maintain an adequate and functional amount of predominantly open land to provide for the recreational and aesthetic needs of the community or to

provide for the effective functioning of land, air, water, plant, and animal systems or communities. The Residential District regulates the number of people living in a given area by specifying the maximum allowable number of dwelling units that may be developed on any given parcel of land.

The proposed project would not require any zoning change.

### 4.3.3 Special Management Area

The CZM objectives and policies (HRS Section 205A-2) were developed to preserve, protect and, where possible, restore the natural resources of Hawaii’s coastal zone. Any development within the SMA boundary requires a SMA Use permit that is administered by the County. The permitting process provides a heightened level of public scrutiny to ensure consistency with SMA objectives.

The County’s SMA boundary is located on the *makai* side of Kuhio Highway’s right-of-way (Figure 4-3). Therefore, construction activity that extends beyond the *makai*-side right-of-way is expected to require an SMA permit.

## 4.4 Transportation Plans

### 4.4.1 Statewide Federal-aid Highways 2035 Transportation Plan

The 2035 Transportation Plan was developed as the State’s first long-range multimodal transportation for Federal-aid highways. The plan is intended to guide transportation decisions by identifying goals and solutions within a context of limited resources. It addresses future land transportation needs for motorists, freight, transit, bicyclists, and pedestrians based on land use and socioeconomic projections through 2035.

The long-range plan was developed with participation from a wide spectrum of community members and stakeholders. A series of meetings were held to develop and refine the goal statements. Specifically relevant to this project are the goals provided in Table 4-1, which focus on prudent and timely investments in the transportation (highway) system to maintain functionality and longevity.

TABLE 4-1  
Statewide Land Transportation Goals and Objectives

Goals	Objectives	Federal Planning Factor
3.1 Manage transportation assets and optimize investments	Plan and implement maintenance, resurfacing, rehabilitation, and reconstruction to optimize existing transportation system improvements and spending.	Aligns to MAP-21 Performance Goal: Infrastructure Condition—maintain highway infrastructure assets in state of good repair  MAP-21, signed into law on July 6, 2012 (P.L. 112-141) is the current Federal authorization for surface transportation whose full title is Moving Ahead for Progress in the 21 <sup>st</sup> Century Act.
3.2 Maintain safe, efficient, complete transportation system for the long term	Plan and implement existing system improvements to effectively sustain the overall transportation system’s safe, efficient, and complete operations.	

### 4.4.2 Federal-Aid Highways 2035 Transportation Plan for the District of Kauai

Each district in the state has a Regional Federal-aid Highways 2035 Transportation Plan or regional long-range land transportation plan. The purpose of this plan is to provide a basis for making multimodal land transportation decisions over a 20-year time frame. As a regional plan, it serves as an interface between overarching state transportation issues and island-specific needs and funding priorities.

The *Federal-Aid Highways 2035 Transportation Plan for the District of Kauai* includes a list of potential solutions that were evaluated based on ability to address local needs and deficiencies. Recommendations include improvements to Kuhio Highway such as widening to six lanes from Hanamaulu Road in Lihue to the south terminus of Wailua Road in Kapaa, and performing a Kapaa circulation and access study.

While specific project descriptions of the recommends are not yet developed, the recommendations indicate the importance of ongoing investment along Kuhio Highway.

### 4.4.3 Bike Plan Hawaii

*Bike Plan Hawaii* is the statewide bicycle master plan, which serves as a blueprint for accommodating and promoting bicycle use. The latest update was completed in September 2003. The plan contains objectives and implementing actions, an inventory of existing facilities, and proposals to expand the network of bicycle facilities.

In 2003, the Bike Plan indicated activities were underway for a bikeway path parallel to Kuhio Highway. The Ke Ala Hele Makalae multi-use path is a result of these activities. The proposed project is consistent with bicycle planning because improvements to the intersection increases access to Ke Ala Hele Makalae for those *mauka* of Kuhio Highway and the replacement bridge would not affect the use of Ke Ala Hele Makalae by bicyclists.

### 4.4.4 Statewide Pedestrian Master Plan

The *Statewide Pedestrian Master Plan*, completed in May 2013, provides a comprehensive strategy for improving pedestrian safety, mobility, and accessibility along state highways. The plan identifies and prioritizes pedestrian infrastructure projects throughout the state.

The pedestrian plan identifies Kapaa as one of the two most urbanized areas of Kauai, with destinations attracting pedestrians to its shopping areas, libraries, schools, local parks, and community centers. The pedestrian plan did not identify the project area as a specific area of concern for foot traffic. However, the plan noted that pedestrians from *mauka* residential neighborhoods have difficulty accessing the Ke Ala Hele Makalae located *makai* of Kuhio Highway. The intersection improvement of the project would improve safety for pedestrians who face this situation.

### 4.4.5 Complete Streets Policy

In 2009, the State Legislature passed Act 54 which states that “the [state] department of transportation and the county transportation departments shall adopt a complete streets policy that seeks to reasonably accommodate convenient access and mobility for all users of the public highways within their respective jurisdictions...including pedestrians, bicyclists, transit users, motorists, and persons of all ages and ability.” The policy applies to all new construction, reconstruction, and maintenance of highways, roads, streets, ways, and lanes located within urban, suburban and rural areas, with exceptions for reasons, such as safety, costs excessively disproportionate to the need or probable use, and sparseness of population. Kauai County passed a Complete Streets Resolution and Complete Streets Bill (2465) in September 2010.

The proposed project would provide an integrated set of safety and efficiency improvements oriented to motorists, bicyclists, and pedestrians which is consistent with the Complete Streets policy.

### 4.4.6 Kauai Multimodal Land Transportation Plan

The Kauai Multimodal Land Transportation Plan (MLTP) was adopted by the Kauai County Council on January 30, 2013 in an effort to achieve a balanced multimodal transportation system on the island. Among its purposes, the plan seeks to blend land use planning with transportation system development and to guide the prioritization and allocation of transportation funding and projects.

The proposed project supports the MLTP’s emphasis on developing infrastructure for all modes of transportation.

## 4.5 References

County of Kauai. 2013. *Kauai Multimodal Land Transportation Plan*. Adopted by Kauai County Council January 30; prepared by Charlier Associates, Inc.

County of Kauai. 2000. *The Kaaui General Plan*.

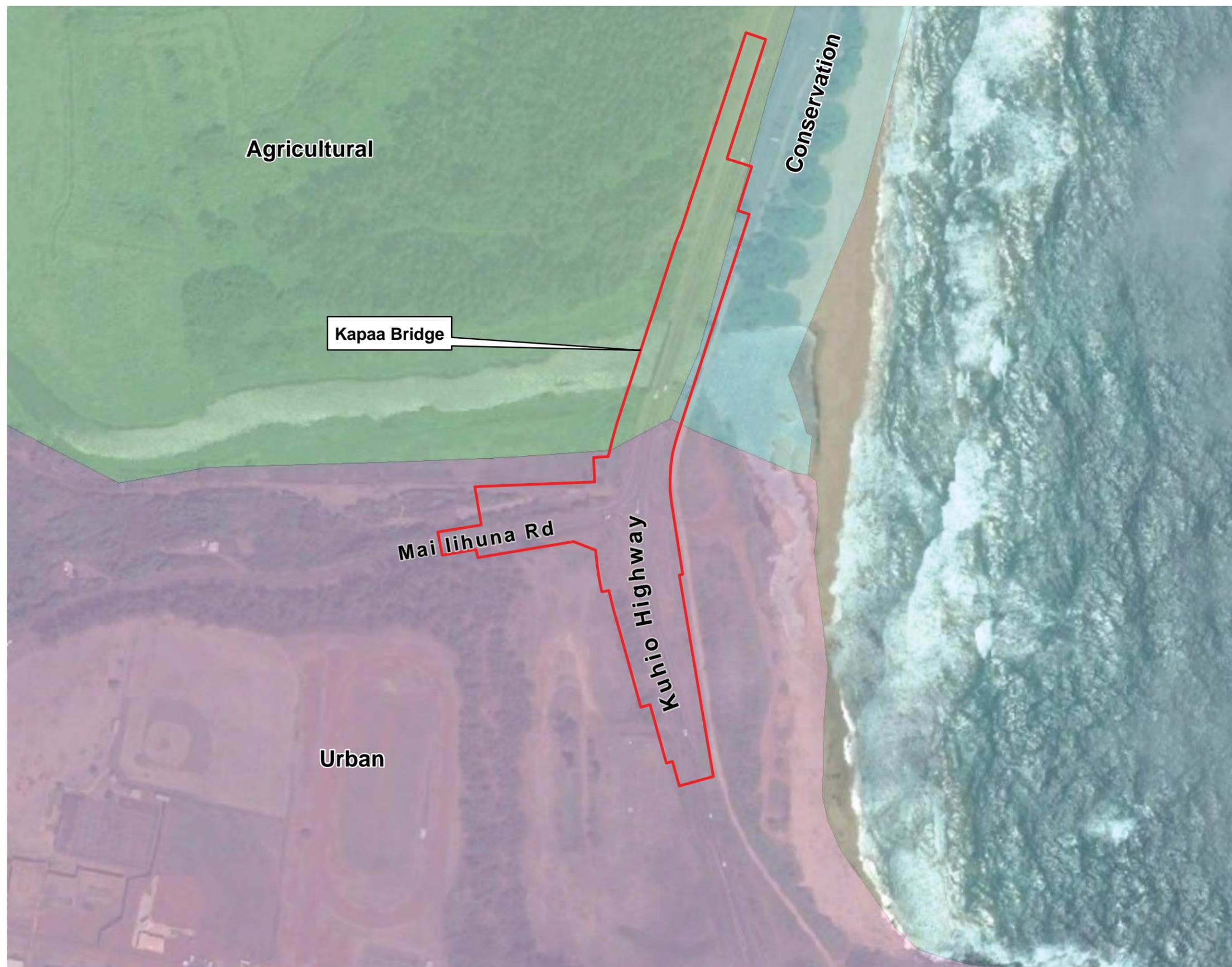
State of Hawaii Department of Transportation (HDOT). 1991 *Transportation; State Functional Plan*.

State of Hawaii Department of Transportation (HDOT). 2003. *Bike Plan Hawaii*.

State of Hawaii Department of Transportation (HDOT). 2013. *Statewide Pedestrian Master Plan*.

State of Hawaii Department of Transportation (HDOT). 2014. *Federal-Aid Highways 2035 Transportation Plan for the District of Kauai*. June.

U.S. Department of Commerce Census Bureau. American Fact Finder. General Demographic Characteristics (2010 Census, DP-1). Available at <http://factfinder.census.gov/> Accessed on June 4, 2015.

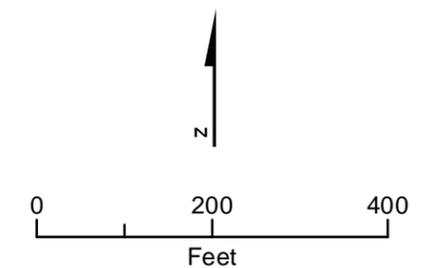


LEGEND

- Project Area
- Agricultural Land Use District
- Conservation Land Use District
- Urban Land Use District

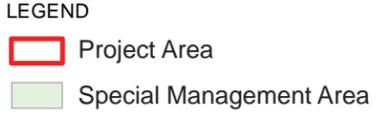
Notes:

1. High-Res Imagery Source: Google Earth 12/16/2013
2. Low-Res Imagery Source: Digital Globe 08/26/2011
3. Imagery base map is not orthorectified; therefore project features may not properly align with the imagery.



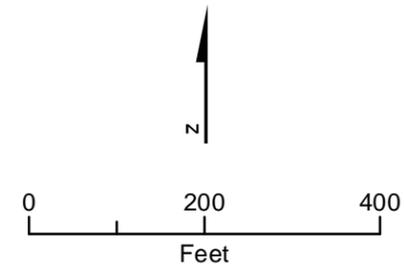
**FIGURE 4-1**  
**State Land Use District Boundaries**  
 Kapaa Stream Bridge  
 Hawaii Bridges Program –  
 Central Federal Lands Highway Division and  
 Hawaii Department of Transportation





Notes:

1. High-Res Imagery Source: Google Earth 12/16/2013
2. Low-Res Imagery Source: Digital Globe 08/26/2011
3. Imagery base map is not orthorectified; therefore project features may not properly align with the imagery.



**FIGURE 4-3**  
**Special Management Area (SMA)**  
 Kapaa Stream Bridge  
 Hawaii Bridges Program –  
 Central Federal Lands Highway Division and  
 Hawaii Department of Transportation

# Findings and Reasons Supporting the Anticipated Determination

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This EA has found that the potential for impacts associated with the proposed project would not be significant, or would be mitigated to less than significant levels. Potential environmental impacts are generally temporary, occurring during construction, and are not expected to adversely impact the long-term environmental quality of the area surrounding the proposed project. This section summarizes the significance criteria used to determine whether the proposed project would have a significant effect on the environment

## 5.1 Significance Criteria

The potential effects of the proposed project were evaluated based on the Significance Criteria specified in HAR Section 11-200-12. The following summarize potential short-term and long-term effects of the action relative to the criteria.

**Involves an irrevocable commitment to, loss or destruction of any natural or cultural resources.** The proposed project would not cause significant adverse impacts to biological resources, cultural resources, soils and geology, or water resources, and therefore does not involve irrevocable commitment to, loss or destruction of any natural or cultural resources. The minimal construction footprint would avoid significant or long-term effects to any Federally-listed species.

**Curtails the range of beneficial uses of the environment.** The proposed project would replace an existing structure that require improvement and is structurally deficient and would have no impact on the beneficial uses of the environment within the project area. The project area itself is predominantly within an established right-of-way.

**Conflicts with the State's long-term environmental policies or goals and guidelines, as expressed in HRS Chapter 344, and any revisions thereof and amendments thereto, court decisions, or executive orders.** The proposed project is consistent with the environmental policies, goals, and guidelines defined in HRS Chapter 344. In particular, the project is consistent with transportation guidelines by improving the region's transportation infrastructure.

### Transportation

- A. *Encourage transportation systems in harmony with the lifestyle of the people and environment of the State.*
- B. *Adopt guidelines to alleviate environmental degradation caused by motor vehicles.*
- C. *Encourage public and private vehicles and transportation system to conserve energy, reduce pollution emission, including noise, and provide safe and convenient accommodations for their users.*

Kuhio Highway—including the Mailihuna Road Intersection and Kapaa Stream Bridge—carries all modes of land transportation on a daily basis, including passenger vehicles, buses, freight trucks, bicyclists, and pedestrian. The highway connects communities on the north and east sides of the island. It is used by commuters for work and school, and is essential for commerce and emergency response. Safety issues and operational deficiencies have been identified for the intersection and the existing bridge has exceeded its design life and a replacement structure is needed to maintain system-wide integrity.

**Substantially affects the economic or social welfare of the community or state.** The proposed project would not result in significant socio-cultural impacts on the community or state, as it would not cause an

increase in population or change the demographic characteristics of the local area. The proposed project would create short-term employment opportunities consisting primarily of construction-related jobs generated by the proposed project. The proposed project would also have a positive impact on the economic and social welfare of the community by improving the long-term functionality of the highway system.

**Substantially affects public health.** With the exception of short-term, construction-related impacts to ambient air and noise levels, no long-term significant impacts to public health and welfare are anticipated. The incorporation of recommended mitigation measures and BMPs during the construction period would minimize these temporary impacts to surrounding communities.

**Involves substantial secondary impacts, such as population changes or effects on public facilities.** No adverse secondary impacts on the environment, such as population growth or the need to expand public facilities, would be anticipated with the implementation of the proposed project.

**Involves a substantial degradation of environmental quality.** The proposed project would not cause any impacts that would substantially degrade environmental quality. Construction activities associated with the proposed project are anticipated to result in relatively insignificant short-term impacts to noise, air quality, biological resources, and traffic in the immediate project vicinity. The incorporation of recommended mitigation measures during the construction period would prevent adverse impacts to the environmental quality.

**Is individually limited, but cumulatively has considerable effect on the environment, or involves a commitment for larger actions.** The proposed project is a self-contained action and is not part of additional and/or related actions. Land use in the project area consists primarily of residential and commercial uses. No other past, present, or future actions associated with these land uses have been identified that would contribute to significant cumulative impacts for any of the resources considered in this EA.

**Substantially affects rare, threatened, or endangered species or its habitat.** No aquatic, botanical, or mammalian species that are rare, threatened, endangered, or associated habitat were observed in the project limits. Biological surveys in September 2014 identified one endangered avifauna within the project area, the Hawaiian gallinule. The surveys also identified one Federally listed mammalian species that has the potential to occur in the action area, the Hawaiian hoary bat. In-water work also has the potential to affect two listed marine species, the threatened green sea turtle and the endangered monk seal. Potential impacts from the proposed project to this species are expected to be discountable and temporary and conservation measures would be implemented during construction to protect Federally listed species. BMPs and protocols would be implemented to avoid and minimize contact with individual members of protected migratory birds that may be encountered in the project area.

**Detrimentially affects air or water quality or ambient noise levels.** Only minimal construction-related, short-term impacts on air quality and noise levels are anticipated. Mitigation measures would be implemented to minimize construction-related noise and dust impacts. Adverse impacts to water resources would be prevented through BMPs and adherence to permit requirements. No long-term, direct or indirect, adverse impacts to these resources are anticipated from implementation of the proposed project.

**Affects or is likely to suffer damage by being located in an environmentally sensitive area, such as a floodplain, tsunami zone, beach, erosion prone area, geologically hazardous land, estuary, freshwater, or coastal waters.** This project is located in an environmentally sensitive area; in particular, the replacement bridge is located within a FEMA-designated floodplain, within the tsunami zone, and near a beach and coastal waters. The project is being designed in accordance with standards appropriate to the geologic, hydrologic, and seismic setting.

**Substantially affects scenic vistas and view planes identified in county or state plans or studies.** The overall visual quality of the project area would not change significantly as a result of bridge replacement. The proposed project would not obstruct any view planes or scenic vistas.

**Requires substantial energy consumption.** Construction of the proposed project would not require substantial energy consumption. Fuel would be consumed by construction vehicles and equipment, but this use would be comparable to other construction projects.

## 5.2 Conclusion

Through project design, impact avoidance and minimization actions, and proposed BMPs and mitigation measures, the analysis contained in this EA has determined that the proposed project would have no significant adverse impacts nor would have impacts that can be mitigated to less than significant levels.

SECTION 6

# Anticipated Determination

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Based on the information presented and examined in this document, the proposed project is not expected to produce significant adverse social, economic, cultural, or environmental impacts. Consequently, a finding of no significant impact is anticipated, pursuant to HRS Chapter 343 and the provisions of HAR Chapter 200, Title 11, Subchapter 6.

# Consultation and Coordination

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## 7.1 Organizations Consulted During Preparation of the Draft Environmental Assessment

The following agencies and organizations were contacted during preparation of the Draft EA. They received preliminary project information and asked to provide comments relative to specific environmental compliance (such as NHPA Section 106 and ESA Section 7) or for general assistance in preparing the Draft EA. A template of the consultation letter is included at the end of this chapter.

### 7.1.1 Federal

- USACE
- USFWS

### 7.1.2 State of Hawaii

- Department of Accounting and General Services
- Department of Education, Kauai Area Complex
- Department of Hawaiian Home Lands
- HDOH, Clean Water Branch
- HDOH, Environmental Planning Office
- DLNR
- Office of Hawaiian Affairs
- Office of Planning (OP)
- State Historic Preservation Division
- Senator Ronald Kouchi, Senate District 8
- Representative James Tokioka, House District 15

### 7.1.3 County of Kauai

- Civil Defense Agency
- Department of Parks and Recreation
- Department of Public Works
- Department of Water
- Fire Department
- Planning Department
- Police Department
- Transportation Agency
- Kauai Council Chair Mel Rapozo
- Kauai Council Vice Chair Ross Kagawa
- Kauai Councilmember Mason Chock
- Kauai Councilmember Arryl Kaneshiro
- Kauai Councilmember KipuKai Kuali'i
- Kauai Councilmember JoAnn Yukimura

### 7.1.4 Utilities

- Hawaiian Telcom
- KIUC
- Oceanic Time Warner Cable
- Sandwich Isles Communications

### 7.1.5 Organizations

- Kauai Chamber of Commerce
- Kauai Path
- Kauai Visitors Bureau
- Sierra Club, Kauai Group of Kauai Chapter
- Kapaa Business Association

## 7.2 Early Consultation Comment Letters Received

A total of 9 agencies responded to requests for comments during the Draft EA preparation period. Of these, substantive comments from 7 agencies are summarized herein, and are incorporated into relevant sections of the Draft EA. Letters are reproduced in full at the end of this chapter.

### 7.2.1 State Agencies

- **HDOH, Clean Water Branch** (letter dated May 18, 2015).
  1. A project that potentially impacts State waters must meet the following: (1) antidegradation policy, (2) designated uses, and (3) water quality criteria.
  2. NPDES permit coverage may be required.
  3. Permit from USACE may be required.
  4. Compliance with State water quality standards is required.
  5. All projects must reduce, reuse, and recycle to protect, restore, and sustain water quality and beneficial uses of State waters.
- **HDOH, Environmental Planning Office** (letter dated May 12, 2015)
  1. Use of the online Hawaii Environmental Health Portal is encouraged.
  2. Water Quality Standards Maps have been updated and are posted online.
  3. University of Hawaii studies related to potential sea level rise changes in Hawaii are available online.
- **DLNR, Commission on Water Resource Management** (memo dated January 7, 2015, attached to letter from Russell Tsuji, Administrator, DLNR Land Division, dated January 15, 2015)
 

A Stream Channel Alteration Permit is needed before alteration(s) can be made to the stream bed and/or banks.
- **OP** (letter dated May 1, 2015)
  1. Verify project TMKs
  2. Draft EA should contain an analysis of project conformance with the Hawaii State Plan.
  3. Draft EA should contain an assessment of project conformance with CZM objectives.
  4. Confirm whether an SMA permit is required.
  5. Federal Consistency Review should be listed as a potential requirement.
  6. Draft EA should include a section on watershed protection and management (see Hawaii Watershed Guidance developed by OP).
  7. Consider OP's Stormwater Impact Assessment when evaluating project-related stormwater impacts
  8. Consider Low Impact Development design concepts and Best Management Practices
- **State of Hawaii Department of Education, Office of the Complex Area Superintendent, Kauai Schools** (letter dated June 26, 2015)

Construction schedules, road closures, and possible dust and noise mitigation measures must be discussed with the Complex Area Superintendent and applicable school principals. In addition, plans for the Mailihuna Road intersection must be provided to the State of Hawaii Department of Education.

### County Agencies

- **Kauai Department of Public Works** (letter dated May 6, 2015)
  1. A resident engineer would need to certify that work associated with the Kapaa Stream Bridge would not cause an increase in the base flood elevation during the occurrence of the base flood discharge.
  2. Short-term impacts of construction on traffic in the area of the Mailihuna Road intersection should be fully discussed in the EA.
  3. A roundabout should be evaluated as an alternative for improving the Mailihuna Road intersection.
  4. Due to the presence of Ke Ala Hele Makalae, there is no need for sidewalks on this bridge. An evaluation of the option to retain the existing structure and converting the sidewalks to paved shoulders would be useful.

(letter dated January 8, 2016)

1. County staff who attended a public information meeting recollect community support for a roundabout.
2. County recommends a roundabout for safety reasons.
3. Overall traffic operations would likely be better with a roundabout.
4. Concerned about the long-term maintenance of a signalized intersection versus a roundabout.
5. An important community goal expressed in the General Plan and other planning documents is to retain rural character.
6. Decision should be made for the long-term benefit of Kauai County residents and visitors.

(letter dated February 4, 2016)

1. Concerned about the lack of pedestrian facilities across the proposed bridge and a *mauka* pedestrian connection from the bridge to Mailihuna Road.
2. Concerns are based on existing and future pedestrian activity by area residents, including children. Destinations for foot traffic include facilities on Mailihuna Road and commercial businesses on Kealia Road. A worn footpath is evidence of frequent travel between neighborhoods. It's unsafe for pedestrians to have to cross the highway twice (in order to use the shared use path) or to use the highway shoulder.
3. A continuous pedestrian facility should be provided on the *mauka* side of Kuhio Highway between Kealia Road and Mailihuna Road.
4. As currently designed, the project would result in a degradation of existing pedestrian facilities which is not consistent with the County's Complete Streets Resolution and the State's Complete Streets Law.
5. The proposed bridge section should be changed from 12-foot lanes and 8-foot shoulders to 11-foot lanes, 6-foot shoulders, and a 6-foot sidewalk on the *mauka* side.

### Local Groups

- **Wailua-Kapaa Neighborhood Association** (letter dated September 10, 2015)
  1. Can the Bridge be a 3R (resurfacing, restoration, rehab) project? If so, can it use design criteria lower than those in AASHTO Green Book?

2. Requests the bridge design preserve a sense of place and rural character.
3. Retaining look, size, and feel of 1952 bridge is important to residents.

## 7.3 Public Involvement

A public meeting was held on September 17, 2015, at the Kapaa High School Library (4695 Mailihuna Road), to provide an overview of the project and obtain feedback from the community. Ten members of the community attended the meeting, including an aide to Representative Derek Kawakami. The primary concern of attendees were as follows:

- Intersection performance under the signalization and roundabout alternatives
- Pedestrian accommodation through the roundabout and on the bridge
- Continuation of the sidewalk on the *mauka* side of Kuhio Highway
- Potential impacts on the shared use path
- Railing design and view planes
- Existing narrow highway shoulders
- Continued use of the vehicular beach access on the *makai* side of the Mailihuna Road intersection

A summary of the meeting is included in Appendix H.

## 7.4 Distribution List for the Draft Environmental Assessment

The following lists the distribution for the Draft EA for public review and comment. Comments received on the Draft EA will be considered and incorporated into the Final EA, as appropriate.

### 7.4.1 Federal

- USACE

### 7.4.2 State of Hawaii

- Department of Accounting and General Services
- Department of Hawaiian Home Lands
- Department of Education, Facilities Development Branch, Office of the Complex Area Superintendent (Kauai), Kapaa Elementary School, and Kapaa High School
- HDOH Clean Water Branch
- HDOH, Environmental Planning Office
- DLNR
- Office of Hawaiian Affairs
- OP
- State Historic Preservation Division
- Senator Ronald Kouchi, Senate District 8
- Representative Derek Kawakami, House District 14

### 7.4.3 County of Kauai

- Civil Defense Agency
- Department of Public Works
- Department of Water
- Fire Department
- Mayor's Office
- Planning Department
- Police Department
- Transportation Agency

- Kauai Council Chair Mel Rapozo
- Kauai Council Vice Chair Ross Kagawa
- Kauai Councilmember Mason Chock
- Kauai Councilmember Arryl Kaneshiro
- Kauai Councilmember KipuKai Kualii
- Kauai Councilmember JoAnn Yukimura

#### **7.4.4 Utilities**

- Hawaiian Telcom
- KIUC
- Oceanic Time Warner Cable
- Sandwich Isles Communications

#### **7.4.5 Organizations**

- Kauai Chamber of Commerce
- Kauai Path
- Kauai Visitors Bureau
- Sierra Club, Kauai Group of Kauai Chapter
- Kapaa Business Association
- Wailua-Kapaa Neighborhood Association

#### **7.4.6 Individuals**

- Property Owner/Resident TMK: [4] 4-6-014:024
- Property Owner/Resident TMK: [4] 4-6-014:033
- Property Owner/Resident TMK: [4] 4-7-003:002

### **7.5 Public Availability of the Draft Environmental Assessment**

The Draft EA will be distributed to the following outlets to disseminate project information.

#### **7.5.1 Public Library**

- Kapaa Public Library

#### **7.5.2 Media**

- The Garden Island Newspaper

## **REQUEST FOR PRE-ASSESSMENT COMMENTS**

### **Template Letter with Project Sheet (attachment)**

#### **Comments Received**

- Hawaii Department of Health, Clean Water Branch
- Hawaii Department of Health, Environmental Planning Office
- Hawaii Department of Land and Natural Resources, Commission on Water Resource Management
- Office of Planning
- Hawaii Department of Education, Office of the Complex Area Superintendent, Kauai Schools
- Kauai Department of Public Works

DAVID Y. IGE  
GOVERNOR



DOUGLAS MURDOCK  
Comptroller

AUDREY HIDANO  
Deputy Comptroller

STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
P.O. BOX 119, HONOLULU, HAWAII 96810-0119

RECEIVED

'APR 17 2015

APR 20 2015

(P)1093.5

Ms. Kathleen Chu  
CH2M Hill, Inc.  
1132 Bishop Street, Suite 1100  
Honolulu, Hawaii 96813

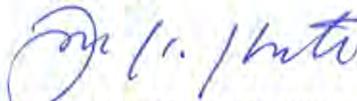
Dear Ms. Chu:

Subject: Pre-Assessment Consultation for  
Hawaii Bridge Program for the State of Hawaii  
Federal Highway Administration, Central Federal Lands Highway Division  
Chapter 343, HRS and National Environmental Policy

Thank you for the opportunity to comment on the subject project. The locations of the bridges do not impact any of the Department of Accounting and General Services' facilities, and we have no comments or any environmental concerns in the areas of the project locations at this time.

If you have any questions, your staff may call Ms. Gayle Takasaki of the Public Works Division at 586-0584.

Sincerely,

  
DOUGLAS MURDOCK  
Comptroller

c: Mr. J. Michael Will, P.E., Program Engineering Manager, US Department of  
Transportation



STATE OF HAWAII  
DEPARTMENT OF EDUCATION  
OFFICE OF THE COMPLEX AREA SUPERINTENDENT  
KAUAI SCHOOLS  
3060 Eiwa Street, Room 305  
Lihue, Hawaii 96766

RECEIVED

JUL 02 2015

June 26, 2015

Ms. Kathleen Chu, Program Manager  
CH2M Hill, Inc.  
1132 Bishop Street, Suite 1100  
Honolulu, Hawaii 96813

Dear Ms. Chu:

Subject: Program for Kapaa Stream, Kapaa, Kauai

The Department of Education (DOE) has received your letter of May 19, 2015. It is unclear from your letter whether you are soliciting early comments in preparation for an environmental review or whether the letter itself is serving as a review.

The DOE is certain this project will impact Kapaa Elementary and Kapaa High School's during construction. The specific plan needs to be discussed in a meeting with me and the school principals regarding construction schedules, road closures and possible dust and noise mitigation measures.

In addition, the DOE must have more information on the plans for the Mailihuna Road intersection, particularly the extent of the planned sidewalks, crosswalks, and traffic control improvements. It would be very advantageous to know if any signage is considered as part of the project.

Environmental documents should be sent to my attention at 3060 Eiwa Street, Room 305, Lihue, Hawaii 96746 and to the DOE Facilities Development Branch at 4680 Kalaniana'ole Highway, Building TB1A, Honolulu, Hawaii 96821. Should you have any additional facility questions, please call Heidi Meeker of the Facilities Development Branch at (808) 377-8301.

I look forward to meeting with you and an appointment can be arranged with my secretary Jan Ishida at 808-274-3502.

Sincerely,

A handwritten signature in blue ink, appearing to read "W. N. Arakaki".

William N. Arakaki  
Complex Area Superintendent

HM:ji

cc: Heidi Meeker, Facilities Development Branch  
Jason Kuloloia, Kapaa Elementary Principal  
Daniel Hamada, Kapaa High School Principal  
Gail Nakaahiki, Complex Area Business Manager



U.S. Department  
of Transportation  
**Federal Highway  
Administration**

**Central Federal Lands Highway Division**

12300 West Dakota Avenue  
Suite 380  
Lakewood, CO 80228  
Office: 720-963-3647  
Fax: 720-963-3596  
Michael.Will@dot.gov

December 7, 2015

In Reply Refer To:  
HFPM-16

TO: WILLIAM N. ARAKAKI  
OFFICE OF THE KAUAI COMPLEX AREA SUPERINTENDENT  
DEPARTMENT OF EDUCATION  
3060 EIWA STREET, SUITE 305  
LIHUE, HI 96766

FROM: J. MICHAEL WILL, P.E.  
PROJECT MANAGER

SUBJECT: PRE-ASSESSMENT CONSULTATION  
HAWAII BRIDGE PROGRAM, KAUAI PROJECTS  
MAILIHUNA ROAD INTERSECTION AND KAPAA STREAM BRIDGE

Dear Mr. Arakaki:

Thank you for pre-assessment comments on the subject project transmitted by letter dated June 26, 2015.

The design process for this project is ongoing. The project team will coordinate with your office and individual school principals through the environmental review process as additional information becomes available. As noted in the initial fact sheet, proposed improvements are intended to increase safety for everyone using the intersection. We are working to minimize and manage impacts to the schools and others in the surrounding area during the construction period.

We appreciate your participation in the environmental review process. A copy of the Draft Environmental Assessment will be sent to your office, Kapaa Elementary School, Kapaa High School, and the Department of Education Facilities Development Branch when available for public review and comment. If you have any questions, please contact me at (720) 963-3647, or by email at [Michael.will@dot.gov](mailto:Michael.will@dot.gov).

Sincerely yours,

J. Michael Will, P.E.  
Project Manager

Cc:  
Christine Yamasaki, HDOT  
Nicole Winterton, CFLHD  
Kathleen Chu, CH2M HILL



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

In reply, please refer to:  
EMD/CWB

05028PNN.15

May 18, 2015

Mr. J. Michael Will, P.E.  
Program Engineering Manager  
Central Federal Lands Highway Division  
U.S. Department of Transportation  
12300 West Dakota Avenue, Suite 380  
Lakewood, Colorado 80228

Dear Mr. Will:

**SUBJECT: Comments on the Pre-Assessment Consultation for the  
Hawaii Bridge Program  
State of Hawaii**

The Department of Health (DOH), Clean Water Branch (CWB), acknowledges receipt of your letter, dated March 24, 2015, requesting comments on your project. The DOH-CWB has reviewed the subject document and offers these comments. Please note that our review is based solely on the information provided in the subject document and its compliance with the Hawaii Administrative Rules (HAR), Chapters 11-54 and 11-55. You may be responsible for fulfilling additional requirements related to our program. We recommend that you also read our standard comments on our website at:  
<http://health.hawaii.gov/epo/files/2013/05/Clean-Water-Branch-Std-Comments.pdf>.

1. Any project and its potential impacts to State waters must meet the following criteria:
  - a. Antidegradation policy (HAR, Section 11-54-1.1), which requires that the existing uses and the level of water quality necessary to protect the existing uses of the receiving State water be maintained and protected.
  - b. Designated uses (HAR, Section 11-54-3), as determined by the classification of the receiving State waters.
  - c. Water quality criteria (HAR, Sections 11-54-4 through 11-54-8).
2. You may be required to obtain National Pollutant Discharge Elimination System (NPDES) permit coverage for discharges of wastewater, including storm water runoff, into State surface waters (HAR, Chapter 11-55).

For NPDES general permit coverage, a Notice of Intent (NOI) form must be submitted at least 30 calendar days before the commencement of the discharge. An application for an NPDES individual permit must be submitted at least 180 calendar days before the commencement of the discharge. To request NPDES permit coverage, you must submit the applicable form ("CWB Individual NPDES Form" or "CWB NOI Form") through the e-Permitting Portal and the hard copy certification statement with the respective filing fee (\$1,000 for an individual NPDES permit or \$500 for a Notice of General Permit Coverage). Please open the e-Permitting Portal website located at: <https://eha-cloud.doh.hawaii.gov/epermit/>. You will be asked to do a one-time registration to obtain your login and password. After you register, click on the Application Finder tool and locate the appropriate form. Follow the instructions to complete and submit the form.

3. If your project involves work in, over, or under waters of the United States, it is highly recommended that you contact the Army Corp of Engineers, Regulatory Branch (Tel: 835-4303) regarding their permitting requirements.

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

4. Please note that all discharges related to the project construction or operation activities, whether or not NPDES permit coverage and/or Section 401 WQC are required, must comply with the State's Water Quality Standards. Noncompliance with water quality requirements contained in HAR, Chapter 11-54, and/or permitting requirements, specified in HAR, Chapter 11-55, may be subject to penalties of \$25,000 per day per violation.
5. It is the State's position that all projects must reduce, reuse, and recycle to protect, restore, and sustain water quality and beneficial uses of State waters. Project planning should:
  - a. Treat storm water as a resource to be protected by integrating it into project planning and permitting. Storm water has long been recognized as a source of irrigation that will not deplete potable water resources. What is often overlooked is that storm water recharges ground water supplies and feeds streams and estuaries; to ensure that these water cycles are not disrupted, storm water cannot be relegated as a waste product of impervious surfaces. Any project planning must recognize storm water as an asset that sustains and protects natural ecosystems and traditional beneficial uses of State waters, like

community beautification, beach going, swimming, and fishing. The approaches necessary to do so, including low impact development methods or ecological bio-engineering of drainage ways must be identified in the planning stages to allow designers opportunity to include those approaches up front, prior to seeking zoning, construction, or building permits.

- b. Clearly articulate the State's position on water quality and the beneficial uses of State waters. The plan should include statements regarding the implementation of methods to conserve natural resources (e.g., minimizing potable water for irrigation, gray water re-use options, energy conservation through smart design) and improve water quality.
- c. Consider storm water Best Management Practice (BMP) approaches that minimize the use of potable water for irrigation through storm water storage and reuse, percolate storm water to recharge groundwater to revitalize natural hydrology, and treat storm water which is to be discharged.
- d. Consider the use of green building practices, such as pervious pavement and landscaping with native vegetation, to improve water quality by reducing excessive runoff and the need for excessive fertilization, respectively.
- e. Identify opportunities for retrofitting or bio-engineering existing storm water infrastructure to restore ecological function while maintaining, or even enhancing, hydraulic capacity. Particular consideration should be given to areas prone to flooding, or where the infrastructure is aged and will need to be rehabilitated.

If you have any questions, please visit our website at:  
<http://health.hawaii.gov/cwb>, or contact the Engineering Section, CWB, at (808) 586-4309.

Sincerely,



ALEC WONG, P.E., CHIEF  
Clean Water Branch

NN:ay

- c: Ms. Kathleen Chu, CH2M Hill [via e-mail [kathleen.chu@ch2m.com](mailto:kathleen.chu@ch2m.com) only]  
DOH-EPO #15-094 [via e-mail only]  
Mr. Gary Ueunten, CWB, Kauai District Health Office [via e-mail only]  
Mr. Neil Mukai, CWB, Hawaii District Health Office [via e-mail only]



U.S. Department  
of Transportation  
**Federal Highway  
Administration**

**Central Federal Lands Highway Division**

12300 West Dakota Avenue  
Suite 380  
Lakewood, CO 80228  
Office: 720-963-3647  
Fax: 720-963-3596  
Michael.Will@dot.gov

December 7, 2015

In Reply Refer To:  
HFPM-16

TO: ALEC WONG, P.E.  
CHIEF, CLEAN WATER BRANCH  
DEPARTMENT OF HEALTH  
P.O. BOX 3378  
HONOLULU, HI 96801

FROM: J. MICHAEL WILL, P.E.  
PROJECT MANAGER

SUBJECT: PRE-ASSESSMENT CONSULTATION  
HAWAII BRIDGE PROGRAM  
KAUAI PROJECTS: BRIDGE 7E, HANAPEPE, KAPAA  
OAHU PROJECTS: HALONA, ROOSEVELT, KAWELA, NANAHU  
HAWAII ISLAND PROJECTS: HILEA, NINOLE

Dear Mr. Wong:

Thank you for pre-assessment comments on the subject projects transmitted by letter dated May 18, 2015.

The project team is aware that certain projects may require certification or permits under the Clean Water Act. We have been engaged in early consultation with your staff and greatly appreciate their assistance.

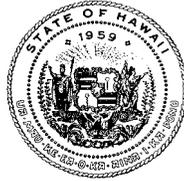
We appreciate your participation in the environmental review process. A copy of the Draft Environmental Assessment will be sent to your office when available for public review and comment. If you have any questions, please contact me at (720) 963-3647, or by email at [Michael.will@dot.gov](mailto:Michael.will@dot.gov).

Sincerely yours,

J. Michael Will, P.E.  
Project Manager

Cc:  
Christine Yamasaki, HDOT  
Kevin Ito, HDOT  
Nicole Winterton, CFLHD  
Kathleen Chu, CH2M HILL

DAVID Y. IGE  
GOVERNOR OF HAWAII



VIRGINIA PRESSLER, M.D.  
DIRECTOR OF HEALTH

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

In reply, please refer to:

File:

HFFPM-16

EPO 15-094

May 12, 2015

Mr. J. Michael Will, P.E.  
Program Engineering Manager  
Central Federal Lands Highway Division  
U.S. Department of Transportation  
12300 West Dakota Avenue, Suite 380  
Lakewood, Colorado 80228  
Via email: Michael.will@dot.gov

Dear Mr. Will:

**SUBJECT: Pre- Assessment Consultation (PC) for Hawaii Bridge Program for State of Hawaii**

The Department of Health (DOH), Environmental Planning Office (EPO), acknowledges receipt of your PC to our office on March 24, 2015. Thank you for allowing us to review and comment on the proposed project. The PC was routed to the Clean Water Branch, and the District Health Offices on Kauai and Hawaii. They will provide specific comments to you if necessary. EPO recommends that you review the standard comments and available strategies to support sustainable and healthy design provided at: <http://health.hawaii.gov/epo/home/landuse-planning-review-program>. Projects are required to adhere to all applicable standard comments.

We encourage you to examine and utilize the Hawaii Environmental Health Portal. The portal provides links to our e-Permitting Portal, Environmental Health Warehouse, Groundwater Contamination Viewer, Hawaii Emergency Response Exchange, Hawaii State and Local Emission Inventory System, Water Pollution Control Viewer, Water Quality Data, Warnings, Advisories and Postings. The Portal is continually updated. Please visit it regularly at: <https://eha-cloud.doh.hawaii.gov>

You may also wish to review the revised Water Quality Standards Maps that have been updated for all islands. The Water Quality Standards Maps can be found at: <http://health.hawaii.gov/cwb/site-map/clean-water-branch-home-page/water-quality-standards>

The University of Hawaii has examined potential sea level rise changes in Hawaii. You may find it useful to review their studies at: <http://www.soest.hawaii.edu/coasts/sealevel>

We request that you utilize all of this information on your proposed project to increase sustainable, innovative, inspirational, transparent and healthy design.

Mahalo nui loa,

Laura Leialoha Phillips McIntyre, AICP  
Program Manager, Environmental Planning Office

c: Kathleen Chu, CH2M Hill program manager – [kahtleen.chu@ch2m.com](mailto:kahtleen.chu@ch2m.com) {via email only}  
CWB, DHO Kauai, DHO Hawaii {via email only}



U.S. Department  
of Transportation  
**Federal Highway  
Administration**

**Central Federal Lands Highway Division**

12300 West Dakota Avenue  
Suite 380  
Lakewood, CO 80228  
Office: 720-963-3647  
Fax: 720-963-3596  
Michael.Will@dot.gov

December 7, 2015

In Reply Refer To:  
HFPM-16

TO: LAURA LEIALOHA PHILLIPS McINTYRE, AICP  
PROGRAM MANAGER, ENVIRONMENTAL PLANNING OFFICE  
DEPARTMENT OF HEALTH  
P.O. BOX 3378  
HONOLULU, HI 96801

FROM: J. MICHAEL WILL, P.E.  
PROJECT MANAGER

SUBJECT: PRE-ASSESSMENT CONSULTATION  
HAWAII BRIDGE PROGRAM  
KAUAI PROJECTS: BRIDGE 7E, HANAPEPE, KAPAA  
OAHU PROJECTS: HALONA, ROOSEVELT, KAWELA, NANAHU  
HAWAII ISLAND PROJECTS: HILEA, NINOLE

Dear Ms. McIntyre:

Thank you for pre-assessment comments on the subject projects transmitted by letter dated May 12, 2015.

We acknowledge the information provided on the Hawaii Environmental Health Portal, Water Quality Standard Maps, and University of Hawaii studies related to sea level rise.

We appreciate your participation in the environmental review process. A copy of the Draft Environmental Assessment will be sent to your office when available for public review and comment. If you have any questions, please contact me at (720) 963-3647, or by email at [Michael.will@dot.gov](mailto:Michael.will@dot.gov).

Sincerely yours,

J. Michael Will, P.E.  
Project Manager

Cc:  
Christine Yamasaki, HDOT  
Kevin Ito, HDOT  
Nicole Winterton, CFLHD  
Kathleen Chu, CH2M HILL

DAVID Y. IGE  
GOVERNOR OF HAWAII



**STATE OF HAWAII**  
**DEPARTMENT OF LAND AND NATURAL RESOURCES**

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

CARTY S. CHANG  
ACTING CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT

FIRST DEPUTY

WILLIAM M. TAM  
INTERIM DEPUTY DIRECTOR - WATER

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

January 15, 2015

U. S. Department of Transportation  
Federal Highway Administration  
Central Federal Lands Highway Division  
Attn: J. Michael Will, Program Engineering Manager  
12300 West Dakota Avenue, Suite 330  
Lakewood, CO 80228

via email: [michael.will@dot.gov](mailto:michael.will@dot.gov)

Dear Mr. Will,

**SUBJECT: Notification of Intent to Construct the Hawaii Bridge Program, Request for Information, HFPM-16**

Thank you for the opportunity to review and comment on the subject matter. In addition to the comments sent to you dated December 18, 2014, and January 9, 2015, enclosed are additional comments from the Commission on Water Resource Management on the subject matter. Should you have any questions, please feel free to call Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Sincerely,

A handwritten signature in blue ink, appearing to read "Russell Y. Tsuji".

Russell Y. Tsuji  
Land Administrator

Enclosure(s)

NEIL ABERCROMBIE  
GOVERNOR OF HAWAII



RECEIVED  
LAND DIVISION

WILLIAM J. AHA, JR.  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT

2015 JAN 14 PM 1:19



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

December 2, 2014

MEMORANDUM

TO: **DLNR Agency:**

- 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 - Oahu District
- Land Division - Kauai District
- Land Division - Maui District
- Land Division - Hawaii District
- Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator

SUBJECT: Notification of Intent to Construct the Hawaii Bridge Program, Request for Information

LOCATION: Various (see cover letter) including all Districts except Maui

APPLICANT: Federal Highway Administration, Central Federal Lands Highway Division, in cooperation with the Hawaii 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 December 18, 2014. 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 Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Attachments

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

Signed: William M. Tam

Print Name: WILLIAM M. TAM, Deputy Director

Date: January 7, 2015

FILE ID:	RFD 4095.0
DOC ID:	11897



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
**COMMISSION ON WATER RESOURCE MANAGEMENT**  
P.O. BOX 621  
HONOLULU, HAWAII 96809

January 7, 2015

REF: RFD.4095.0

TO: Russell Tsuji, Administrator  
Land Division

FROM: William M. Tam, Deputy Director   
Commission on Water Resource Management

SUBJECT: Notification of Intent to Construct Hawaii Bridge Program, Request for Information

FILE NO.: HFPM-16  
TMK NO.: Various including all Districts except Maui

Thank you for the opportunity to review the subject document. The Commission on Water Resource Management (CWRM) is the agency responsible for administering the State Water Code (Code). Under the Code, all waters of the State are held in trust for the benefit of the citizens of the State, therefore, all water use is subject to legally protected water rights. CWRM strongly promotes the efficient use of Hawaii's water resources through conservation measures and appropriate resource management. For more information, please refer to the State Water Code, Chapter 174C, Hawaii Revised Statutes, and Hawaii Administrative Rules, Chapters 13-167 to 13-171. These documents are available via the Internet at <http://www.hawaii.gov/dlnr/cwrm>.

Our comments related to water resources are checked off below.

- 1. We recommend coordination with the county to incorporate this project into the county's Water Use and Development Plan. Please contact the respective Planning Department and/or Department of Water Supply for further information.
- 2. We recommend coordination with the Engineering Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.
- 3. We recommend coordination with the Hawaii Department of Agriculture (HDOA) to incorporate the reclassification of agricultural zoned land and the redistribution of agricultural resources into the State's Agricultural Water Use and Development Plan (AWUDP). Please contact the HDOA for more information.
- 4. We recommend that water efficient fixtures be installed and water efficient practices implemented throughout the development to reduce the increased demand on the area's freshwater resources. Reducing the water usage of a home or building may earn credit towards Leadership in Energy and Environmental Design (LEED) certification. More information on LEED certification is available at <http://www.usgbc.org/leed>. A listing of fixtures certified by the EPA as having high water efficiency can be found at <http://www.epa.gov/watersense/>.
- 5. We recommend the use of best management practices (BMP) for stormwater management to minimize the impact of the project to the existing area's hydrology while maintaining on-site infiltration and preventing polluted runoff from storm events. Stormwater management BMPs may earn credit toward LEED certification. More information on stormwater BMPs can be found at <http://hawaii.gov/dbedt/czm/initiative/lid.php>.
- 6. We recommend the use of alternative water sources, wherever practicable.
- 7. We recommend participating in the Hawaii Green Business Program, that assists and recognizes businesses that strive to operate in an environmentally and socially responsible manner. The program description can be found online at <http://energy.hawaii.gov/green-business-program>

- 8. We recommend adopting landscape irrigation conservation best management practices endorsed by the Landscape Industry Council of Hawaii. These practices can be found online at [http://www.hawaiiscape.com/wp-content/uploads/2013/04/LICH\\_Irrigation\\_Conservation\\_BMPs.pdf](http://www.hawaiiscape.com/wp-content/uploads/2013/04/LICH_Irrigation_Conservation_BMPs.pdf)
- 9. There may be the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.

Permits required by CWRM:

Additional information and forms are available at [http://hawaii.gov/dlnr/cwrn/info\\_permits.htm](http://hawaii.gov/dlnr/cwrn/info_permits.htm).

- 10. The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit is required prior to use of water. The Water Use Permit may be conditioned on the requirement to use dual line water supply systems for new industrial and commercial developments.
- 11. A Well Construction Permit(s) is (are) required before any well construction work begins.
- 12. A Pump Installation Permit(s) is (are) required before ground water is developed as a source of supply for the project.
- 13. There is (are) well(s) located on or adjacent to this project. If wells are not planned to be used and will be affected by any new construction, they must be properly abandoned and sealed. A permit for well abandonment must be obtained.
- 14. Ground water withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.
- 15. A Stream Channel Alteration Permit(s) is (are) required before any alteration(s) can be made to the bed and/or banks of a stream channel.
- 16. A Stream Diversion Works Permit(s) is (are) required before any stream diversion works is (are) constructed or altered.
- 17. A Petition to Amend the Interim Instream Flow Standard is required for any new or expanded diversion(s) of surface water.
- 18. The planned source of water for this project has not been identified in this report. Therefore, we cannot determine what permits or petitions are required from our office, or whether there are potential impacts to water resources.
- OTHER:

If there are any questions, please contact Dean Uyeno at 587-0234.



U.S. Department  
of Transportation  
**Federal Highway  
Administration**

**Central Federal Lands Highway Division**

12300 West Dakota Avenue  
Suite 380  
Lakewood, CO 80228  
Office: 720-963-3647  
Fax: 720-963-3596  
Michael.Will@dot.gov

December 7, 2015

In Reply Refer To:  
HFPM-16

TO: ROY HARDY  
DEPUTY DIRECTOR  
COMMISSION ON WATER RESOURCE MANAGEMENT  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
P.O. BOX 621  
HONOLULU, HI 96809

FROM: J. MICHAEL WILL, P.E.  
PROJECT MANAGER

SUBJECT: PRE-ASSESSMENT CONSULTATION  
HAWAII BRIDGE PROGRAM  
KAUAI PROJECTS: BRIDGE 7E, HANAPEPE, KAPAA  
OAHU PROJECTS: HALONA, ROOSEVELT, KAWELA, NANAHU  
HAWAII ISLAND PROJECTS: HILEA, NINOLE

Dear Mr. Hardy:

Thank you for pre-assessment comments on the subject projects transmitted by letter dated January 7, 2015.

We acknowledge that projects may require a Stream Channel Alteration Permit, and will initiate the application process as needed.

We appreciate your participation in the environmental review process. A copy of the Draft Environmental Assessment will be sent to your office when available for public review and comment. If you have any questions, please contact me at (720) 963-3647, or by email at [Michael.will@dot.gov](mailto:Michael.will@dot.gov).

Sincerely yours,

J. Michael Will, P.E.  
Project Manager

Cc:  
Christine Yamasaki, HDOT  
Kevin Ito, HDOT  
Nicole Winterton, CFLHD  
Kathleen Chu, CH2M HILL



## OFFICE OF PLANNING STATE OF HAWAII

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

Telephone: (808) 587-2846  
Fax: (808) 587-2824  
Web: <http://planning.hawaii.gov/>

DAVID Y. IGE  
GOVERNOR

LEO R. ASUNCION  
ACTING DIRECTOR  
OFFICE OF PLANNING

Ref. No. P-14732

May 1, 2015

RECEIVED

MAY 4 2015

Ms. Kathleen Chu  
Program Manager  
CH2M Hill, Inc.  
1132 Bishop Street, Suite 1100  
Honolulu, Hawaii 96813

Dear Ms. Chu:

Subject: Hawaii Bridge Program for the State of Hawaii  
Federal Highway Administration, Central Federal Lands Highway Division,  
Pre-Assessment Consultation  
Chapter 343, Hawaii Revised Statutes and National Environmental Policy  
Act; TMK: Various

Thank you for the opportunity to provide comments on the pre-consultation request for a Draft Environmental Assessment (Draft EA) being developed for the Hawaii Bridge Program. The pre-consultation review material was transmitted to our office by letter dated March 24, 2015.

It is our understanding that the Federal Highway Administration, Central Federal Lands Highway Division, in partnership with the Hawaii Department of Transportation, is conducting this environmental study for nine bridges on the islands of Kauai, Oahu, and Hawaii. The purpose of this bridge improvement project is the rehabilitation or replacement of identified bridges to create a safer and more functional stream, river, and canal crossing network for roadway users. The bridge improvements will focus on getting these bridges up to current design standards, increase load capacity, allow for safer pedestrian traffic, and improve on railings, transitions, and bridge approaches.

The Office of Planning (OP) has reviewed the transmitted material and has the following comments to offer:

1. Some of the bridge sites listed in the Draft EA review material contain incorrect Tax Map Key (TMK) numbers. TMK's generally have a nine digit number and are listed by island designation, plat, and parcel locations. The island of Oahu is classified by the number (1), Maui County by (2), Hawaii County by (3), and Kauai County by (4). The review material, for example, lists the Hanapepe River Bridge with the correct TMK: (4) 1-9-007:001. The bridges on the island of Oahu have an insufficient

amount of TMK numerals. The East Hawaii County locations list the wrong island designation (it should be listed with island designation of (3), rather than the island designation of (4)). The Draft EA should correct these errors and provide TMK locations with a nine digit format.

2. OP provides technical assistance to state and county agencies in administering the statewide planning system in Hawaii Revised Statutes (HRS) Chapter 226, the Hawaii State Plan. The Hawaii State Plan provides goals, objectives, priorities, and priority guidelines for growth, development, and the allocation of resources throughout the State. The Hawaii State Plan includes diverse policies and objectives of state interest including but not limited to the economy, agriculture, the visitor industry, federal expenditure, the physical environment, facility systems, socio-cultural advancement, climate change adaptation, and sustainability.

The Draft EA should include an analysis that addresses whether the proposed project conforms or is in conflict with the objectives, policies, and priority guidelines listed in the Hawaii State Plan.

3. The coastal zone management area is defined as "all lands of the State and the area extending seaward from the shoreline to the limit of the State's police power and management authority, including the U.S. territorial sea" see HRS § 205A-1 (definition of "coastal zone management area").

HRS Chapter 205A requires all State and county agencies to enforce the coastal zone management (CZM) objectives and policies. The Draft EA should include an assessment as to how the proposed project conforms to the CZM objectives and its supporting policies set forth in HRS § 205A-2. The assessment addressing compliance with HRS Chapter 205A is an important component for satisfying the requirements of HRS Chapter 343. These objectives and policies include: recreational resources, historic resources, scenic and open space resources, coastal ecosystems, economic uses, coastal hazards, managing development, public participation, beach protection, and marine resources.

4. Because of the proximity to the shoreline, some of the bridge sites may lie within areas designated as Special Management Areas (SMA). Please confirm with the City and County of Honolulu's Department of Planning and Permitting, the County of Kauai Planning Department, and the County of Hawaii Planning Department on the location of these bridges in relation with the SMA boundaries and whether SMA permits are required.

Ms. Kathleen Chu

May 1, 2015

Page 3

5. The national Coastal Zone Management Act requires direct federal activities and development projects to be consistent with approved state coastal programs to the maximum extent practicable. OP is the lead state agency to conduct this Federal Consistency evaluation.

Because at least one of the proposing agencies for this Draft EA is a federal agency, and federal funding will be used to finance this endeavor, this project may require compliance with Federal Consistency requirements. The Draft EA should list all applicable permits needed for this project. Any federal permits required for this project may have implications on the federal consistency evaluation conducted by OP.

6. Our review indicates that these bridge improvement projects lie within proximity to perennial streams, canals, wetlands, and are within numerous watersheds. The project areas are adjacent to a range of human activities from agriculture, urban development, and activity along coastlines or upstream from the coastline. The Draft EA should consider inclusion of a section addressing watershed protection and management.

OP has created the Hawaii Watershed Guidance to provide direction on methods to safeguard Hawaii's watersheds and implement watershed plans. This guidance provides a number of management measures that address polluted runoff. OP's watershed guidance provides a number of management measures that address polluted runoff from urban activities, and a summary and links to management measures that may be implemented to minimize coastal nonpoint pollution impact. Specifically please examine, Section B – Roads, Highways, and Bridges pages 132-135. The document can be viewed or downloaded from the Office of Planning website at [http://files.hawaii.gov/dbedt/op/czm/initiative/nonpoint/HI Watershed Guidance Final.pdf](http://files.hawaii.gov/dbedt/op/czm/initiative/nonpoint/HI_Watershed_Guidance_Final.pdf).

7. We have reviewed the location maps of the bridge improvement projects and compared them to known coastal resources in the area. Many of these parcels are located in flood hazard zones, tsunami evacuation areas, and as noted above, land zoned for agriculture or urban uses, or are located near perennial streams, canals, wetlands, seasonal river gulches, or pass close to coastal areas and beaches. Therefore, inclusion of a stormwater impact evaluation would be beneficial to the Draft EA. Development and land use activities can create erosion, increased stormwater runoff, and coastal pollution that cause direct, secondary, and cumulative impacts to Hawaii's resources.

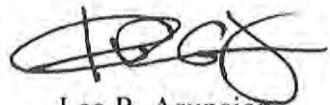
Please consider OP's Stormwater Impact Assessment in your stormwater impact evaluation for this project. This document can be used to identify and evaluate information on hydrology, stressors, sensitivity of aquatic and riparian resources, and management measures to control runoff occurrences. Mitigation measures and best management practices (BMP) listed in this document can be applied to water runoff strategies to prevent damage to coastal ecosystems. This document will assist in integrating stormwater impact assessment within the planning and environmental review process of a project. The document can be found at [http://files.hawaii.gov/dbedt/op/czm/initiative/stomwater\\_impact/final\\_stormwater\\_impact\\_assessments\\_guidance.pdf](http://files.hawaii.gov/dbedt/op/czm/initiative/stomwater_impact/final_stormwater_impact_assessments_guidance.pdf).

8. Construction of widened roadways, new bridge approaches, increased support structures for bridge spans, and pedestrian crossing will introduce hardened impervious surfaces, secondary development, and may require additional drainage infrastructure to be built. Please consider Low-Impact Development (LID) design practices in the planning process for this project. LID techniques promote a range of structural BMP's for stormwater control management, roadway development, and urban layout that minimizes negative environmental impact.

LID design concepts and BMP's that should be considered include: the preservation of natural features and conservation design; the reduction of impervious cover; and utilizing natural features and source control for stormwater management. These methods are listed in OP's Low Impact Development, A Practitioners Guide. For more information on LID – BMP's, please examine Section 1.7, pgs. 1-4 to 1-11. This guidance can be viewed or downloaded from the OP website at: [http://files.hawaii.gov/dbedt/op/czm/initiative/lid/lid\\_guide\\_2006.pdf](http://files.hawaii.gov/dbedt/op/czm/initiative/lid/lid_guide_2006.pdf)

If you have any questions regarding this comment letter, please contact Josh Hekekoa of our office at 587-2845.

Sincerely,



Leo R. Asuncion  
Acting Director



U.S. Department  
of Transportation  
**Federal Highway  
Administration**

**Central Federal Lands Highway Division**

12300 West Dakota Avenue  
Suite 380  
Lakewood, CO 80228  
Office: 720-963-3647  
Fax: 720-963-3596  
Michael.Will@dot.gov

December 7, 2015

In Reply Refer To:  
HFPM-16

TO: LEO R. ASUNCION  
DIRECTOR  
OFFICE OF PLANNING  
235 SOUTH BERETANIA STREET, 6<sup>TH</sup> FLOOR  
HONOLULU, HI 96813

FROM: J. MICHAEL WILL, P.E.  
PROJECT MANAGER

SUBJECT: PRE-ASSESSMENT CONSULTATION  
HAWAII BRIDGE PROGRAM  
KAUAI PROJECTS: BRIDGE 7E, HANAPEPE, KAPAA  
OAHU PROJECTS: HALONA, ROOSEVELT, KAWELA, NANAHU  
HAWAII ISLAND PROJECTS: HILEA, NINOLE

Dear Mr. Asuncion:

Thank you for pre-assessment comments on the subject projects transmitted by letter dated May 1, 2015. We offer the following responses in the order presented in your letter:

1. Tax Map Key numbers will be verified.
2. The Draft Environmental Assessment (DEA) will discuss consistency with the Hawaii State Plan.
3. The DEA will discuss consistency with Coastal Zone Management objectives.
4. Where relevant, the Special Management Area permit will be listed as a potential requirement.
5. Federal Consistency Review will be listed as a potential requirement.
6. The DEA will assess potential impacts on water resources.
7. We acknowledge the availability of the Office of Planning's Stormwater Impact Assessment as an environmental planning resource.
8. Stormwater management measures are being considered in project design and will be addressed in the DEA.

We appreciate your participation in the environmental review process. A copy of the DEA will be sent to your office when available for public review and comment. If you have any questions, please contact me at (720) 963-3647, or by email at [Michael.will@dot.gov](mailto:Michael.will@dot.gov).

Sincerely yours,



J. Michael Will, P.E.  
Project Manager

Cc:  
Christine Yamasaki, HDOT  
Kevin Ito, HDOT  
Nicole Winterton, CFLHD  
Kathleen Chu, CH2M HILL

**Bernard P. Carvalho, Jr.**  
Mayor



**Larry Dill, P.E.**  
County Engineer

**Nadine K. Nakamura**  
Managing Director

**Lyle Tabata**  
Deputy County Engineer

**DEPARTMENT OF PUBLIC WORKS**

**County of Kaua'i, State of Hawai'i**

4444 Rice Street, Suite 275, Līhu'e, Hawai'i 96766  
TEL (808) 241-4992 FAX (808) 241-6604

May 6, 2015

Kathleen Chu  
CH2M Hill, Inc.  
1132 Bishop Street, Suite 100  
Honolulu, Hawai'i 96813

Subject Hawai'i Bridge Program for Island of Kaua'i  
Federal highway Administration, Central Federal Lands Highway Division  
Pre-Assessment Consultation  
Chapter 343, Hawaii Revised Statutes and National Environmental Policy Act

**PW 04.15.050**

Dear Ms. Chu:

Thank you for the opportunity to review the fact sheets and to provide input on three projects to improve three bridges on the island of Kaua'i. We have the following comments on the projects:

**Hanapēpē River Bridge on Kaumualii Highway  
Kōloa and Waimea Districts, TMK (4) 1-9-007: 001**

1. The Hanapēpē River Bridge lies within Zone AEF of Flood Insurance Rate Map (FIRM) Panel 287F. Zone AEF is the floodway area of Zone AE. Where development is proposed in a floodway, a registered engineer will need to certify that the work will not cause an increase in the base flood elevation during the occurrence of the base flood discharge.
2. Included in the Project Description for Hanapēpē River Bridge is "Develop a traffic management plan with appropriate construction-period detours". The short term impacts of construction on traffic in the Hanapēpē area should be fully discussed and evaluated in the Environmental Assessment.

**Bridge 7E on Kaumualii Highway  
Kōloa District, TMK (4) 2-7-001**

1. The fact sheet states that Bridge 7E was built in 1933, but later it states that "HDOT's 2013 Historic Bridge Inventory identified that Bridge 7E is a common post-war bridge constructed after 1945." The environmental document should clarify this discrepancy.

**Intersection Improvements at Kuhio Highway and Ma'ilihuna Road and Kapaa Stream Bridge on Kuhio Highway**  
**Kawaihau District, TMK: (4) 4-6-014 and 4-7-003**

1. The Kapaa Stream Bridge lies within Zone AEF on Flood Insurance Rate Map (FIRM) Panel 210F. Zone AEF is the floodway area of Zone AE. Where development is proposed in a floodway, a registered engineer will need to certify that the work will not cause an increase in the base flood elevation during the occurrence of the base flood discharge.
2. Included in the Project Description for Kapaa Stream Bridge is "Develop a traffic management plan with appropriate construction-period detours". The short term impacts of construction on traffic in the area of the Ma'ilihuna Road Intersection should be fully discussed and evaluated in the Environmental Assessment.
3. A roundabout should be evaluated as one of the alternatives for improving the Ma'ilihuna Road intersection in the Environmental Assessment. We believe that a roundabout could have many benefits over both signalized and stop-controlled alternatives; including:
  - Better overall safety, especially given the curvilinear alignment of Kuhio Hwy.;
  - Improved safety and convenience of crossing for pedestrians and bicyclists to and from Ke Ala Hele Makalae (shared use path); and
  - Possible reduced bridge width due to there being no need to provide left turn and right turn storage lanes and associated tapers.
4. Due to the presence of Ke Ala Hele Makalae (shared use path), there is no need for sidewalks on this bridge. Therefore, the existing deck width may be sufficient to provide adequate travel lanes and shoulders, if it is structurally feasible to remove the sidewalks and replace them with shoulders. We recognize that the structure may be nearing the end of its service life, but it might be useful to evaluate an option that retains the existing structure and converts the sidewalks to paved shoulders.

Thank you for the opportunity to review and comment on the Fact Sheets for these three projects. We wish to remain on your mailing list to continue participating in the environmental review process. If you have any questions or need additional information, please feel free to contact Stanford Iwamoto, Engineering Division at (808) 241-4896.

Sincerely,



MICHAEL MOULE, P.E.  
Chief, Engineering Division

SI/MM

Copy to: J. Michael Will, FHWA, Central Federal Lands Highway Division  
Design and Permitting  
County Engineer



U.S. Department  
of Transportation  
**Federal Highway  
Administration**

**Central Federal Lands Highway Division**

12300 West Dakota Avenue  
Suite 380  
Lakewood, CO 80228  
Office: 720-963-3647  
Fax: 720-963-3596  
Michael.Will@dot.gov

December 7, 2015

In Reply Refer To:  
HFPM-16

TO: MICHAEL MOULE, P.E.  
CHIEF, ENGINEERING DIVISION  
DEPARTMENT OF PUBLIC WORKS  
4444 RICE STREET, SUITE 275  
LIHUE, HI 96766

FROM: J. MICHAEL WILL, P.E.  
PROJECT MANAGER

SUBJECT: PRE-ASSESSMENT CONSULTATION  
HAWAII BRIDGE PROGRAM, KAUAI PROJECTS  
HANAPEPE RIVER BRIDGE  
BRIDGE 7E  
KAPAA STREAM BRIDGE

Dear Mr. Moule:

Thank you for pre-assessment comments on the subject projects transmitted by letter dated May 6, 2015. We offer the following responses in the order presented in your letter:

Hanapepe

1. Hydraulic analysis is being conducted for Hanapepe River Bridge. Project engineers will coordinate with the County to ensure that the project complies with requirements of the floodplain management program.
2. The Draft Environmental Assessment (DEA) will discuss construction-related traffic impacts.

Bridge 7E

1. Bridge 7E was constructed in 1933.

Kapaa

1. Hydraulic analysis is being conducted for Kapaa Stream Bridge. Project engineers will coordinate with the County to ensure that the project complies with requirements of the floodplain management program.
2. The DEA will discuss construction-related traffic impacts.

3. The roundabout option is being evaluated. Alternatives are being assessed from multiple perspectives, including safety, performance, environmental impacts, constructability, operations and maintenance, and cost.

4. We acknowledge your comment about using the shared use path for pedestrian travel. In evaluating rehabilitation of the existing structure, we note that the bridge is nearing the end of its service life. It is functionally obsolete, has substandard load carrying capacity, does not meet current seismic requirements, and is identified as scour critical. Therefore, we are leaning toward replacing the bridge as rehabilitation would necessitate modifying bridge substructure, superstructure, and railings to meet current AASHTO design standards.

We appreciate your participation in the environmental review process. A copy of the DEA will be sent to your office when available for public review and comment. If you have any questions, please contact me at (720) 963-3647, or by email at [Michael.will@dot.gov](mailto:Michael.will@dot.gov).

Sincerely yours,

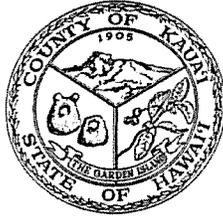


J. Michael Will, P.E.  
Project Manager

Cc:

Christine Yamasaki, HDOT  
Kevin Ito, HDOT  
Nicole Winterton, CFLHD  
Kathleen Chu, CH2M HILL

**Bernard P. Carvalho, Jr.**  
Mayor



**Larry Dill, P.E.**  
County Engineer

**Nadine K. Nakamura**  
Managing Director

**Lyle Tabata**  
Deputy County Engineer

**DEPARTMENT OF PUBLIC WORKS**

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January 8, 2016

Mr. J. Michael Will, PE, Project Manager  
Federal Highway Administration  
Central Federal Lands Highway Division  
12300 W. Dakota Ave., Suite 380  
Lakewood CO 80228

Subject: Kūhiō Highway – Kapa'a Stream Bridge and Ma'ilihuna Road Improvements

Dear Mr. Will,

Thank you for your email of December 9, 2015 regarding the progress on the above mentioned project for Hawai'i Department of Transportation (HDOT). We appreciate being kept "in the loop" on projects affecting the County of Kaua'i.

Prior to addressing the issue of relocating the existing driveway, we would like to respond to the larger issue of the decision to proceed with a signal at the intersection of Kūhiō Highway and Ma'ilihuna Road. We respectfully disagree with the statement in your email that there was "no notable preference favoring the roundabout alternative." The two County staff who were present at the meeting, Michael Moule and Lee Steinmetz, both recollect that, while turnout was small, most of those present had a preference for the roundabout and the remainder indicated no preference between the two alternatives. No one present stated a preference for the signalized intersection. Therefore, it was our understanding that the consensus at the meeting was a preference for the roundabout alternative. In addition to the recent public meeting held by HDOT and CFL/FHWA, in 2013 the County of Kaua'i conducted a series of meetings and workshops (a charrette) for the general area near Kapa'a Elementary School and Kapa'a High School. The installation of a roundabout at this intersection was one of the long term recommendations from the public.

Along with the community preference for a roundabout, there are several other reasons that the County strongly recommends that the roundabout solution be selected for this project.

First and foremost is safety. We believe that a roundabout is safer than a signalized intersection, especially for semi-rural highway intersections like this one. This opinion is supported by FHWA, which recommends roundabouts as a "Proven Safety Countermeasure." ([http://safety.fhwa.dot.gov/provencountermeasures/fhwa\\_sa\\_12\\_005.cfm](http://safety.fhwa.dot.gov/provencountermeasures/fhwa_sa_12_005.cfm)) At this intersection, a roundabout would likely yield improved safety over a signalized intersection due to the slower speeds at the roundabout (while maintaining good traffic operations), the elimination of direct left turn movements, and better motorist expectations given the limited sight distance created by the curvilinear alignment of Kūhiō Highway.

Second, overall traffic operations would likely be better with a roundabout. The County has not been provided the results of the traffic analysis conducted by CFL/FHWA and/or its consultants. However, we

J. Michael Will, FHWA  
January 8, 2016  
Page 2

have been told that the analysis evaluated peak hour traffic operations and concluded that overall intersection operations are similar for the roundabout and the signalized intersection. When comparing roundabouts to signalized intersections, we believe that it is not appropriate to simply compare Level of Service (LOS) letter ratings, since the delay criteria are different for signals versus roundabouts. For example, a roundabout that experiences 51 seconds of average automobile delay would be given LOS F, while a signal that experiences 51 seconds of average automobile delay would be given LOS D. In addition, during the off-peak, a roundabout would likely have better operations than a signal; for example, with a signal a single car waiting to turn left from Mailihuna Road would stop all traffic on Kūhiō Highway.

Third, we are concerned about the long-term maintenance implications of a signalized intersection versus a roundabout, especially in this corrosive shoreline environment. One need only look at the recent traffic congestion caused by the malfunction of the Kūhiō Highway/Kuamoo Road intersection traffic signal to understand the concerns of signal maintenance.

Lastly, an important goal frequently stated by the community and embedded in our planning documents, including our General Plan, is the strong desire to retain our rural character. We feel a signal at this location will have a significant and lasting negative impact on the County's rural character, in conflict with our General Plan.

With these comments in mind, the County would like to understand in detail the "comparison of potential impacts between the two intersection types." With a greater understanding and further discussion, perhaps there are ways that the County can assist to reduce the impacts of the roundabout alternative.

We understand and appreciate that timely project delivery is an important goal of FHWA and HDOT. However, we also feel it is important to make the best decision for the long-term benefit of Kaua'i County residents and visitors. The solution chosen and constructed with this current project will likely remain in place unchanged for many years or decades. We hope you will give us the opportunity to have more input on this important decision.

Please feel free to contact me to discuss further. We look forward to continuing our partnership and a healthy dialog with HDOT and FHWA.

Yours truly,



Larry Dill, P.E.  
County Engineer

MM/LS

cc: Donald Smith, HDOT Kaua'i District

**Bernard P. Carvalho, Jr.**  
Mayor



**Larry Dill, P.E.**  
County Engineer

**Nadine K. Nakamura**  
Managing Director

**Lyle Tabata**  
Deputy County Engineer

**DEPARTMENT OF PUBLIC WORKS**

**County of Kaua'i, State of Hawai'i**

4444 Rice Street, Suite 275, Lihu'e, Hawai'i 96766  
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February 4, 2016

Mr. J. Michael Will, PE, Project Manager  
Federal Highway Administration  
Central Federal Lands Highway Division  
12300 W. Dakota Ave., Suite 380  
Lakewood CO 80228

Subject: Kūhiō Highway – Kapa'a Stream Bridge and Ma'ilihuna Road Improvements

Dear Mr. Will,

As a follow-up to our letter dated January 7, 2016, we would also like to comment on the pedestrian facilities associated with this project. It is our understanding that the project as currently designed does not include pedestrian facilities across the proposed bridge, nor a pedestrian connection from the bridge to the Ma'ilihuna intersection on the mauka side. It has been explained that the justification for this is that pedestrians will use the existing shared use path on the makai side. We have several concerns about this approach based on the following conditions:

- There is a residential subdivision off of Keālia Road on the mauka side of the highway. Based on the current General Plan and anticipated General Plan Update (in progress), 100 additional homes may be located in this area in the future, with a focus on workforce housing. Currently many families with children and youth live in this neighborhood, and we anticipate that this neighborhood will grow in the future with a similar demographic.
- Existing and potential future residents off of Keālia Road access schools, churches, and medical facilities located off of Ma'ilihuna Road.
- Residents of the neighborhoods off of Ma'ilihuna Road access commercial activities (including a farmer's market) and the post office located on Keālia Road.
- There is frequent pedestrian travel between these two neighborhoods, as evidenced by the worn footpath on Kūhiō Highway (mauka side) near Ma'ilihuna Road.
- There is an existing paved sidewalk from Keālia Road to the existing bridge on the mauka side of Kūhiō Highway.
- There is an existing pedestrian facility on the existing bridge on the mauka side, as evidenced by the concrete ramps between the bridge sidewalk and the highway sidewalk.

Given the existing pedestrian activity and facilities on the mauka side of Kūhiō Highway between Keālia Road and Ma'ilihuna Road, we feel it is important to provide continuous pedestrian facilities on the mauka side as a part of the proposed project for the following reasons:

- As currently proposed, rather than improving pedestrian conditions, there would be a *degradation* in existing pedestrian facilities. This is not consistent with either Kaua'i County's Complete Streets Resolution nor the State of Hawai'i's Complete Streets Law. It is also counter to our General Plan and Multimodal Land Transportation Plan which call for the development of walkable neighborhoods and pedestrian connections between neighborhoods. A degradation in pedestrian facilities may also have implications for the NEPA and HEPA environmental processes.
- Encouraging pedestrians to cross the highway twice in order to travel between the Keālia neighborhood and the Ma'ilihuna neighborhood is unsafe, especially at the high-speed and uncontrolled Keālia Road intersection, which is also the main entry to Keālia Beach.
- If pedestrians traveling from Keālia Road to Mailihuna Road choose not to cross the highway and instead walk on the bridge shoulder, they would be forced to walk in the same direction as vehicle traffic, which is at best discouraged and at worst illegal, per State Law (HRS §291C-76).

The project as currently proposed simply places pedestrians in either unsafe or illegal conditions, or both. For these reasons we strongly urge HDOT/FHWA to include a sidewalk on the proposed bridge, and complete a pedestrian connection to Ma'ilihuna Road on the mauka side. Based on the current bridge section, there is adequate space to do this. The current proposed bridge section includes 12-foot travel lanes and 8-foot shoulders. If the travel lanes were reduced to 11 feet, and the shoulders reduced to six feet, this would provide for a six-foot sidewalk on the mauka side of the bridge. We feel these suggested lane and shoulder widths are consistent with existing Kūhiō Highway conditions, the desire to reduce speeds in the Keālia Beach corridor, and with AASHTO guidelines for urban highways. Given that this location is at Keālia Beach and serves as the northern gateway to Kapa'a, we feel that application of AASHTO urban arterial standards is appropriate (AASHTO Green Book Section 7.3.3, Cross Sectional Elements for Urban Arterials). Please note that the use of an urban arterial standard is related to engineering standards only as defined by AASHTO. From a context-sensitive perspective, it is still important to retain the County's rural character as described in our previous letter.

Please feel free to contact me to discuss further. We look forward to continuing our partnership and a healthy dialog with HDOT and FHWA.

Yours truly,



Larry Dill, P.E.  
County Engineer

MM/LS

cc: Michael Moule, Chief of Engineering  
Lee Steinmetz, Transportation Planner  
HDOT Kaua'i District Engineer  
Ed Sniffen, Deputy Director HDOT Highways



U.S. Department  
of Transportation  
**Federal Highway  
Administration**

**Central Federal Lands Highway Division**

12300 West Dakota Avenue  
Suite 380  
Lakewood, CO 80228  
Office: 720-963-3647  
Fax: 720-963-3596  
Michael.Will@dot.gov

June 24, 2016

In Reply Refer To:  
HFPM-16

TO: LYLE TABATA  
ACTING COUNTY ENGINEER  
DEPARTMENT OF PUBLIC WORKS  
4444 RICE STREET, SUITE 275  
LIHUE, HI 96766

FROM: J. MICHAEL WILL, P.E.  
PROJECT MANAGER

SUBJECT: PRE-ASSESSMENT CONSULTATION  
KUHIO HIGHWAY  
KAPAA STREAM BRIDGE AND MAILIHUNA INTERSECTION

Dear Mr. Tabata:

Thank you for pre-assessment comments on the subject project transmitted by letters dated January 8 and February 4, 2016.

At the public information meeting referenced in your January 8 letter, we reviewed the project purpose and need, which—for the intersection improvements—is to improve traffic operations and safety. We are in agreement on the criteria for selecting a design solution. The roundabout alternative and signalized alternatives were reviewed at the meeting and we received useful feedback from meeting participants. Both alternatives are being advanced in the Draft EA document to evaluate and compare the potential environmental impacts of the two intersection configurations and to elicit further comments through the HRS 343 public review process.

Your February 4 letter raised the need for a pedestrian facility on the mauka side of Kuhio Highway between the Mailihuna Road intersection and the existing sidewalk on the north side of Kapaa Stream Bridge. We appreciate the rationale you provided for such a facility. A mauka walkway is being considered as a component of this project and is discussed further in the Draft EA.

Notice of availability of the Draft EA will be sent to your office when available for public review and comment. If you have any questions, please contact me at (720) 963-3647, or by email at [Michael.will@dot.gov](mailto:Michael.will@dot.gov).

Sincerely yours,

J. Michael Will, P.E.  
Project Manager

c:  
Christine Yamasaki, HDOT  
Nicole Winterton, Thomas Parker, CFLHD  
Kathleen Chu, CH2M HILL

---

**From:** Michael.Will@dot.gov [mailto:Michael.Will@dot.gov]  
**Sent:** Tuesday, September 22, 2015 11:56 AM  
**To:** RAYNEREGUSH@aol.com  
**Cc:** Chu, Kathleen/HNL <Kathleen.Chu@CH2M.com>; Nicole.Winterton@dot.gov; Nokes, Kim/BOI <Kim.Nokes@CH2M.com>; raymond.j.mccormick@hawaii.gov; donald.l.smith@hawaii.gov  
**Subject:** RE: Kapaa Stream Bridge Project, Kauai

Aloha Rayne,

I apologize for the delay in returning your prior message. As requested, attached are the presentation and display board files presented at the meeting. One item I would like to draw your attention to, in addition to the bridge, is the alternatives addressing the Malihuna Road Intersection. If you have additional comments you wish to share, please feel free to fill out the attached comment form and return to me at your earliest convenience. Your input is valuable to us. We would appreciate all comments be returned to me no later than 10/2/15.

Additionally, we do maintain a webpage for this project where updated project information is shared no later than the 1st day of each month. This can be accessed through the below web link:

<http://flh.fhwa.dot.gov/kapaa-stream>

In response to the comments previously sent, I would like to offer the following:

- a) Can the Bridge be a 3R (resurfacing, restoration, rehabilitation) project? And if so, employ design criteria that are lower than those contained in the AASHTO Green Book.

*The existing deficient two span bridge is classified as being functionally obsolete, has a substandard load carrying capacity, does not meet current seismic requirements, and has been identified as being scour critical. We are leaning towards replacing the bridge as effort to rehabilitate would necessitate modification to bridge substructure, superstructure and railings.*

*Design Criteria lower than AASHTO can be considered for exception on a case by case basis as warranted.*

- b) As the gateway between the ahupuaa of Kealia and Kapaa, and a location with significant scenic value, we want to see the bridge design preserve the sense of place and rural character.

*Thank you for the input. Your comment will be considered and documented.*

- c) Residents have a deep appreciation for the environment & the "old days". Therefore, retaining the look, size and feel of this 1952 bridge is important.

*Thank you for the input. Your comment will be considered and documented.*

- d) Are two 8-foot shoulders necessary for such a short span bridge?

8-foot shoulders are proposed based on current/project traffic volumes and design speeds of the roadway corridor.

e) Will the new guard rail height be low enough to retain existing makai & mauka views?

*The Bridge Railing is proposed to be concrete post and beam 2'-8" in height capped with a 10" high metal railing for a total height of*

*3'-6" for bicyclist's safety. A rendering of the rail is provided in the attachment and should provide improvement from existing conditions.*

f) As a low-volume, rural highway, could designation as a "scenic highway" be proposed?

*The purpose of this project is to address the deficiencies with the bridge while addressing safety concerns with the Malihuna Road Intersection. We do recognize the interest in preserving the aesthetic features associated with the bridge and value any input you can provide. See attached renderings.*

Mahalo for your input and interest in this project,

Mike

**J. Michael Will, P.E.: Project Manager / Construction Operations Engineer**

**Federal Highway Administration**

**Central Federal Lands Highway Division:** 12300 W. Dakota Avenue, Suite 3S0, Lakewood CO 80228

office: 720.963.3647 : cell: 303-956-5054 : fax: 720.963.3596 : email: [michael.will@dot.gov](mailto:michael.will@dot.gov) : web:

<http://www.cflhd.gov>

---

**From:** [RAYNEREGUSH@aol.com](mailto:RAYNEREGUSH@aol.com) [<mailto:RAYNEREGUSH@aol.com>]

**Sent:** Tuesday, September 22, 2015 12:12 PM

**To:** Will, Michael (FHWA)

**Cc:** [kathleen.chu@ch2m.com](mailto:kathleen.chu@ch2m.com); Winterton, Nicole (FHWA); [Kim.Nokes@CH2M.com](mailto:Kim.Nokes@CH2M.com); [raymond.j.mccormick@hawaii.gov](mailto:raymond.j.mccormick@hawaii.gov); [donald.l.smith@hawaii.gov](mailto:donald.l.smith@hawaii.gov)

**Subject:** Re: Kapaa Stream Bridge Project, Kauai

Aloha Mike,

I'm still awaiting the meeting presentation materials from the session on 9/17. And, although Kathleen said they'd be on the website, a Google search produced no results. What website?

I'd also appreciate a response to the questions I posed in my email below.

And, please send me whatever information was provided to the community related to the Section 106 Consultation...

mahalo,  
rayne

In a message dated 9/21/2015 3:48:04 A.M. Hawaiian Standard Time, [Michael.Will@dot.gov](mailto:Michael.Will@dot.gov) writes:

Aloha Rayne,

It was a pleasure speaking with you as well. We appreciate and value your input. The intent of the meeting is to gain local input into the design considerations you mentioned below.

We continue to work on preparation of the meeting materials. We will send them to you

along with a comment form should you wish to provide any additional input once the meeting materials are finalized.

Mahalo,

Mike

**J. Michael Will, P.E.: Project Manager / Construction Operations Engineer**

**Federal Highway Administration**

**Central Federal Lands Highway Division:** 12300 W. Dakota Avenue Suite 350; Lakewood CO 80228

office: 720.963.3647 : cell: 303-956-5054 : fax: 720.963.3596 : email: [michael.will@dot.gov](mailto:michael.will@dot.gov) : web:

<http://www.cflhd.gov>

---

**From:** [RAYNEREGUSH@aol.com](mailto:RAYNEREGUSH@aol.com) [<mailto:RAYNEREGUSH@aol.com>]

**Sent:** Thursday, September 10, 2015 8:45 PM

**To:** Will, Michael (FHWA)

**Cc:** [kathleen.chu@ch2m.com](mailto:kathleen.chu@ch2m.com)

**Subject:** Kapaa Stream Bridge Project, Kauai

Aloha Mike and Kathleen,

It was good speaking with you yesterday, Mike, about the Kapa`a Stream Bridge project. I noted today that the website states as of 7/1/2015, 30% preliminary design phase has been completed. This raised several questions and comments – particularly, how to ensure that context sensitive design is used:

- a) Can the Bridge be a 3R (resurfacing, restoration, rehabilitation) project? And if so, employ design criteria that are lower than those contained in the AASHTO Green Book.
- b) As the gateway between the ahupuaa of Kealia and Kapaa, and a location with significant scenic value, we want to see the bridge design preserve the sense of place and rural character.
- c) Residents have a deep appreciation for the environment & the “old days”. Therefore, retaining the look, size and feel of this 1952 bridge is important.
- d) Are two 8-foot shoulders necessary for such a short span bridge?
- e) Will the new guard rail height be low enough to retain existing makai & mauka views?
- f) As a low-volume, rural highway, could designation as a “scenic highway” be proposed?

I strongly hope that the presentation on the 17th will incorporate options to design bridge so that it's similar to its original construction. We know that design exceptions can meet the necessary safety and load capacity requirements.

Wailua-Kapaa Neighborhood Association (W-KNA) will continue to circulate the meeting information and we hope the turnout will be good. If there are future opportunities for DOT to meet with the public, W-KNA would gladly host a meeting. Unfortunately, I have a conflict on the 17th and therefore would like to receive materials in advance, as well as a copy of the CD that was provided to some (related to the Section 106 consultation?).

Mahalo!

Rayne Regush, W-KNA Chair

5591 Kaapuni Road

Kapaa, HI 96746

[www.wkna.org](http://www.wkna.org)