

FINAL ENVIRONMENTAL ASSESSMENT

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

March 2017

**KAPAA STREAM BRIDGE, KUHIO HIGHWAY,
AND MAILIHUNA ROAD INTERSECTION PROJECT
Project No. STP SR56(1)
Kauai, Hawaii**

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

Submitted Pursuant to
Hawaii Revised Statutes, Chapter 343

State of Hawaii, Department of Transportation, Highways Division

Date of Approval

For State of Hawaii, Department of Transportation

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This Final Environmental Assessment (FEA) documents impact studies of proposed improvements to the intersection of Kuhio Highway and Mailihuna Road at Milepost 9.84 and replacement of the highway bridge crossing Kapaa Stream at Milepost 9.89 in the Kawaihau District on the island of Kauai.

The project would reconfigure the existing intersection by constructing a roundabout and modifying an existing private driveway that is currently accessed at the intersection. A new sidewalk on the *mauka* side of Kuhio Highway would connect the Mailihuna Road intersection with Kapaa Stream Bridge. The bridge replacement would remove the existing two-span bridge and construct a single-span bridge that is longer and wider than the existing. This project would improve safety for pedestrians and bicyclists, improve operational efficiencies at the intersection, address existing bridge structural deficiencies, and meet current design standards for roadway width, load capacity, bridge railing and transitions, and bridge approaches.

No significant long-term adverse environmental, social, cultural, or economic impacts are anticipated. Because highway capacity would not increase, the project would not result in secondary or cumulative effects on land use or population growth. Short-term construction impacts, such as noise, dust, and erosion, would be mitigated through best management practices. Therefore, a Finding of No Significant Impact (FONSI) has been issued under HRS, Chapter 343.

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D	Final Archaeological Inventory Survey Report for the Kapaa Stream Bridge Replacement Project, Kapaa and Kealia Ahupuaa, Kawaihau District, Kauai, November 2016
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G	National Historic Preservation Act Section 106 and HRS Chapter 6E Consultation Documentation
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Acronyms and Abbreviations

°F	degrees Fahrenheit
µg/m ³	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 ₂	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 _{2.5}	particulate matter <2.5 microns
PM ₁₀	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 ₂	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

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 by constructing a roundabout. No change in the highway capacity or alignment is proposed. A walkway would be constructed on the <i>mauka</i> side of the highway extending from the intersection to the northern side of the bridge. Highway access would be modified for an existing private driveway that currently has direct access to 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.
Determination:	Finding of No Significant Impact under Chapter 343, Hawaii Revised Statutes

Preface

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

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 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 24 feet and a posted speed of 25 miles per hour (mph) (15 mph in the school zone). 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 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 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 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 Environmental Assessment (EA) discloses the environmental and cultural impacts that may result from the project’s implementation, and commits to specific mitigation measures. The EA has been 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 Office of Environmental Quality Control (OEQC) officially announced the availability of the Draft EA on July 23, 2016, which initiated a 30-day review and comment period that ended on August 22, 2016. Comments were received from 12 agencies, organizations, and individuals during the review period. Correspondence is summarized and included at the end of Chapter 7.

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

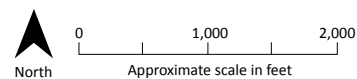
- Special Management Area (SMA) (HRS Chapter 205A), Kauai Planning Department
- Compliance with floodplain management requirements, Kauai Department of Public Works
- Grading, grubbing, and stockpiling permits, Kauai Department of Public Works

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: CSH, 2015
Base Map: USGS Topographic Map, Kapaa (1996) Quadrangle



LEGEND

Project Area

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



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

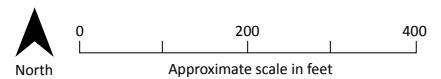
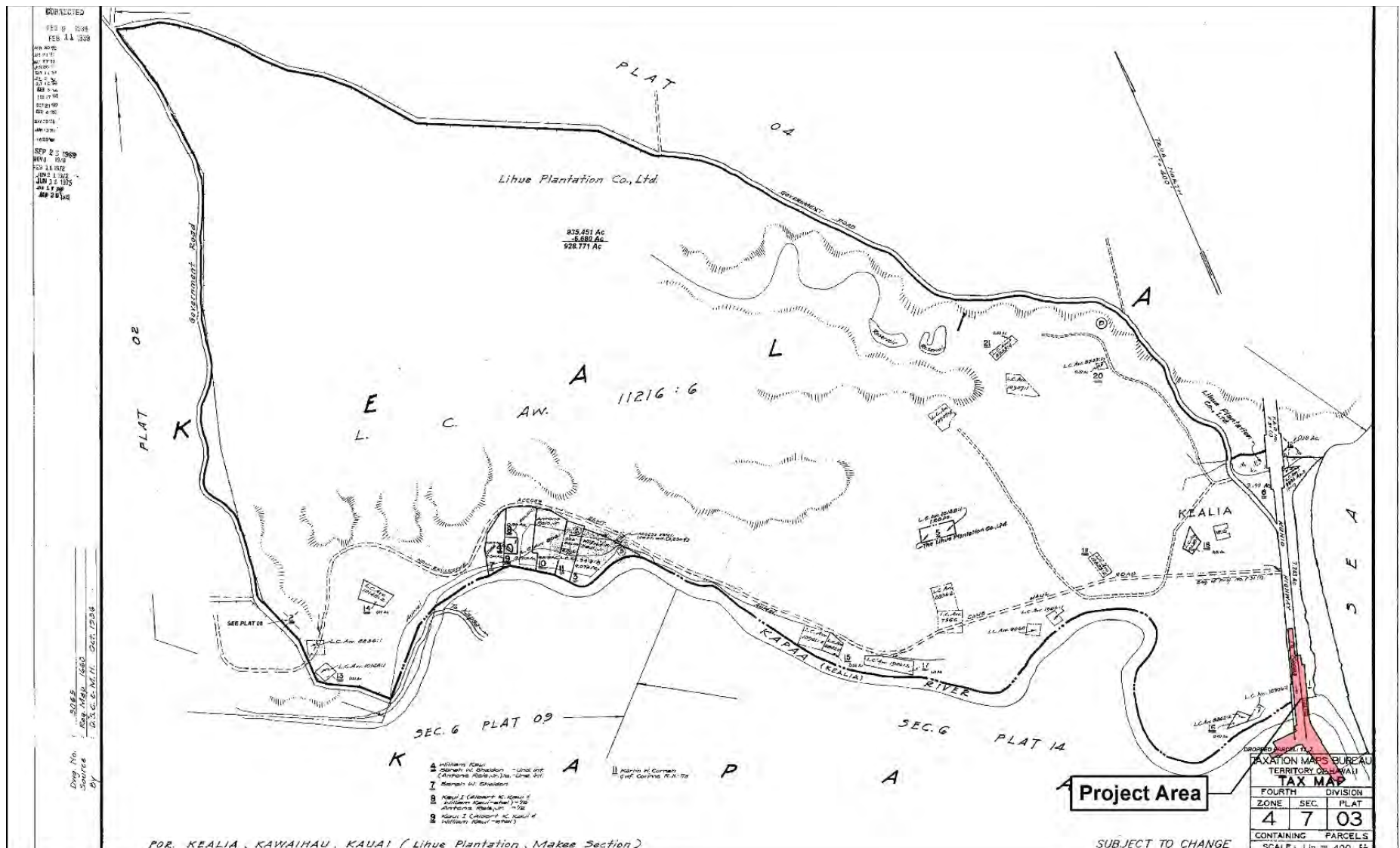


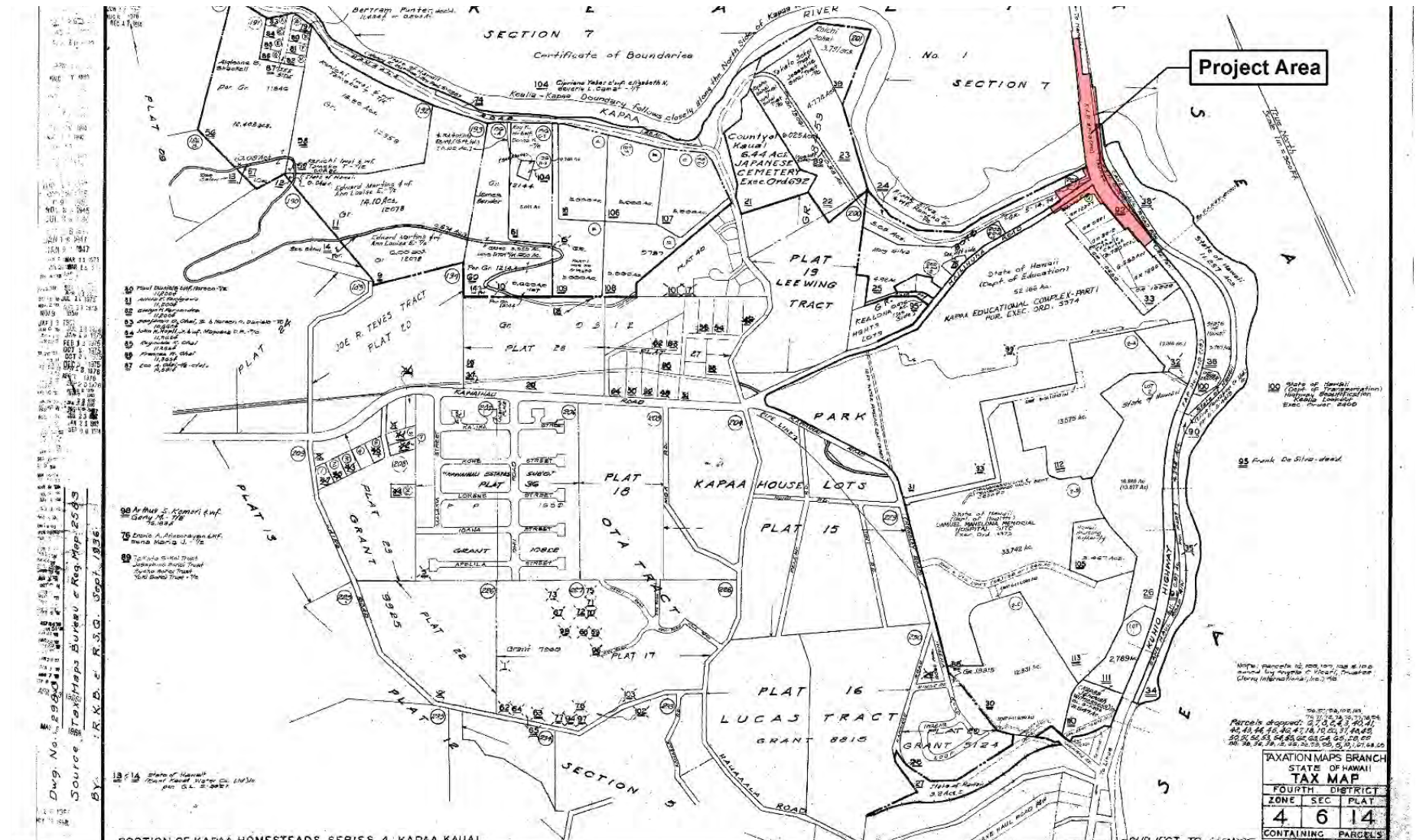
FIGURE 1-2
Project Area Map
Kapaa Stream Bridge
Hawaii Bridges Program –
Central Federal Lands Highway Division and
Hawaii Department of Transportation



Source: Hawai'i TMK Service; Archaeological Reconnaissance Report for the Kapa'a Stream Bridge, Kapa'a and Keālia, Kawaihau, Kaua'i
 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.



Source: Hawai'i TMK Service; Archaeological Reconnaissance Report for the Kapa'a Stream Bridge, Kapa'a and Keālia, Kawaihau, Kaua'i
Base Map: Tax Map Key [4] 4-6-14
Data Sources: CSH

LEGEND

Project Area

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

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. Both the main high school campus and Kapaa Elementary School are located upslope from the project area. 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 235-unit 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 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. This project includes sidewalk construction, crosswalk improvements, and construction of a roundabout at the intersection of these three roads. Planning, design, and construction activities are anticipated to be performed from 2016 to 2018.

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 25 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 three 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
 - Cable television distribution system underground and conduit attached to the *mauka* side of the bridge
- HDOT—Street Lighting

2.3 Proposed Project

The proposed project would reconfigure the Kuhio Highway and Mailihuna Road intersection to improve safety. Two alternative designs were evaluated in the Draft EA: (1) an alternative to add full traffic and pedestrian signals and crosswalks with new turn lanes and (2) an alternative to construct a single-lane roundabout. The roundabout was selected as the preferred alternative based, in part, on the comparative assessment in the Draft EA, which found no substantial differences in environmental impacts between the

two alternatives, and anticipated no significant adverse impacts on environmental and cultural resources in either alternative. Both the roundabout and signalized intersection were expected to deliver comparable levels of service in terms of traffic flow, improve turning movements by vehicles, and provide safer accommodations for pedestrians and bicyclists. The roundabout was estimated to have a higher initial capital cost (\$2.4 million) compared to the traffic signals (\$1.3 million); however, maintenance of mechanical signaling equipment was estimated to be higher over the long term. The roundabout will increase the highway right-of-way by approximately 0.25 acre compared to less than 0.10 acre for the signalized intersection. Despite the larger space requirement, the roundabout is seen as a highway component that is visually more congruent with the coastal environment. Feedback from the County of Kauai Department of Public Works and Planning Department, Kauai Path, and adjacent property owner indicated their preference for the roundabout.

As part of the intersection improvements, ingress and egress to a private property at the northwestern corner of the Mailihuna Road intersection will be modified. The private driveway may be relocated approximately 110 feet further *mauka* on Mailihuna Road or tied in to the roundabout directly. A new walkway is proposed on the *mauka* side of the highway from the intersection and across the bridge, where it will connect to an existing sidewalk.

The proposed project would also replace the deficient Kapaa Stream Bridge with a single-span bridge. Figure 2-2 shows a preliminary plan of the intersection improvement, and Figure 2-3 shows the proposed driveway relocation plan. Figure 2-4 shows proposed typical roadway and approach sections, while Figures 2-5 and 2-6 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 roundabout would extend approximately 350 feet on Mailihuna Road, and would require additional 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 limits of 25 mph on Mailihuna Road (decreasing to 15 mph in the school zone near 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—Roundabout

Kuhio Highway would be modified by constructing a single-lane roundabout in the location of the existing Mailihuna Road intersection (Figure 2-2). The preliminary design includes a single circulating lane that would be 18 feet wide. The inscribed circle diameter would be approximately 130 feet, although a reduction is possible if design criteria can be met with a smaller circle. The roundabout would include splitter islands and marked crosswalks. Dimensions may be adjusted during final design.

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 would require substantial reconstruction of Mailihuna Road for the approach to tie in vertically at an 8 percent maximum profile grade, including retaining walls or cut slopes.

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

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 modify 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 2-3). Alternatively, with selection of the roundabout for intersection improvement, the driveway may be designed such that there is a direct tie-in to the roundabout. The specific design will be determined during the project's final design phase. The areas of potential effect and environmental impacts of both design options have been assessed in this EA.

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 2-4 through Figure 2-6).

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.

To protect the stream bank and as a countermeasure against the potential for scour, riprap would be placed between the existing and proposed bridge abutments and along the embankment adjacent to the abutments on both sides of the stream. Riprap would consist of large rocks layered to a depth that is stable when subject to hydraulic forces. All riprap would be located above the High Tide Line (HTL).

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. The replacement structure would include a wider, 6-foot-wide walkway on the *mauka* side of the bridge that would continue along Kuhio Highway to the Mailihuna Road intersection (see typical sections in Figure 2-4). The walkway would tie into the 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
- Installation and Removal of temporary In-Water BMPs
- 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 2-7). 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 (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 the extent possible. 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.

Table 2-2 shows affected properties for bridge replacement and intersection improvements. 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 two private property owners.

TABLE 2-2
Affected Properties

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)
(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 2-8). 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 2-9). 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.

2.5.3 Signalized Intersection Alternative

This alternative proposed improvements to the intersection at Mailihuna Road and Kuhio Highway by adding full traffic and pedestrian signals and crosswalks (see Figure 2-10). 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 southwestern corner of the intersection would prevent flooding and control runoff during heavy rains, thereby improving traffic operations and safety.

The signalized intersection alternative was evaluated in the Draft EA in comparison to the roundabout alternative. Both intersection types were found to be appropriate in terms of safety improvements, traffic operations, and ability to accommodate future capacity. Neither alternative would result in significant

adverse environmental impacts. This alternative was dismissed in favor of the roundabout option based, in part, on input received during the Draft EA public review period and the expectation that a different type of intersection feature would be better suited to the varied modes of transportation generated by the nearby schools and the beach park.

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 covers the period from Federal Fiscal Year (FFY) 2015 to FFY 2018 (and FFY 2019 to FFY 2020, for information purposes only); Revision 8 has an effective date of January 20, 2017. The Kuhio Highway (Route 56) Mailihuna Road Intersection Improvements and Kapaa Stream Bridge Project is listed on the STIP as a Safety project.

2.9 Preliminary Cost and Schedule

The estimated construction cost is \$11.7 million for the replacement bridge and \$2.4 million for the roundabout. Construction is anticipated to begin at the end of 2017, with a duration of 22 months. The construction schedule would be updated and refined as the project progresses through design and permitting.

2.10 References

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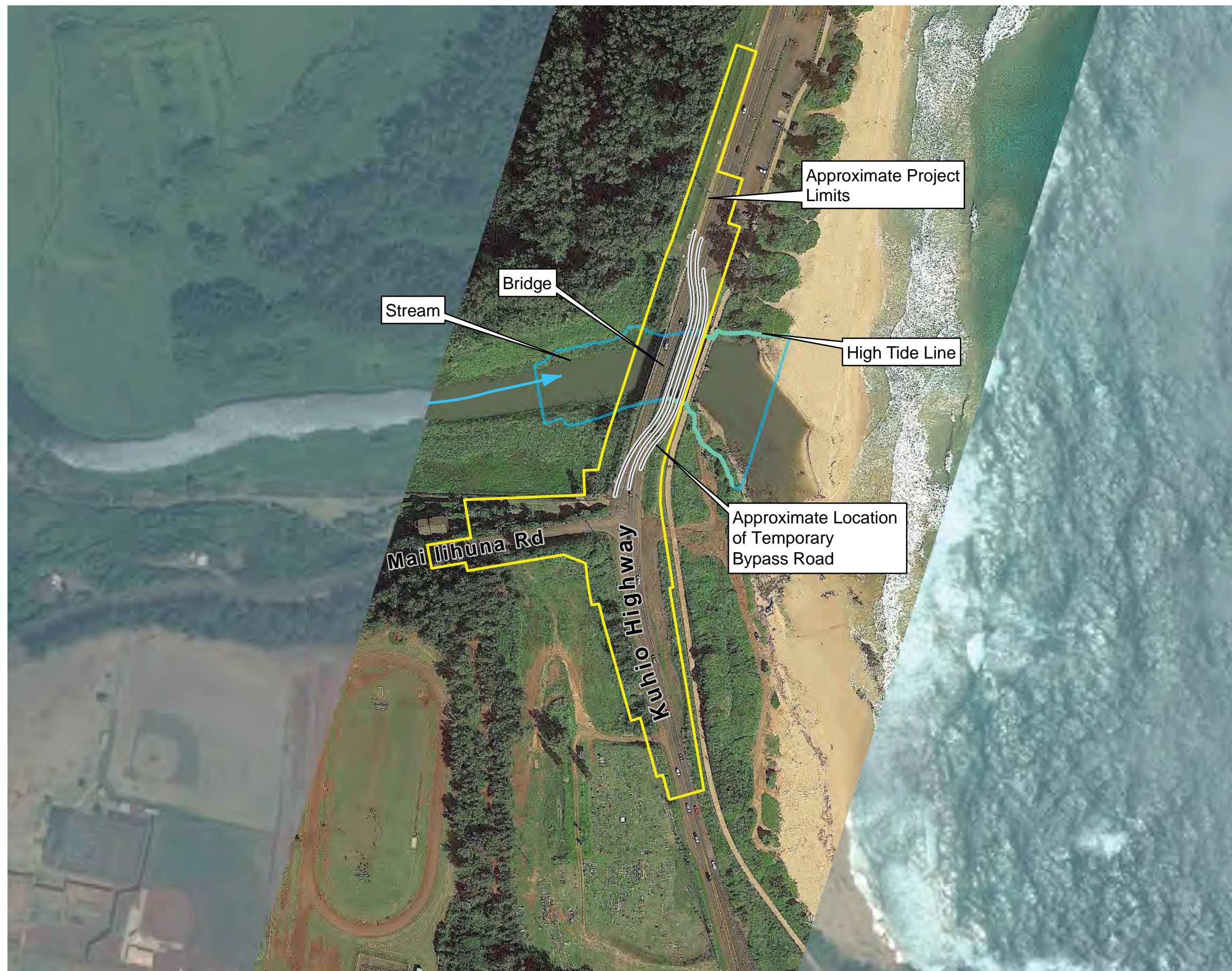
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- LEGEND
- Approximate Project Limits
 - Approximate Location of Temporary Bypass Road
 - High Tide Line
 - Waters of the U.S. and Flow Directions

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.

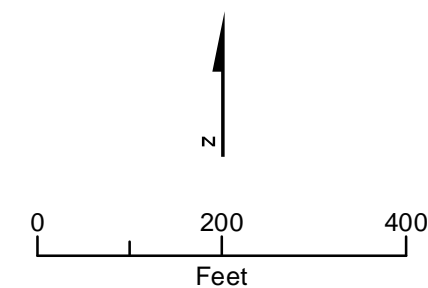
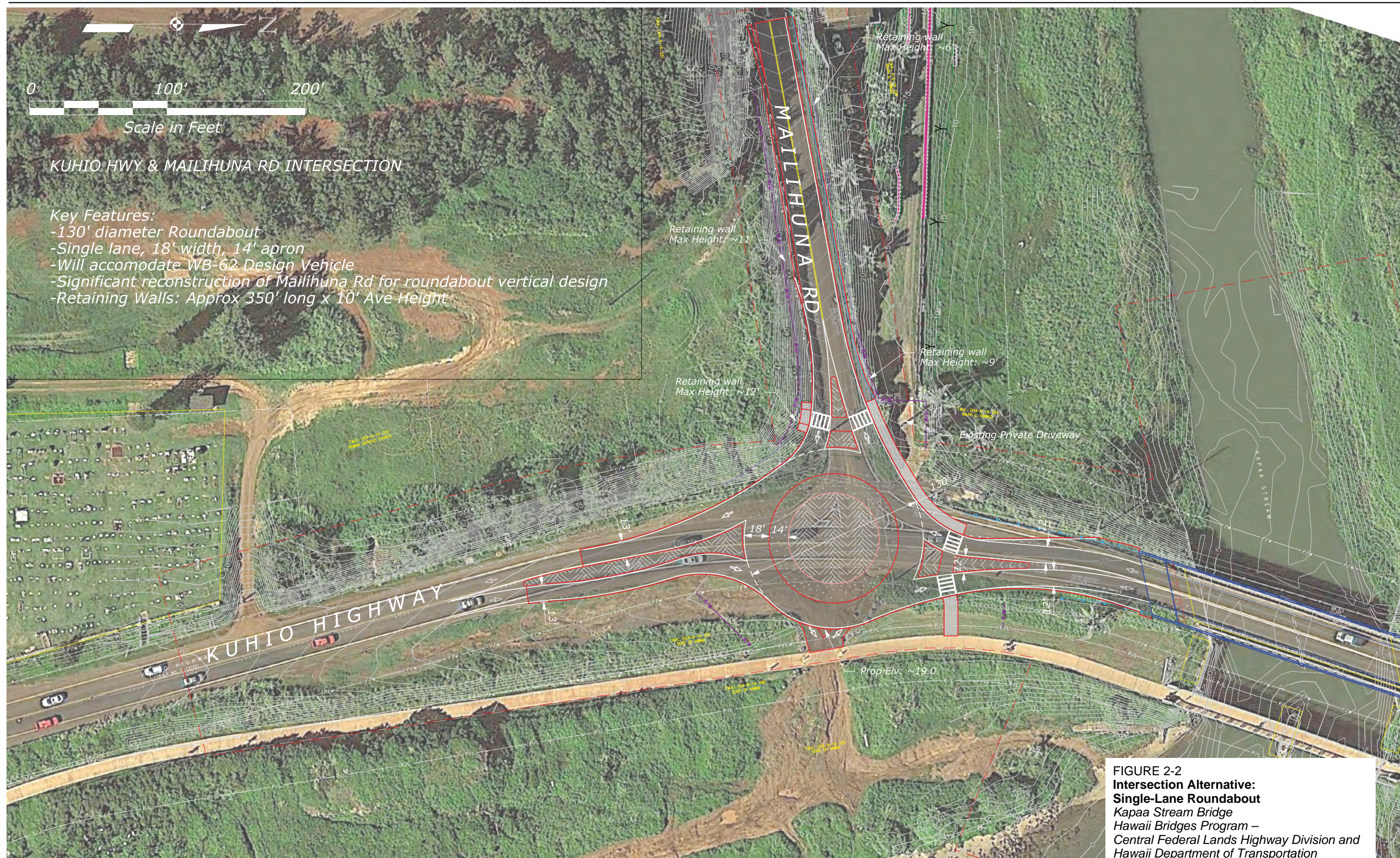


FIGURE 2-1
Project Limits
 Kapaa Stream Bridge
 Hawaii Bridges Program –
 Central Federal Lands Highway Division and
 Hawaii Department of Transportation



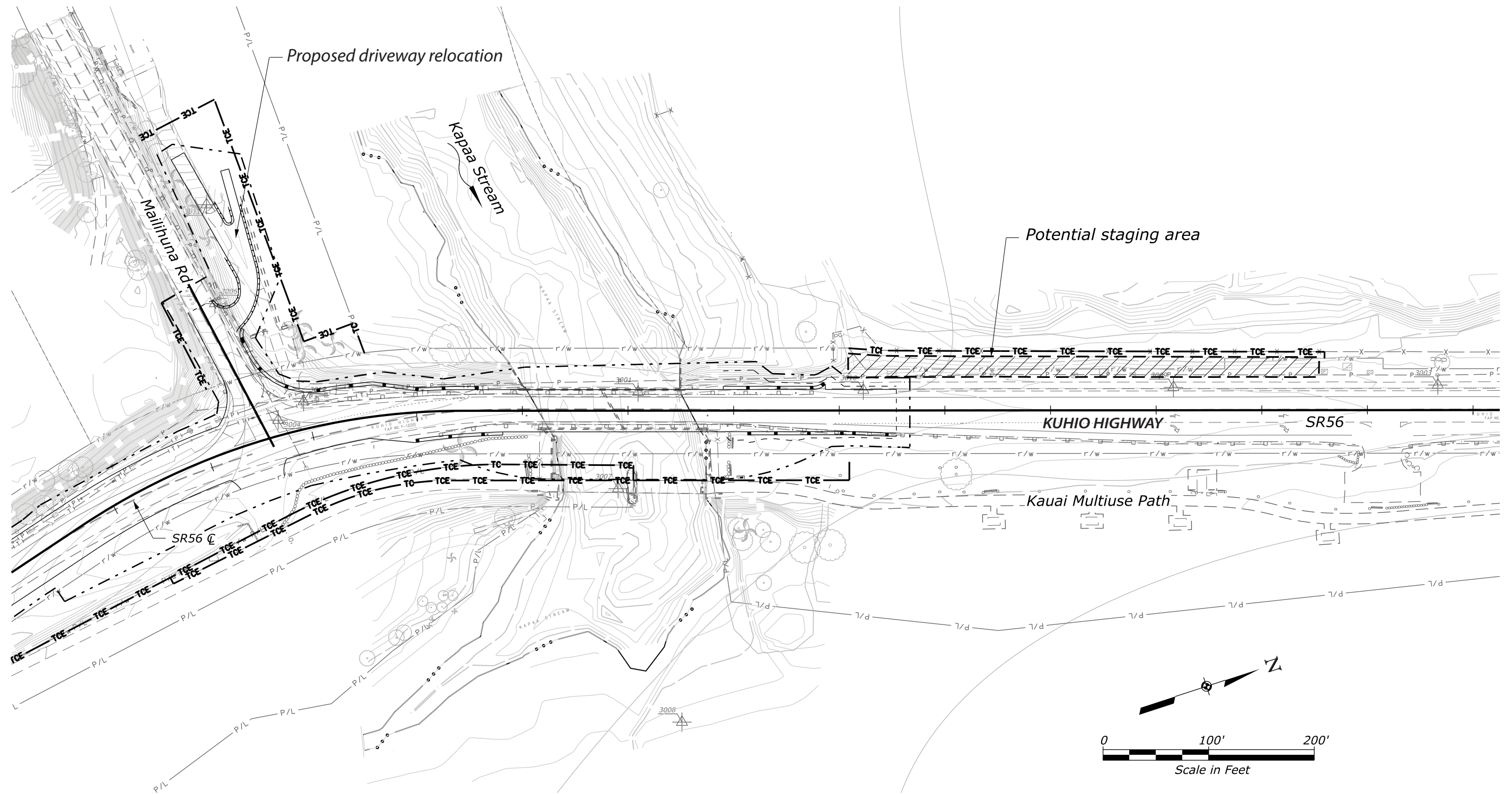
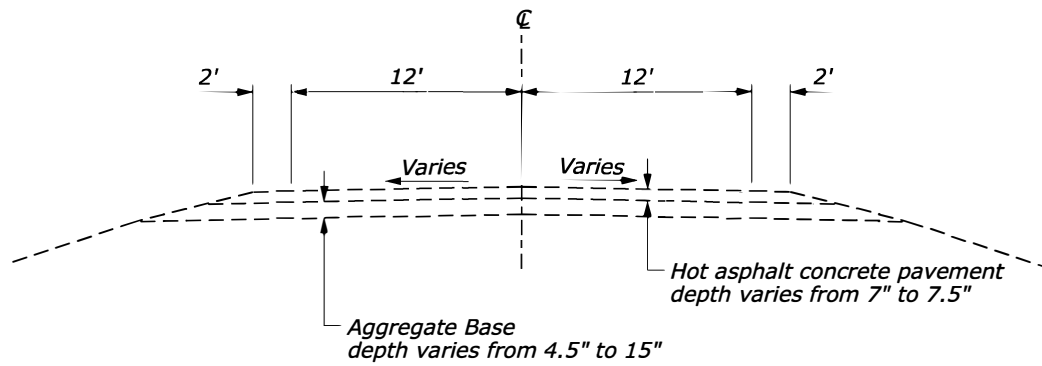
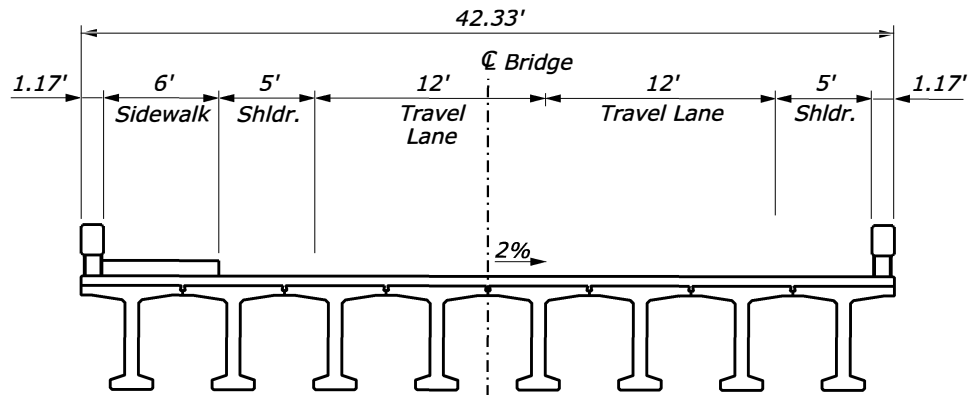


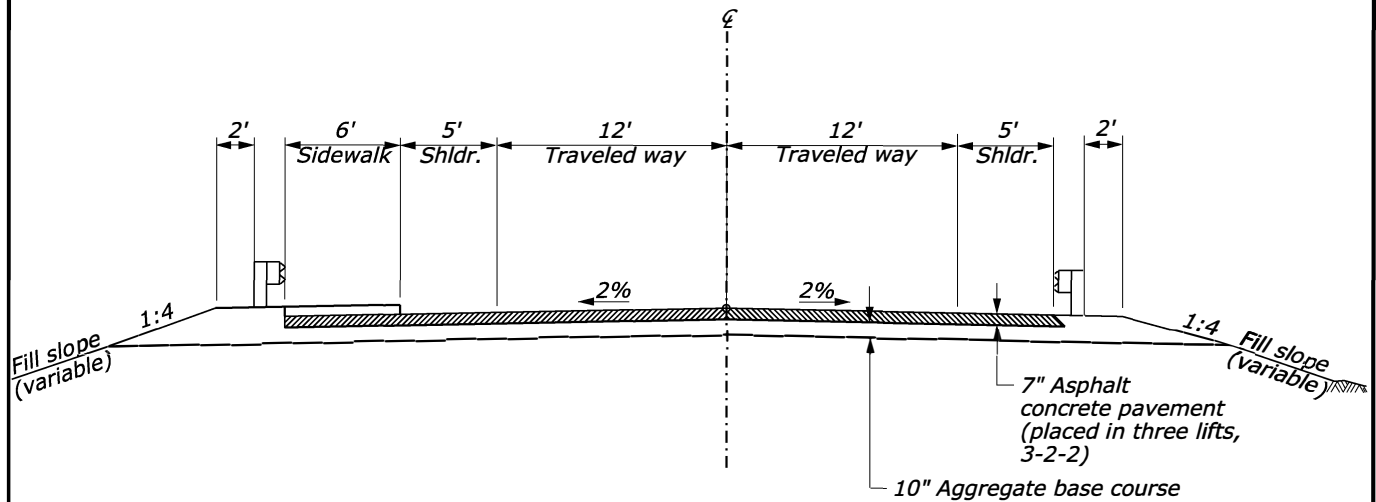
FIGURE 2-3
Driveway and Staging Area
 Kapaa Stream Bridge
 Hawaii Bridges Program –
 Central Federal Lands Highway Division and
 Hawaii Department of Transportation



EXISTING TYPICAL SECTION



PROPOSED BRIDGE TYPICAL SECTION



PROPOSED APPROACH TYPICAL SECTION

FIGURE 2-4
Typical Sections (Bridge and Approach)
 Kapaa Stream Bridge
 Hawaii Bridges Program -
 Central Federal Lands Highway Division and
 Hawaii Department of Transportation

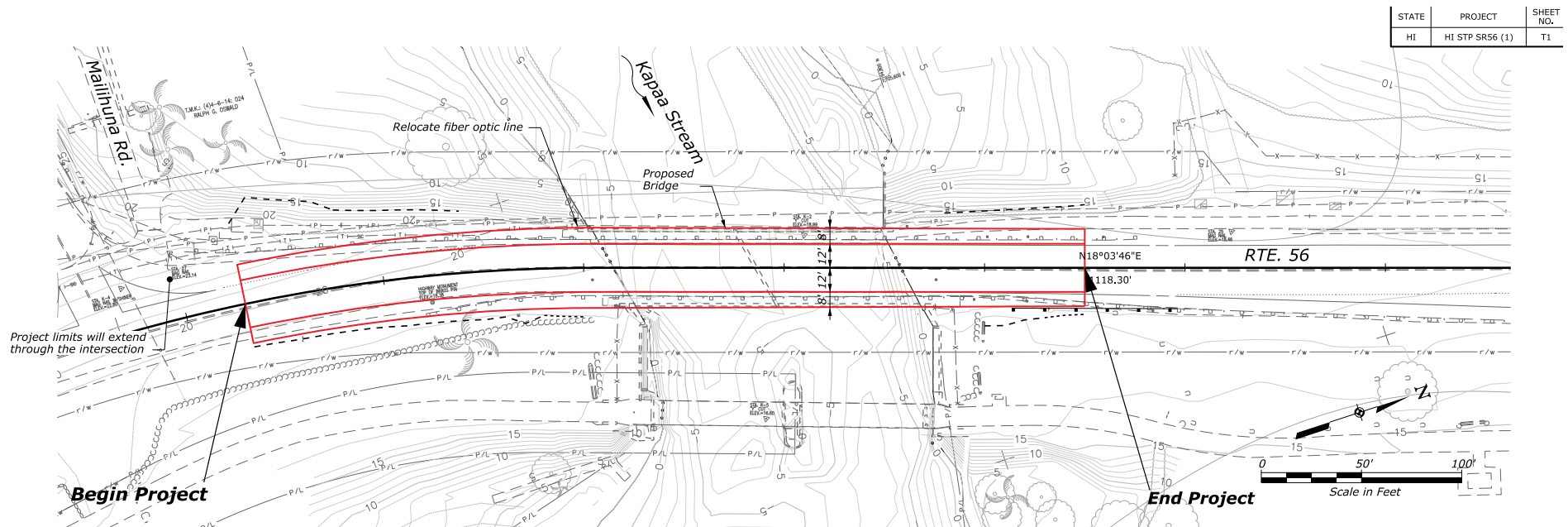
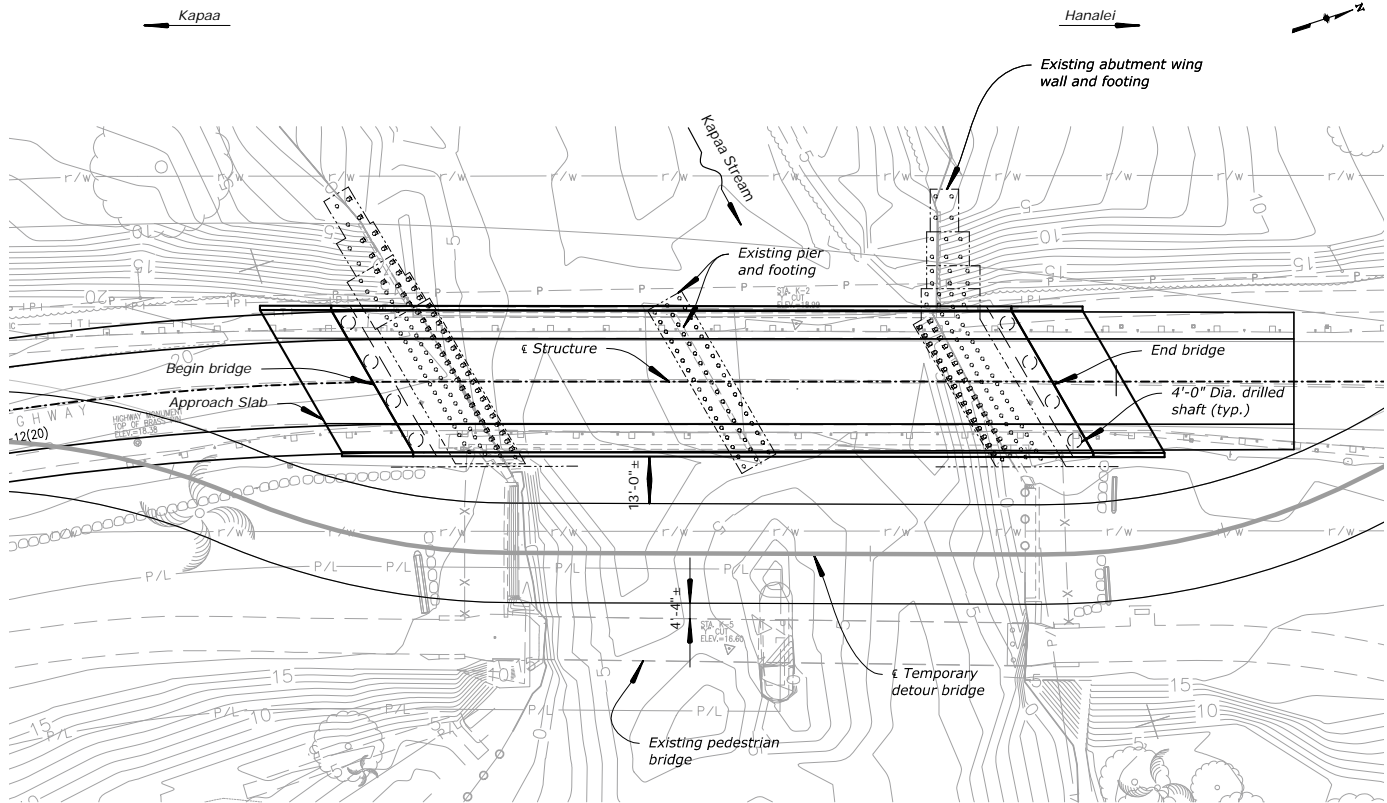
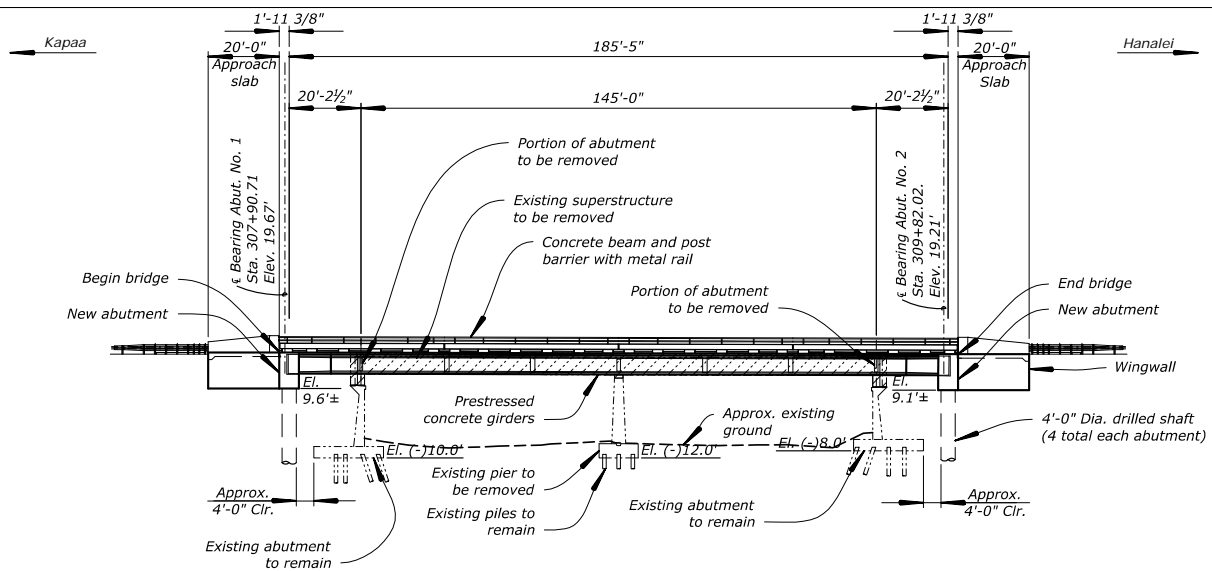


FIGURE 2-5
Plan
 Kapaa Stream Bridge
 Hawaii Bridges Program -
 Central Federal Lands Highway Division and
 Hawaii Department of Transportation

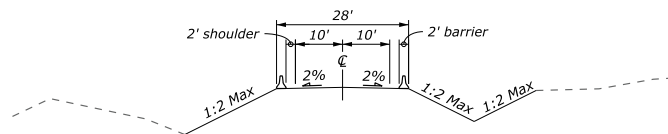
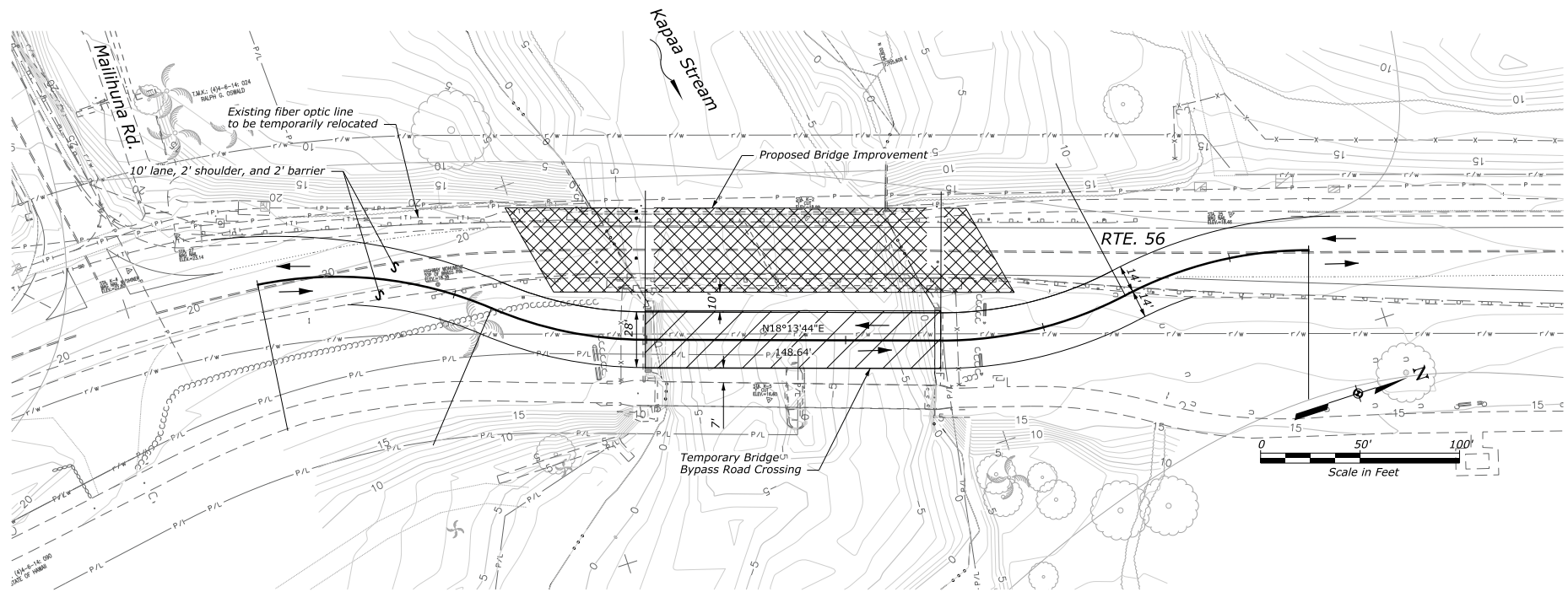


PLAN



ELEVATION

FIGURE 2-6
Bridge Design (Preliminary)
 Kapaa Stream Bridge
 Hawaii Bridges Program –
 Central Federal Lands Highway Division and
 Hawaii Department of Transportation



TYPICAL SECTION

FIGURE 2-7
Temporary Bypass
 Kapaa Stream Bridge
 Hawaii Bridges Program -
 Central Federal Lands Highway Division and
 Hawaii Department of Transportation

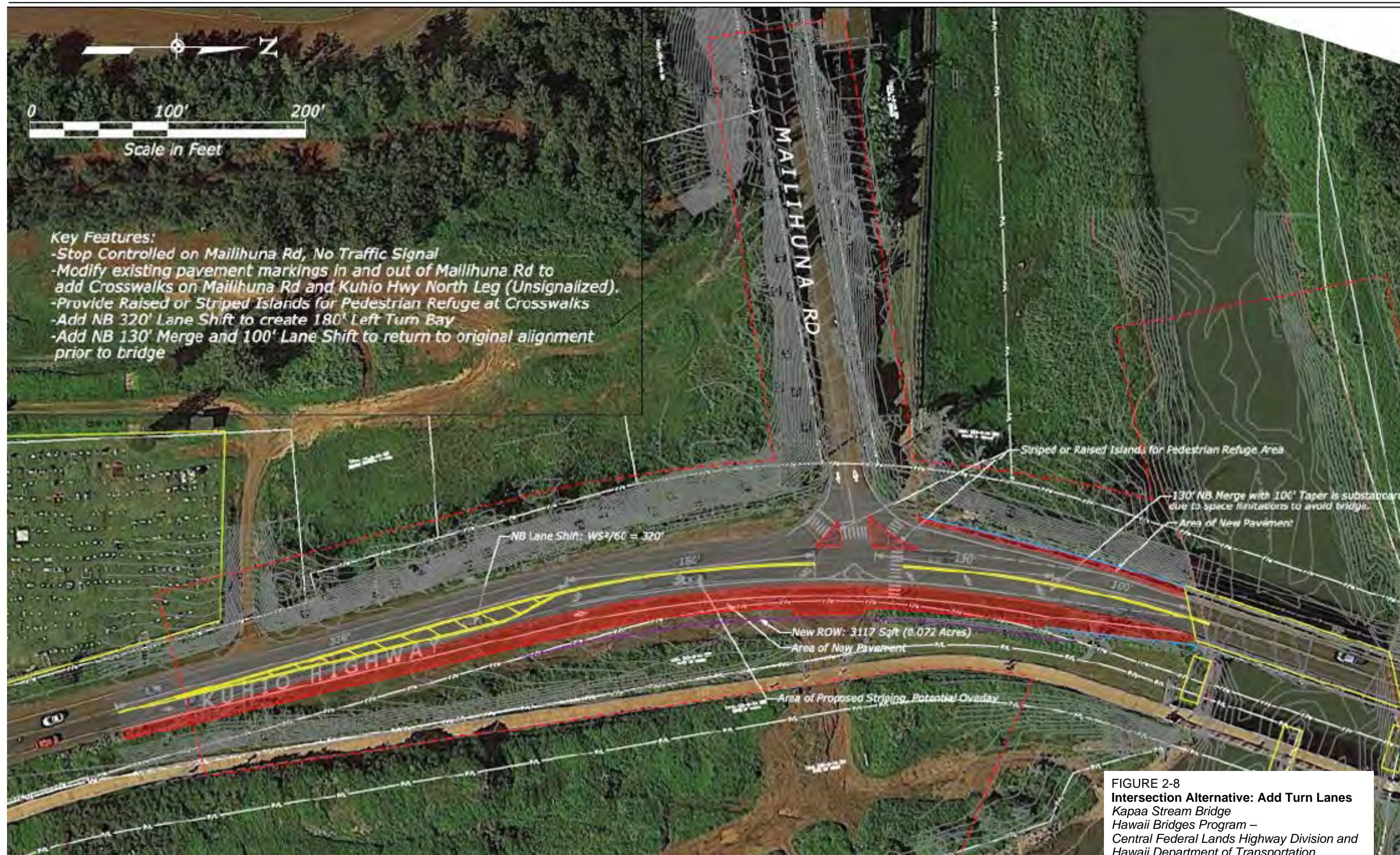


FIGURE 2-8
 Intersection Alternative: Add Turn Lanes
 Kapaa Stream Bridge
 Hawaii Bridges Program –
 Central Federal Lands Highway Division and
 Hawaii Department of Transportation

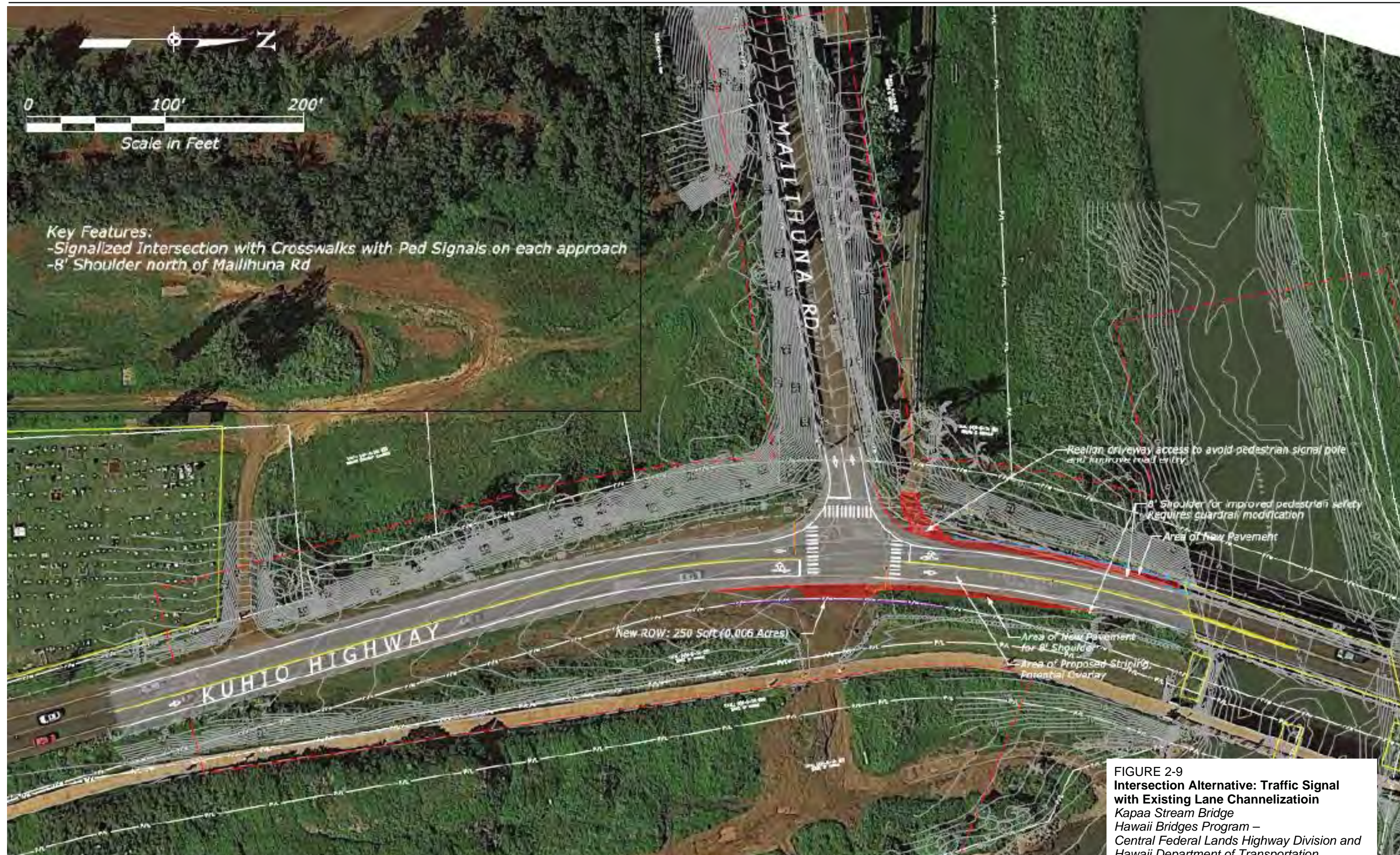


FIGURE 2-9
Intersection Alternative: Traffic Signal
with Existing Lane Channelization
Kapaa Stream Bridge
Hawaii Bridges Program –
Central Federal Lands Highway Division and
Hawaii Department of Transportation



FIGURE 2-10
Intersection Alternatives:
Signalized Intersection
 Kapaa Stream Bridge
 Hawaii Bridges Program –
 Central Federal Lands Highway Division and
 Hawaii Department of Transportation

Affected Environment, Impacts, and Mitigation

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 Puhi 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 would include 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.

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_{2.5}), nitrogen dioxide (NO₂), and sulfur dioxide (SO₂). 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 _{2.5} (24-hour)	4.5 µg/m ³	35 µg/m ³	None
NO ₂ (Annual)	0.002 ppm	53 ppb	0.04 ppm
SO ₂ (1-hour)	0.002 ppm	75 ppb	None
SO ₂ (3-hour)	0.002 ppm	0.50 ppm ^a	0.50 ppm
SO ₂ (24-hour)	0.002 ppm	None	0.14 ppm

Notes:

^a. Federal secondary standard

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

µg/m³ = 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

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 22-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
R1 Subtotal		1.98
PEM Subtotal		0.31
Total Waters of the U.S.		2.29

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. were 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). According to the list included in the 2014 *State of Hawaii Water Quality Monitoring and Assessment Report* (HDOH, 2014a), 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 bridge. The permanent bridge would clear-span the stream channel, thereby reducing the impact on WOUS relative to the existing bridge, which is supported by a mid-channel pier that is proposed for demolition above the mudline. Construction of the replacement bridge is expected to require removal of incidental sediment. No fill is proposed below the HTL for scour and streambank protection. Small areas of riprap are proposed for locations above the HTL, between the existing and proposed bridge abutments and along the embankment adjacent to the abutments.

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.

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. A slightly smaller surface area would be converted from permeable to impermeable if the circle is landscaped. Plans for potential vegetation in and around the roundabout would be included in the final design.

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

3.4 Natural Hazards

3.4.1 Flooding

Per the National Highway System, Kuhio Highway is functionally classified as an urban principal arterial roadway. As a principal arterial, Kuhio Highway should be analyzed for the 50-year and 100-year storm events based on the HDOT criteria. The project site is located within a mapped Federal Emergency Management Agency (FEMA) regulated floodway, Zone AE special flood hazard area. Therefore, the design of the replacement bridge has been designed for the 100-year storm event to comply with the National Flood Insurance Program's regulations and requirements.

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 existing bridge does not meet the 100-year storm criteria. Results of hydraulic calculations indicate that the existing bridge will experience pressure flow conditions during the 100-year storm. The existing bridge will not provide the 2-foot minimum freeboard during the 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 storm criteria. Similar to the existing bridge, the replacement bridge would not be overtopped but would experience pressure flow conditions during the 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 amsl. 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 amsl 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

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

Replacement of Kapaa Stream Bridge and improvements to the Mailihuna Road intersection 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

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

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
Mollusks			
Asiatic flume clam	<i>Corbicula fluminea</i>	NN	AECOS, 2002
Hapawai	<i>Neritina vespertina</i>	E	AECOS, 2002
Melanid snail	<i>Melanoidea tuberculata</i>	NN	AECOS, 2002
Crustacea			
Crayfish	<i>Procambarus clarkia</i>	NN	Parham et al, 2008
Opae kalaole	<i>Atyoida bisulcata</i>	E	Parham et al, 2008

TABLE 3-5

Aquatic Species Observed

Common Name	Scientific Name	Status	Observation Source
Opae oehaa	<i>Macrobrachium grandimanus</i>	I	Parham et al, 2008
Tahitian prawn	<i>Macrobrachium lar</i>	NN	AECOS
Insects			
Asian dragonfly	<i>Crocothemis sevilla</i>	NN	AECOS
Fish			
Anaholehole, Hawaiian flagtail	<i>Kuhlia</i> spp.	E/I	SWCA, AECOS
Ama, mullet	<i>Mugilidae</i>	n/a	AECOS
Goby	<i>Gobiid</i> sp.	n/a	Parham et al, 2008, SWCA
Guppy	<i>Poecilia reticulata</i>	NN	AECOS
Kaku, great barracuda	<i>Sphyrna barracuda</i>	I	AECOS
Mexican molly	<i>Poecilia 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
Papio	<i>Carangoides</i> sp.	I	AECOS
Swordtail	<i>Xiphophorus helleri</i>	NN	Parham et al, 2008
Tilapia	<i>Oreochromis</i> sp./ <i>Sarotherodon</i> sp.	NN	SWCA, AECOS
Amphibia			
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

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 area¹ 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.

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

¹ The ESA defines an action area as the area within which all of the 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).

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

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, as provided in the Final Mitigation Plan dated January 2017 (see Appendix G). 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 NHPA Section 106 and Federal regulations (36 CFR 800.5) and “no historic properties affected” in accordance with HRS §6E-8 and HAR §13-13-275-7. The SHPD concurred with these determinations by letter dated November 7, 2016 (see Appendix G).

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 *manao* (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

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

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

The preliminary cost estimate to construct the project with a roundabout is 14.1 million (in 2015 dollars). The estimate is for capital expenses only and does 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 a preliminary estimated cost of \$14.1 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.

Construction of the roundabout would add circular movement through the environment, a departure from what has been a linear travel experience. 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 standard traffic signals. The roundabout would also provide an opportunity for distinctive design through landscaping or other decorative features. Any decision to incorporate decorative elements would be developed during final design and based, in part, on 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 25 mph with a posted reduction to 15 mph in the school zone 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 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. The roundabout 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 last for approximately 22 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 25 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 for a majority of construction. Construction related activities are not anticipated to impact use of the shared use path located *makai* of the replacement bridge.

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 the extent possible. 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.

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 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 2017 to 2018.

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 proposed roundabout. 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. Alternatives will be explored in final design to accommodate vehicles using the beach access road, while minimizing right-of-way impacts.

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

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 are 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 is 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

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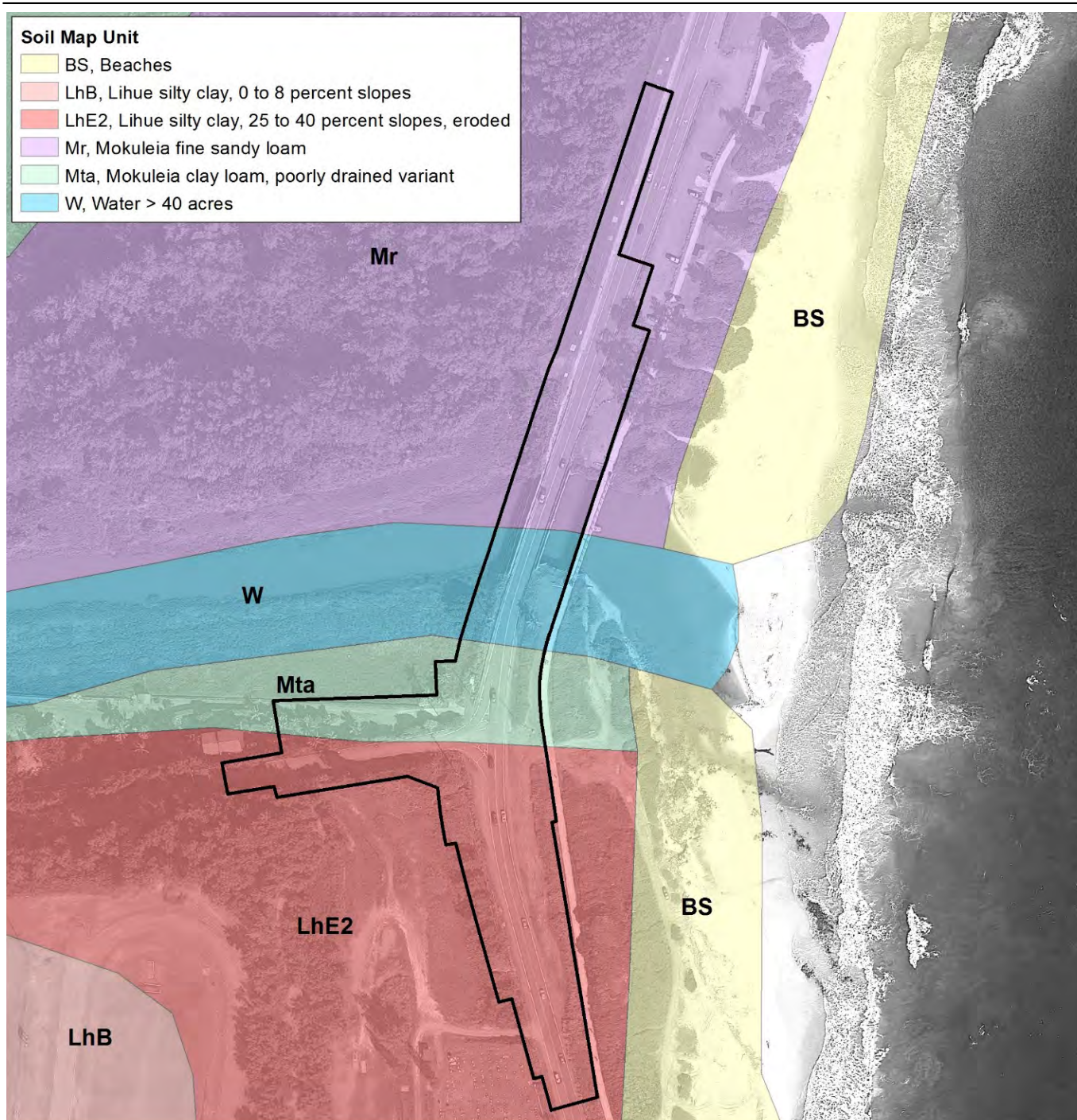
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Base Map: Google Earth Aerial Imagery (2013)
Data Sources: CSH, SSURGO

LEGEND

 Survey Area

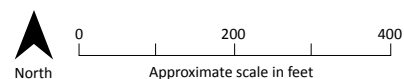
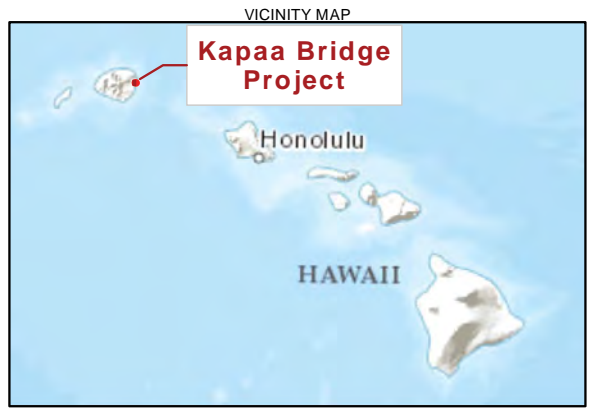


FIGURE 3-1
Soils

*Kapaa Stream Bridge
Hawaii Bridges Program –
Central Federal Lands Highway Division and
Hawaii Department of Transportation*



- LEGEND
- Permanent Impact Area
 - Temporary Impact Area
 - High Tide Line
 - Waters of the U.S. and Flow Directions
- Wetland Type
- R1
 - PEM
 - Ditch

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.

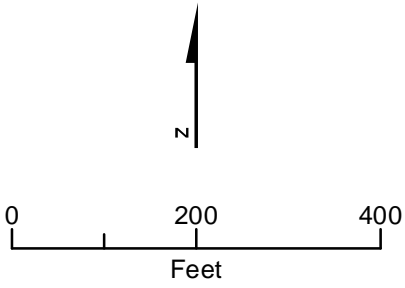
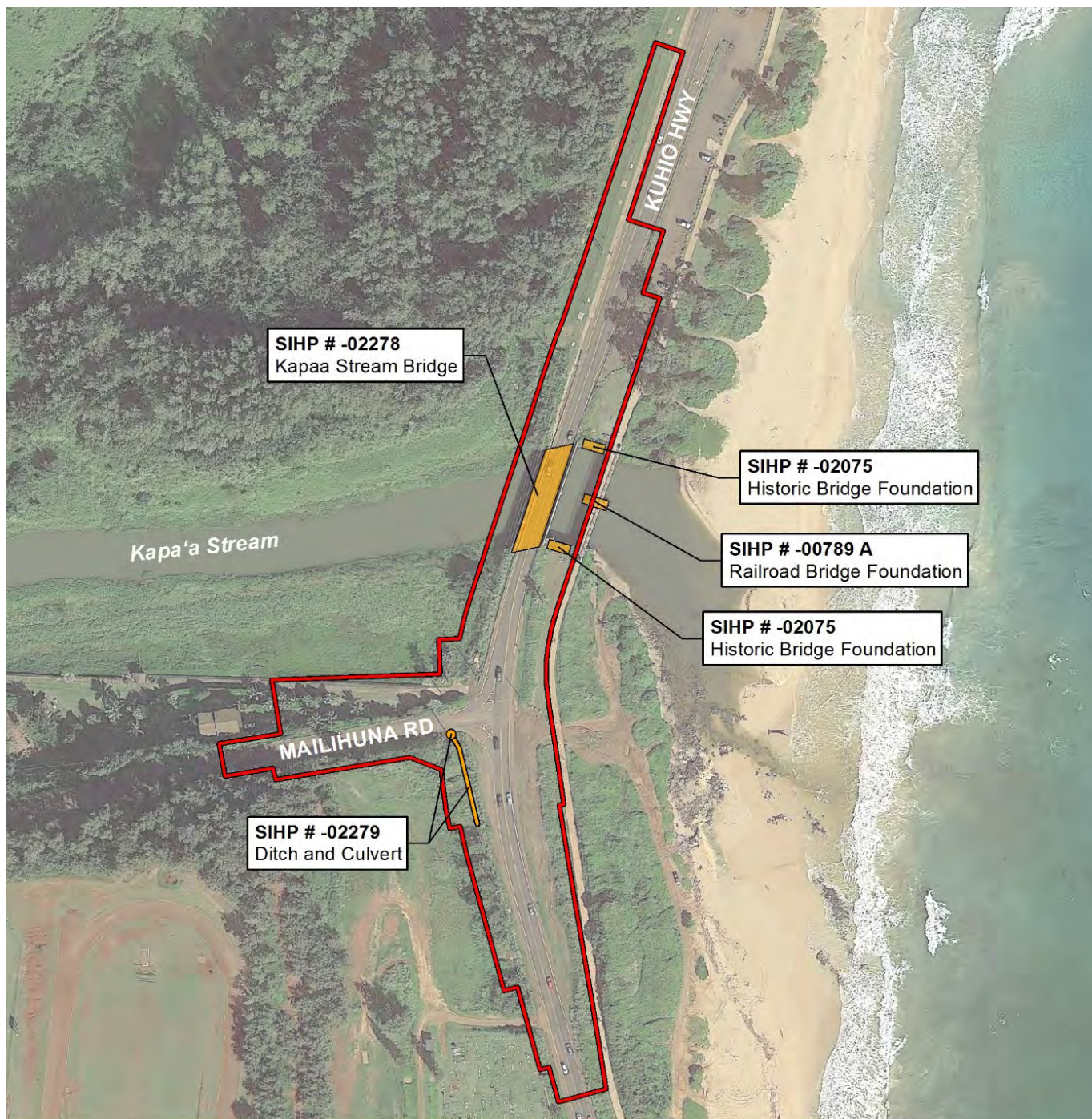
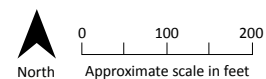


FIGURE 3-2
Waters of the U.S.
 Kapaa Stream Bridge
 Hawaii Bridges Program –
 Central Federal Lands Highway Division and
 Hawaii Department of Transportation



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

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 southernmost 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 submitted to USFWS and NMFS for review as part of the informal Section 7 consultation process. Concurrence with the determinations made by FHWA-CFLHD were received from NMFS (by letter dated October 24, 2016) and USFWS (by letter dated November 15, 2016).

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 State Plan objectives and policies presented in Table 4-1.

TABLE 4-1

Compliance with Hawaii State Plan

Objective	Compliance with Specific Objectives and Policies
Population	This theme is not applicable to the project.
Economy (In General)	<p>The project would be in compliance with this theme, particularly the following objectives and policies:</p> <p>(a)(1) Increased and diversified employment opportunities to achieve full employment, increased income and job choice, and improved living standards for Hawaii's people, while at the same time stimulating the development and expansion of economic activities capitalizing on defense, dual-use, and science and technology assets, particularly on the neighbor islands where employment opportunities may be limited.</p> <p>As described in Section 3, the proposed project is anticipated to provide economic benefits by supporting a number of construction workers for the duration of the project (approximately 22 months).</p>
Economy (Agriculture)	This theme is not applicable to the project.
Economy (Visitor Industry)	This theme is not applicable to the project.
Economy (Federal Expenditures)	<p>The project would be in compliance with this theme, particularly the following objectives and policies:</p> <p>(b)(3) Promote the development of federally supported activities in Hawaii that respect statewide economic concerns, are sensitive to community needs, and minimize adverse impacts on Hawaii's environment.</p> <p>(b)(6) Strengthen federal-state-county communication and coordination in all federal activities that affect Hawaii.</p> <p>This project involves the use of Federal funds as needed to improve Kapaa Stream Bridge and the Mailihuna Road intersection such that they remain safe and functional components of the regional transportation system for highway users. It is being implemented through a partnership between HDOT and FHWA-CFLHD.</p>
Economy (Potential Growth and Innovative Activities)	This theme is not applicable to the project.
Economy (Information Industry)	This theme is not applicable to the project.

TABLE 4-1

Compliance with Hawaii State Plan

Objective	Compliance with Specific Objectives and Policies
Physical Environment (Land-based, Shoreline, and Marine Resources)	<p>The project would be in compliance with this theme, particularly the following objectives and policies:</p> <p>(b)(3) Take into account the physical attributes of areas when planning and designing activities and facilities.</p> <p>(b)(6) Encourage the protection of rare or endangered plant and animal species and habitats native to Hawaii.</p> <p>The project would provide replacement bridges that substantially coincide with the footprint of the existing bridges, and is not expected to have a significant adverse effect on important natural resources. Biological surveys of the project area found no threatened or endangered plant or animal species; BMPs would be implemented to avoid and minimize contact with special-status species that could potentially occur in the project area.</p>
Physical Environment (Scenic, Natural Beauty, and Historic Resources)	<p>The project would be in compliance with this theme, particularly the following objectives and policies:</p> <p>(a)(1) Promote the preservation and restoration of significant natural and historic resources.</p> <p>(a)(3) Promote the preservation of views and vistas to enhance the visual and aesthetic enjoyment of mountains, ocean, scenic landscapes, and other natural features.</p> <p>(a)(4) Protect those special areas, structures, and elements that are an integral and functional part of Hawaii's ethnic and cultural heritage.</p> <p>Although the proposed project would result in visual changes to the site as a result of replacing the existing bridge and constructing a roundabout intersection, the visual changes would not adversely affect the quality of coastal views. The project would not result in a substantial change to the existing landscape or in a noticeable change to the project viewshed.</p> <p>The existing Kapaa Stream Bridge is not eligible for listing in the National and State Registers of Historic Places.</p>
Physical Environment (Land, Air, and Water Quality)	<p>The project would be in compliance with this theme, particularly the following objectives and policies:</p> <p>(a)(1) Maintenance and pursuit of improved quality in Hawaii's land, air, and water resources.</p> <p>(b)(3) Promote effective measures to achieve desired quality in Hawaii's surface, ground, and coastal waters.</p> <p>(b)(5) Reduce the threat to life and property from erosion, flooding, tsunamis, hurricanes, earthquakes, and other natural or man-induced hazards and disasters.</p> <p>The project would result in short-term, construction-related impacts (noise, dust, and erosion), but implementation of BMPs would minimize the effects to the environment.</p>
Facility Systems (In General)	<p>The project would be in compliance with this theme, particularly the following objectives and policies:</p> <p>(a) Planning for the State's facility systems in general shall be directed towards achievement of the objective of water, transportation, waste disposal, and energy and telecommunication systems that support statewide social, economic, and physical objectives.</p> <p>(b)(1) Accommodate the needs of Hawaii's people through coordination of facility systems and capital improvement priorities in consonance with state and county plans.</p> <p>HDOT's mission is to provide a safe, efficient, and accessible transportation system for the public. HDOT recognizes the need for replacement of the existing Kapaa Stream Bridge. The replacement bridge will be designed using current AASHTO guidelines that have been adopted by HDOT for planning and engineering for highway projects in Hawaii.</p>
Facility Systems (Solid and Liquid Wastes)	This theme is not applicable to the project.
Facility Systems (Water)	This theme is not applicable to the project.

TABLE 4-1

Compliance with Hawaii State Plan

Objective	Compliance with Specific Objectives and Policies
Facility Systems (Transportation)	<p>The project would be in compliance with this theme, particularly the following objectives and policies:</p> <p>(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.</p> <p>(a)(2) A statewide transportation system that is consistent with and will accommodate planned growth objectives throughout the State.</p> <p>(b)(2) Coordinate state, county, federal, and private transportation activities and programs toward the achievement of statewide objectives.</p> <p>(b)(3) Encourage a reasonable distribution of financial responsibilities for transportation among participating governmental and private parties.</p> <p>(b)(6) Encourage transportation systems that serve to accommodate present and future development needs of communities.</p> <p>(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.</p> <p>The project is a partnership between HDOT and FHWA-CFLHD, and would improve Kapaa Stream Bridge and the Mailihuna Road intersection such that they remain safe and functional components of the regional transportation system for highway users. The replacement bridges will be designed using current AASHTO guidelines that have been adopted by HDOT for planning and engineering for highway projects in Hawaii.</p>
Facility Systems (Energy)	This theme is not applicable to the project.
Facility Systems (Telecommunications)	This theme is not applicable to the project.
Socio-cultural Advancement (Housing, Health, Education, Social Services, Leisure, Individual Rights and Personal Well- being, Culture, Public Safety, and Government)	These themes are not applicable to the project.

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 Chapter 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 occurred in tandem with Section 106 (see Section 4.1.2) and concluded with a concurrence letter dated November 7, 2016. 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 near the centerline of the Kuhio Highway right-of-way (Figure 4-3). Therefore, construction activity that extends onto the *makai* side of the boundary 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 4-2, which focus on prudent and timely investments in the transportation (highway) system to maintain functionality and longevity.

TABLE 4-2

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
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.	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 st Century Act.

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, sparseness of population, availability of other means, and safety of users that may be placed at unacceptable risk. In 2010, the Kauai County Council adopted a resolution establishing a complete streets policy for the county. The first stated resolution is as follows:

...all roadway projects, including design, planning, reconstruction, rehabilitation, maintenance or operations in the County of Kauai be balanced and equitable in accommodating *and encouraging* travel by bicyclists, public transportation vehicles and their passengers, and pedestrians of all ages and abilities in accordance with Complete Street principles (*italics added*).

The Kauai resolution also provides exemptions for circumstances similar to the State law. What makes Kauai County’s policy different from State law is the call for transportation improvements to not only accommodate, but also *encourage*, non-motorized and transit modes of travel.

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 pedestrian program in the MLTP establishes a pedestrian mode share of 12 percent of all person trips in the target year of 2035 (up from 5 percent of trips in 2010). The MLTP states the following:

Much of Kauai is not walkable today and it will not be possible to rectify that problem quickly everywhere. Therefore the pedestrian program focuses on making improvements to the most crucial pedestrian places in Kauai, including the town core areas where densities are higher, along corridors connecting schools and parks that are frequently use by children, and on streets that provide access to bus stops.

The proposed project supports the MLTP's emphasis on developing infrastructure for all modes of transportation, including safety improvements for pedestrians and bicyclists at the Mailihuna Road intersection and the *mauka* walkway.

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*.

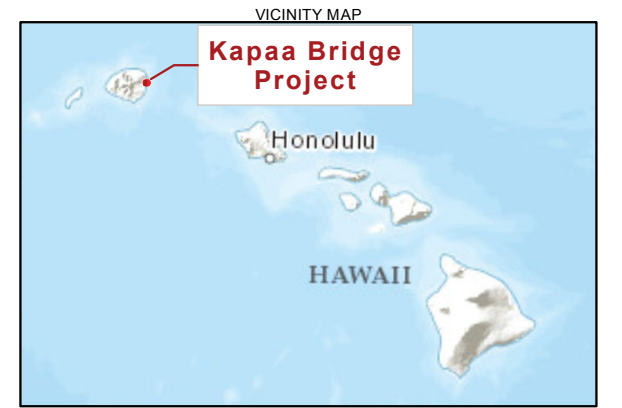
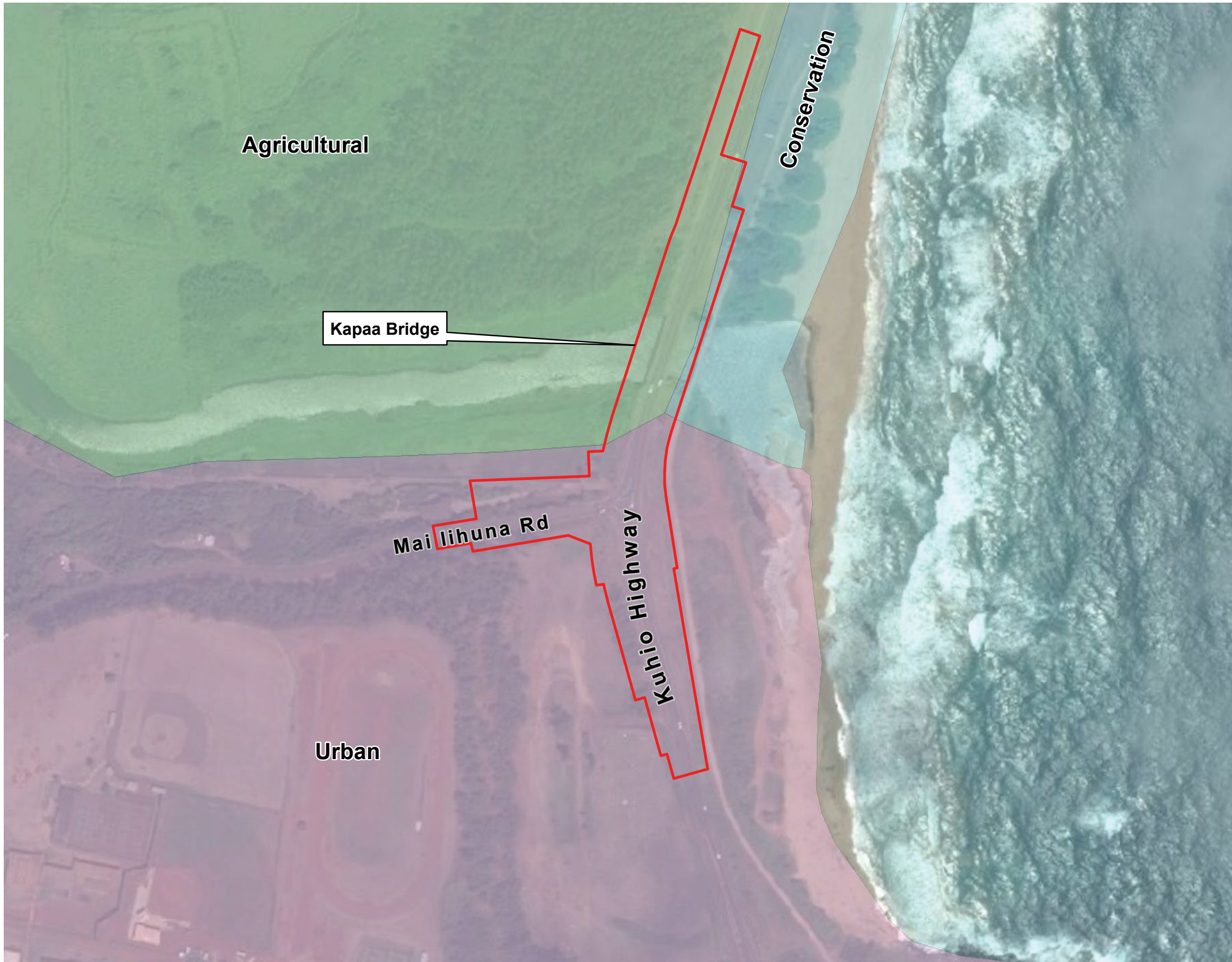
State of Hawaii Department of Transportation (HDOT). 1991 *Transportation; State Functional Plan*.

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.

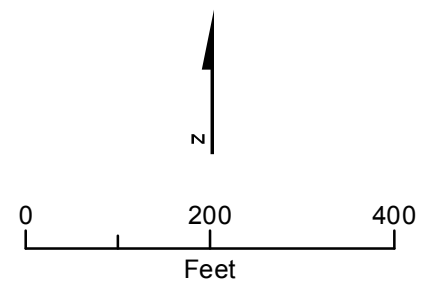
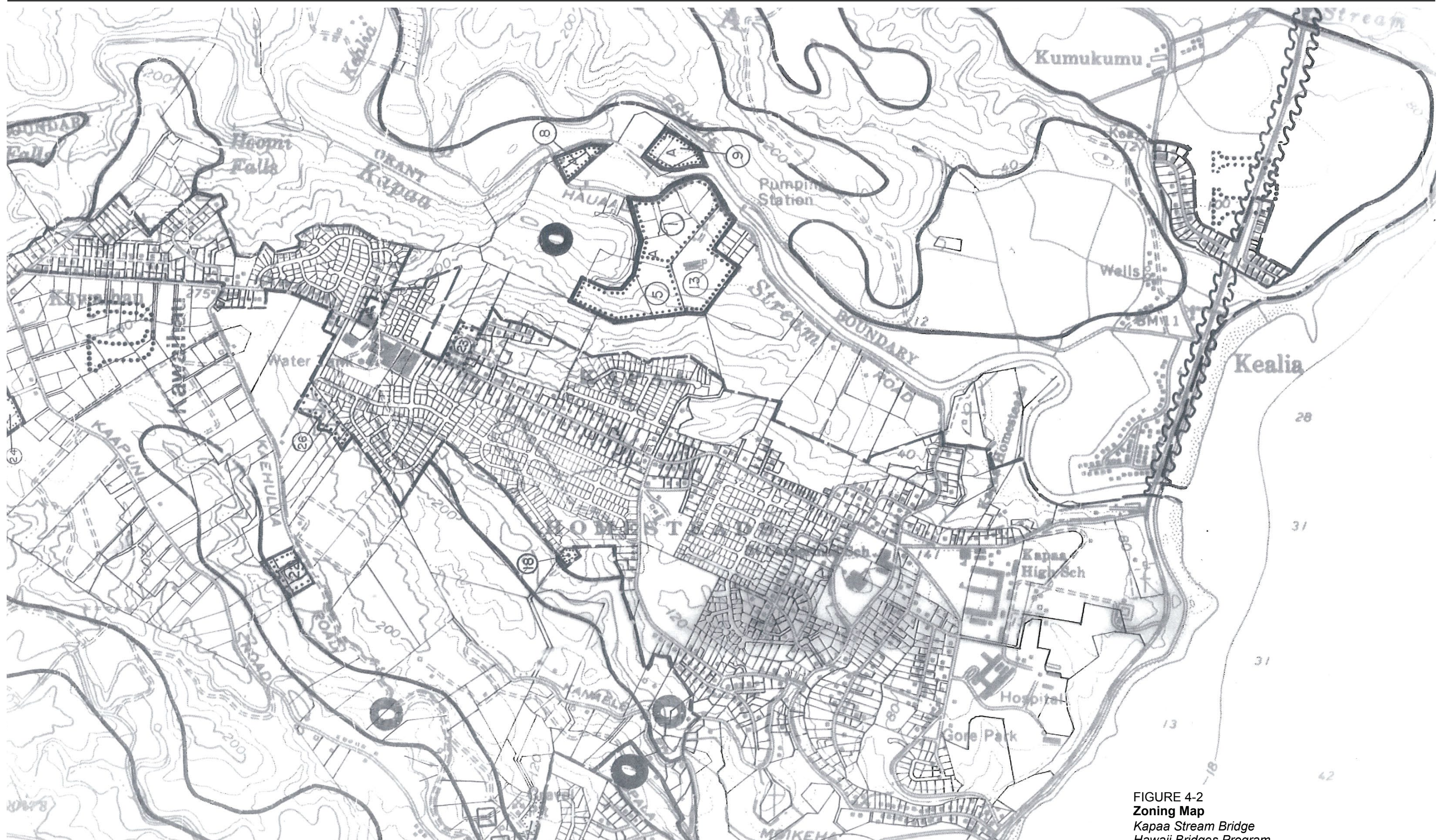


FIGURE 4-1
State Land Use District Boundaries
 Kapaa Stream Bridge
 Hawaii Bridges Program –
 Central Federal Lands Highway Division and
 Hawaii Department of Transportation



Source: Kauai County, 2015

FIGURE 4-2
Zoning Map
 Kapaa Stream Bridge
 Hawaii Bridges Program –
 Central Federal Lands Highway Division and
 Hawaii Department of Transportation



LEGEND

- Project Area
- Special Management Area

- 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.

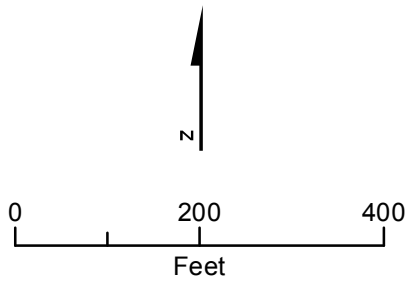


FIGURE 4-3
Special Management Area (SMA)
 Kapaa Stream Bridge
 Hawaii Bridges Program –
 Central Federal Lands Highway Division and
 Hawaii Department of Transportation

Findings and Reasons Supporting the Determination

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 or would have impacts that can be mitigated to less than significant levels.

SECTION 6

Determination

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 warranted, pursuant to HRS Chapter 343 and the provisions of HAR Chapter 200, Title 11, Subchapter 6.

Consultation and Coordination

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 in Appendix I.

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. (Note: this comment was withdrawn by letter from the Department of Public Works and Planning Department dated August 22, 2016)

(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 were 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 Kuali'i
- 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 was 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

7.6 Comments Received on the Draft EA

The 30-day statutory public review period extended from July 23 to August 22, 2016. Written comments on the Draft EA were received from 12 agencies, organizations, and individuals, as follows. Letters and responses are reproduced at the end of this chapter. Response letters were sent to 10 agencies providing substantive comments.

- **USACE, Regulatory Branch** (email dated August 10, 2016) - Acknowledged receipt of document and referenced project file number.

- **HDOH, Clean Water Branch** (letter dated August 2, 2016) - No comments at this time (previously provided comments in letter dated May 18, 2015).
- **HDOH, Environmental Planning Office** (letter dated August 2, 2016)
 1. Recommended reviewing standard comments and strategies to support sustainable and healthy design
 2. Recommended examining and using the Environmental Health Portal
 3. Suggested reviewing the requirements for the NPDES permit
 4. Recommended reviewing the OEQC viewer showing where previous HRS Chapter 343 documents have been prepared
 5. Encouraged using the USEPA EJSCREEN tool.
- **DLNR, Commission on Water Resource Management** (letter dated August 24, 2016) - A Stream Channel Alteration Permit is required before any alteration can be made to the bed or banks of a stream channel.
- **DLNR, Engineering Division** (memorandum dated August 1, 2016) - Compliance with the National Flood Insurance Program is required if the project is within a designated Flood Hazard Zone. The owner of the proposed project or their representative is responsible for researching the Flood Hazard zone designation for the project.
- **DLNR, Land Division, Kauai District** (memorandum dated August 2, 2016) - No comments.
- **OEQC** (letter dated August 23, 2016)
 1. Consider incorporating landscaping and Low Impact Development concepts
 2. Recommended use of native vegetation
 3. Requested explanation of why the 100-year storm criteria and 2-foot freeboard cannot be met, and consequences of non-conformance
 4. Requested analysis of not including the *mauka* sidewalk
- **Office of Planning** (letter dated August 9, 2016)
 1. Stated that EA should address the Hawaii State Plan in its entirety.
 2. Acknowledged the need for Coastal Zone Management Act Federal Consistency determination
 3. Acknowledged the need for an SMA permit
- **Kauai Department of Public Works and Planning Department** (letter dated August 22, 2016) - Various comments regarding project purpose and need, existing conditions, and proposed improvements.
- **Kauai Transportation Agency** (email dated August 10, 2016) - No comments, but asked to be kept apprised of the project as it progresses.
- **Sandwich Isles Communications** (letter dated August 16, 2016) - Any work on the bridge may require temporary relocation of their fiber-optic duct system, which would require advance planning. Any relocation cost would be subject to applicable State laws.
- **Kauai Path** (letter dated August 16, 2016)
 1. Provided observations supporting their board of directors' endorsement of the roundabout.
 2. Provided comments relative to accommodating bicyclists.
- **R. Gordon Oswald and family** (letter dated August 15, 2016) - Provided reasons supporting roundabout versus signalizing of the intersection.

DRAFT EA COMMENT AND RESPONSE LETTERS²

- USACE, Regulatory Branch
- HDOH, Clean Water Branch
- HDOH, Environmental Planning Office*
- DLNR, Commission on Water Resource Management*
- DLNR, Engineering Division*
- DLNR, Land Division, Kauai District
- OEQC*
- Office of Planning*
- Kauai Department of Public Works and Planning Department*
- Kauai Transportation Agency*
- Sandwich Isles Communications*
- Kauai Path*
- R. Gordon Oswald and family*

² Response letters were sent only to agencies that offered substantive comments (indicated by asterisk).

Kettley, Lisa/HNL

From: Chu, Kathleen/HNL
Sent: Wednesday, August 10, 2016 10:42 AM
To: Nishikawa, Nancy/HNL; Kettley, Lisa/HNL; Luersen, Paul/HNL
Subject: Fwd: POH-2016-00163 (Kapaa Stream Bridge, Kuhio Highway and Mailihuna Road Intersection, Kauai, HI) [EXTERNAL]

FYI

- Kathleen

Begin forwarded message:

From: "Tatum, Alton L CONTRACTOR @ POH" <Alton.L.Tatum@usace.army.mil>
Date: August 10, 2016 at 10:36:52 AM HST
To: "kathleen.Chu@ch2m.com" <kathleen.Chu@ch2m.com>
Cc: "Meyer, Susan A SPL" <Susan.A.Meyer@usace.army.mil>
Subject: POH-2016-00163 (Kapaa Stream Bridge, Kuhio Highway and Mailihuna Road Intersection, Kauai, HI) [EXTERNAL]

Aloha Ms. Kathleen Chu,

This email is notification that the Honolulu District Regulatory Office has received you're Correspondence. Your project has been assigned POH-2016-00163. Please reference this number in all future correspondence. Ms. Susan Meyer-Gayagas has been assigned your project and will contact you if additional information is required. If you don't receive a response from this office within 30 days, please contact us at (808) 835-4303 or by email at CEPOH-RO@usace.army.mil.

Thank you for working with the Honolulu District Regulatory Office

Alton L. Tatum
Administrative Assistant, Regulatory Office
USACE-Honolulu District
Bldg 252
Fort Shafter, HI 96858-5440
Phone: (808)-835-4303
Fax: (808)-835-4126

DAVID Y. IGE
GOVERNOR OF HAWAII



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

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

In reply, please refer to:
EMD/CWB

08005PCTM.16

August 2, 2016

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

Dear Mr. Will:

**SUBJECT: Comments on the Draft Environmental Assessment (DEA) and Anticipated Finding of No Significant Impact (AFONSI) for Kapaa Stream Bridge, Kuhio Highway, and Mailihuna Road Intersection Project, Project No. HI STP SR50(1) Kawaihau, Island of Kauai, Hawaii
TMKs: (4) 4-6-014:024 (por.), 033 (por.), 090 (por.), 092 (por.), 4-7-003:001(por.), and 4-7-008:042 (por.) Kuhio Highway and Mailihuna Road Right-of-Way**

The Department of Health (DOH), Clean Water Branch (CWB), has reviewed the subject document and has no comments at this time. The DOH-CWB provided comments on the proposed DEA for this project (Letter No. 05028PNN.16, dated May 18, 2016).

Please note that our review is based solely on the information provided in the subject document and its compliance with 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/2013/10/CWB_Oct22.pdf.

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,

A handwritten signature in blue ink that reads "Alec Wong".

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

CTM:bk

c: EPO # 16-264 [via e-mail only]

Ms. Kathleen Chu, CH2M HILL [via e-mail kathleen.chu@ch2m.com only]



**STATE OF HAWAII
DEPARTMENT OF HEALTH**

P. O. BOX 3378
HONOLULU, HI 96801-3378

In reply, please refer to:
File:

EPO 16-264

August 2, 2016

Ms. Kathleen Chu
CH2M Hill
1132 Bishop Street, Suite 1100
Honolulu, Hawaii 96813
Email: Kathleen.chu@ch2m.com

Dear Ms. Chu:

SUBJECT: Draft Environmental Assessment (DEA) for Kapaa Stream Bridge and Mailihuna Intersection Improvements
TMK: (4) 4-6-014:024 por., 033 por., 090 por., 092 por. Kuhio Highway and Mailihuna Road rights-of-way; 4-7-003:001 por., and 4-7-008:042 por. Kuhio Highway right-of-way

The Department of Health (DOH), Environmental Planning Office (EPO), acknowledges receipt of your DEA to our office via the OEQC link:

http://oeqc.doh.hawaii.gov/Shared%20Documents/EA_and_EIS_Online_Library/Kauai/2010s/2016-07-23-KA-5B-DEA-Kapaa-Stream-Bridge-and-Mailihuna-Intersection.pdf

In the development and implementation of all projects, EPO strongly recommends regular review of State and Federal environmental health land use guidance. State standard comments and available strategies to support sustainable and healthy design are provided at: <http://health.hawaii.gov/epo/landuse>. Projects are required to adhere to all applicable standard comments. EPO has recently updated the environmental Geographic Information System (GIS) website page. It now compiles various maps and viewers from our environmental health programs. The eGIS website page is continually updated so please visit it regularly at: <http://health.hawaii.gov/epo/egis>. EPO also encourages you to examine and utilize the Hawaii Environmental Health Portal at: <https://eha-cloud.doh.hawaii.gov>. This site 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.

We suggest you review the requirements of the Clean Water Branch (HAR, Section 11-54-1.1, -3, 4-8) and/or the National Pollutant Discharge Elimination System (NPDES) permit (HAR, Chapter 11-55) at: <http://health.hawaii.gov/cwb>. If you have any questions, please contact the Clean Water Branch, Engineering Section at (808) 586-4309 or cleanwaterbranch@doh.hawaii.gov. If your project involves waters of the U.S., it is highly recommended that you contact the Army Corps of Engineers, Regulatory Branch at: (808) 835-4303.

You may also wish to review the draft Office of Environmental Quality Control (OEQC) viewer at: <http://eha-web.doh.hawaii.gov/oeqc-viewer>. This viewer geographically shows where some previous Hawaii Environmental Policy Act (HEPA) {Hawaii Revised Statutes, Chapter 343} documents have been prepared.

In order to better protect public health and the environment, the U.S. Environmental Protection Agency (EPA) has developed a new environmental justice (EJ) mapping and screening tool called EJSCREEN. It is based on nationally consistent data and combines environmental and demographic indicators in maps and reports. EPO encourages you

Ms. Kathleen Chu
Page 2
August 2, 2016

to explore, launch and utilize this powerful tool in planning your project. The EPA EJSCREEN tool is available at:
<http://www.epa.gov/ejscreen>.

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

Mahalo nui loa,



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

LM:nn

Attachment 1: Environmental Health Management Web App Snipit of Project Area: <http://health.hawaii.gov/epo/egis>

Attachment 2: Clean Water Branch: Water Quality Standards Map - Kauai

Attachment 3: Wastewater Branch: Act 120 Cesspool Tax Credit Web App Snipit of Project Area

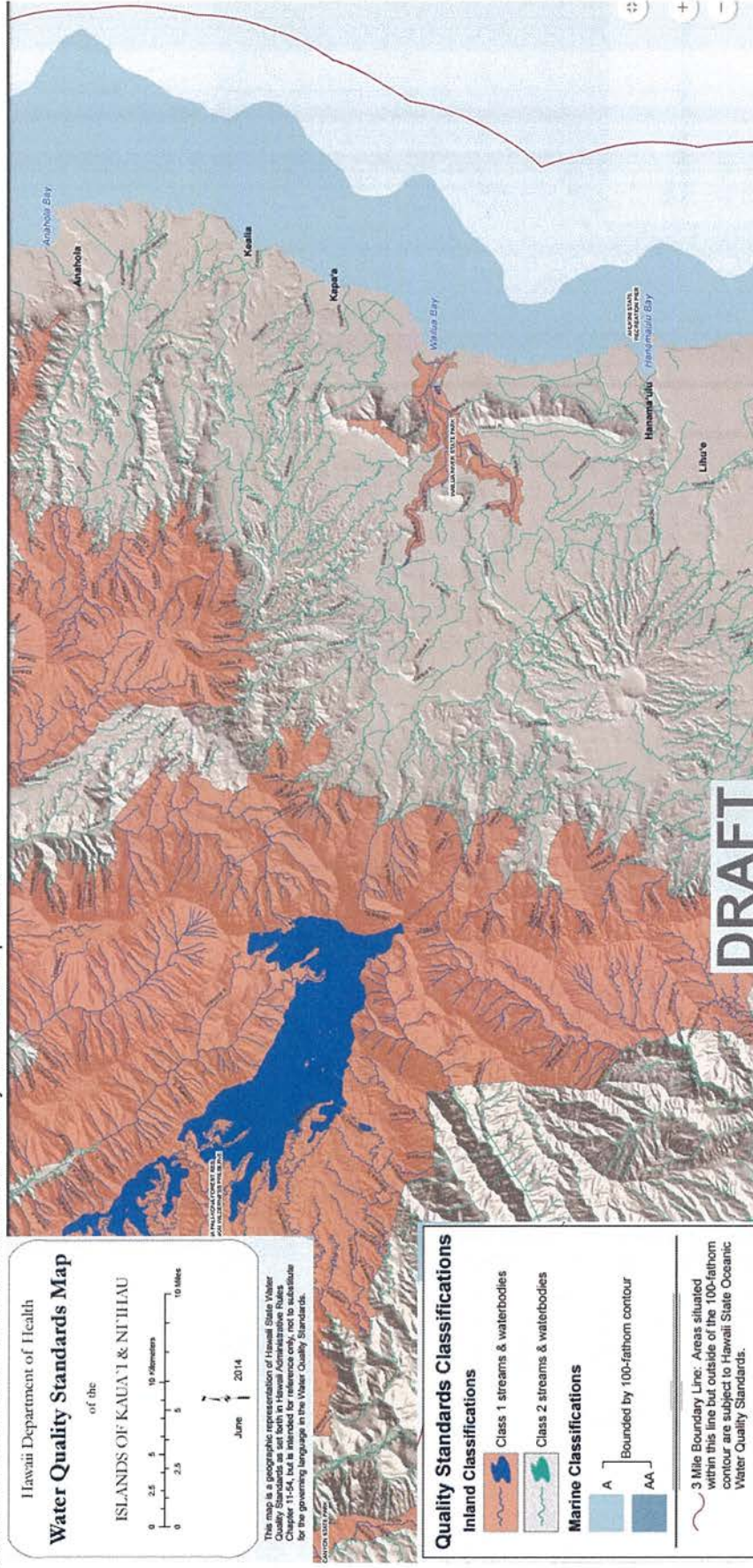
Attachment 4: Wastewater Branch: Recycled Water Use Map of Project Area

Attachment 5: OEQC Viewer Map of Project Area

Attachment 6: U.S. EPA EJSCREEN Report for Project Area

c: DOH: DHO Kauai, CWB {via email only}

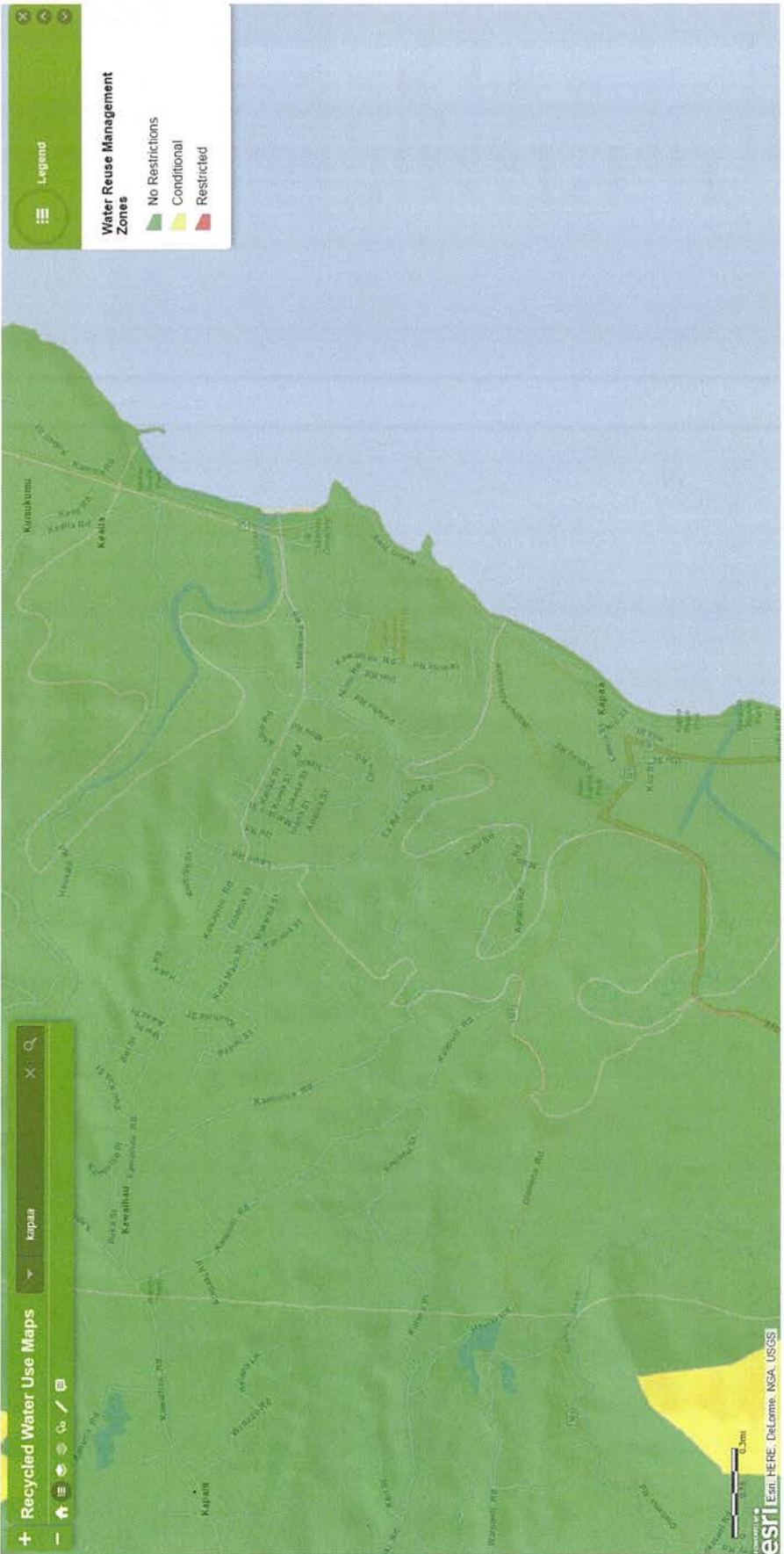
Attachment 2: Clean Water Branch: Water Quality Standards Map – Kauai



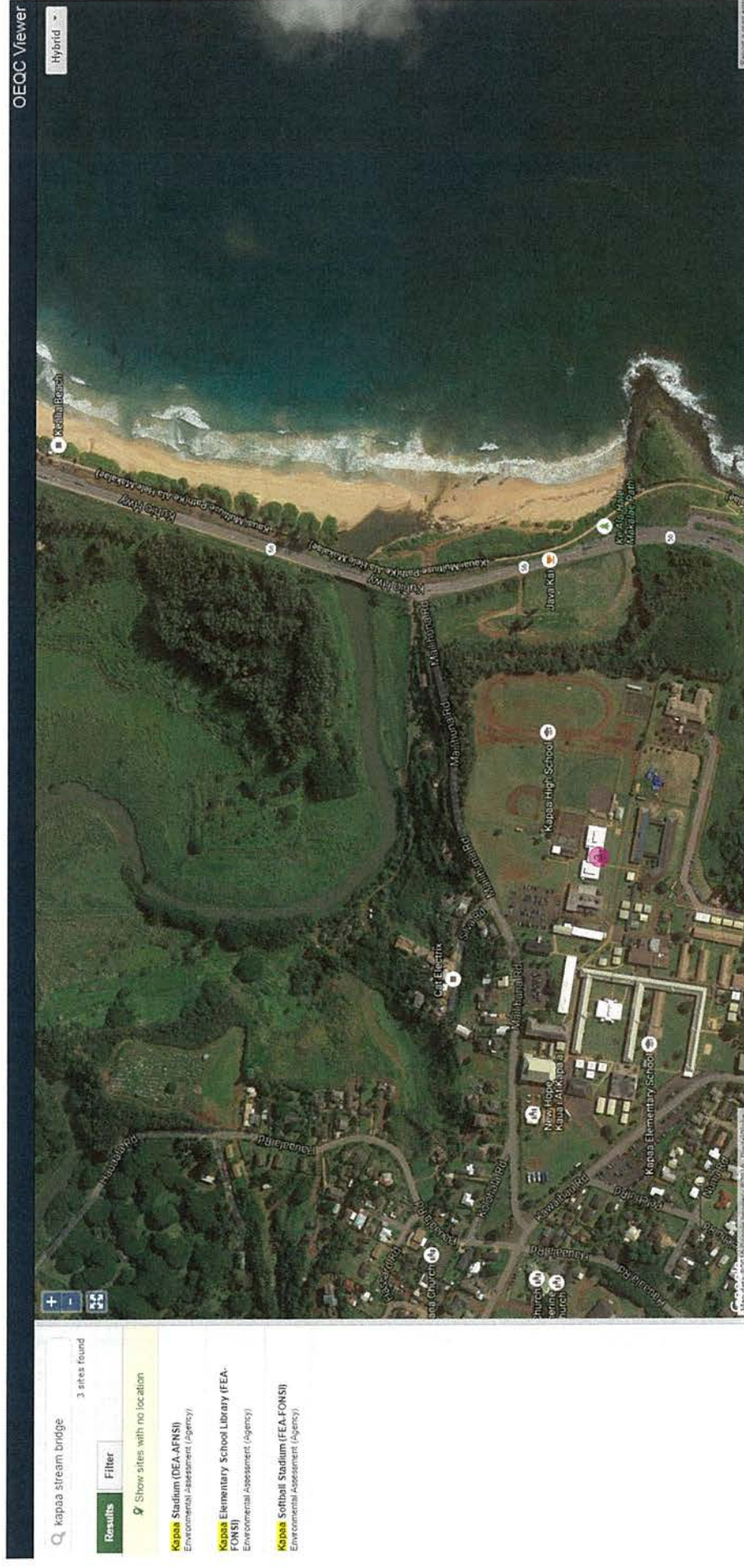
Attachment 3: Wastewater Branch: Act 120 Cesspool Tax Credit Web App Snipit of Project Area



Attachment 4: Wastewater Branch: Recycled Water Use Map of Project Area



Attachment 5: OEQC Viewer Map of Project Area



Attachment 6: U.S. EPA EJSCREEN Report for Project Area



EJSCREEN Report (Version 2016)

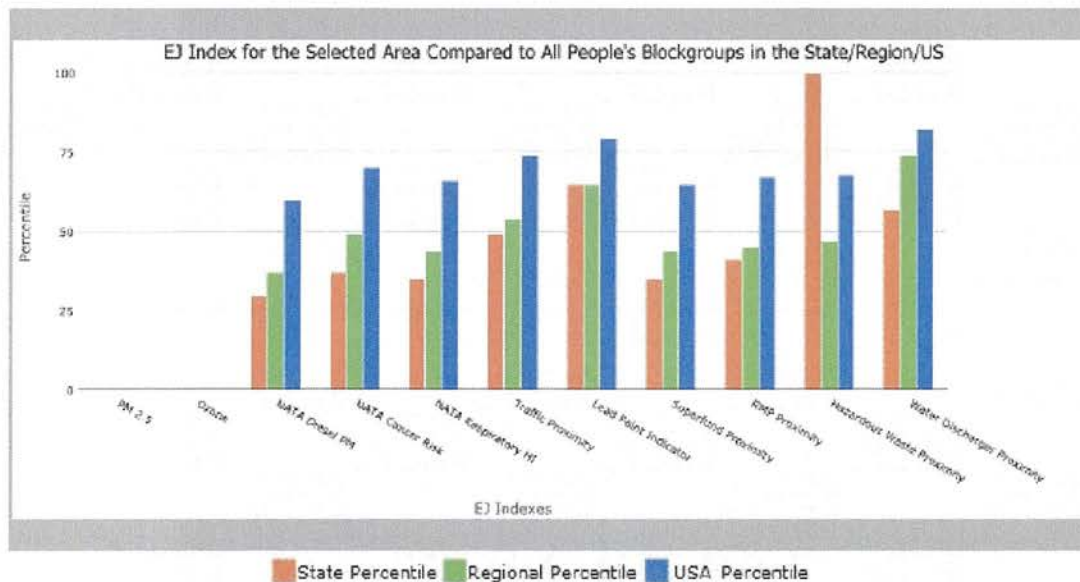


1 mile Ring Centered at 22.092865,-159.309207, HAWAII, EPA Region 9

Approximate Population: 2,367

Input Area (sq. miles): 3.14

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
EJ Indexes			
EJ Index for PM2.5	N/A	N/A	N/A
EJ Index for Ozone	N/A	N/A	N/A
EJ Index for NATA* Diesel PM	30	37	60
EJ Index for NATA* Air Toxics Cancer Risk	37	49	70
EJ Index for NATA* Respiratory Hazard Index	35	44	66
EJ Index for Traffic Proximity and Volume	49	54	74
EJ Index for Lead Paint Indicator	65	65	79
EJ Index for Superfund Proximity	35	44	65
EJ Index for RMP Proximity	41	45	67
EJ Index for Hazardous Waste Proximity	100	47	68
EJ Index for Water Discharger Proximity	57	74	82



This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

August 02, 2016

1/3

1 mile Ring Centered at 22.092865,-159.309207, HAWAII, EPA Region 9

Approximate Population: 2,367

Input Area (sq. miles): 3.14



Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0
National Pollutant Discharge Elimination System (NPDES)	0

EJSCREEN Report (Version 2016)

1 mile Ring Centered at 22.092865, -159.309207, HAWAII, EPA Region 9

Approximate Population: 2,367

Input Area (sq. miles): 3.14



Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Environmental Indicators							
Particulate Matter (PM 2.5 in $\mu\text{g}/\text{m}^3$)	N/A	N/A	N/A	9.37	N/A	9.32	N/A
Ozone (ppb)	N/A	N/A	N/A	51	N/A	47.4	N/A
NATA* Diesel PM ($\mu\text{g}/\text{m}^3$)	0.0287	0.149	17	0.978	<50th	0.937	<50th
NATA* Cancer Risk (lifetime risk per million)	27	34	24	43	<50th	40	<50th
NATA* Respiratory Hazard Index	0.66	1	25	2	<50th	1.8	<50th
Traffic Proximity and Volume (daily traffic count/distance to road)	80	990	42	1100	34	590	47
Lead Paint Indicator (% Pre-1960 Housing)	0.19	0.16	63	0.24	55	0.3	48
Superfund Proximity (site count/km distance)	0	0.098	29	0.15	13	0.13	16
RMP Proximity (facility count/km distance)	0.071	0.19	33	0.57	11	0.43	16
Hazardous Waste Proximity (facility count/km distance)	0	0	100	0.11	19	0.072	26
Water Discharger Proximity (facility count/km distance)	0.28	0.34	61	0.2	83	0.31	72
Demographic Indicators							
Demographic Index	59%	52%	72	47%	67	36%	80
Minority Population	68%	77%	26	58%	58	37%	78
Low Income Population	49%	26%	90	36%	70	35%	75
Linguistically Isolated Population	1%	6%	27	9%	21	5%	47
Population With Less Than High School Education	6%	9%	39	17%	27	14%	31
Population Under 5 years of age	8%	6%	71	7%	65	6%	69
Population over 64 years of age	12%	15%	38	13%	59	14%	49

* The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: <https://www.epa.gov/national-air-toxics-assessment>.

For additional information, see: www.epa.gov/environmentaljustice

EJSCREEN is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJSCREEN outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.

August 02, 2016

3/3



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

Central Federal Lands Highway Division

March 16, 2017

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

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: DRAFT ENVIRONMENTAL ASSESSMENT (EA)
KAPAA STREAM BRIDGE, KUHIO HIGHWAY,
AND MAILIHUNA ROAD INTERSECTION PROJECT
KAWAIHAU DISTRICT, KAUAI ISLAND
TMKS: [4] 4-6-014:024 POR., 033 POR., 090 POR., 090 POR.;
4-7-003:001 POR; AND 4-7-008:042 POR.
KUHIO HIGHWAY AND MAILIHUNA ROAD RIGHT-OF-WAY

Dear Ms. McIntyre:

Thank you for sending comments on the Draft EA by letter dated August 2, 2016.

We acknowledge and have reviewed the information you provided on the Environmental Health Management Maps; NPDES, air, and noise permit requirements; the Hawaii Environmental Health Portal; and EPA EISCREEN tool. These resources are helpful and are being utilized in project planning and permitting.

If you have any questions, please contact me at (720) 963-3647, or by email at Michael.will@dot.gov.

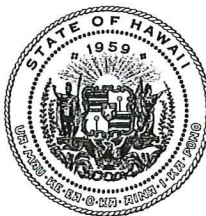
Sincerely yours,



J. Michael Will, P.E.
Project Manager

Cc: Christine Yamasaki, HDOT; Thomas Parker, CFLHD; Kathleen Chu, CH2M HILL

DAVID Y. IGE
GOVERNOR OF HAWAII



SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE
MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

August 24, 2016

Federal Highway Administration
Attention: Mr. Michael Will
12300 West Dakota Avenue, Suite 380A
Lakewood, Colorado 80228-2583

via email: Michael.Will@dot.gov

CH2M Hill
Attention: Ms. Kathleen Chu
1132 Bishop Street; Suite 1100
Honolulu, Hawaii 96813

via email: Kathleen.Chu@ch2m.com

Dear Mr. Will and Ms. Chu:

SUBJECT: Kapaa Stream Bridge, Kuhio Highway and Mailihuna Road Intersection Project
Project No. HI STP SR50(1)

Thank you for the opportunity to review and comment on the subject matter. In addition to the comments previously sent you August 22, 2016 enclosed are comments from the Commission on Water Resource Management on the subject matter. Should you have any questions, please feel free to call Lydia Morikawa at 587-0410. Thank you.

Sincerely,

A handwritten signature in black ink, appearing to be "Russell Y. Tsuji", written over a horizontal line.

Russell Y. Tsuji
Land Administrator

Enclosure(s)
cc: Central Files

DAVID Y. IGE
GOVERNOR OF HAWAII



RECEIVED
LAND DIVISION

16 AUG 23 AM 10:35

DEPT. OF LAND &
NATURAL RESOURCES
STATE OF HAWAII



SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE
MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

July 27, 2016

MEMORANDUM

TO:

DLNR Agencies:

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

FROM:

Russell Y. Tsuji, Land Administrator

SUBJECT:

Kapaa Stream Bridge, Kuhio Highway and Mailihuna Road Intersection Project
Project No. HI STP SR50(1)

LOCATION:

Kawaihu District; Island of Kauai; TMK: (4) 4-6-014:024, 033, 090, 092
(pors.); 4 7-008:042 (por.)

APPLICANT:

State of Hawaii, Department of Transportation

Transmitted for your review and comment is information on the above-referenced project. We would appreciate your comments on this project. Please submit any comments by **August 17, 2016**.

The DEA can be found on-line at: <http://health.hawaii.gov/oeqc/> (Click on the Current Environmental Notice under Quick Links on the right.)

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 Lydia Morikawa at 587-0410. Thank you.

Attachments

- () We have no objections.
- () We have no comments.
- (x) Comments are attached.

Signed: /s/ Jeffrey T. Pearson, P.E.

Print Name: Deputy Director

Date: August 18, 2016

cc: Central Files

RFD. 4465.2
14147J

RECEIVED
COMMISSION ON WATER
RESOURCE MANAGEMENT
2016 JUL 28 PM 2:01



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

SUZANNE D. CASE
CHAIRPERSON


WILLIAM D. BALFOUR, JR.
KAMANA BEAMER, PH.D.
MICHAEL G. BUCK
NEIL J. HANNAHS
MILTON D. PAVAO
VIRGINIA PRESSLER, M.D.

JEFFREY T. PEARSON, P.E.
DEPUTY DIRECTOR

August 18, 2016

REF: RFD.4465.2

TO: Mr. Russell Tsuji, Administrator
State of Hawaii, DLNR Land Division Oahu, DLNR-LD

FROM: Jeffrey T. Pearson, P.E., Deputy Director
Commission on Water Resource Management 

SUBJECT: Kapaa Stream Bridge, Kuhio Highway and Mailihuna Road Intersection Project Project No. HI STP SR50(1)

FILE NO.: RFD.4465.2
TMK NO.: (4) 4-6-014:024, 033, 090, 092 (pors); 4-7-008:042 (por.)

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://dlnr.hawaii.gov/cwrn>.

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 EAP 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.
- ☐ 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.
- ☐ 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) are required before the commencement of any well construction work.
- ☐ 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 can be made to the bed and/or banks of a steam channel.
- ☐ 16. A Stream Diversion Works Permit(s) is (are) required before any stream diversion works is 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 you have any questions, please contact Dean Uyeno of the Commission staff at 587-0234.



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

Central Federal Lands Highway Division

March 16, 2017

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

In Reply Refer To:
HFPM-16

TO: JEFFREY T. PEARSON, P.E., DEPUTY DIRECTOR
COMMISSION ON WATER RESOURCES MANAGEMENT
DEPARTMENT OF LAND AND NATURAL RESOURCES
P.O. Box 621
HONOLULU, HI 96809

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

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (EA)
KAPAA STREAM BRIDGE, KUHIO HIGHWAY,
AND MAILIHUNA ROAD INTERSECTION PROJECT
KAWAIHAU DISTRICT, KAUAI ISLAND
TMKS: [4] 4-6-014:024 POR., 033 POR., 090 POR., 090 POR.;
4-7-003:001 POR; AND 4-7-008:042 POR.
KUHIO HIGHWAY AND MAILIHUNA ROAD RIGHT-OF-WAY

Dear Mr. Peterson:

Thank you for your memorandum on the Draft EA dated August 18, 2016.

We have identified the Stream Channel Alteration Permit as a required permit for the project. Our project team will be working with your staff to ensure a complete application.

If you have any questions, please contact me at (720) 963-3647, or by email at Michael.will@dot.gov.

Sincerely yours,



J. Michael Will, P.E.
Project Manager

Cc: Christine Yamasaki, HDOT; Thomas Parker, CFLHD; Kathleen Chu, CH2M HILL

DAVID Y. IGE
GOVERNOR OF HAWAII



SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE
MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

August 22, 2016

Federal Highway Administration
Attention: Mr. Michael Will
12300 West Dakota Avenue, Suite 380A
Lakewood, Colorado 80228-2583

via email: Michael.Will@dot.gov

CH2M Hill
Attention: Ms. Kathleen Chu
1132 Bishop Street; Suite 1100
Honolulu, Hawaii 96813

via email: Kathleen.Chu@ch2m.com

Dear Mr. Will and Ms. Chu:

SUBJECT: Kapaa Stream Bridge, Kuhio Highway and Mailihuna Road Intersection Project
Project No. HI STP SR50(1)

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

At this time, enclosed are comments from the (a) Engineering Division and (b) Land Division – Kauai District on the subject matter. Should you have any questions, please feel free to call Lydia Morikawa at 587-0410. Thank you.

Sincerely,

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

Russell Y. Tsuji
Land Administrator

Enclosure(s)
cc: Central Files



JUL-28 AM 10:30 ENGINEERING
RECEIVED
LAND DIVISION

2016 AUG -1 AM 10: 54

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE
MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

July 27, 2016

MEMORANDUM

TO:

DLNR Agencies:

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

FROM:

Russell Y. Tsuji, Land Administrator

SUBJECT:

Kapaa Stream Bridge, Kuhio Highway and Mailihuna Road Intersection Project
Project No. HI STP SR50(1)

LOCATION:

Kawaihu District; Island of Kauai; TMK: (4) 4-6-014:024, 033, 090, 092
(pors.); 4 7-008:042 (por.)

APPLICANT:

State of Hawaii, Department of Transportation

Transmitted for your review and comment is information on the above-referenced project. We would appreciate your comments on this project. Please submit any comments by **August 17, 2016**.

The DEA can be found on-line at: <http://health.hawaii.gov/oegc/> (Click on the Current Environmental Notice under Quick Links on the right.)

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 Lydia Morikawa at 587-0410. Thank you.

Attachments

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

Signed:

Print Name:

Date:

Carty S. Chang, Chief Engineer

cc: Central Files

**DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION**

To: Land Division

**Ref: Kapaa Stream Bridge, Kuhio Highway and Mailihuna Road Intersection Project,
Kawaihu, Kauai, DOT Highways Division**

COMMENTS

The rules and regulations of the National Flood Insurance Program (NFIP), Title 44 of the Code of Federal Regulations (44CFR), are in effect when development falls within a designated Flood Hazard.

The owner or the project property and/or their representative is responsible to research the Flood Hazard Zone designation for the project. Flood Hazard Zone designations can be found using the Flood Insurance Rate Map (FIRM), which can be accessed through the Flood Hazard Assessment Tool (FHAT) (<http://gis.hawaiiinfip.org/FHAT>).

National Flood Insurance Program establishes the rules and regulations of the NFIP - Title 44 of the Code of Federal Regulations (44CFR). The NFIP Zone X is a designation where there is no perceived flood impact. Therefore, the NFIP does not regulate any development within a Zone X designation.

Be advised that 44CFR reflects the minimum standards as set forth by the NFIP. Local community flood ordinances may take precedence over the NFIP standards as local designations prove to be more restrictive. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

- o Oahu: City and County of Honolulu, Department of Planning and Permitting (808) 768-8098.
- o Hawaii Island: County of Hawaii, Department of Public Works (808) 961-8327
- o Maui/Molokai/Lanai: County of Maui, Department of Planning (808) 270-7253.
- o Kauai: County of Kauai, Department of Public Works (808) 241-4846.

The applicant should include water demands and infrastructure required to meet project needs. Please note that the projects within State lands requiring water service from their local Department/Board of Water Supply system will be required to pay a resource development charge, in addition to Water Facilities Charges for transmission and daily storage.

The applicant is required to provide water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update projections.

Signed: 
CARTY S. CHANG, CHIEF ENGINEER

Date: 



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

Central Federal Lands Highway Division

March 16, 2017

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

In Reply Refer To:
HFPM-16

TO: CARTY S. CHANG, CHIEF ENGINEER
ENGINEERING DIVISION, DLNR
P.O. BOX 621
HONOLULU, HI 96809

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

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (EA)
KAPAA STREAM BRIDGE, KUHIO HIGHWAY,
AND MAILIHUNA ROAD INTERSECTION PROJECT
KAWAIIHAU DISTRICT, KAUAI ISLAND
TMKS: [4] 4-6-014:024 POR., 033 POR., 090 POR., 090 POR.;
4-7-003:001 POR; AND 4-7-008:042 POR.
KUHIO HIGHWAY AND MAILIHUNA ROAD RIGHT-OF-WAY

Dear Mr. Chang:

Thank you for sending comments on the Draft EA by memorandum dated August 1, 2016.

As reported in Section 3.4 of the EA, the project area is located with the Federal Emergency Management Agency regulated floodway of the Special Flood Hazard Area (Zone AE). The project is being designed to meet applicable National Flood Insurance Program requirements, such that the new structure will not increase the 100-year water surface elevations and cause additional flooding at the project site and surrounding areas.

This project will not generate a demand for water service.

If you have any questions, please contact me at (720) 963-3647, or by email at Michael.will@dot.gov.

Sincerely yours,

J. Michael Will, P.E.
Project Manager

Cc: Christine Yamasaki, HDOT; Thomas Parker, CFLHD; Kathleen Chu, CH2M HILL



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

July 27, 2016

MEMORANDUM

TO:

DLNR Agencies:

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

RECEIVED
LAND DIVISION
2016 AUG - 8 AM 10:44
DEPT. OF LAND &
NATURAL RESOURCES
STATE OF HAWAII

FROM:

Russell Y. Tsuji, Land Administrator

SUBJECT:

Kapaa Stream Bridge, Kuhio Highway and Mailihuna Road Intersection Project
Project No. HI STP SR50(1)

LOCATION:

Kawaihu District; Island of Kauai; TMK: (4) 4-6-014:024, 033, 090, 092
(pors.); 4 7-008:042 (por.)

APPLICANT:

State of Hawaii, Department of Transportation

Transmitted for your review and comment is information on the above-referenced project. We would appreciate your comments on this project. Please submit any comments by **August 17, 2016**.

The DEA can be found on-line at: <http://health.hawaii.gov/oeqc/> (Click on the Current Environmental Notice under Quick Links on the right.)

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 Lydia Morikawa at 587-0410. Thank you.

Attachments

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

Signed:

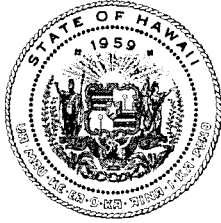
Print Name:

Marvin Morikawa

Date:

Aug. 2, 2016

cc: Central Files



OFFICE OF ENVIRONMENTAL QUALITY CONTROL

DEPARTMENT OF HEALTH | 235 South Beretania Street, Suite 702, Honolulu, HI 96813 | oeqchawaii@doh.hawaii.gov

DAVID Y. IGE
GOVERNOR

SCOTT GLENN
DIRECTOR

(808) 586-4185

August 23, 2016

Christine Yamasaki
State of Hawai'i
Department of Transportation
601 Kamokila Boulevard, Room 609
Kapolei, HI 96707

Dear Ms. Yamasaki,

SUBJECT: Draft Environmental Assessment (EA) for Kapa'a Stream Bridge and Ma'ilihuna Intersection Improvements

The Office of Environmental Quality Control (OEQC) has reviewed the draft EA prepared for the subject project and offers the following comments for your consideration:

1. During the early consultation process, the Clean Water Branch recommended treating stormwater as a resource. The OEQC also encourages incorporating low-impact development (LID) concepts such as pavers or pervious pavements to help minimize runoff and to help groundwater recharge. Section 3.3.5.2 of the assessment indicates that the roundabout alternative would result in half as much added impervious surface area compared to the signalized intersection alternative. Therefore, the roundabout alternative would benefit stormwater management, especially if the circle is landscaped with pervious surface area. In the final EA, please consider landscaping in the circle in more detail. Please also consider incorporating LID concepts, such as rain gardens, regarding the installation of drainage infrastructure as described in section 2.3.1. Resources for LID can be found towards the bottom of this web page: <http://planning.hawaii.gov/lud/>.
2. For revegetation proposed in section 3.2.2.1, the OEQC recommends planting native vegetation (as considered in section 3.7.2) to ensure compliance with Act 233, Session Laws of Hawai'i.
3. Section 3.4.4 notes that the proposed bridge will not meet 100-year storm criteria, nor provide the 2-foot minimum freeboard. Please explain why these criteria cannot be met and detail any potential consequences of non-conformance.
4. Figure 2-3 shows there will be no crosswalk on Kūhiō Highway south of the proposed roundabout. Please explain why this is the case and give consideration to its inclusion, particularly as the *Statewide Pedestrian Master Plan* notes that pedestrians from neighborhoods *mauka* of the highway have difficulty accessing the *makai* side (section 4.4.4).

Thank you for the opportunity to comment on the draft EA. We look forward to a response that will also be included in the final EA. If you have any questions, please contact our office at (808) 586-4185.

Sincerely,

A handwritten signature in black ink, reading "Scott J. Glenn". The signature is fluid and cursive, with a long horizontal stroke at the end.

Scott Glenn, Director

cc: Kathleen Chu, CH2M HILL



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

Central Federal Lands Highway Division

March 16, 2017

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

In Reply Refer To:
HFPM-16

TO: SCOTT GLENN
DIRECTOR
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
235 SOUTH BERETANIA STREET, SUITE 702
HONOLULU, HI 96813

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

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (EA)
KAPAA STREAM BRIDGE, KUHIO HIGHWAY,
AND MAILIHUNA ROAD INTERSECTION PROJECT
KAWAIHAU DISTRICT, KAUAI ISLAND
TMKS: [4] 4-6-014:024 POR., 033 POR., 090 POR., 090 POR.;
4-7-003:001 POR; AND 4-7-008:042 POR.
KUHIO HIGHWAY AND MAILIHUNA ROAD RIGHT-OF-WAY

Dear Mr. Glenn:

Thank you for sending comments on the Draft EA by letter dated August 23, 2016.

1. Storm water control measures are being designed into the project to avoid and minimize adverse impact. These measures may be found in Section 3.3 Wetlands, Hydrology, and Water Quality of the Final EA, and will be addressed further during permitting under Sections 401, 402, and 404 of the Clean Water Act.
2. Revegetation is expected to be minimal, affecting stream banks, limited strips of land along the highway, and properties used for construction staging and access. These areas will be restored to preconstruction condition. Native vegetation will be used, as appropriate.
3. For the proposed bridge to meet storm criteria, it would need to be raised a minimum of 5-feet to provide the 2 feet minimum freeboard above the 100-year water surface elevation. Consequently, the roadway at the north and south approaches to the bridge would also need to be raised. The higher roadway would cause the 100-year water surface elevations to rise. The Federal Emergency Management Agency (FEMA) and the County of Kauai's floodplain regulations do not allow any increase in the 100-year water surface elevations because the bridge is located within the floodway of Kapaa Stream.

Non-conformance to the 2 feet minimum freeboard criteria will not result in any adverse impacts to the project and surrounding areas. Similar to the existing conditions, the proposed bridge will not overtop during the 100-year storm event. The proposed bridge will not increase the 100-year water surface elevations and cause additional flooding at the project site and surrounding areas.

4. Preliminary design included a crosswalk on Kuhio Highway south of the roundabout; however, the County requested its removal because there are no pedestrian facilities on the mauka side of Kuhio Highway in this area.

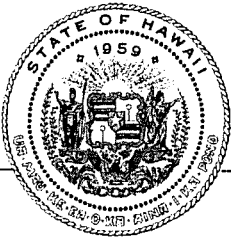
If you have any questions, please contact me at (720) 963-3647, or by email at Michael.will@dot.gov.

Sincerely yours,



J. Michael Will, P.E.
Project Manager

Cc: Christine Yamasaki, HDOT; Thomas Parker, 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

DAVID Y. IGE
GOVERNOR

LEO R. ASUNCION
DIRECTOR
OFFICE OF PLANNING

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

Ref. No. P-15267

RECEIVED

August 9, 2016

AUG 12 2016

Mr. J. Michael Will, P.E.
Project Manager
Central Federal Lands Highways Division
Federal Highways Administration
12300 West Dakota Avenue, Suite 380A
Lakewood, Colorado 80228-2583

Dear Mr. Will:

Subject: Draft Environmental Assessment
Kapaa Stream Bridge, Kuhio Highway, and Mailihuna Road Intersection
Project, Project No. HI STP SR50(1), Kuhio Highway, Kawaihau District,
Island of Kauai;
Tax Map Key: (4) 4-6-014: 024 (por.), 033 (por.), 090 (por.), 092 (por.),
(4) 4-7-003:001 (por.), (4) 4-7-008: 042 (por.), Kuhio Highway and
Mailihuna Road Rights-of-Way

Thank you for the opportunity to provide comments on the Draft Environmental Assessment (Draft EA) for the Kapaa Stream Bridge replacement project. The review material was transmitted to our office via letter dated July 21, 2016.

It is our understanding that the Federal Highways Administration, Central Federal Lands Highway Division, in partnership with the Hawaii Department of Transportation (HDOT), proposes the replacement of Kapaa Stream Bridge. The project calls for the reconfiguration of the Mailihuna Road intersection (a three-legged intersection) to address safety concerns; the replacement of the current two span bridge with a longer and wider single-span bridge that will improve traffic flow and allow for heavier load capacity; and the relocation of an existing private driveway so that access is from Mailihuna Road.

The project also includes scour protection measures, supporting walls and slopes, utility relocations, and temporary staging areas. These improvements may extend the service life of the bridge and allow for greater structural stability.

Mr. J. Michael Will, P.E.
Project Manager
August 9, 2016
Page 2

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

- 1) The Draft EA addresses a number of our comments made in a previous pre-consultation letter dated May 1, 2015 (Reference Number P-14732). The Draft EA:
 - a) Verifies the tax map key parcels involved in this project;
 - b) Examines the goals and objectives of the Hawaii Coastal Zone Management program as listed in Hawaii Revised Statutes (HRS) § 205A-2;
 - c) Lists the project as consistent with the State Transportation Functional Plan, Objective I.A. Expansion of the transportation system, Policies 1A.1 and 1A.2;
 - d) Includes a section on soil types in the project area and their susceptibility to erosion;
 - e) Examines erosion control and sediment-loss best management practices that will be used to maintain water quality for Kapaa Stream and the nearshore environment;
 - f) Examines stormwater runoff by stating that the bridge replacement and intersection projects would not change the general drainage pattern of stormwater flows and that the increase of impervious surfaces is limited to the roadway; and,
 - g) States that the project will adhere to HDOT's Design Criteria for Highway Drainage (2010) to govern the hydraulic evaluation, analysis, and design. The project may incorporate low-impact development concepts, such as directing stormwater drainage into grass swales adjacent to the bridge and highway.
- 2) Section 4.2.1, page 4-7 to 4-8 of the Draft EA addresses the project's consistency with the objectives and policies of the Hawaii State Plan as listed in HRS Chapter 226. As stated in the Draft EA, the objectives and policies applicable to this project include HRS § 226-17 – facility systems – transportation.

The analysis, however, should have addressed the Hawaii State Plan in its entirety. The Final Environmental Assessment (Final EA), should include an analysis that indicates whether the proposed project conforms to or is in conflict with all of the goals, objectives, policies, and priority guidelines listed in the Hawaii State Plan. The most efficient method is summarizing these in tabular form, followed by discussion passages. If any of these are not applicable, the Final EA should affirmatively state such determination.

- 3) Section 4.2.4, page 4-10 lists the need of a Federal Consistency determination. OP acknowledges the need for this determination, as the project must be consistent with the enforceable policies of the Hawaii Coastal Zone Management program. As OP is the state

Mr. J. Michael Will, P.E.
Project Manager
August 9, 2016
Page 3

agency which performs Federal Consistency determinations, please contact our office on the process to initiate this review.

- 4) Section 4.3.3, page 4-11 of the Draft EA lists the need for a Special Management Area (SMA) permit. OP acknowledges the need for this permit. Please contact the County of Kauai, Department of Planning on the procedures for obtaining an SMA approval.

We have no further comments at this time. If you have any questions regarding this comment letter, please contact Joshua Hekekoa of our office at (808) 587-2845.

Sincerely,

A handwritten signature in black ink, appearing to read 'Leo R. Asuncion', with a stylized flourish at the end.

Leo R. Asuncion
Director

c: Kathleen Chu, CH2M HILL



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

Central Federal Lands Highway Division

March 16, 2017

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

In Reply Refer To:
HFPM-16

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

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

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (EA)
KAPAA STREAM BRIDGE, KUHIO HIGHWAY,
AND MAILIHUNA ROAD INTERSECTION PROJECT
KAWAIHAU DISTRICT, KAUAI ISLAND
TMKS: [4] 4-6-014:024 POR., 033 POR., 090 POR., 090 POR.;
4-7-003:001 POR; AND 4-7-008:042 POR.
KUHIO HIGHWAY AND MAILIHUNA ROAD RIGHT-OF-WAY

Dear Mr. Asuncion:

Thank you for your letter dated August 2, 2016 confirming that your pre-consultation comments were addressed in the Draft EA and acknowledging the need for a Federal Consistency Determination. Documentation for the Federal Consistency Determination will be submitted to your agency as part of the permitting process. As pointed out in your letter, the project will require a Special Management Area permit and we are coordinating requirements for this permit with the Kauai County Planning Department. In response to your request to list all of the themes from HRS Chapter 226, additional detail has been added to Section 4.2.1 of the EA.

If you have any questions, please contact me at (720) 963-3647, or by email at Michael.will@dot.gov.

Sincerely yours,



J. Michael Will, P.E.
Project Manager

Cc: Christine Yamasaki, HDOT; Thomas Parker, CFLHD; Kathleen Chu, CH2M HILL

Bernard P. Carvalho, Jr.
Mayor



Lyle Tabata
Acting County Engineer

Wallace G. Rezentes, Jr.
Managing Director

DEPARTMENT OF PUBLIC WORKS

County of Kaua'i, State of Hawai'i

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

August 22, 2016

J. Michael Will, P.E.
Central Federal Lands Highway Division
Federal Highway Administration
12300 West Dakota Avenue, Suite 380A
Lakewood, CO 80228-2583

Subject Draft Environmental Assessment
Kapa'a Stream Bridge, Kūhiō Highway and Ma'ilihuna Road Intersection Project
Project No. HI STP SR56(1) **PW 07.16.150**

Dear Mr. Will:

We have reviewed the Draft Environmental Assessment (DEA) that was provided by your transmittal dated July 21, 2016, and we have the following comments:

1. Section 1.2 Project Overview.
 - Second paragraph:
 - This paragraph states that Ma'ilihuna Road has a roadway width of approximately 28 feet, but Section 2.2.2 of the DEA indicates that the roadway width is approximately 24 feet; the latter dimension is probably a better estimate of the width of this road.
 - This paragraph states that Ma'ilihuna Road has a posted speed limit of 15 mph. The correct underlying posted speed limit for Ma'ilihuna Road is 25 mph. There is also a 15 mph school zone speed limit along a portion of Ma'ilihuna Road.
 - It may also be useful to note that Ma'ilihuna Road has an Average Annual Daily Traffic (AADT) of 4,400 vehicles, according to the 2014 Traffic Station Map from the Hawai'i Department of Transportation (HDOT).
 - The fourth paragraph states that the AADT for Kūhiō Highway is approximately 12,600. The 2014 HDOT Traffic Station Map lists an AADT of 15,300 vehicles on Kūhiō Highway between Kawaihau Road and Ma'ilihuna Road and an AADT of 16,000 north of Keālia Road.
2. Section 1.3 Project Purpose and Need.

- We recommend that the word “all” be added to the Project Purpose statement, as follows: “The purpose of the project is to improve (1) the intersection of Kūhiō Highway and Ma‘ilihuna Road and (2) the Kapa‘a Stream Bridge. Improvement of both components are required to maintain a safe and functional regional transportation system for all highway users.”
 - The first bullet item under deficiencies has a sentence that reads “After bypassing the delay, vehicles merging back onto the paved roadway cause potential conflicts with vehicles from Ma‘ilihuna Road turning left onto Kūhiō Highway”. While this may be a potential problem, based on our observations, it does not appear to be one that has been regularly occurring at this intersection.
 - The third bullet under deficiencies states that Kapa‘a High School creates a large number of pedestrians crossing Kūhiō Highway. The DEA only talks about this in general terms and provides no details on how many pedestrians or bicyclists currently use or are projected to use the intersection.
 - The fourth bullet refers to peak hour delays and queues. The DEA does not include any details or quantification of these delays. Without a detailed description of these deficiencies, it is not possible to compare the existing condition to the proposed alternatives and determine if the need is being met.
 - The fifth bullet states “Heavy rains cause flooding on the shoulder of Kūhiō highway.” A more detailed description of the deficiency should be provided in the DEA so that the reviewer has a better understanding of the problem and can determine if the need is being met.
 - We recommend that the following bullet be added to the list of deficiencies:
 - The sidewalk connecting Keālia Road to Ma‘ilihuna Road on the mauka side of the highway is incomplete.
3. Section 2.1.1 Surrounding Land Uses.
- We recommend that the three nearby schools be mentioned and their proximity described, including Kapa‘a High School Kapa‘a Elementary School, and St. Catherine’s School.
 - We recommend that the presence and distance to residential land uses be mentioned, including the large residential community along Ma‘ilihuna Road and continuing up Kawaihau Road, as well as the residential subdivision accessed by Keālia Road mauka of the highway.
 - The current status of the Keālia Properties, LLC development should be checked and this paragraph revised as necessary.
4. Section 2.1.2. Other Nearby State and County Projects.
- Revise this paragraph to read, “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. This project includes sidewalk construction, crosswalk improvements, and construction of a roundabout at the intersection of these three roads. Planning, design, and construction activities are

anticipated to be performed from 2016 to ~~2017~~ 2018.

5. Section 2.2.2 Roadway Dimensions, Approaches, and Operation. The last sentence states that the posted speed limit on Ma'ilihuna Road is 15 mph. As noted in our comments above on Section 1.2, the speed limit on Ma'ilihuna Road is 25 mph.
6. Section 2.3 Proposed Project. In the second paragraph, the stated posted speed limit on Ma'ilihuna Road should be corrected to be 25 mph.
7. Table 2-1 Project Design Criteria: We recommend that the proposed design speed and posted speed be changed from 40 mph to 35 mph from Kapa'a Town to north of Keālia Road. We believe that a 35 mph speed limit is appropriate given the future presence of a traffic signal or roundabout, as well as the many existing access points along this stretch of highway, including Ma'ilihuna Road and Keālia Road, at least 6 access points to beaches and overlooks (both formal and informal accesses), and access to the Kai'akea Fire Station.
8. Section 2.3.1 Intersection Improvements
 - Signalized Intersection Alternative
 - The County has recently received comments from the public and elected officials about the fact that Ma'ilihuna Road has only one eastbound lane approaching Kūhiō Highway. As a result, if one or two cars are queued to make a left turn onto Kūhiō Highway, then vehicles that are turning right onto Kūhiō Highway must queue up behind the left turning vehicles. Although the signalized intersection is projected to operate within a reasonable level of service for the project year 2036, we want to pass along the request to have two eastbound approach lanes at this intersection.
 - It isn't clear from the DEA how southbound left turn movements to the beach access would be handled. The design does not appear to provide enough space for a southbound left turn lane. We are concerned that southbound left turn movements from the southbound through lane would create both operational and safety problems, even if these movements are only made occasionally. Similarly, it is not clear how the westbound movements from the beach access would be addressed at the signalized intersection. Did the operational analyses consider these movements and any necessary signal phasing to accommodate these movements?
 - Single-Lane Roundabout Alternative
 - We recommend that a second eastbound lane be considered on the Ma'ilihuna Road approach to the roundabout, in order to address the fact that the Ma'ilihuna Road approach is expected to operate at LOS E. One advantage of a roundabout over a signalized intersection is that the additional lane could be very short, while still providing significant improvement in the capacity and reduction in delay for that approach. Even a flared approach that effectively provides a second lane for only one car length could significantly reduce delay for that approach.
 - We recommend the following language change in the second paragraph, in order

to not misrepresent what is defined as a right turn movement at a roundabout: "Its design would eliminate conflicting left-turn movements from northbound Kuhio Highway and from eastbound Mailihuna Road, because left turns are made indirectly at roundabouts, using easy to execute yield or diverging movements only right turns are made into and out of the roundabout."

- The third paragraph states that the roundabout alternative would require substantial reconstruction of Ma'ilihuna Road in order to achieve an 8 percent maximum profile grade. The drawings included in the DEA do not provide details showing the proposed elevations and grades at the roundabout. However, if the roundabout has been designed in the typical way with the circulatory roadway sloping outward from the central island, it might be possible to reduce the necessary reconstruction of Ma'ilihuna Road by designing the roundabout on up to a 3% grade, sloping down from the mauka side to the makai side of the roundabout.

9. Table 2-2 Comparison of Operational and Maintenance Elements

- Safety
 - The third bullet under signalized intersections states that the traffic signal would improve pedestrian safety. However, it is well-documented that pedestrians at signalized intersections have potential conflicts from concurrent left and right turns on green, right turns on red, as well as vehicles running red signals. At the Ma'ilihuna Road intersection, these conflicts might be especially challenging, due to the fact that the pedestrian demand and proposed crosswalk is located on the north side of the intersection. Unless exclusive pedestrian phasing was provided, that crosswalk would conflict with a fairly heavy volume of left turn movements on green. In addition, that crosswalk would conflict with a fairly heavy volume of right turn movements on red.
 - This intersection is semi-rural and relatively isolated. The placement of a signalized intersection at such intersections often violates driver expectation, resulting in a higher-than usual incidence of red light running and/or emergency stopping maneuvers. On the other hand, a well-designed roundabout is highly visible by approaching drivers and requires drivers to slow down somewhat each time they approach, without potential to be surprised by the sudden onset of a yellow then red signal. We recommend that a bullet be added that addresses this issue.
 - We recommend that a bullet be added to the roundabout side of the table as follows: "Proper roundabout design places a high priority on speed control, which is provided by geometric features, not just by traffic control devices or by the impedance of other traffic. Because of this, speed control is typically achieved at all times of day, limiting vehicle movements to approximately 20 mph. Lower vehicle speeds improve safety in many ways, including improving sight lines between users, providing more time for users to react, and reducing both the frequency and the severity of crashes."
- Long-term maintenance
 - The second bullet states that the roundabout alternative would have additional

pavement to maintain and replace in the future. However, Section 3.3.5.2 (Long-term Impacts on Waters of the U.S. and Water Quality) indicates that the signalized intersection alternative would add twice as much impermeable surface than the roundabout alternative, due to the need for turn lanes with long tapers.

10. Section 2.4 No Action Alternative. This section states that under the No Action Alternative “the intersection would not be improved to increase operational efficiency and safety.” The DEA provides few details on the existing operation efficiency, especially of the existing conditions. Since the existing condition is not quantified, it is not possible to determine if the proposed alternatives will be an improvement over existing conditions.
11. Section 2.5.1 Add Turn Lanes.
 - In this alternative, it is unclear how vehicles are intended to make southbound left turns to the beach access. It might be prudent to either prohibit southbound left turns or to mark the northbound merge lane as a two-way left turn lane so that it can accommodate both movements.
 - We do not recommend a marked crosswalk on a 40 mph highway without other measures to reduce speeds, reduce crossing distance, enhance driver awareness, or provide active warning of pedestrian presence. At a minimum, we recommend that this alternative include rectangular rapid flashing beacons or pedestrian hybrid beacons for the crosswalk across Kūhiō Highway.
 - The first reason stated for dismissing this alternative is “because there are no improvements to pedestrian and bicyclist safety on the southern leg of Kūhiō Highway, which is in closer proximity to Kapaa High School, a primary source of pedestrians accessing the beach.” This seems like an odd justification, since the signalized intersection and the roundabout alternatives also do not include a pedestrian crosswalk on the southern leg. We recommend that the justification focus on the lack of improvements to facilitate pedestrian crossings and turning movements at the intersection.
12. Section 2.5.2 Traffic Signals with Existing Lane Configuration.
 - We recommend that the justification include safety concerns for motorists waiting to turn left from the single northbound lane (in addition to delay concerns already described).
13. Section 2.9 Preliminary Cost and Schedule. Revise schedule as needed. It does not seem likely that construction will begin in mid-2017.
14. Figure 2-5 Typical Sections. Please show the mauka sidewalk alternative in both the roadway and bridge proposed typical sections.
15. Section 3.2 Climate and Air Quality. Please add a comparison of roundabout vs. traffic signal for projected greenhouse gas emissions. Roundabouts typically have significant benefits over signalized intersections when evaluated for fuel consumption and emissions

in the long term.

16. Section 3.4.4 Natural Hazards. Potential Impacts and Mitigation Measures. The Kapa'a Stream Bridge lies within Zone AEF on Flood Insurance Rate Map (FIRM) Panel 210F. Zone AEF is the floodway area of Zone AE. According to Section 3.4.4 of the DEA, the single span replacement bridge would not cause a rise in the 100-year water surface elevation and would meet FEMA's and the County of Kaua'i's Flood Hazard and No-rise requirements. 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.
17. Section 3.12.2 Potential Impacts and Mitigation Measures.
 - Environmental Justice. Please note that a sidewalk on the mauka side of the highway would improve pedestrian access between the neighborhoods mauka of the highway off of Ma'ilihuna Road and Keālia Road. Improved pedestrian access benefits underserved populations, including seniors, children, and those that cannot afford automobiles.
18. Section 3.14.2 Potential Impacts and Mitigation Measures
 - Signalized Intersection Alternative. This section states, "The visual elements of the intersection would be in keeping with standard traffic signal design." Although it is mentioned tangentially in the next paragraph about the roundabout alternative, we recommend that this section on the signalized intersection alternative specifically state something such as, "The presence of traffic signal heads, mast arms, controller boxes, and other equipment and structures would change the viewing experience in this area."
19. Section 3.16.3 Parks and Recreational Facilities. Potential Impacts and Mitigation Measures. Figure 2.3 shows the edge of the proposed roundabout about 15 feet from the Shared Use Path, although the text in this section states that it is 20 feet. Modifying the design to place the path 20 feet from the roundabout would be sufficient to provide the recommended one car length between the path and the circulatory roadway of the roundabout.
20. Section 4.1.16 Environmental Justice, Executive Order 12898. Please note that a sidewalk on the mauka side of the highway would improve pedestrian access between the neighborhoods mauka of the highway off of Ma'ilihuna Road and Keālia Road. Improved pedestrian access benefits underserved populations, including seniors, children, and those that cannot afford automobiles.
21. Section 4.3.3 Special Management Area.
 - The Draft EA incorrectly states that the SMA boundary is located on the makai side of Kūhiō Highway's right-of-way. Based on Figure 4-3, the SMA boundary is located near the centerline of the Kūhiō Highway right-of-way. Please adjust the text accordingly.
 - It appears that in the traffic signal alternative, a traffic signal would be constructed

within the SMA. Based on HRS §205A-22, installation of a traffic signal within the SMA would be considered "development" and would not qualify for an exemption. The County Planning Department has serious concerns about the scenic impacts of a traffic signal at this location within the SMA, based on HRS §205A-2(b)(3)(A): "Protect, preserve, and where desirable, restore or improve the quality of coastal scenic and open space resources."


22. Section 4.4.5 Complete Streets Policy. We do not believe that the project would be consistent with the State's Complete Streets Policy without a mauka sidewalk, as it would require pedestrians to cross the highway twice, or walk on the shoulder in the same direction of traffic when walking from Keālia Road to Ma'ilihuna Road, which is inconsistent with laws regulating pedestrian traffic and is potentially unsafe.
23. Section 4.4.6 Kaua'i Multimodal Land Transportation Plan. This project is not consistent with the County's Multimodal Land Transportation Plan without a mauka sidewalk, as it would require pedestrians to cross the highway twice, or walk on the shoulder in the same direction of traffic when walking from Keālia Road to Ma'ilihuna Road, which is inconsistent with laws regulating pedestrian traffic and is potentially unsafe.
24. Section 5.1 Significance Criteria.
 - Substantially affects public health.
 - The project alternative without a mauka sidewalk may place pedestrians in an unsafe condition and therefore has the potential to affect public health.
25. Letter from County of Kaua'i dated May 6, 2015.
 - The County no longer supports the statement in the May 6, 2015 letter that says, "Due to the presence of Ke Ala Hele Makalae (shared use path), there is no need for sidewalks on this bridge." Based on further analysis and discussion by the County Planning Department and the Department of Public Works, the County's current position regarding the need for a mauka side sidewalk is more accurately reflected in its letter dated February 4, 2016 and within this current letter.
26. The County of Kaua'i Planning Department and Department of Public Works strongly recommend the following alternatives:
 - The County of Kaua'i strongly prefers the roundabout alternative over the signalized intersection alternative for the following reasons:
 - A roundabout is a safer alternative to a signalized intersection. Research shows that at locations where signalized intersections were converted to roundabouts, all crashes were reduced by 48% and injury crashes were reduced by 78% (See Exhibit 5-9 of NCHRP Report 672 Roundabouts: An Informational Guide, Second Edition).
 - Based on the minimal amount of information included in the DEA, the roundabout alternative appears to have similar capacity and delay operational characteristics during the anticipated peak hours of traffic, but it appears that the off-peak hours have not been analyzed. Roundabouts typically offer reduced

delay outside of peak hours when compared to signalized intersections, due largely to the amount of "lost time" associated with signal operations, including start up lost time and the lost time associated with yellow and red clearance intervals.

- The roundabout alternative will likely result in significantly lower fuel consumption and emissions over the life cycle of the project.
- The signalized intersection option will likely detract from the existing rural and village character of the area. Specifically, traffic signal structures and equipment will detract from the scenic qualities of the area, which is especially concerning because this intersection is partially within the Special Management Area.
- The signalized intersection option would require long-term maintenance of the traffic signals and equipment. Deterioration of electronic equipment and metal structures is of significant concern at this specific location, given the marine air environment at Keālia Beach, with strong trade winds coming off of the water most of the year.
- The roundabout alternative has the potential to reduce water quality impacts. The signalized intersection alternative has twice as much increase in impervious surface as the roundabout alternative. In addition, the roundabout alternative offers the central island as an area for potential landscaping that could be used for storm water filtration and retention.
- The County of Kaua'i strongly prefers the alternative to build a sidewalk on the mauka side of the roadway and bridge, for the following reasons:
 - A sidewalk on the mauka side is consistent with the project's Purpose and Need, the State of Hawai'i Complete Streets Policy, and the County of Kaua'i Multimodal Land Transportation Plan.
 - A sidewalk on the mauka side would protect public health and safety for pedestrians walking between Keālia Road and Ma'ilihuna Road.

Thank you for the opportunity to review and comment on the DEA for this project. 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 contact Michael Moule, Engineering Division at (808) 241-4891.

Sincerely,


LYLE TABATA
Acting County Engineer


MICHAEL DAHILIO
Planning Director

MM/LS/SI

Copy to: Kathleen Chu, CH2M Hill, Inc.

(1132 Bishop Street, Suite 100, Honolulu, HI 96813)

Design and Permitting

Michael Moule, Chief of Engineering

Lee Steinmetz, Transportation Planner



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

Central Federal Lands Highway Division

March 16, 2017

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

In Reply Refer To:
HFPM-16

TO: LYLE TABATA, ACTING DIRECTOR
DEPARTMENT OF PUBLIC WORKS
444 RICE STREET, SUITE 275
LIHUE, HI 96766

MICHAEL DAHILIG, PLANNING DIRECTOR
PLANNING DEPARTMENT
444 RICE STREET, SUITE 473
LIHUE, HI 96766

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

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (EA)
KAPAA STREAM BRIDGE, KUHIO HIGHWAY,
AND MAILIHUNA ROAD INTERSECTION PROJECT
KAWAIHAU DISTRICT, KAUAI ISLAND
TMKS: [4] 4-6-014:024 POR., 033 POR., 090 POR., 090 POR.;
4-7-003:001 POR; AND 4-7-008:042 POR.
KUHIO HIGHWAY AND MAILIHUNA ROAD RIGHT-OF-WAY

Dear Messrs. Tabata and Dahilig:

Thank you for sending comments on the Draft EA by letter dated August 22, 2016. We offer the following in response to your comments:

1. Section 1.2 Project Overview. Various clarifications and inconsistencies noted.

The EA has been revised to correct inconsistent or inaccurate information.

2. Section 1.3 Purpose and Need. Request to add the word "all" to the Purpose and Need statement and to quantify the description of deficiencies.

The Purpose and Need statement applies to all highway users. The identified deficiencies were based on available quantified information, observations of HDOT personnel, and community feedback. Obtaining additional quantitative data would not have had an instrumental effect on the proposed solution.

3. Section 2.1.1 Surrounding Land Use. Recommend mention of schools and residential community mauka of the highway. Check status of Kealia project.

Kapaa High School is mentioned in the description of surrounding land uses. The development team for the Kealia project team was contacted in October 2016, at which time, it was reported that an Environmental Impact Statement and State Land Use Petition were being prepared for the proposed development of 235 residential units on 50 acres. The Final EA has been updated to reflect the number of units currently planned.

4. Section 2.1.2 Other Nearby State and County Projects. Revisions proposed to language describing the current STIP.

The wording in the EA is consistent with the STIP.

5. Section 2.2.2 Roadway Dimensions. Speed limit on Mailihuna Road should be corrected to 25 mph.

The speed limit on Mailihuna Road has been corrected.

6. Section 2.3 Proposed Project. Posted speed limit on Mailihuna Road should be corrected to 25 mph.

The speed limit on Mailihuna Road has been corrected.

7. Table 2-1. Project Design Criteria: Recommend that proposed design speed and posted speed be changed from 40 mph to 35 mph from Kapaa Town to north of Kealia Road.

Changing the highway design speed on the stretch of Kuhio Highway from Kapaa Town to north of Kealia Road is beyond the scope of this project; however, your recommendation has been forwarded to HDOT.

8. Section 2.3.1 Intersection Improvements. Comments and discussion of the signalized intersection alternative and single-lane roundabout alternative.

Comments comparing the signalized intersection and roundabout were noted and considered during the alternatives evaluation process.

9. Table 2-2 Comparison of Operational and Maintenance Elements. Comments and discussion of the safety and long-term maintenance elements.

Comments comparing safety and long-term maintenance elements were noted and considered during the alternatives evaluation process.

10. Section 2.4 No Action Alternative. No quantification of existing operations.

The complete traffic study report has been provided to the Public Works and Planning Departments.

11. Section 2.5.1 Add Turn Lanes. Comments on the alternative to add turn lanes (without signalizing the intersection).

The rationale for dismissing this alternative, as discussed in Section 2.5.1, has been revised to emphasize inadequate regulation of vehicular turning movements.

12. Section 2.5.2 Traffic Signals with Existing Lane Configuration. Comment raised safety concerns for motorists turning left from northbound lane of highway.

Comment is noted.

13. Section 2.9 Preliminary Cost and Schedule. Construction start in mid-2017 seems unlikely.

The preliminary start date in Section 2.9 has been revised to the end of 2017.

14. Figure 2-5. Typical Sections. Please show the mauka sidewalk alternative in both the roadway and bridge proposed typical sections.

Design is in progress for the mauka sidewalk. Typical sections will be included in the forthcoming SMA permit application.

15. Section 3.2 Climate and Air Quality. Add a comparison of roundabout vs traffic signal for projected greenhouse gas emissions.

An analysis of greenhouse gas emissions was not conducted because environmental impacts (whether comparing existing and future conditions or comparing alternatives) would be insignificant where there is no expectation of project-induced change in traffic volumes.

16. Section 3.4.4 Natural Hazards Potential Impacts and Mitigation Measures. A registered engineer will need to certify that work will not cause an increase in the base flood elevations.

The project design will be certified by a registered engineer in compliance with National Flood Insurance Program flood requirements.

17. Section 3.12.2 Potential Impacts and Mitigation Measures. Note that improved pedestrian access will benefit underserved populations, including seniors, children, and people who cannot afford automobiles.

Comment is noted.

18. Section 3.14.2 Potential Impacts and Mitigation Measures. Should be noted that traffic signals, etc. will change the viewing experience in this area.

Comment is noted.

19. Section 3.16.3 Parks and Recreational Facilities Potential Impacts and Mitigation. As shown in Figure 2-3, the roundabout is too close to the bike path to provide sufficient space for waiting cars.

The issue of spacing and other refinements will be addressed during final design.

20. Section 4.1.16 Environmental Justice, Executive Order 12898 Note that improved pedestrian access will benefit underserved populations, including seniors, children, and people who cannot afford automobiles.

Comment is noted.

21. Section 4.3.3 Special Management Area. SMA boundary is located near the centerline of Kuhio Highway rather than on the makai side of the highway right-of-way.

The location of the SMA boundary in Section 4.3.3 has been revised accordingly.

22. Section 4.4.5 Complete Streets Policy. Project would not be consistent with the State's Complete Streets policy without mauka sidewalk.

Comments is noted.

Mauka sidewalk is included in the preferred build alternative.

23. Section 4.4.6 Kauai Multimodal Land Transportation Plan. Project is not consistent with plan without a mauka sidewalk.

Comment is noted.

24. Section 5.1 Significance Criteria. Discussion regarding effect on public health. Lack of mauka sidewalk may place pedestrians in unsafe condition with potential to affect public health.

Comment is noted.

25. Letter from County of Kauai dated May 6, 2015 (received during the early consultation phase of the project). County no longer supports the statement that a sidewalk on the bridge is not needed due to the presence of Ke Ala Hele Makalae (shared use path).

The change in the County's position has been indicated in Section 7.2 of the Final EA.

26. Summary and Conclusion. The Kauai Planning Department and Department of Public Works strongly recommend the roundabout alternative and construction of the mauka sidewalk for the reasons provided in the letter.

Based on more detailed engineering, comparative evaluation of environmental impacts, and public comments received, the single-lane roundabout design and mauka sidewalk have been selected as the project's build alternative and are described as such in the Final EA.

If you have any questions, please contact me at (720) 963-3647, or by email at Michael.will@dot.gov.

Sincerely yours,



J. Michael Will, P.E.
Project Manager

Cc:

Christine Yamasaki, HDOT
Thomas Parker, CFLHD
Kathleen Chu, CH2M HILL

From: [Chu, Kathleen/HNL](#)
To: [Nishikawa, Nancy/HNL](#); [Luersen, Paul/HNL](#); [Kettley, Lisa/HNL](#)
Subject: FW: Comments on Draft EA for Kapaa Stream Bridge, Kuhio Highway, and Mailihuna Road Intersection Project.
[EXTERNAL]
Date: Wednesday, August 10, 2016 4:58:50 PM

FYI -

From: Jeremy Lee [mailto:jlee@kauai.gov]
Sent: Wednesday, August 10, 2016 2:52 PM
To: michael.will@dot.gov; Chu, Kathleen/HNL <Kathleen.Chu@CH2M.com>
Cc: Celia Mahikoa <cmahikoa@kauai.gov>
Subject: Comments on Draft EA for Kapaa Stream Bridge, Kuhio Highway, and Mailihuna Road Intersection Project. [EXTERNAL]

Michael and Kathleen,
Mahalo for the opportunity to comment on this project.
The CTA does not have any comments at this time but does request to be kept apprised of the project as it progresses forward.
Transit related technical questions, may need to be reviewed and addressed as technical specifications become available.
Mahalo,

Jeremy Kalawaia Lee
Program Specialist III
County Transportation Agency
3220 Hoolako Street
Lihue, Hawaii 96766
808-246-8112
jlee@kauai.gov

 Please consider the environment before printing this email



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

Central Federal Lands Highway Division

March 16, 2017

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

In Reply Refer To:
HFPM-16

TO: CELIA MAHIKOA
EXECUTIVE DIRECTOR
KAUAI TRANSPORTATION AGENCY
3220 HOOLAKO STREET
LIHUE, HI 96766

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

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (EA)
KAPAA STREAM BRIDGE, KUHIO HIGHWAY,
AND MAILIHUNA ROAD INTERSECTION PROJECT
KAWAIHAU DISTRICT, KAUAI ISLAND
TMKS: [4] 4-6-014:024 POR., 033 POR., 090 POR., 090 POR.;
4-7-003:001 POR; AND 4-7-008:042 POR.
KUHIO HIGHWAY AND MAILIHUNA ROAD RIGHT-OF-WAY

Dear Ms. Mahikoa:

Thank you for responding during the Draft EA comment period via email from Jeremy Lee dated August 10, 2016. We acknowledge that your office has no comments at this time, but wishes to be kept informed about the project as it advances. Please be assured that coordination will continue through the implementation phase.

If you have any questions, please contact me at (720) 963-3647, or by email at Michael.will@dot.gov.

Sincerely yours,

J. Michael Will, P.E.
Project Manager

Cc:
Christine Yamasaki, HDOT
Thomas Parker, CFLHD
Kathleen Chu, CH2M HILL



**Sandwich Isles
Communications, Inc.**
A Waimann Company

August 16, 2016

TO: Central Federal Lands Highway Division
Federal Highway Administration
12300 West Dakota Avenue, Suite 380A
Lakewood, CO 80228-2583

ATTN: Mr. Michael Will

SUBJECT: Draft Environmental Assessment,
Kapaa Stream Bridge, Kuhio Highway and Mailihuna Road Intersection Project
Project No. HI STP SR50(1)
Kuhio Highway (State Route 56), Kawaihau District, Kauai Island
TMK: [4] 4-6-014:024 (por.), 033 (POR.), 090 (por.), 092 (por.);
4-7-003:001 (por.); and 4-7-008:042 (por.), Kuhio Highway and Mailihuna Road
Rights-of-Way

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

Sandwich Isles Communications' existing fiber optic duct system is mentioned in Section 3.18.2.

Any work on the bridge may require temporary relocation of our facilities and would require advanced planning and engineering to avoid interruption of service to our customers. Any relocation cost would be subject to the applicable State laws.

For any additional questions or inquiries, please contact Lew Biven at (808) 540-5748, or by email at lbiven@sandwichisles.com.

Mahalo,

Kalani Andrade

Network Engineering and I.T. Manager

Clearcom, Inc. / Sandwich Isles Communication, Inc.

Cc: Ms. Kathleen Chu, CH2M Hill (via email Kathleen.Chu@ch2m.com)



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

Central Federal Lands Highway Division

March 16, 2017

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

In Reply Refer To:
HFPM-16

TO: KALANI ANDRADE
NETWORK ENGINEERING AND I.T. MANAGER
CLEARCOM, INC./SANDWICH ISLES COMMUNICATIONS, INC.
77-808 KAMEHAMEHA HIGHWAY
MILILANI, HI 96789

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

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (EA)
KAPAA STREAM BRIDGE, KUHIO HIGHWAY,
AND MAILIHUNA ROAD INTERSECTION PROJECT
KAWAIHAU DISTRICT, KAUAI ISLAND
TMKS: [4] 4-6-014:024 POR., 033 POR., 090 POR., 090 POR.;
4-7-003:001 POR; AND 4-7-008:042 POR.
KUHIO HIGHWAY AND MAILIHUNA ROAD RIGHT-OF-WAY

Dear Mr. Andrade:

Thank you for sending comments on the Draft EA by letter dated August 16, 2016 and confirming Sandwich Isles' ownership of an existing fiber optic duct system, as described in Section 3.18.2 of the EA. We will coordinate project requirements for temporary and/or permanent relocation of the telecommunication facilities with your office.

If you have any questions, please contact me at (720) 963-3647, or by email at Michael.will@dot.gov.

Sincerely yours,



J. Michael Will, P.E.
Project Manager

Cc: Christine Yamasaki, HDOT; Thomas Parker, CFLHD; Kathleen Chu, CH2M HILL



Kauai Path, Inc. :: P. O. Box 81 :: Lihue, HI 96766
phone 808.639.1018 :: fax 808.822.5075
www.KauaiPath.org
news@kauaipath.org

a registered 501 (C) 3 non-profit, EIN 27-3343903

August 16, 2016

Mr. Mike Will
Central Federal Lands Highway Division
Federal Highway Administration
12300 West Dakota Avenue, Suite 380A
Lakewood, CO 80228-2583
ph. (720) 963-3647

Michael.Will@dot.gov

VIA: E-MAIL

Subject: HFSM-16 Kapaa Stream Bridge, Kuhio Highway and Mailihuna Road Intersection Project

SUPPORT FOR ROUNDABOUT AT INTERSECTION

Aloha Mr. Will,

Thank you for the opportunity to submit comments that will be included in the above referenced project's Environmental Assessment and considered in determining the most suitable design for the improvements.

Kauai Path's board members have discussed the present conditions and observed:

- a) Northbound traffic on Kuhio Highway descends a slope and approaches a long straightaway. This combination may contribute to excessive vehicular speed.
- b) Due to the preceding observation, left turns from Mailihuna Road are more complex than standard intersections.
- c) High school students attending nearby Kapaa High School are relatively inexperienced drivers and comprise the demographic with the highest incidence of crashes. These young drivers will frequently drive through this intersection.
- d) To accommodate bicyclists Mailihuna Road was recently stripped with sharrows in the descending lane and a climbing lane in the uphill direction.
- e) Ke Ala Hele Makalae shared use path is immediately adjacent to the intersection with Mailihuna Road.
- f) Pedestrians and bicyclists will access Ke Ala Hele Makalae from Mailihuna Road.

Kauai residents working together to preserve, protect, and extend access island-wide through the design, implementation, and stewardship of non-motorized multi-use paths.

- g) Due to the presence of cross traffic and pedestrians, motorists approaching Kapaa to the south or Kealia Beach to the north should not be enticed by roadway design to exceed the posted speed limits.
- h) The Mailihuna Road and Kuhio Highway intersection is located in the tsunami inundation zone.
- i) Bicyclists will travel both on Kuhio Highway's shoulders as well as on the parallel Ke Ala Hele Makalae.

In consideration of the observations listed above, Kauai Path's board of directors strongly endorses the construction of a roundabout at the intersection of Kuhio Highway and Mailihuna Road for the following reasons:

- A roundabout will passively regulate every vehicle's speed, addressing observations (a) & (g) in a manner that a signalized intersection cannot.
- A roundabout will eliminate the more hazardous left turn concern in observation (b) as all turns would be low speed right hand turns.
- Roundabouts are simpler for inexperienced drivers to navigate, addressing observation (c).
- Bicyclists easily navigate roundabouts due to the reduced vehicle speed, making a roundabout consistent with the bicycle friendly investments referenced in observations (d) & (e).
- To address observation (f), the thoughtful design of a roundabout is much friendlier for pedestrians if the roundabout is designed using currently favored specifications that
 - position the crosswalk between the first and second vehicles waiting to enter the roundabout,
 - provide curb-protected pedestrian refuges between the lanes, and
 - minimize each crosswalk's distance to a single lane.
- A roundabout does not require any of the electrical signaling equipment that is expensive to install and costly to maintain at a signalized intersection.
- A roundabout is not susceptible to the power interruptions that render a signalized intersection a liability, addressing concerns in observation (h).
- A roundabout can be built to withstand tsunami forces better than electrical fixtures, addressing concerns in observation (h).

With regard to the accommodations for bicyclists following Kuhio Highway's bicycle route:

- The width of the clear shoulders crossing the Kapaa Stream Bridge should be at least as wide as the designated bike routes north and south of the bridge.
- The area intended for bicyclists should be free of potentially hazardous joints or surface irregularities oriented parallel to the direction of travel.
- The bicycle routes should:
 - Encourage bicyclists to merge into the travel lane when approaching the roundabout.
 - Provide bicyclists with optional low-speed approaches to the sidewalks around the roundabout. If correctly designed, the profile of the access is flat enough to permit a bicyclist to roll from the shoulder to the sidewalk, while being sufficiently abrupt that while still on the bicycle route the

bicyclist will want to slow to an appropriate walking pace before they opt to access the sidewalk.

- o Note: the Hardy & Umi Streets roundabout recently built in Lihue, Kauai provides a good example of both these design features.

Thank you for taking these comments into consideration in determining the most prudent and safest course of action in improving the roadways in the project area.

Sincerely,



Tommy A. Noyes
Executive Director, Kauai Path, Inc.

Copy via e-mail:

Mr. Lee Steinmetz
Transportation Planner, Planning Department
County of Kaua'i, lsteinmetz@kauai.gov

Mr. Michael Moule, PE, PTOE
Chief of Engineering, Department of Public Works
County of Kaua'i, mmoule@kauai.gov

Mr. Larry Dill, PE
Kauai District Engineer, Highways Division
Hawaii State Department of Transportation, Lawrence.J.Dill@hawaii.gov

Ms. Kathleen Chu
Project Manager, CH2M Hill, kathleen.chu@ch2m.com

Dr. Randall C. Blake
President, Kauai Path Inc. Board of Directors, rcblake@mac.com



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

Central Federal Lands Highway Division

March 16, 2017

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Michael.Will@dot.gov

In Reply Refer To:
HFPM-16

TO: TOMMY NOYES, EXECUTIVE DIRECTOR
KAUAI PATH, INC.
P.O. BOX 81
LIHUE, HI 96766

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

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (EA)
KAPAA STREAM BRIDGE, KUHIO HIGHWAY,
AND MAILIHUNA ROAD INTERSECTION PROJECT
KAWAIHAU DISTRICT, KAUAI ISLAND
TMKS: [4] 4-6-014:024 POR., 033 POR., 090 POR., 090 POR.;
4-7-003:001 POR; AND 4-7-008:042 POR.
KUHIO HIGHWAY AND MAILIHUNA ROAD RIGHT-OF-WAY

Dear Mr. Noyes:

Thank you for sending comments on the Draft EA by letter dated August 16, 2016. We acknowledge your preference for construction of a roundabout rather than traffic signals at the intersection of Kuhio Highway and Mailihuna Road. As explained in your letter, this preference is based on the ability of roundabouts to passively regulate vehicular speed and turning movements, and make it easier for bicyclists to navigate through the intersection and for pedestrians to cross the highway. Moreover, the roundabout does not require electrical equipment and may be better able to withstand coastal hazards. You also provided comments on the bike-friendly design of proposed improvements.

Based on more detailed engineering, comparative evaluation of environmental impacts, and public comments received, the roundabout design has been selected as the project's build alternative and is described as such in the Final EA.

If you have any questions, please contact me at (720) 963-3647, or by email at Michael.will@dot.gov.

Sincerely yours,

J. Michael Will, P.E.
Project Manager

Cc: Christine Yamasaki, HDOT; Thomas Parker, CFLHD; Kathleen Chu, CH2M HILL

August 15, 2016

Comments: Kealia Highway Bridge/Kuhio Hwy. - Malihuna Rd. Intersection

To: Central Federal Lands Highway Division – Federal Highway Administration, Lakewood, CO

CH2M HILL – Colorado/Hawaii

State of Hawaii

County of Kauai

Attn: Mike Will, Aaron Swafford, Kathleen Chu, Lee Steinmetz

To Whom It May Concern:

Thank you for the opportunity to provide comments about the above referenced projects and the Environmental Assessment you have done thus far. As the private land owner most affected by the projects I would hope our thoughts and concerns would be dealt with at the highest level of deportment for all involved. Thus far my interactions with both the government entities involved as well as CH2M HILL have been very positive and professional. I have the highest degree of confidence we can make both of the projects a win-win for the community, us as land owners, and the agencies and companies working on the projects. First of all, let me say that we are in agreement that the work should be done on both the bridge and intersection because of safety issues. Other than the visual impact, the bridge project does not affect us as much as the intersection issues. After having reviewed the renderings of the bridge in your Draft Environmental Assessment I am very happy with your projected visual presentation of what the bridge will look like after development. Congratulations on the teamwork and efforts all of you have made on that portion of the projects.

The renderings of the intersection were also well presented, however, I do have some concerns and questions about the following: our ingress and egress from the property onto Kuhio Highway or Malihuna Road, alterations made to our physical driveway, any visual impact on our property because of those alterations, and related security issues. During my conversations with CH2M HILL, Aaron Swafford, and their team, many of our concerns have been discussed and we are extremely pleased by the professionalism and skills this group has shown. The company and our Government could have no better representation than Aaron and team whose people skills, and obvious engineering skills, are extraordinary in every aspect! Dual qualities such as these are hard to find in one individual, let alone their team. On the Federal representation, we are very impressed with Mike Will and the extreme efforts he has made in a

leadership role with the project, as well as his understanding of the issues that all sides are dealing with. Also, Lee Steinmetz on the County and State level has been very helpful in addressing the issues that face Kauai. Lee has the important experience of living here and has shown a remarkable understanding of the issues facing the project from a Kauai point of view. We have confidence thus far that the changes on our physical property and ingress/egress issues will be appropriately addressed resulting in an acceptable solution to any problem needed to be worked out.

Let me address the still outstanding issue of the Roundabout versus Signalizing of the intersection. We are in favor of the Roundabout for several reasons.

1. It would be easier, and safer, for us to enter the flow of traffic at a roundabout. With a signalized intersection and us turning left out of the proposed driveway relocation, we would have to cross a right hand turn lane off of the Highway a very short distance from the intersection up the hill on Malihuna Rd. as those cars are exiting the highway and accelerating at a great speed to go up such a steep hill. In addition, the visibility to the drivers coming down Kuhio Highway from the north and turning right onto Malihuna Rd is also very poor because of the quick and extreme elevation at the entrance to Malihuna. Because cars will be more rapidly coming up Malihuna during the green light, they would have very little time, or awareness, of the fact that we might be turning left out of our driveway crossing their lane in order to get to the far lane coming down the hill. This will be our direction of egress 90 percent of the time going south to Kapaa and Lihue. Another contributing concern to the problem is that as cars are lined up at the signal coming down Malihuna it would be nearly impossible, and terribly unsafe, to cross a lane where cars are accelerating up the hill, after doing 50 miles an hour on the highway, and us attempting to turn left across that lane into a further lane that is sure to have cars backed up past our driveway entrance at certain times of the day. Currently there can be 15 to 20 cars backed up from the highway well past the proposed driveway, and even past our house. With the altered driveway our wait time just to turn left out of the driveway at rush hours could last as long as the rush hour does!
2. With the roundabout, traffic on the highway would be free flowing without lines of cars stopping in front of the house over the period of time it takes for a signal to change. Automobile exhaust pollution from the idling cars blown by the constant ocean trade winds directly into our house could be problematic.
3. A roundabout would not result in the moving of our driveway, gate, walls, landscaping and the large infrastructure costs that would have to occur with a signal.
4. The roundabout is more in keeping with the direction Kauai is taking, and would add a more pleasant local and visitor experience entering into the Kealia and Beach area.
5. Having lived at this location for over 25 years I can tell you a signalized intersection will be high maintenance endeavor for the county. The trade winds and salt air stream in

from the ocean for over two thirds of the year and the salt forces rust and corrosion to a very high degree. For instance, we have 3 TV's and they have to be replaced every 2 to 3 years. We have to replace most metal on the house every 5 yrs. The street light in front of our driveway only works half the time, didn't work for over a year between 2014/2015 and has needed to be replaced several times. Our last painter said we don't live in a house, we live in a boat! If maintenance time and costs are an issue, the signal apparatus would have to be carefully maintained, or made of non-corrosive materials if available.

In the event a roundabout is implemented, one concern is how our existing driveway would need to be slightly re-directed in order to enter the highway/roundabout. If the roundabout were situated as far south of the current driveway as possible it would let us enter the highway first and then the roundabout. If the north side roundabout entrance is adjacent to, or in front of, the driveway we would need to enter the roundabout directly, which would be doable but is not the most satisfactory design. We would be in favor of entering onto the highway for a short distance before entering the roundabout if possible. Redirecting the bottom of Malihuna Rd. slightly to the right would give the needed distance to effect the most desirable roundabout access for us; and would be far less expensive than the currently contemplated work of moving the driveway with the vast amount of dirt, walls, concrete, gates and landscaping that would need to be satisfactorily put in place.

I look forward to continuing the dialogue and am thankful for having the opportunity to address the concerns and solutions to making these two projects as efficient and acceptable as possible to all involved. Thank you for the heart felt conversations and the openness we have experienced thus far. Everyone involved with the design and implementation of these needed infrastructure enhancements to our fragile island of Kauai has been exceptional.

If you have any questions or comments please feel free to contact me at (808) 634-8800. I am currently in Utah for a few months so operating on U.S. Mountain Time which is 4 hours ahead of Hawaii.

Sincerely,

R. Gordon Oswald and Family



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

Central Federal Lands Highway Division

March 16, 2017

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Michael.Will@dot.gov

In Reply Refer To:
HFPM-16

TO: R. GORDON OSWALD
P.O. BOX 510052
KEALIA, HI 96751

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

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (EA)
KAPAA STREAM BRIDGE, KUHIO HIGHWAY,
AND MAILIHUNA ROAD INTERSECTION PROJECT
KAWAIHAU DISTRICT, KAUAI ISLAND
TMKS: [4] 4-6-014:024 POR., 033 POR., 090 POR., 090 POR.;
4-7-003:001 POR; AND 4-7-008:042 POR.
KUHIO HIGHWAY AND MAILIHUNA ROAD RIGHT-OF-WAY

Dear Mr. Oswald:

Thank you for sending comments on the Draft EA by letter dated August 15, 2016. We acknowledge your preference for construction of a roundabout rather than traffic signals at the intersection of Kuhio Highway and Mailihuna Road. This preference is based on ease and safety of highway access from your property, reduced traffic congestion and the environmental effects associated with slowed traffic flow, reduced impacts on your property, consistency with the character of coastal development, and the possibility that traffic signals would have higher maintenance requirements.

Based on more detailed engineering, comparative evaluation of environmental impacts, and public comments received, the roundabout design has been selected as the project's build alternative. We will continue to coordinate project requirements with you.

If you have any questions, please contact me at (720) 963-3647, or by email at Michael.will@dot.gov.

Sincerely yours,

J. Michael Will, P.E.
Project Manager

Cc: Christine Yamasaki, HDOT; Thomas Parker, CFLHD; Kathleen Chu, CH2M HILL

