DRAFT ENVIRONMENTAL ASSESSMENT

Kawela Bridge and Nanahu Bridge Replacement Project, Kamehameha Highway, Route 83, Island of Oahu

Project No. HI STP SR 83(1) and HI STP SR83(2)

TMKs: [1] 5-7-001:021 por. and 5-7-006:022 por.

TMKs: [1] 5-6-003:044 por. and 5-6-005:013 por.
Kamehameha Highway Right-of-Way

Submitted Pursuant to Hawaii Revised Statutes, Chapter 343

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

October 2016

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Acronyms and Abbreviations

°F	degrees Fahrenheit
µg/m^3	Microgram(s) per cubic meter
AADT	annual average daily traffic
AASHTO	American Association of State Highway and Transportation Officials
ACM	asbestos-containing material
amsl	above mean sea level
APE	Area of Potential Effects
bgs	below ground surface
BMP	Best Management Practice
BWS	Board of Water Supply
CAA	Clean Air Act
CCH	City and County of Honolulu
CE	Categorical Exclusion
CEQ	Council of Environmental Quality
CER	computerized environmental report
CFLHD	Central Federal Lands Highway Division
CFR	*Code of Federal Regulations*
cfs	cubic feet per second
CIA	cultural impact assessment
CSH	Cultural Surveys Hawaii
CWA	Clean Water Act
CZM	Coastal Zone Management
CZMA	Coastal Zone Management Act
DAR	Division of Aquatic Resources
dBA	A-weighted decibels
DLNR	Department of Land and Natural Resources
DOT	U.S. Department of Transportation
DPP	Department of Planning and Permitting
DTS	Department of Transportation Services
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
GRS	Geosynthetic Reinforced Soil
HAR	Hawaii Administrative Rules

HDOH	State of Hawaii Department of Health
HDOT	State of Hawaii Department of Transportation
HECO	Hawaiian Electric Company
HEER	Office of Hazard Evaluation and Emergency Response
HRS	Hawaii Revised Statutes
LBP	lead-based paint
LRFD	Load and Resistance Factor Design
makai	oceanward
mauka	mountainward
MBTA	Migratory Bird Treaty Act
MOA	Memorandum of Agreement
MP	Milepost
mph	miles per hour
MSAT	mobile source air toxics
MUTCD	Manual of Uniform Traffic Control Devices
N/A	not applicable
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWR	National Wildlife Refuge
OEQC	State of Hawaii Office of Environmental Quality Control
OHWM	Ordinary High Water Mark
ORTP	Oahu Regional Transportation Plan
$PM_{2.5}$	particulate matter <2.5 microns
PM_{10}	particulate matter <10 microns
ROW	right-of-way
SHPO	State Historic Preservation Officer
SIHP	State Inventory of Historic Properties
SMA	Special Management Area
STIP	Statewide Transportation Improvement Program
STRAHNET	Strategic Highway Network
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
WCQ	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	Kawela Bridge and Nanahu Bridge Replacement Project, Kamehameha Highway, State Route 83, Island of Oahu
Proposing/Determination Agency	State of Hawaii Department of Transportation (HDOT)
Anticipated Determination	Finding of No Significant Impact under Hawaii Revised Statutes (HRS) Chapter 343
Tax Map Key(s)	Kawela ([1] 5-7-01:021 & [1] 5-7-06:022) Nanahu ([1] 5-6-05:013 & [1] 5-6-03:044); see Figures 2-5a and 2-5b
Existing Uses of the Project Corridor	Existing two-lane roadway corridor through area containing agricultural, resort development, and open space lands.
State Land Use	Agriculture (*mauka* [mountainward] of Kamehameha Highway); Urban (*makai* [oceanward] of Kamehameha Highway)
Special Management Area	Yes
Oahu General Plan	Agriculture
Zoning	AG-1 (agriculture), AG-2 (agriculture), P-2 (general conservation)
Proposed Project	The proposed project involves replacing the existing Kawela and Nanahu bridges that convey flows of Kawela Stream and Hoolapa Stream, respectively. The existing single-span bridges would be replaced with longer and wider single-span bridges with slight changes in the highway alignment for both bridges. The new bridges would continue to carry two travel lanes (one lane in each direction), with a typical section consisting of two 12-foot lanes, two 8-foot shoulders, and crash-tested railings. A temporary bypass road would be provided during construction at each bridge. The project would also include shoulder improvements, supporting walls and slopes, utility relocations, and temporary staging areas.
Anticipated Impacts	Short-term, construction-related impacts (noise, dust, and erosion) would occur, but the implementation of best management practices would minimize the effects to the environment. Nine State and Federally protected wildlife species (Hawaiian coot, Hawaiian moorhen, Hawaiian stilt, Hawaiian duck, Hawaiian goose, Hawaiian hoary bat, Hawaiian monk seal, green sea turtle, and hawksbill sea turtle) have the potential to occur within the project limits or action area.[1] Critical habitat for Hawaiian Monk seal exists within the action area for Kawela Bridge. Conservation measures including restrictions on construction timing would be implemented to avoid and minimize long-term effects to the species. Effects to historic architectural resources and archaeological resources are not anticipated because no eligible historic properties are located within the project area.

[1] The Endangered Species Act defines an *action area* as the area within which all of the **direct and indirect impacts** of the project would occur (50 *Code of Federal Regulations* 402.02). In other words, it is the geographic area that would be affected by noise or lighting from construction and maintenance of the project (see Appendix C).

Preface

The proposed project involves replacing Kawela and Nanahu bridges, which are located on Kamehameha Highway, State Route 83 (Milepost 11.4 and 13.4, respectively) in the Koolauloa District on Oahu. As the proposed project would involve the use of State funds and State lands (comprising the Kamehameha Highway rights-of-way, under the jurisdiction of the State of Hawaii Department of Transportation), 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 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 United States 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.

CHAPTER 1

1 Introduction

1.1 Proposing Agency and Action

The State of Hawaii Department of Transportation (HDOT), in partnership with the Federal Highway Administration, Central Federal Lands Highway Division (FHWA-CFLHD), proposes to replace Kawela Bridge and Nanahu Bridge on the Island of Oahu. This Draft Environmental Assessment (EA) has been prepared in compliance with Hawaii Revised Statutes (HRS) Chapter 343, with HDOT as the proposing agency.

The project would improve mobility for highway users, replace the existing structurally deficient bridges, and improve stream hydraulic conditions at these crossings. The Kawela and Nanahu bridges, both of which are existing single-span structures, would be replaced with new single-span bridges that meet current design standards for the Project. The replacement bridges would be wider than the existing bridges, accommodating two 12-foot travel lanes, two 8-foot shoulders, and concrete barrier bridge railings. The roadway approaches adjacent to each bridge would also be reconstructed to transition from the existing highway to the new bridges, resulting in a slight realignment of Kamehameha Highway at each bridge location.

The Kawela and Nanahu Bridge projects are combined for environmental review because they will be administered under one construction contract because of their close proximity (bridges are approximately 2.0 miles apart), similar deficiencies, similar proposed bridge designs, and project delivery method (that is, design-build).

1.2 Existing Conditions

The Kawela and Nanahu bridges are located along Kamehameha Highway (State Route 83) at Mileposts (MP) 11.4 and 13.4, respectively (see Figures 1-1a and 1-1b). The bridges and highway are under the jurisdiction of HDOT.

Both the Kawela and Nanahu bridges were constructed in 1931 and consist of concrete T-beam construction. The Kawela Bridge is approximately 24 feet long and 27 feet wide; the Nanahu Bridge is approximately 26 feet long and 28 feet wide. The existing roadway approaches for both bridges consist of two 11-foot lanes with 4-foot shoulders on each side; and the shoulder widths are reduced to 1-foot on the bridge structures. The bridges' driving surfaces are asphaltic concrete pavement.

The Functional Classification for Kamehameha Highway at MP 11.39 and MP 13.39 is Urban Principal Arterial. Kamehameha Highway is a two-lane undivided highway with travel lanes approximately 10 to 11 feet wide, with approximately 2- to 4-foot shoulders on either side, depending on the location. In 2012 and 2013, HDOT reported an annual average daily traffic (AADT) for Kamehameha Highway in the vicinity of the project as 7,800. Traffic volumes are projected to be similar in the 2016 construction year and 12,300 in the 2036 design year (FHWA-CFLHD, 2015).

Kamehameha Highway is a part of the National Highway System and is eligible for Federal funding. Kamehameha Highway provides the only regional access for Oahu's north shore communities, a route that is vital for economic development, emergency response and safety, and general welfare. The highway is also part of FHWA's Strategic Highway Network (STRAHNET), which includes roads that provide "defense access, continuity, and emergency capabilities for movements of personnel, materials, and equipment in both peace and war" (23 *Code of Federal Regulations* [CFR] §470.107[b][3]).

1.3 Project Purpose and Need

The purpose of the project is to improve the Kawela and Nanahu bridges and their approaches, to maintain the Kamehameha Highway as a safe and functional component of the regional transportation system for

highway users, and to alleviate the vegetation and sedimentation maintenance issues caused by poor flow conditions beneath both bridges.

The needs for the project comprise maintaining mobility along the Kamehameha Highway and correcting deficiencies on the current bridges. Specifically, the project is needed because neither existing structure meets the current (2012) American Association of State Highway Transportation Officials (AASHTO) structural and design standards for load capacity, railings and transitions, and approach roadways. In addition, the deteriorating structures require frequent maintenance, resulting in increased costs for HDOT. The U.S. Department of Transportation requires that bridges are inspected every 2 years. The National Bridge Inventory Standards 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 indicates whether improvements are needed. Based on the 2012 bridge inspection reports, the Kawela and Nanahu bridges yielded a sufficiency rating of 39 and 41, respectively, and are both considered functionally obsolete.

Specifically, the existing structures exhibit the following deficiencies:

- The inventory load ratings (daily carrying capacity) are 16.3 tons, which is below the minimum standard of 36 tons.
- The top slabs do not meet current live-load requirements.
- The approach roadways for both bridge locations have a width of approximately 30 feet, consisting of two 10- to 11-foot-wide lanes and two 2- to 4-foot-wide shoulders. They do no meeting the current design standards of 11-foot-wide lanes and 8-foot-wide shoulders.
- The guardrails have deteriorated to the point of exposing the underlying rebar, and do not meet standards for barrier crashworthiness (AASHTO, 2009).
- The hydraulic openings are not capable of handling a 50-year flood event. A substantial amount of sediment buildup and vegetation growth are beneath both bridge openings.
- The abutment faces, approaches, and soffits exhibit cracking.

Poor flow conditions and the resulting sedimentation under the structure have also led to increased maintenance costs. As noted in the bridge inspection reports (HDOT, 2012a and2012b), poor flow conditions have promoted undesirable plant growth within the bridge openings and adjacent to the abutments, resulting in increased maintenance costs for HDOT.

1.4 Purpose of the Environmental Assessment

This Draft EA discloses the environmental and cultural impacts that may result from the project's implementation, and identifies specific mitigation measures that would be implemented to avoid and/or minimize potential impacts. The Draft 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 need to comply with the rules and regulations for environmental review because the project would use State lands and State funds.

1.5 Public Comment on the Environmental Assessment

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

Request for Comments

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

Name: Michael Will, Project Manager, FHWA-CFLHD
Address: 12300 West Dakota Ave., Suite 380
Lakewood, CO 80228
Email Address: Michael.will@dot.gov

1.6 Permits, Approvals, and Compliance Required or Potentially Required

The following permits and approvals are expected to be required before project implementation for both Kawela and Nanahu bridges:

1.6.1 Federal

- Department of the Army Permit (Section 404 of the Clean Water Act), U.S. Army Corps of Engineers
- Section 106 Consultation (National Historic Preservation Act), State Historic Preservation Officer (SHPO)
- Section 7 Consultation (Endangered Species Act [ESA]), U.S. Fish and Wildlife Service; National Marine Fisheries Services
- Fish and Wildlife Coordination (Fish and Wildlife Coordination Act), U.S. Fish and Wildlife Service (USFWS)
- Essential Fish Habitat Consultation (Magnuson-Stevens Fishery Conservation and Management Act), National Marine Fisheries Service (NMFS)

1.6.2 State

- Section 401 Water Quality Certification, State of Hawaii Department of Health (HDOH)
- National Pollutant Discharge Elimination System (NPDES) Permit, HDOH
- Stream Channel Alteration Permit, Commission on Water Resource Management, Hawaii Department of Land and Natural Resources (DLNR)
- Coastal Zone Management Federal Consistency Review, Office of Planning, Hawaii Department of Business, Economic Development, and Tourism
- Historic Preservation Review (HRS, Chapter 6E), State Historic Preservation Review Division, Hawaii DLNR
- Americans with Disabilities Act compliance (HRS, §103-50), HDOH, Disability and Communication Access Board
- Occupancy and Use of State Highway Right-of-Way Permit
- Community Noise Permit/Variance, HDOH

1.6.3 County

- Special Management Area (SMA) Permit, City and County of Honolulu (CCH) Department of Planning and Permitting (DPP)
- Compliance with floodplain management requirements, CCH DPP
- Grading, grubbing, and stockpiling requirements, CCH DPP

1.7 References

American Association of State Highway and Transportation Officials (AASHTO). 2009. *Manual for Assessing Safety Hardware, First Edition.*

American Association of State Highway and Transportation Officials (AASHTO). 2012. *Implementation for Load and Resistance Factor Rating of Highway Bridges, 6th Edition.*

Federal Highway Administration, Central Federal Lands Highway Division (FHWA-CFLHD). 2015. *Kawela Stream Bridge and Nanahu Stream Bridge, Route 83 District of Koolauloa, Island of Oahu, State of Hawaii 30% Design Technical Memorandum*. Prepared by CH2M HILL. March 5.

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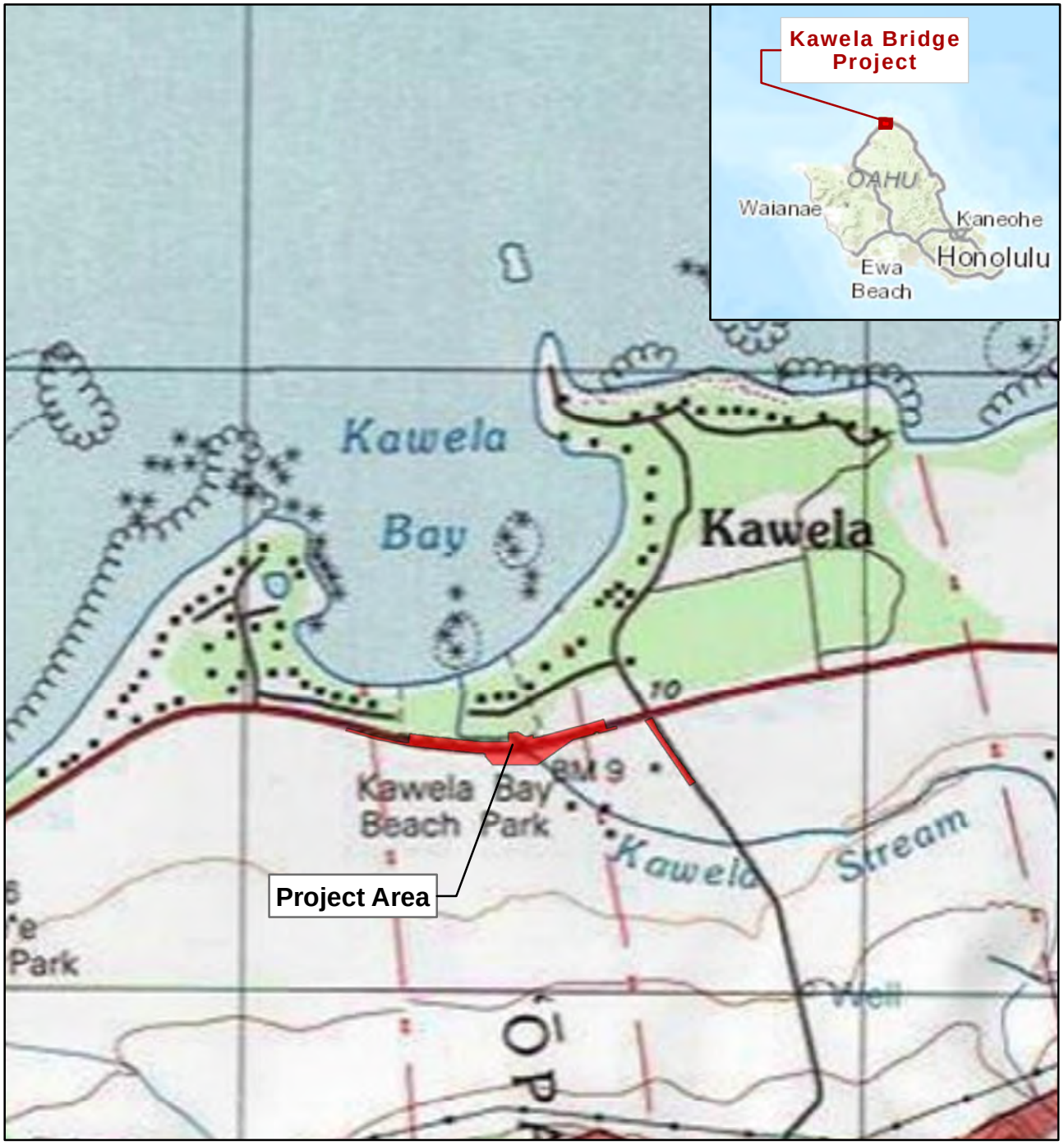


Source: SWCA, 2015
Base Map: USGS Topographic Map, Kahuku

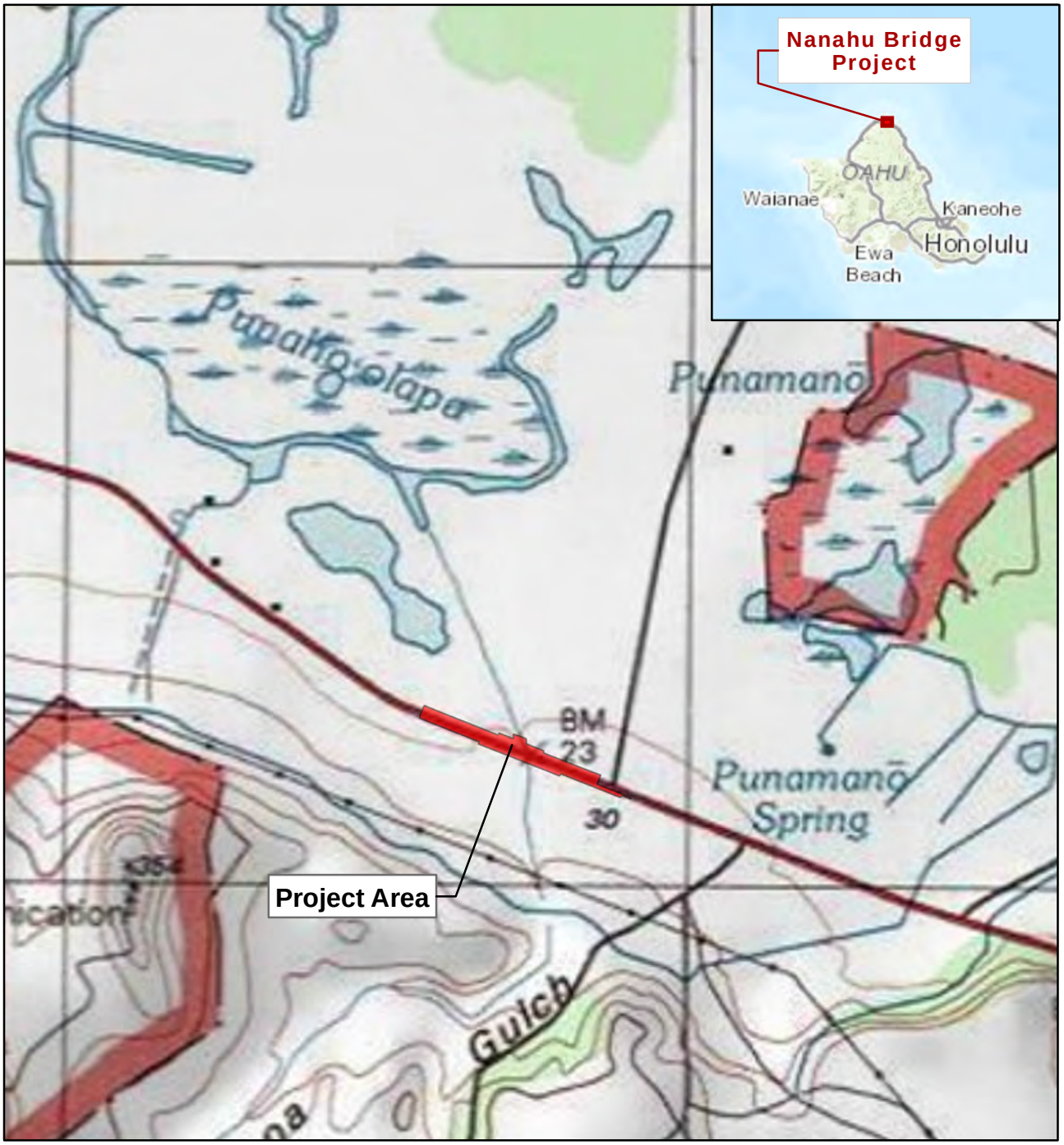
North

0 500 1,000
Approximate scale in feet

LEGEND

Project Area

FIGURE 1-1a
Project Location – Kawela Bridge
Kawela/Nanahu Bridge Project
Hawaii Bridges Program –
Central Federal Lands Highway Division and
Hawaii Department of Transportation



Source: SWCA, 2015
Base Map: USGS Topographic Map, Kahuku

North

0 500 1,000
Approximate scale in feet

LEGEND

Project Area

FIGURE 1-1b
Project Location – Nanahu Bridge
Kawela/Nanahu Bridge Project
Hawaii Bridges Program –
Central Federal Lands Highway Division and
Hawaii Department of Transportation

CHAPTER 2

2 Project Description

2.1 Project Location

The Kawela and Nanahu bridges are located along the north shore of the Island of Oahu, Hawaii along Kamehameha Highway (State Route 83) at MP 11.4 and MP 13.4, respectively (see Figures 2-1a and 2-1b). Kawela Bridge is approximately 0.15 mile west of the Kamehameha Highway and Kawela Camp Road intersection. Nanahu Bridge is located approximately 0.1 mile west of the Kamehameha Highway and Marconi Road intersection. HDOT holds jurisdiction over and maintains Kamehameha Highway and the bridges along it. Project site photos are provided as Figures2-2a, 2-2b, 2-3a, and 2-3b. Existing and proposed typical sections are shown in Figures 2-4a and 2-4b.

2.1.1 Surrounding Land Uses

The proposed project is located on the northern part of Oahu in the District of Koolauloa.

2.1.1.1 Kawela Bridge

Turtle Bay Resort is the owner of the lands directly *mauka* (mountainward) and *makai* (oceanward) of Kawela Bridge. The land surrounding Kawela Bridge is mostly agricultural on the *mauka* side and undeveloped vegetated land leading to Kawela Bay on the *makai* side. A residential neighborhood is located northwest of Kawela Bridge. Kawela Stream is an intermittent stream that drains approximately 1.25 square miles of the Koolau Mountain Range's northern slope, eventually discharging into Kawela Bay.

The State of Hawaii Land Use Commission has designated land use adjacent to the project (both *mauka* and *makai*) as Agricultural District. The County of Honolulu has zoned the parcels adjacent to the project as AG-1 (Restricted Agriculture) and AG-2 (General Agriculture) (*mauka* side) and as P-2 (General Preservation) (*makai* side).

In June 2015, Senate Bill 284 was signed into law that reflects an agreement for future land use between Turtle Bay Resort and the State of Hawaii. The agreement preserves the Tax Map Key (TMK) directly *makai* of Kawela Bridge (TMK [1]5-7-06: 22) for conservation purposes.

2.1.1.2 Nanahu Bridge

Land use surrounding the Nanahu Bridge project area is largely agricultural on the *mauka* side and recreational and open space on the *makai* side. Hoolapa Stream is an intermittent stream draining approximately 0.47 square miles of the nearby agricultural lands. Hoolapa Stream flows beneath Nanahu Bridge and discharges into the Links Golf Course at Turtle Bay. The James Campbell National Wildlife Refuge (NWR) is located approximately 0.25 mile northeast of the project area.

The State of Hawaii Land Use Commission has designated land use adjacent to the project area as agricultural district (both *mauka* and *makai*). The County of Honolulu has zoned the parcels adjacent to the project as AG-1-(Restricted Agriculture) (*mauka* side), and AG-2 (General Agricultural) and P-2 (General Preservation) (*makai* side).

2.1.2 Other Nearby State and County Projects

HDOT projects on Oahu are processed and approved through the Oahu Metropolitan Planning Organization Transportation Improvement Program process. Once the program is determined it is added to the Statewide Transportation Improvement Program (STIP) without change. No proposed projects are included in the approved 2015-2018 STIP project list (HDOT, 2015a), which would intersect the project area for either the Kawela Bridge or Nanahu Bridge.

Although no intersecting or adjacent projects are identified in the current STIP, HDOT is planning to resurface Kamehameha Highway from Dairy Road to Laiewai Bridge (HDOT, 2015b), an area which encompasses Kawela and Nanahu bridges. The HDOT resurfacing project is scheduled to begin construction in December 2015, with work anticipated to last approximately 13 months (HDOT, 2015b). The project limit of the bridge replacements would be excluded from the repaving work. Coordination between the two projects has already begun and will continue through the final design, bidding, and construction phases (FHWA-CFLHD, 2015).

2.2 Existing Conditions along Project Corridor

2.2.1 Right-of-Way

The right-of-way (ROW) on Kawela and Nanahu bridges, and the associated bridge approaches, is approximately 50 feet wide.

2.2.2 Bridge Structure and Approaches

Kamehameha Highway is a two-lane undivided highway. Depending on location, the existing lane width is approximately 10 to 11 feet with 2 to 4 foot paved shoulders provided on both sides. The posted speed limit in the project area is 45 miles per hour (mph). There are no parking areas or pullouts or designated bicycle and pedestrian facilities. A bus stop for bus route 88A/55 is located adjacent to, but outside of, the eastern project limits for Nanahu Bridge.

Although there have been no reports of overtopping at either bridge location, the hydraulic analysis indicates that the existing bridge openings are inadequate to pass the 50-year flood without overtopping the bridges and their approaches (FHWA-CFLHD, 2015). Overtopping can result in damage to the bridge structure and approaches because of debris impact and accelerated erosion (FEMA, 2002). Overtopping may also result in travel impacts if road closure is needed.

2.2.2.1 Kawela Bridge

The Kawela Bridge was constructed in 1931 and is a single span, reinforced concrete girder bridge. The bridge is approximately 24 feet long and 27 feet wide. The existing abutments are founded on spread footings. The existing bridge has two 11-foot wide lanes of traffic, one in each direction, with 1-foot shoulders and reinforced concrete barriers along each side of the bridge. The roadway approaches consist of two 11-foot lanes with 4-foot shoulders on each side. The area surrounding the approaches of the bridge is relatively flat and the stream channel embankments exhibit steep slopes.

2.2.2.2 Nanahu Bridge

The Nanahu Bridge is a single-span, reinforced concrete girder bridge constructed in 1931. The Nanahu Bridge is approximately 26 feet long and 28 feet wide. The existing abutments are founded on spread footings. There are two 11-foot wide traffic lanes, one in each direction, with 1-foot shoulders and reinforced concrete barriers along each side of the bridge. The roadway approaches consist of two 11-foot lanes with 4-foot shoulders on each side. A guardrail and bridge rail provide protection from the steep slopes leading into Hoolapa Stream.

2.2.3 Utilities

The existing utility infrastructure is similar for the Kawela and Nanahu bridges. A 16-inch waterline is located on the *mauka* side of Kawela Bridge, while a 12-inch waterline is located *mauka* of the Nanahu Bridge. These waterlines are part of the Honolulu Board of Water Supply system. Additionally, there are 3-inch conduits attached to both bridges (JTS Army Cable). Overhead electrical lines and a related utility pole (Hawaiian Electric Company and Hawaiian Telecom, Inc.) exist approximately 25 feet south of Nanahu Bridge and adjacent to Kawela Bridge. Providers with utilities in the project area that may require relocation include:

- JTS Army Cable – telecommunications/cable – conduit
- Ocean Time Warner Cable – telecommunications/cable

- Hawaiian Telecom, Inc. – telecommunications/overhead
- Hawaiian Electric Company – electric/overhead
- Honolulu Board of Water Supply – water/conduit

2.3 Proposed Project

The proposed project would replace the Kawela and Nanahu bridges generally in their existing locations as needed to address structural and functional deficiencies described in Section 1.3, Project Purpose and Need. Proposed stream channel improvements immediately adjacent to each bridge would enhance hydraulic conditions, and minimize the potential for scour and erosion, which would help reduce long-term maintenance at these crossings. To accommodate the new bridges, the roadway approaches adjacent to each bridge would be reconstructed to transition from the existing highway to the new bridges. The proposed project would be designed and constructed in accordance with Federal, HDOT and AASHTO standards and regulations including but not limited to the following:

- Structural Bridge Design: HDOT's *Design Criteria for Bridge and Structures* (2014)
- Drainage and Hydraulics: HDOT's *Design Criteria for Highway Drainage* (2010)
- Highway: AASHTO and HDOT guidelines using A Policy on Geometric Design for Highways and Streets (AASHTO, 2011) and Hawaii Statewide Uniform Design Manual for Streets and Highways (HDOT, State Highway Division, 1980), and all subsequent amendments. A summary of the design criteria for the proposed roadway is shown in Tables 2-1 and 2-2

The proposed project would take a context-sensitive approach which considers the full range of project needs and the impacts to the community and natural and human environment. Design exceptions may be employed to achieve a balance of project needs and community values. The proposed project would evaluate and justify design exceptions based on an evaluation of the context of the facility (for example, community values), needs of all the various project users, safety, mobility that is, traffic performance), human and environmental impacts, project costs, and other impacts.

TABLE 2-1
Kawela Bridge Project Design Criteria

Design Criteria	Existing Conditions	Standards		Proposed
		AASHTO	State	
Design Speed	Posted speed = 45 mph	45 mph	45 mph	50 mph Posted speed = 45 mph
Travel Way Width (feet)	11	10(min)	11(min)	12
Shoulder Width (feet)	1	8	10	8
Bridge Horizontal Clearance Width (feet)	27.4	N/A	N/A	40

Note:

N/A = not applicable

TABLE 2-2
Nanahu Bridge Project Design Criteria

Design Criteria	Existing Conditions	Standards		Proposed
		AASHTO	State	
Design Speed	Posted speed = 45 mph	45 mph	50 mph	50 mph Posted speed = 45 mph
Travel Way Width (feet)	11	10(min)	11(min)	12
Shoulder Width (feet)	1	8	10	8
Bridge Horizontal Clearance Width (feet)	28	N/A	N/A	40

2.3.1 Replacement Structures

The proposed project would replace the Kawela Bridge and Nanahu Bridge, which are structurally deficient, with new structures.

The Kawela and Nanahu Streams flow conditions are a key consideration in the proposed project design. Kamehameha Highway is classified as a principal arterial; which necessitates a 50-year recurrence interval as the required hydraulic analysis. Based on preliminary hydrologic and hydraulic analyses, major changes in the existing stream channel widths and roadway profiles would be necessary to achieve the HDOT criteria to provide a minimum of 2 feet freeboard. Freeboard is the amount of space between the water surface and the bottom of the bridge deck during a given magnitude of flood; for the proposed project the design flood is the 50-year flood. The potential magnitude of these changes would notable adversely affect the surrounding environment and require additional new ROW. Therefore, the proposed project would each require a design exception to the 2 feet freeboard requirement (FHWA-CFLHD, 2015). HDOT has approved this exception and it is included in the proposed project.

The Statewide Pedestrian Master Plan and the Bike Plan Hawaii provides strategies for improving pedestrian and bicycle safety, mobility, and accessibility along State highways. The plans identify and prioritize infrastructure projects throughout the state. These plans do not designate pedestrian facilities through the project area but do identify a planned bicycle facility through the project area. The proposed project would provide 8-foot shoulders on the replacement structure, improving safety for pedestrians and bicyclist who may use the road.

2.3.1.1 Kawela Bridge

The proposed bridge would have a minimum horizontal clearance width of 40 feet, with an overall width of approximately 42 feet, which would accommodate two 12-foot travel lanes, two 8-shoulders and barrier railings. The overall length of bridge and number of bridge spans would be dependent on the total area (opening) required to accommodate the Kawela Stream flows in accordance with the project's hydraulic standards.

Figure 2-4a illustrates a proposed bridge with a length of approximately 53 feet that would (1) pass the 50-year design peak discharge without impacting the existing upstream and downstream water surface elevations, and (2) minimize the need for downstream channel improvements, work within private property, and land acquisition and/or easement. The proposed bridge would require an exception for the 2 feet of freeboard. Channel improvements would be required immediately upstream and downstream of the bridge outside of the existing HDOT ROW to transition the existing stream channel to the new bridge. These channel improvements would include design elements for scour and erosion such as riprap, slope armoring or other methods. Similar to the existing conditions, pressure flow conditions would still occur and Kamehameha Highway would overtop during the 50-year design flood event.

The proposed bridge would be supported on foundations; both shallow and deep foundations may be feasible. Because of the loose and highly compressible soil underlaying the site at relatively shallow depths, excessive settlement may occur with shallow foundations. Deep foundations, such as driven piles, may be more feasible because of the loose silty gravel, which is susceptible to liquefaction in a seismic event. Various bridge abutments types may be feasible for the project. A traditional reinforced concrete stub abutment, supported by either spread footings or piles and a Geosynthetic Reinforced Soil (GRS) are two feasible options. Figure 2-4a illustrates a proposed bridge that uses a precast concrete voided slab bridge deck superstructure supported on GRS. The final proposed bridge structure elements (foundations, abutments, and bridge superstructure) would be identified following additional engineering analysis.

To minimize impacts to the section of Kawela Stream channel that parallels the highway and the existing Board of Water Supply (BWS) domestic water supply pipeline on the *makai* side of the bridge, the proposed project would shift the roadway alignment approximately 10 feet *mauka* of the existing centerline. The permanent road approach improvements would begin approximately 600 feet west and end approximately 500 feet east of the Kawela Stream crossing. These improvements would typically include grading, drainage, paving, and roadside barriers to transition the road from the new bridge to connect back to the existing road. The proposed project may require retaining walls and/or wing walls to further reduce impacts to the Kawela Stream channel or additional ROW.

Based on the realignment, the proposed bridge location would potentially avoid the BWS water supply pipeline. The pipeline may require relocation, but could possibly be relocated within the existing HDOT ROW. HDOT preference would be not to have the pipeline located on the new bridge. The 3-inch conduit (JTS Army Cable) attached to the existing bridge would be transferred to the new bridge. The overhead electrical power distribution lines and telecommunication lines located south of the highway would be relocated further *mauka* within the new HDOT planned ROW.

2.3.1.2 Nanahu Bridge

The proposed bridge would have a minimum horizontal clearance width of 40 feet, with an overall width of approximately 42 feet, which would accommodate two 12-foot travel lanes, two 8-shoulders and barrier railings. The overall length of bridge and number of bridge spans would be dependent on the total area (opening) required to accommodate the Nanahu Stream flows in accordance with the project's hydraulic standards.

Figure 2-4b illustrates a proposed bridge with a length of approximately 42 feet that would (1) pass the 50-year design peak discharge without upstream or downstream impacts to the water surface elevations; (2) provide more conveyance capacity than the existing highway bridge; (3) minimize the need to raise the roadway profile and related roadway improvements; and (4) minimizes the need for downstream channel improvements, work within private property, and land acquisition and/or easement.

The proposed bridge would utilize a hard surface lined bottom slab or mat, such as concrete or similar materials, which would aid in sustaining stream flow velocities. This design would not cause a rise in the flood water surface elevations and would meet Federal Emergency Management Agency's (FEMA's) and CCH's flood hazard and no-rise requirements for development within the floodway. However, the proposed design would not provide the minimum freeboard of 2 feet and would require a design exception (FHWA-CFLHD, 2015). Channel improvements would be required immediately upstream and downstream of the bridge outside of the existing HDOT ROW to transition the existing stream channel to the new bridge. These channel improvements would include design elements for scour and erosion such as riprap, slope armoring or other methods.

The proposed new bridge would be supported on either shallow or deep foundations with spread footings. Various bridge abutments types may be feasible for the project. A traditional reinforced concrete stub abutment, supported by either spread footings or piles and a GRS are two feasible options. Figure 2-4b illustrates a proposed bridge that uses a precast concrete voided slab bridge deck superstructure supported

on GRS. The final proposed bridge structure elements (foundations, abutments, and bridge superstructure) would be identified following additional engineering analysis.

The proposed project would shift the roadway alignment approximately 7 feet *makai* of the existing centerline. This shift would center the proposed new bridge within the existing 50-foot HDOT ROW and reduce impacts to private properties. The permanent road approach improvements would begin approximately 600 feet west and end approximately 500 feet east of the Nanahu Stream crossing. These improvements would typically include grading, drainage, paving, and roadside barriers to transition the road from the new bridge to connect back to the existing road.

The proposed bridge location would impact the BWS water supply pipeline. The pipeline would require relocation outside of the existing HDOT ROW. HDOT preference would be not to have the pipeline located on the new bridge. The 3-inch conduit (JTS Army Cable) attached to the existing bridge would be transferred to the new bridge. The overhead electrical power distribution lines and telecommunication lines located south of the highway are not planned to be impacted or relocated by the proposed project.

2.3.2 Construction Activities

2.3.2.1 Construction

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

- Installing temporary roadways and bridges
- Demolishing existing bridge structures (including the abutments and foundations [as well as the upstream abandoned pier footing from the old railroad bridge, in the case of Nanahu Bridge)
- Erecting structural members such as beams and columns
- Pouring concrete
- Excavating, placing fill, grading, and paving
- Installing temporary and permanent erosion control devices
- Installing 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 is expected to include the following:

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

Additional equipment would be used as necessary. The majority of the construction materials would likely come from areas near Honolulu, within the State of Hawaii.

The new bridges would be constructed and the existing bridges would be demolished in three stages. The first stage would involve installation of erosion and sedimentation control measures, construction of the temporary bypass roads and stream crossings, and routing of traffic to the temporary bypass roads. The second stage would involve demolition of the existing bridges and construction of the new bridges and roadway approaches. The third stage would involve routing traffic to the new bridges, removing the temporary bypass roads and stream crossings, and completing permanent erosion control devices.

At the Kawela Bridge, 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 roads and temporary bridges would be

constructed on the *mauka* side of Kamehameha Highway. At the Nanahu Bridge, a temporary, one-lane bypass road would be used to direct one lane of traffic around the site while the opposing traffic utilizes an open lane on the existing bridge.

The construction of new bridge foundations, abutments, or piers and demolition of the existing structures within the streams would utilize a dewatering structure (such as a cofferdam and/or stream diversion) to allow work to occur in dry conditions. All or portions of the bridge construction area would be dewatered before in-stream work. The dewatering structure would be installed where needed for dewatering below the Ordinary High Water Mark (OHWM) at Nanahu and Kawela bridges, and would be sized as needed to dewater the bridge construction area. The size and location of the dewatering structure would account for tidal fluctuations anticipated during the construction window. The dewatering structure would be removed immediately after it is no longer needed.

Demolition debris would require disposal at an approved landfill. Disposal of any dredged material and water from dewatering would be conducted in accordance with the appropriate regulatory agency approvals.

2.3.2.2 Maintenance of Traffic during Construction

Temporary traffic control plans would be developed and implemented to keep the Kamehameha 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.

Construction activities may periodically necessitate restricting the road to one lane of travel. Road users 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 a period of hours; no full, 24-hour alternate one-way movement would be proposed.

Full closure of Kamehameha Highway may be needed for movement of construction materials, but would be limited to 20 minutes. Provisions would be made to restrict these full closures to when road use is minimal, such as nighttime periods. 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 proposed project is located in a rural setting and there are no designated bicycle and pedestrian facilities through the project areas. The existing bicyclist usage is minimal, mostly touring and recreational. Because of the lower volume of traffic on the road and the short construction zones of approximately 700 feet, standard traffic control practices described in the Manual of Uniform Traffic Control Devices (MUTCD) would be proposed to accommodate bicyclists. Bicyclists would share the road and ride through the construction zone without impeding traffic. Provisions to aid in lowering vehicular speeds through the construction zone would be implemented. The existing posted speed limit of 45 mph is proposed to be lowered by 10 mph through the construction zone. Bicyclists' needs would be met by maintaining a paved surface and removing temporary signs, debris, and other obstructions from the edge of the road after each day's work.

There is minimal observed pedestrian usage of the road through the project areas. There are also no pedestrian generators, such as schools, housing or shopping centers that would have a significant influence on construction activities. Pedestrians would be seldom encountered in this rural setting. Provisions to accommodate pedestrians would be part of the temporary traffic control planning strategies developed through the guidelines described in the MUTCD.

2.3.3 Properties Affected by the Project

Kamehameha Highway is owned by HDOT; the existing ROW is 50 feet wide. Permanent roadway and bridge widening would occur within the existing ROW. Construction parcels, permanent ROW, and permanent easements would be needed for the temporary bypass roads, construction, staging areas during construction and roadway alignment. The project limits are shown in Figures 2-1a and 2-1b and Tables 2-3 and 2-4 list the temporary and permanent effects on nearby properties. TMKs are shown on Figures 2-5a and 2-5b.

TABLE 2-3
Rights-of-Way for Kawela Bridge

TMK	Land Use	Estimate of Area Needed (acre)	Project Requirement
(1) 5-7-01: 21	Undeveloped	0.15	Construction Parcel (Staging)
Turtle Bay Mauka Lands, LLC	Undeveloped	0.21	Right of Way (Bridge Construction)
	Undeveloped	0.06	Permanent Easement (Bridge Construction)
	Undeveloped	0.59	Construction Parcel (Staging and Temporary Bypass)
(1) 5-7-06: 22	Undeveloped	0.31	Construction Parcel (Staging)
Turtle Bay Resort	Undeveloped	0.09	Permanent Easement (Bridge Construction)

TABLE 2-4
Rights-of-Way for Nanahu Bridge

TMK	Land Use	Estimate of Area Needed (acre)	Project Requirement
(1) 5-6-05: 013	Undeveloped	1.14	Construction Parcel (Temporary Bypass/Staging)
Aina Nui Corporation	Undeveloped	0.01	Permanent Easement (Bridge Construction)
	Undeveloped	0.01	Permanent Easement (Bridge Construction)
(1) 5-6-03: 044	Undeveloped	0.09	Permanent Easement (Bridge Construction)
Turtle Bay Resort, LLC	Undeveloped	0.02	Construction Parcel (Bridge Construction)

2.4 No Action Alternative

The No Action Alternative would retain the existing bridges with no changes. The bridges would not meet current design standards for roadway width, load capacity, bridge railing and transitions, and bridge approaches. The bridges would continue to be categorized as functionally obsolete. Under the No Action Alternative, environmental impacts resulting from construction activities would be averted and improvement costs would not be incurred by HDOT. The existing bridges would continue to deteriorate, requiring regular inspection and increasing maintenance to maintain the integrity of the structures. Eventually, the structures would no longer provide a safe support for highway traffic and could face load restrictions or closure. The No Action Alternative was eliminated from further consideration because it does not meet the purpose and need of maintaining the Kamehameha Highway as a safe and functional component of the regional transportation system and does not alleviate the maintenance issues arising from poor flow conditions beneath the bridges.

2.5 Bridge Alternatives Considered and Dismissed

2.5.1 Rehabilitation

Rehabilitation of the existing Kawela and Nanahu bridges was considered but eliminated from further consideration. The bridges are functionally obsolete and the existing hydraulic opening under both bridges is too small to accommodate the required stream hydraulics. Based on the age, the deteriorated condition of the existing bridge and the inadequate hydraulics of the structure, rehabilitation was not considered as a suitable alternative. The rehabilitation alternative was eliminated from further consideration because it did not meet the purpose and need of the project to relieve the maintenance issues arising from poor flow conditions beneath both bridges.

2.5.2 Two Cell Concrete Box or Arch Culvert

Two-cell cast-in-place concrete box culverts and two-cell precast concrete arch culverts were considered for both bridges under this alternative. The box culvert would consist of two 24-foot by 8-foot cells for an overall length of approximately 52 feet constructed on a mat foundation. The box culvert alternative would provide a shallow superstructure depth to allow for the maximum hydraulic opening for the stream. The precast concrete arch culvert would be constructed of two 24-foot by 8-foot arch segments constructed on spread footings.

This alternative is practical, serviceable, and constructible and would perform well from a structural standpoint. However, the proposed project has a lower initial construction cost when used with a GRS abutment and has fewer environmental impacts because it requires less construction in the stream channel. Additionally, this alternative would require more maintenance to remove debris in the stream channel. The two-cell concrete box or arch culvert alternative was eliminated from further consideration because, although it meets the project's purpose and need, this alternative has a greater amount of stream and environmental impact, and represents both a greater construction cost and increased maintenance when compared to the proposed project.

2.6 Temporary Bypass Alternatives Considered and Dismissed

2.6.1 Various Bypass Route Alternatives for Nanahu Bridge Construction

A two-lane temporary bypass route on the on the *mauka* side of the highway over the existing Cane Haul Bridge was considered. To avoid impacts to the overhead utility lines on the *mauka* side of the Cane Haul Bridge, a single lane bypass with phased construction was determined to be preferred feasible alternative with fewer impacts. Other alternatives that were considered included a split bypass *mauka* and *makai* around the construction area, and a two lane bypass road on the *makai* side of the highway. These alternatives were eliminated because of additional costs for constructing two temporary bridges for the split bypass and the need for additional studies that would be required outside of the environmental survey area on the *makai* side.

2.6.2 Makai Bypass Route for Kawela Bridge Construction

A bypass route on the *makai* side of the highway was considered. While overhead lines and utility poles would have to be temporarily and permanently relocated for the *mauka* bypass route, a *makai* bypass route would result in additional impacts (similar to the alignment shift impacts) related to: cultural resources, stream channel and a Section 4(f) future park site, and permitting challenges. The potential impact risks for the *makai* bypass route resulted in its removal for consideration as a viable option.

2.7 Statewide Transportation Improvement Program

The Hawaii STIP provides a multiyear listing of State and County transportation projects and identifies those projects slated for Federal funding. It is a multimodal transportation improvement program that is

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

The current STIP, which covers the period from Federal Fiscal Year (FFY) 2015 to FFY 2018 (and FFY 2019-2020 for information purpose only) Revision #2 Approved, was published by HDOT on August 25, 2015. The Kawela and Nanahu Bridge projects (OS30 and OS53, respectively) are listed in the STIP as system preservation projects (HDOT, 2015a).

2.8 Preliminary Cost and Schedule

The current construction cost estimate is $3.6 million for Kawela Bridge and $3.0 million for Nanahu Bridge.

The estimates include survey and staking, removal and relocation of utilities, earthwork, roadway, new bridges, and temporary traffic control including the bypass roads.

It is anticipated that construction would last approximately one year and end in 2018. Construction would occur after final design is completed and necessary entitlements are obtained.

2.9 References

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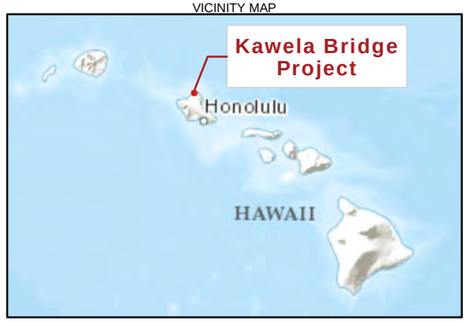
VICINITY MAP



LEGEND

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

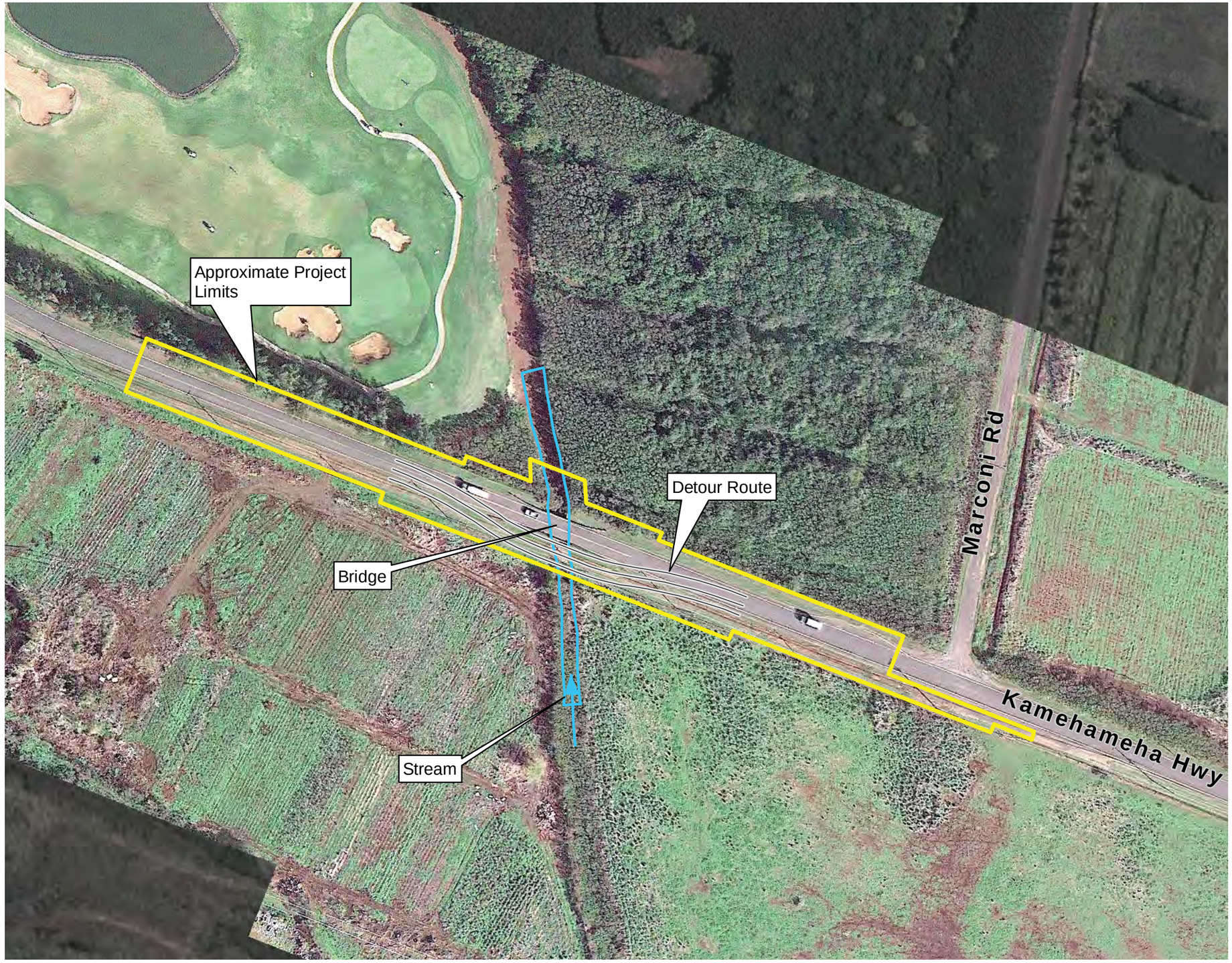
Notes:
1. High-Res Imagery Source: Google Earth 01/16/2013
2. Low-Res Imagery Source: Digital Globe 01/11/2011
3. Imagery base map is not orthorectified; therefore project features may not properly align with the imagery.

N

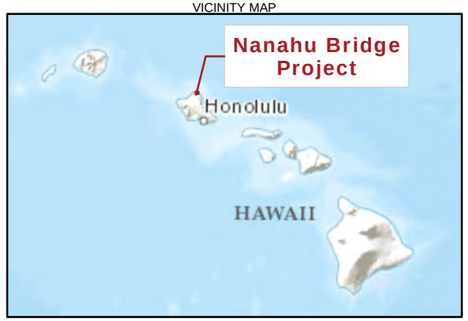
0 150 300
Feet

FIGURE 2-1a
Project Limits – Kawela Bridge
Kawela/Nanahu Bridge Project
Hawaii Bridges Program –
Central Federal Lands Highway Division and
Hawaii Department of Transportation

CH2MHILL.



VICINITY MAP



LEGEND

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

Notes:
1. High-Res Imagery Source: Google Earth 01/16/2013
2. Low-Res Imagery Source: Digital Globe 01/11/2011
3. Imagery base map is not orthorectified; therefore project features may not properly align with the imagery.

N

0 150 300
Feet

FIGURE 2-1b
Project Limits – Nanahu Bridge
Kawela/Nanahu Bridge Project
Hawaii Bridges Program –
Central Federal Lands Highway Division and
Hawaii Department of Transportation

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Kawela Bridge showing concrete wall and surface water under bridge.

FIGURE 2-2a
Kawela Bridge (Existing)
Kawela/Nanahu Bridge Project
Hawaii Bridges Program –
Central Federal Lands Highway Division and
Hawaii Department of Transportation

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California grass (Urochloa mutica) is abundant in the downstream portion of Kawela Stream. Note: Approximate ordinary high water mark is shown by yellow line.

LEGEND

Ordinary high water mark

FIGURE 2-2b
Kawela Bridge (Proposed Location)
Kawela/Nanahu Bridge Project
Hawaii Bridges Program –
Central Federal Lands Highway Division and
Hawaii Department of Transportation

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Overgrown vegetation in Hoolapa Stream upstream (south) of Kamehameha Highway.

FIGURE 2-3a
Nanahu Bridge (Upstream)
Kawela/Nanahu Bridge Project
Hawaii Bridges Program –
Central Federal Lands Highway Division and
Hawaii Department of Transportation

Source: SWCA Environmental Consultants. 2015. Determination and Delineation of Wetlands and Other Waters of U.S. for the Kawela Bridge Project, Kamehameha Highway, Route 83, Kahuku, O'ahu Island, Hawai'i. March

FIGURE 2-3b
Nanahu Bridge (Proposed Location)
Kawela/Nanahu Bridge Project
Hawaii Bridges Program –
Central Federal Lands Highway Division and
Hawaii Department of Transportation

LEGEND

Ordinary high water mark

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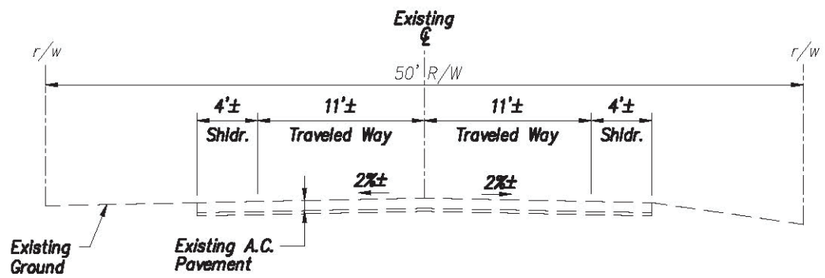
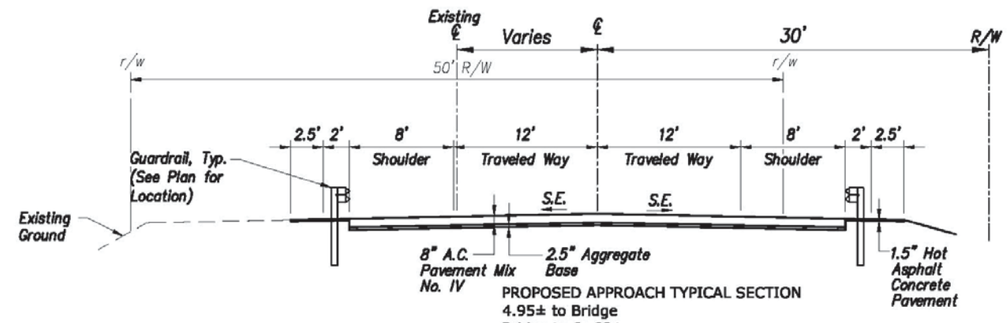
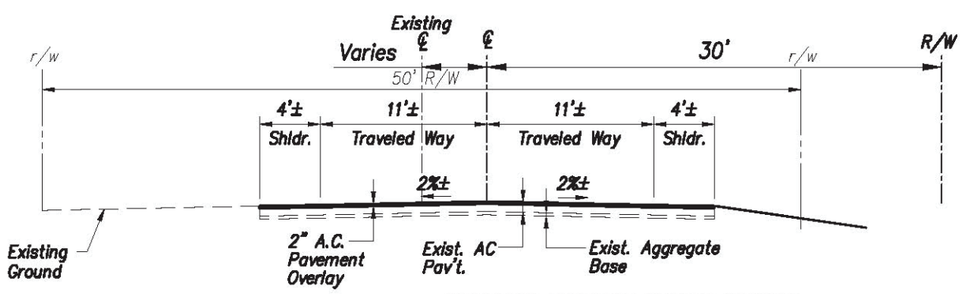


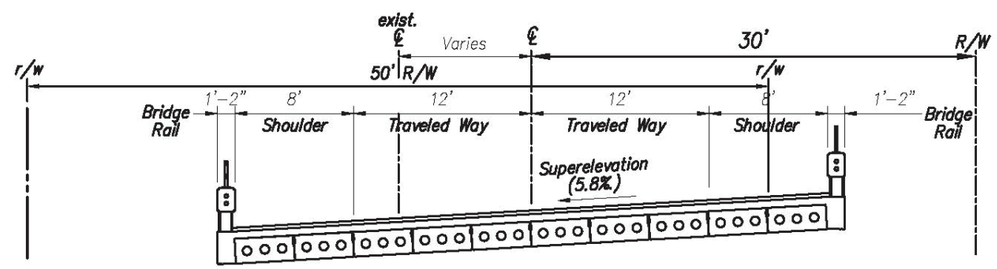
EXISTING APPROACH TYPICAL SECTION



PROPOSED APPROACH TYPICAL SECTION
4.95± to Bridge
Bridge to 6+68±

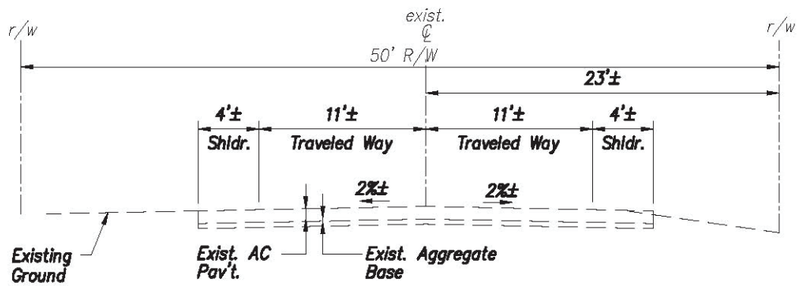


PROPOSED APPROACH TYPICAL SECTION
0+00 TO 1+39±
8+65± TO 10+35.63

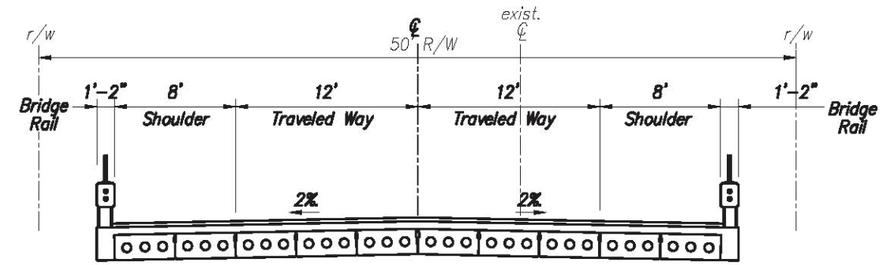


PROPOSED BRIDGE TYPICAL SECTION

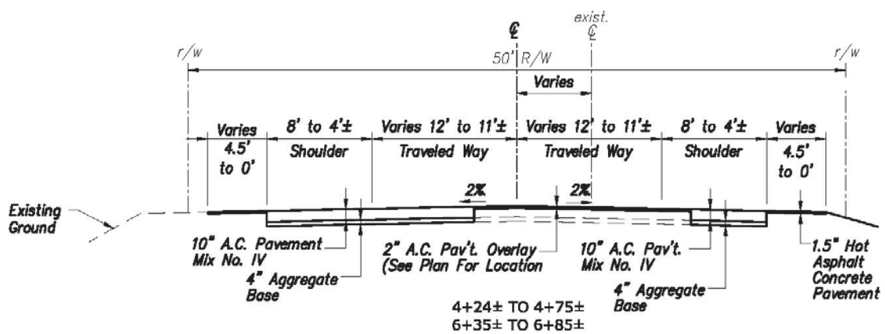
FIGURE 2-4a
Existing and Proposed Typical Sections – Kawela Bridge
Kawela/Nanahu Bridge Project
Hawaii Bridges Program –
Central Federal Lands Highway Division and
Hawaii Department of Transportation



EXISTING APPROACH TYPICAL SECTION



PROPOSED BRIDGE TYPICAL SECTION



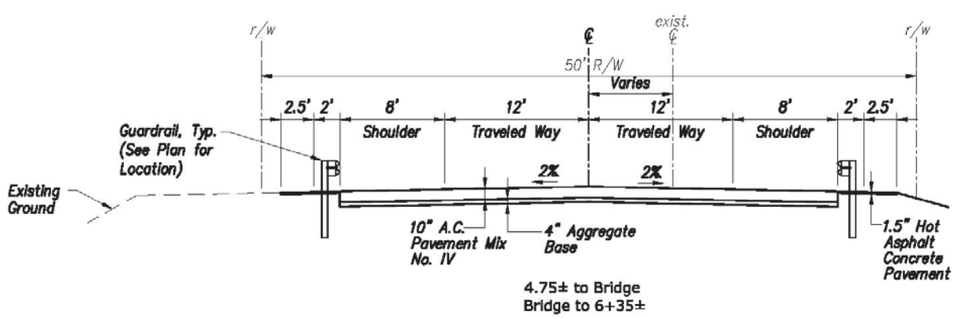


FIGURE 2-4b
Existing and Proposed Typical Sections – Nanahu Bridge
Kawela/Nanahu Bridge Project
Hawaii Bridges Program –
Central Federal Lands Highway Division and
Hawaii Department of Transportation

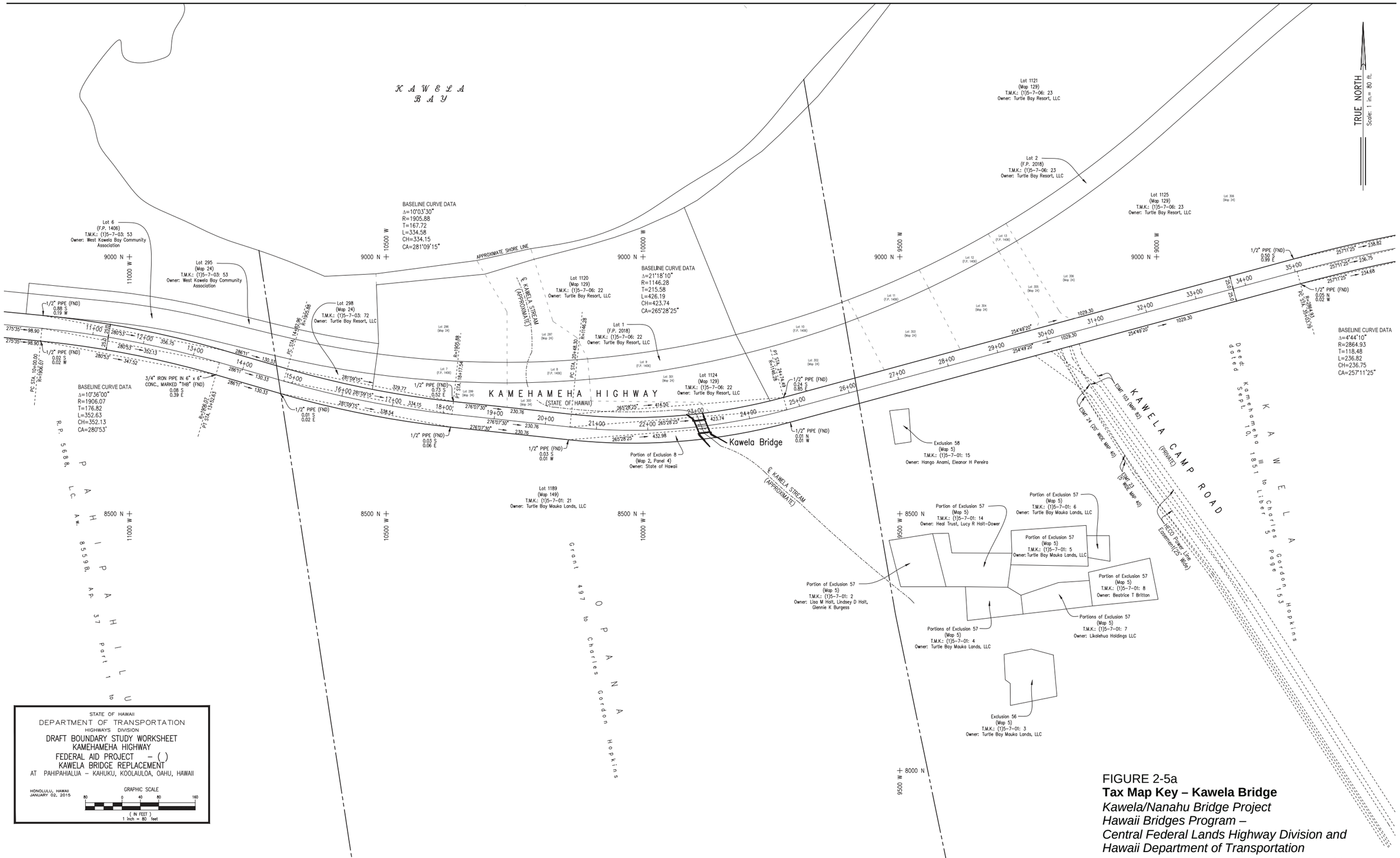


FIGURE 2-5a
Tax Map Key – Kawela Bridge
Kawela/Nanahu Bridge Project
Hawaii Bridges Program –
Central Federal Lands Highway Division and
Hawaii Department of Transportation

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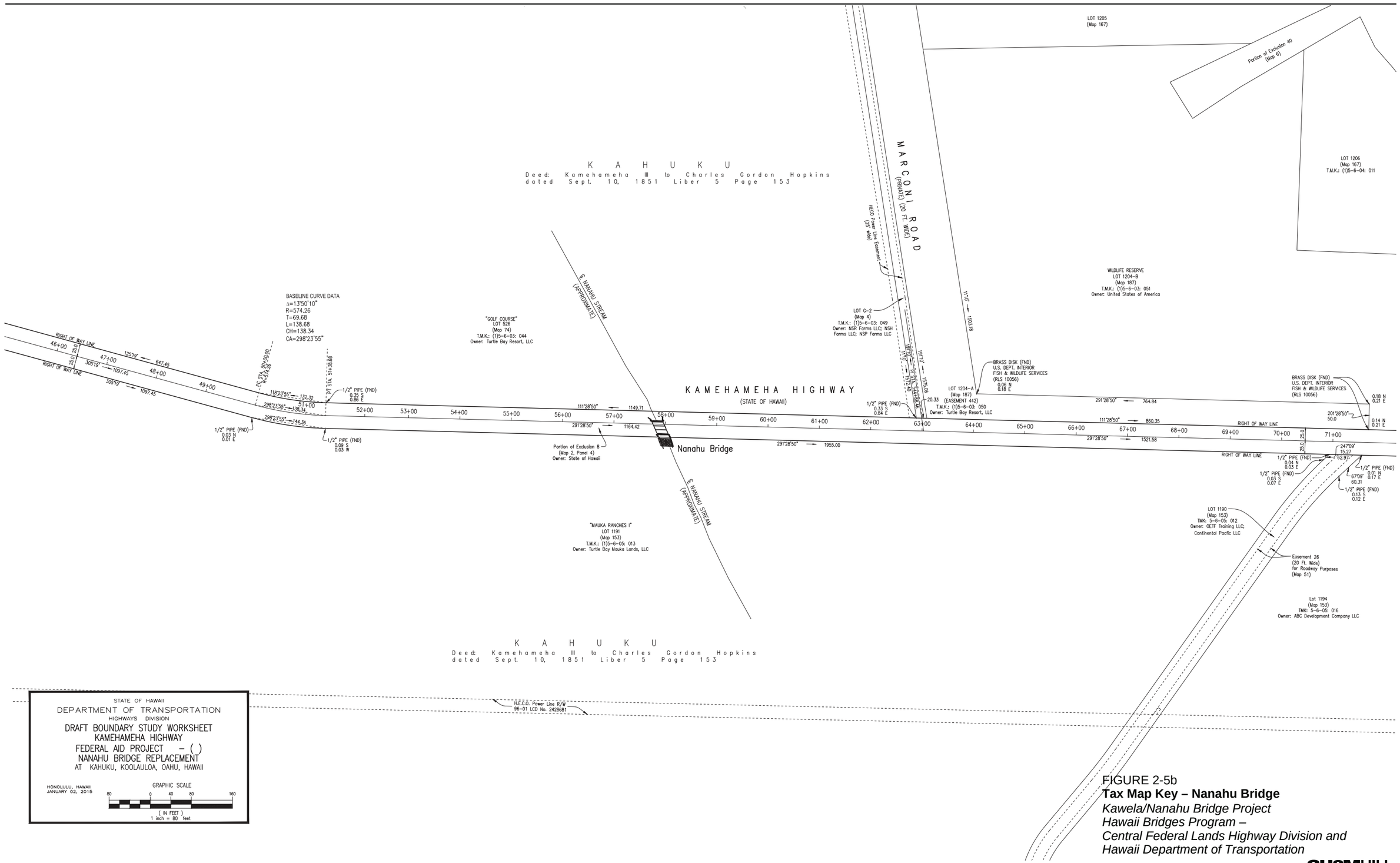

FIGURE 2-5b
Tax Map Key – Nanahu Bridge
Kawela/Nanahu Bridge Project
Hawaii Bridges Program –
Central Federal Lands Highway Division and
Hawaii Department of Transportation

CHAPTER 3

3 Affected Environment, Impacts, and Mitigation

This section describes the affected environment, impacts, and mitigation for relevant resources areas. Resources that are not present (or otherwise don't apply) are not discussed. Specifically, the proposed project would not generate any demand for water or sanitary wastewater disposal; therefore, these resources are not evaluated. Public safety is discussed in Section 3.15, Roads and Traffic.

3.1 Topography, Geology, and Soils

3.1.1 Existing Conditions

The Island of Oahu is composed largely of the weathered remnants of the Waianae and Koolau shield volcanoes. The older Waianae Volcano forms the bulk of the western third of the island, while the younger Koolau Volcano forms the majority of the eastern two-thirds of the island. It is believed that Waianae Volcano became extinct while Koolau Volcano was still active, and its eastern flank is partially below Koolau lavas in central Oahu.

The project area is located on the northern-most tip of the island, called Kahuku Point. The area is characterized as a low coastal terrace with extensive wetland areas. Elevations in the project area range from approximately 3 to 8 feet above mean sea level (amsl) for Kawela Bridge and approximately 16 to 30 feet amsl for Nanahu Bridge. Rocky limestone cliffs surround the ocean bays on the western side of Kahuku Point. Dune fields occupy much of the seaward edge of the point. Kahuku Point is a lithified eolianite, which is rock formed under pressure from dunes caused by windblown coastal limestone (University of Hawaii, 2015). Map units for Kahuku Point include mostly nonvolcanic, undifferentiated rocks closest to the shore and Koolau Volcanic Series inland (Garcia, 1987). This area is a broader coastal plain characterized by hills of old, lithified sand dunes and marshy lowlands.

3.1.1.1 Kawela Bridge

The Natural Resources Conservation Service (NRCS) identified four soil types in the project area (see Figure 3-1a):

- **Waialua silty clay, 0 to 3 percent slopes (WkA).** The Waialua series consists of deep soils that formed in alluvium weathered from basic igneous rock. Waialua soils are on fans and have slopes of 0 to 30 percent. Elevation ranges from 10 to 100 feet. The soils are considered moderately well drained with slow to medium runoff and moderate permeability.
- **Jaucas sand, 0 to 15 percent slopes (JaC).** The Jaucas series consists of very deep soils that formed in sand-sized fragments of coral and sea shells. They exist on coastal beaches above high tide and have slopes ranging from 0 to 15 percent. The soils are excessively drained with very rapid permeability.
- **Mokuleia loam (Ms) and Mokuleia clay loam (Mt).** The Mokuleia series consists of well-drained soils that formed in recent alluvium deposited over coral sand. They are found on coastal plains and have slopes of 0 to 2 percent. Elevation ranges from near sea level to 100 feet. The soils are considered drained with very slow runoff and moderate permeability.

The soils in the project area are classified by the NRCS as *Prime Farmland if Irrigated*. The land directly *makai* of Kawela Bridge is unirrigated; the land *mauka* of Kawela Bridge is irrigated but separated from the project by an approximately 70-foot wide vegetated buffer.

A geotechnical engineering investigation, including exploratory test borings, was completed in 2014(FHWA-CFLHD, 2015). The investigations included an advancement of two soil borings to a depth of 74 and 75 feet below ground surface (bgs) at the proposed locations for the bridge abutments and to 83.5 feet bgs at the rear of the western bridge abutment. Based on the soil borings, subsurface conditions are characterized by

silty sands with coral fragments at the surface, grading to silty clay, silty gravel, and clayey silt to a depth of 59 to 66 feet. bgs. Slightly to moderately weathered basalt in hard conditions was encountered at 69.5 to 77.5 feet bgs. Underlying the hard basalt was highly weathered rock in a dense condition down to the maximum depth explored (FHWA-CFLHD, 2015)

3.1.1.2 Nanahu Bridge

The (NRCS) identified three soil types in the project area (see Figure 3-1b):

- **Waialua silty clay, 3 to 8 percent slopes (WkB).** The Waialua series consists of deep soils that formed in alluvium weathered from basic igneous rock. Waialua soils are on fans and have slopes of 0 to 30 percent. Elevation ranges from 10 and 100 feet. The soils are considered moderately well drained with slow to medium runoff and moderate permeability.
- **Waialua silty clay, 0 to 3 percent slopes (WkA).** See Waialua silty clay in previous bullet.
- **Kaena clay, 2 to 6 percent slopes (KaB).** The Kaena series consists of deep soils that formed in alluvium and colluvium. They exist on alluvial fans on steep colluvial slopes and have a slopes of 2 to 35 percent. Elevation ranges from 50 to 150 feet. The soils are poorly drained with slow to rapid runoff and slow permeability.

The soils in the project area are classified by the NRCS as *Prime Farmland if Irrigated*. The land directly *makai* of Nanahu Bridge is unirrigated; the land *mauka* of Nanahu Bridge is irrigated but separated from the project by an approximately 30-foot wide vegetated buffer.

In September 2014, two exploratory test borings were conducted to depths of approximately 29.5 and 50 feet bgs at the rear of the western bridge abutments. Two borings for the proposed bypass road were performed in November 2014, to depths of approximately 49 and 49.5 feet bgs at the rear of the proposed bypass road abutments. Based on the soil borings, subsurface conditions are characterized by clayey silt and clayey silt fill at the surface to a depth ranging from about 17 to 21.5 feet bgs. Highly to completely weathered rock in a medium dense to dense conditions extended from below the clayey silt to the maximum depth drilled (FHWA-CFLHD, 2015).

3.1.2 Potential Impacts and Mitigation Measures

The proposed project is not constrained by geological and topographic site conditions, nor would it affect any unique geological formations. In addition, the project would not result in the conversion of any prime farmland to any other use. As shown on Figures 3-2a and 3-2b, the permanent impact areas at both bridge locations are confined to the *makai* unirrigated land (that is, non-prime farmland) and the naturally vegetative buffer separating Kamehameha Highway from the irrigated land (that is, prime farmland) on the *mauka* side.

Because of the subsurface soils encountered, deep foundations such as driven concrete pile foundations are recommended for support of the proposed replacement of Kawela and Nanahu bridges. Roadway sections would be designed to standard HDOT specifications that consist of asphalt and base course over sub-base course material.

Construction of the Kawela and Nanahu bridges would involve short-term land disturbance that may result in waterborne and airborne soil erosion. The erosion potential is relatively low given the small area of disturbance. To minimize the potential for construction-related erosion impacts, best management practices (BMPs) would be developed and implemented in accordance with Honolulu County Code for erosion and sedimentation control (CCH, 2015) and the CCH Storm Water Best Management Practice Manual (2011). Other mitigation measures would be specified as part of applicable NPDES permits obtained from HDOH. 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

Oahu's climate is heavily influenced by terrain and tradewinds. The island consists of two parallel mountain ranges running in the northwestern to southeastern direction, which is perpendicular to the prevailing northeastern trade winds. As a result, the western (leeward) sides of Oahu, are drier and warmer than the windward sides of the island. The average maximum daily temperature is approximately 80 degrees Fahrenheit (°F), with an average minimum of 66°F. Mean annual rainfall for this area is approximately 43 inches. Rainfall is typically highest in October through March and lowest from June through August (Giambelluca et al., 2013). The closest rainfall gage to the site experienced slightly above-average rainfall in 2014 (National Oceanic and Atmospheric Administration, National Weather Service, Weather Forecast Office Honolulu, 2014).

HDOH operates a network of air quality monitoring stations at locations around the state. Stations typically do not monitor the full complement of air quality parameters. There are four air monitoring stations on the Island of Oahu, with the closest air monitoring station located approximately 20 miles south of the project site in Pearl City. As reported in the Annual Summary of Air Quality Data for 2013 (HDOH, 2014a), the pollutants monitored at the Pearl City station were particulate matter less than 2.5 microns ($PM_{2.5}$) and particulate matter less than 10 microns (PM_{10}). The readings at this location show that criteria pollutant levels were below State and Federal ambient air quality standards (see Table 3-1).

Based on these latest data, the area is currently in attainment of all Federal and State air quality standards. With the exception of exceedances of SO_2 and $PM_{2.5}$ associated with the volcano on Hawaii Island, the entire State of Hawaii was in attainment in 2013 (HDOH, 2014a).[2]

TABLE 3-1
Oahu Air Monitoring Station (Pearl Station) Data (2013)

Pollutant	Annual Mean	Federal Air Quality Standard (Primary)	State Air Quality Standard
$PM_{2.5}$ (24-hour)	5.5 µg/m^3	35 µg/m^3	None
PM_{10} (24-hour)	18.9 µg/m^3	150 µg/m^3	None

Source: State of Hawaii Annual Summary 2013 Air Quality Data (HDOH, 2014a)

Notes:
µg/m^3 = microgram(s) per cubic meter

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. As further discussed below, impacts could be associated with the following two types of pollutants: (1) fugitive dust emissions from vehicular movement and soil excavation, and (2) exhaust emissions from onsite construction equipment. Overall, air quality impacts are expected to be insignificant because the construction period is of limited duration and impacts would be minimized with the implementation of BMPs for dust control and exhaust emissions.

Fugitive Dust. Construction activities would employ fugitive dust emission control measures in compliance with provisions of the State Department of Health Rules and Regulations (Chapter 43, Section 10), and HAR Chapter 11-60.1, "Air Pollution Control," Section 11-60.1-33 on Fugitive Dust. Measures that are expected to be used to control airborne emissions include the following:

[2] The volcano is considered a natural, uncontrollable event and therefore the State is requesting exclusion of these exceedances from attainment/nonattainment determination (HDOH, 2014a).

- Cover stockpiles with appropriate material and proper disposal of debris.
- Water active work areas, as necessary.
- Keep clean adjacent paved roads.
- Cover open-bodied trucks whenever hauling material that can be blown away.
- Limit the amount of disturbed areas at any given time and/or stabilize inactive areas that have been exposed.

Exhaust Emissions. Emissions from engine exhausts of onsite mobile and stationary construction equipment could also affect air quality. Emission impacts would 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 construction equipment. Carbon monoxide emissions from diesel engines are low and would be relatively negligible compared to vehicular emissions on nearby roadways.

3.2.2.2 Long-term Impacts on Air Quality

Over the long term, this project would not result in any 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 no changes in air quality impacts for the Clean Air Act (CAA) criteria pollutants and would not be linked with any special mobile source air toxics (MSAT) concerns.

3.3 Hydrology and Water Quality

3.3.1 Surface Water and Groundwater

3.3.1.1 Kawela Bridge

Kawela Stream is in the Kawela Watershed, which encompasses roughly 1.9 square miles. The total length of the Kawela Stream is approximately 3.2 miles (Parham et al., 2008). Immediately north of the highway, the stream flows west, parallel to the highway for roughly 340 feet. It then curves north toward the ocean for approximately 280 feet and terminates in an estuary. During the biological survey, a narrow sandy beach separated Kawela Stream from Kawela Bay (Pacific Ocean). According to the *Final Supplemental EIS for Turtle Bay Resort Expansion* (Lee Sichter LLC, 2013), flow generally percolates slowly through the berm to the bay, with surface water breaking through the beach barrier only three to four times annually during periods of heavy flow. It is believed that Kawela Stream originally drained into Turtle Bay and was re-aligned to drain into Kawela Bay in the 1940s (Lee Sichter LLC, 2013).

The National Wetlands Inventory identifies a single wetland or waterway in the survey: Palustrine, Forested, Broad-Leaved Evergreen, Seasonally Flooded. This linear feature is identified as perennial Kawela Stream by the State of Hawaii and the U.S. Geological Survey (USGS).

Groundwater was encountered in the geotechnical borings at approximately 8.2 feet. The depth to groundwater can be expected to vary with water level in the stream, seasonal rainfall, and tidal influence.

3.3.1.2 Nanahu Bridge

Nanahu Bridge is in the Oio Gulch Watershed, which encompasses roughly 4.5 square miles (Parham et al., 2008). The total length of the non-perennial Hoolapa Stream, which runs under the highway bridge, is approximately 1.35 miles long. The stream flows northeast from the highway into the Links Golf Course at Turtle Bay for approximately 0.45 mile before reaching a densely forested area. According to USGS data and other recent studies (Lee Sichter LLC, 2013), Hoolapa Stream drains into Punahoolapa Marsh, partially via sheet flows across the golf course. Punahoolapa Marsh is a large spring-fed wetland that is separated from the James Campbell NWR's Punamano Marsh by Marconi Road (Hunt and De Carlo, 2000). It is unknown whether Hoolapa Stream connects to the Pacific Ocean, but Punahoolapa Marsh may drain eastward to Punamano during extreme floods (Hunt and De Carlo, 2000).

The National Wetlands Inventory identifies a single wetland or waterway in the survey area: Palustrine, Forested, Broad-Leaved Evergreen, Seasonally Flooded. This linear feature is identified as non-perennial Hoolapa Stream by the DLNR, Division of Aquatic Resources (DAR) and the USGS.

Groundwater was encountered in the geotechnical borings at depths ranging from 18 to 19.6 feet. The depth to groundwater can be expected to vary with water level in the stream and seasonal rainfall.

3.3.2 Waters of the United States

SWCA Environmental Consultants (SWCA) biologists delineated Waters of the U.S. on September 26, 2014, and November 25, 2014 (see Appendix A). The biologists used methods for determining the presence of wetlands as prescribed by the U.S. Army Corps of Engineers (USACE) 1987 Manual and the 2012 Hawaii and Pacific Island Regional Supplement (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 wetland determination data forms prepared for both bridges during the survey are included in Appendix A. Wetlands were not identified within the study area at either bridge.

The boundaries of potential non-wetland Waters of the U.S. were delineated by recording the location of the OHWM as defined in the USACE Regulatory Guidance Letter 05-05 (USACE, 2005). Indicators of OHWM can be physical or vegetative and include benches, shelving, drift lines, natural lines impressed on the bank, changes in the character of soil, transitions in vegetation type and density, destruction of terrestrial vegetation (matted-down vegetation), sediment deposition, presence of litter and debris, presence of wrack line, bed and banks, multiple observed flow events, scour, sediment sorting, and water staining (USACE, 2005 and 2008).

3.3.2.1 Kawela Bridge

The Waters of the U.S. survey area encompasses approximately 6.33 acres (see Figure 3-2a). A single non-tidal, non-wetland water (Kawela Stream) of approximately 0.27 acres was delineated in the survey area. During the survey, some water flow was observed just upstream of the highway bridge. The surface water downstream of the bridge was stagnant during the survey.

3.3.2.2 Nanahu Bridge

The Waters of the U.S. survey area encompasses approximately 4.34 acres (see Figure 3-2b). One non-tidal, non-wetland Waters of the U.S. of approximately 0.20 acres was delineated in the survey area. During the survey, the streambed was dry. Hoolapa Stream is intermittent, with surface water flow during wetter months or high rainfall events.

3.3.3 Clean Water Act, Section 303(d)

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 Clean Water Act (CWA) requires states to collect and review surface water quality data and related information, and to prepare and submit to the U.S. Environmental Protection Agency (USEPA) biennial lists of waterbodies that are impaired (that is, not meeting State water quality standards). The current list is included in the *2014 State of Hawaii Water Quality Monitoring and Assessment Report* (HDOH, 2014b).

Kawela Stream and Hoolapa Stream are mapped as Inland Class 2 waters on the Water Quality Standards Map of the Island of Oahu (HDOH, 2014c). 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. Additionally, Class 2 waters are to be protected for agricultural and industrial water supplies, shipping, and navigational use (HDOH, 2014b).

The CWA requires all states submit lists of impaired and threatened waters every 2 years for approval by the USEPA. The states identify all waters where required pollution controls are not sufficient to attain or maintain applicable water quality standards. According to Hawaii's 2014 *State of Hawaii Water Quality Monitoring and Assessment Report* (HDOH, 2014b), there is insufficient data to determine whether Kawela Stream is an impaired waterway, and Hoolapa Stream has not been listed as an impaired waterway.

3.3.4 Potential Impacts and Mitigation Measures

3.3.4.1 Short-term Construction Impacts

The project would involve demolition, excavation, grading, and construction in the streams and on the streambanks. Temporary impacts to Waters of the U.S. at each bridge location are anticipated to be approximately 0.03 acre. Waterborne erosion would be mitigated with appropriate design and BMPs in place during construction. Because the total construction area disturbance 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 that would be implemented to protect water quality include the following:

- Manage onsite drainage to minimize sedimentation or other pollution discharge to streams
- Stabilize all disturbed areas with erosion control measures
- Use check dams to slow runoff water velocities
- Revegetate disturbed area, including streambanks, as soon as practicable after construction
- Stabilize construction entrances to avoid offsite tracking of sediment
- Ensure all project-related materials and equipment placed in the water are free of pollutants
- Fuel land-based vehicles and equipment 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 within Waters of the U.S. to construct the bypass at either Kawela Bridge or Nanahu Bridge.

Accidental spills or releases of hazardous materials during construction could degrade the quality of stormwater runoff and reach Kawela Stream or Hoolapa 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 cleaned up immediately.

All or portions of the bridge construction area would be dewatered before in-stream work using a coffer dam or other method, as appropriate for the location. The extent of impacts to Waters of the U.S. as a result of dewatering would be determined based on the final dewatering plan and would be reflected in CWA Section 404, Stream Channel Alteration Permit, and other applicable permits. BMPs and other methods (as described above and in Sections 3.6.2 and 3.8.8) would reduce the potential for sediment and/or pollutants to reach downstream waters. Although small plumes of sediment may be released during construction, primarily as a result of construction and/or removal of the dewatering/isolation structures, any turbidity released as a result of construction activities would be minimal and would dissipate quickly.

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

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

No permanent fill would be placed within Waters of the US to construct the bypass at either Kawela Bridge or Nanahu Bridge.

Permanent impacts to Waters of the U.S. at both bridges would result from grading to transition the channel to match the new bridge. There would also be a small amount of sediment removal followed by addition of rip rap for scour protection at the bridge abutments. Permanent impacts for the Kawela and Nanahu bridges are anticipated to be approximately 0.07 acre and 0.04 acre, respectively.

The bridge replacement project would not change the general drainage pattern of stormwater flows. The project would increase the amount of impervious area by approximately 4,171 square feet (0.1 acre) at Kawela Bridge and by approximately 2,501 square feet (0.07 acre) at Nanahu Bridge, which includes wider bridge decks and connections to the highway. Because the project area is surrounded by undeveloped land, the slight increase in impervious surface area would not have a significant adverse effect on stormwater runoff entering the streams.

3.4 Natural Hazards

3.4.1 Flooding

3.4.1.1 Kawela Bridge

According to FEMA Flood Insurance Rate Map number 15003C0030G (FEMA, 2011), the Kawela Bridge project area is located within Zone VE. Zone VE identifies areas that are within the 100-year coastal flood zone with velocity hazards (wave action) where base flood elevations are determined. Therefore, Kawela Bridge is in a Special Flood Hazard Area and must comply with the rules and regulations of the National Flood Insurance Program (44 CFR) and local flood ordinances. CCH regulates development within flood hazard districts under ROH Section 21-9.10.

Hydraulic analysis performed for the Kawela Bridge indicate that, similar to the existing conditions, a proposed bridge would experience pressure flow conditions during the 50-year design flood. The results indicate that the bridge would not overtop during the 50-year design flood event; however, Kamehameha Highway along the east and west approaches to the bridge would overtop during the 50-year flood event (FHWA-CFLHD, 2015).

A design exception would be required for the proposed bridge as it would not meet HDOT's 2 feet minimum freeboard requirement. Channel improvements would be required immediately upstream and downstream of the bridge outside of the existing 50-foot-wide ROW.

3.4.1.2 Nanahu Bridge

The Nanahu Bridge is located within a FEMA-regulated floodway, Zone AE. These are areas subject to inundation by the 1-percent-annual-chance (100-year) flood event and 0.2-percent-annual-chance (or 500-year) flood event. Development within Special Flood Hazard Areas must comply with the rules and regulations of the National Flood Insurance Program (44 CFR) and local flood ordinances (ROH Section 21-9.10).

Results of the hydraulic analyses indicate that split-flow conditions would occur upstream of the bridge during the 100-year flood. Approximately 1,175 cubic feet per second (cfs) of stormwater runoff would overtop the left bank (looking downstream), flow to the west and overtop Kamehameha Highway. The remaining 705 cfs of stormwater runoff would pass through the existing Cane Haul Bridge and Nanahu Bridge. The hydraulic analyses for the proposed bridge indicates that the project would not result in a rise in the 100-year water surface elevations and would meet the requirements for development within a floodway from FEMA and CCH.

3.4.2 Seismic Activity

The AASHTO Load and Resistance Factor Design (LRFD) Bridge Design Specifications 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-in-1,000-year return period.

The AASHTO LRFD Bridge Design Specification scale is from Seismic Zones 1 through 4, where 1 is the lowest level for potential seismic induced ground movement. Oahu is designated Seismic Zone 2A, indicating a place that has a low potential for ground motion created by seismic activity.

3.4.3 Tsunami Hazard

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. Both the Kawela and Nanahu bridges are located within the tsunami evacuation zone (PDC, 2010).

3.4.4 Potential Impacts and Mitigation Measures

The Kawela and Nanahu bridges are located within the Zone VE FEMA floodplain and Zone AE floodplain, respectively. The design of the replacement bridges is required to comply with the National Flood Insurance Program's regulations and requirements. Hydrologic design for the replacement of Kawela and Nanahu bridges are based on a 50-year storm event. The replacement bridges would not result in any increase the base flood elevation. In accordance with Section 21-9.10 of the Honolulu Land Use Ordinance, a Flood Hazard District Certification would be completed for both bridges. In addition, because Nanahu Bridge is located within a regulatory floodway, a No-Rise Certification will be completed. Neither bridge included in the proposed project meets HDOT criteria requiring 2 feet of freeboard. The project engineer would coordinate with HDOT to obtain a design exception.

The proposed project would be designed to conform to AASHTO LRFD Bridge Design Specifications, including specifications and recommendations for seismic design. Therefore, no significant impacts relative to seismic activity are anticipated with implementation of the proposed project.

The Kawela and Nanahu bridges are located within the established tsunami evacuation zone. In the event of a tsunami warning, all construction would stop and personnel would evacuate to the safe zone in the high ground *mauka* of Kamehameha Highway. By observing the tsunami warning and moving into the safe zone, the risk to workers in the project area would be minimized. The proposed project would not impact the geology of the region and therefore would not increase the tsunami risk to the surrounding area."

3.5 Noise

3.5.1 Existing Conditions

Kamehameha Highway is the primary noise generator at both bridge locations. A 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.

3.5.1.1 Kawela Bridge

Existing noise sources near the Kawela Bridge include agricultural vehicles and equipment and vehicles traveling along Kamehameha Highway. The nearest receptors are residents located on the western side of Kawela Bay, within approximately 170 feet northwest of the closest construction area.

3.5.1.2 Nanahu Bridge

The Nanahu Bridge project area is adjacent to agricultural land and preservation land that includes a golf course. Similar to the Kawela Bridge project area, the existing noise sources include agricultural vehicles and equipment and vehicles traveling along the highway. The nearest receptors are visitors to the golf course located adjacent to the north of the project construction area. The nearest residences are located next to the golf course approximately 0.2 mile northwest of the project area.

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 includes the following: drill rig, crane, excavator, backhoe, front-end loader, grader, forklift, semi-trucks, dump trucks, concrete trucks, compactors, paving equipment, and compressors.

The Roadway Construction Noise Model User's Guide (FHWA, 2006) indicates that the loudest equipment could emit noise of up to approximately 100 A-weighted decibels (dBA) at a distance of 50 feet.

Per HAR §11-46-3, the project area is located in the Class A Zoning District (open space), where maximum permissible sound levels are 55 dBA during the daytime (7 am to 10 pm) and 45 dBA during the nighttime (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 will allow construction activities creating excessive noise before 7 am and after 6 pm of the same day.
- No permit will 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 will 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 restricts the times at which high-volume construction can take place. Before issuing the permit, HDOH may require noise mitigations to be incorporated into construction plans, such as maintenance and proper muffling of construction equipment and onsite vehicles that exhaust gas or air. HDOH may also require the Contractor to conduct noise monitoring. In addition to the noise permit, a noise variance may be requested from HDOH for specific occasions when work hours need to be extended into the evenings and/or on weekends to implement the overall construction schedule.

3.5.2.2 Long-term Noise Impacts

Replacing the Kawela and Nanahu bridges would not change highway capacity or operational conditions (that is, the posted speed limits). 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 an evaluation of select Federal and State standard source environmental databases that identifies sites within a search radius of up to 1 mile. The CER (included in Appendix B) did not identify any sites within the 1-mile radius for Kawela Bridge that are suspected to represent a material negative environmental impact.

In addition to the evaluation above, the CER also identifies orphan sites (sites without adequate location information) suspect or having potential to represent a material negative environmental impact. Two orphan sites were identified in the CER for Kawela Bridge. One of the sites was identified as a Comprehensive Environmental Response, Compensation, and Liability Information System - No Further Remedial Action Planned site (CERCLIS-NFAP). It is located approximately 1.5 mile southeast of the Kawela

Bridge and is an archived EPA Superfund site that does not require any cleanup action or further investigation at this time. The second orphan site was identified as a leaking underground storage tank site. Located approximately 6 miles southwest of the Kawela Bridge and is only identified as an underground storage tank site on the HDOH database (HDOH, 2015).

According to the CER, one site was identified within the 1-mile search radius for Nanahu Bridge. The site, identified as Kahuku Shrimp Farm, is identified as a Resources Conservation and Recovery Act Non-Generator. Non-Generators do not presently generate hazardous waste. No other hazardous waste sites occur within 1.0 mile of the project area for the Nanahu Bridge, as identified in the CER.

In addition to the evaluation above, two orphan sites were identified for Nanahu Bridge. One was the CERCLIS-NFAP site described above for Kawela Bridge. The site is located approximately 0.5 mile southwest of the Nanahu Bridge. The other orphan site was identified in the Sites List database. This database includes facilities, sites, or areas in which the State of Hawaii, Department of Health, Office of Hazard Evaluation and Emergency Response (HEER) has an interest, has investigated, or may investigate. The site is a radio station site located on Marconi Road east of Turtle Bay. The site is low priority with ongoing assessment for possible polychlorinated biphenyls, petroleum and mercury switches. Based on the low priority of this site and the likely distance from the Nanahu Bridge, it is unlikely pose an environmental risk (HDOH, 2014d).

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 project site.

Project construction would require removal of the existing bridge structures. A survey would be performed at both structures to determine whether asbestos-containing material (ACM), lead based paint (LBP), or both are present. If asbestos is present or suspected, an Asbestos Abatement Plan will 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 LBP removal to contain debris, control airborne dust, and properly dispose of materials with LBP.

Construction-related activities would also require use of hazardous materials, including lubricants, hydraulic fluid for transit and construction equipment, and cleaning products. A hazardous materials spill plan would be developed that describes spill prevention measures regarding the location of refueling and storage facilities, the handling of hazardous materials, and actions to be taken in case of a spill. The contents and requirements of the hazardous materials spill plan include the following measures:

- Equipment fluid leaks would be repaired immediately.
- 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 will be contacted immediately.

3.7 Flora[3]

3.7.1 Existing Conditions

The following subsections on flora summarize the findings of a biological assessment (see Appendix C) prepared by SWCA. Biologists with SWCA conducted field reconnaissance surveys of the project areas on September 26, 2014 and November 25, 2014. Representative portions of the areas that were driven or

[3] The plant names used in this assessment follow Wagner et al. (2012), Wagner and Herbst (2003), and Wagner et al. (1999).

walked to describe vegetation types, as well as known or suspected presence of threatened, endangered, or candidate plant species and their habitats.

3.7.1.1 Kawela Bridge

No State- or Federally listed threatened, endangered, or candidate plant species were observed in the survey area. No designated plant critical habitat occurs within or adjacent to the project area. Three native species were seen during the survey: hau (*Hybiscus tiliaceus*), milo (*Thespesia populnea*), and nanea (*Vigna marina*). These indigenous species (found in Hawaii and elsewhere) are not considered rare in the Hawaiian Islands.

The following four main vegetation types were identified in the survey area:

- Riparian: The riparian vegetation type is dominated by a thick mat of California grass (*Urochloa mutica*) (see Appendix C, Figure A6). Primrose willow (*Ludwigia octovalvis*) and honohono (*Commelina diffusa*) are also scattered in the low-lying area. Koa haole (*Leucaena leucocephala*) trees and Guinea grass (*Urochloa maxima*) are common along the edges of the stream. A dense thicket of hau occurs along the stream further toward the ocean. The native nanea vine was also observed in this vegetation type.
- Koa Haole Scrub: Koa haole trees form dense stands along the highway ROW and the stream. These non-native trees range from 4 to 14 feet (1.2 to 4.2 meters) in height. Guinea grass is the most abundant understory plant.
- Mixed Non-native Forest: The mixed non-native forest is characterized by a mix of non-native trees and herbaceous understory. The dominant trees are ironwood trees (*Casuarina equisetifolia*), Christmas berry (*Schinus terebinthifolius*), and koa haole (see Appendix C, Figure A8). Two vines—*Macroptilium atropurpureum* and *Neonotonia wightii*—form curtains in some areas, climbing over trees. Understory plants that are common in this vegetation type include Chinese violet (*Asystasia gangetica*), coral berry (*Rivina humilis*), and Guinea grass.
- Ornamental Landscaping: Ornamental trees and shrubs are planted adjacent to houses and facilities. These species include hibiscus (*Hibiscus* spp.), be-still tree (*Thevetia peruviana*), panax (*Polyscias guilfoylei*), manila palm (*Veitchia merrillii*), and coconut (*Cocos nucifera*).

3.7.1.2 Nanahu Bridge

No State- or Federally listed threatened, endangered, or candidate plant species and no native plants or plants considered rare were observed during the survey. No designated plant critical habitat occurs within or adjacent to the project area.

Following are the four main vegetation types identified in the survey area:

- Koa Haole Scrub: Koa haole trees form dense stands along the highway ROW and the stream (see Appendix C, Figure A8). These non-native trees range from 4 to 12 feet (1.2 to 3.6 meters) in height. The most abundant understory plants are Guinea grass, coral berry, and Chinese violet. Two vines—maunaloa (*Canavalia cathartica*) and Neonotonia wightii—climb over the trees along the southern portion of the stream, forming curtains.
- Guinea Grass Grassland: South of the highway, Guinea grass forms thick mats that reach up to 6 feet tall in some areas. Very few other weedy species occur in this vegetation type, although koa haole, sea island cotton (*Gossypium barbadense*), and *Solanum torvum* are sparsely scattered throughout the area.
- Ornamental landscaping: The northwestern portion of the survey area adjacent to the golf course is lined with ironwood trees and cultivated hibiscus shrubs (see Appendix C, Figure A9). Manicured Bermuda grass (*Cynodon dactylon*) and seashore paspalum (*Paspalum vaginatum*) are also present in the northwestern portion of the Nanahu Bridge survey area, adjacent to the stream.

- Ruderal: This vegetation type occurs in and along the highway ROW. It is dominated by a mix of mowed non-native grasses, as well as non-native trees and shrubs. Abundant and common herbaceous species found in the ruderal vegetation type are Guinea grass, Bermuda grass, *Sida ciliaris*, narrow-leaved plantain (*Plantago lanceolata*), and radiate fingergrass (*Chloris radiata*). The most common tree and shrub species in these areas are koa haole, castor bean (*Ricinus communis*), and Christmas berry.

3.7.2 Potential Impacts and Mitigation Measures

The vegetation types and species identified during the survey are not unique. The species observed are found in Hawaii and elsewhere and are common throughout the Hawaiian Islands. No threatened or endangered plants were observed. In addition, no designated plant critical habitat occurs nearby.

To minimize impact to existing floristic resources and minimize the introduction and/or spread of invasive species, the following BMPs related would be implemented:

- Retain natural vegetation, especially grass, where possible.
- Route construction traffic to avoid existing or newly planted vegetation.
- Protect natural vegetation with fencing, tree armoring, and retaining walls or tree wells, as appropriate.
- Do not deposit removed vegetation along the banks of any watercourse.
- Dispose of all removed vegetation away from the project site within 3 months of being removed.
- Conform to the Federal Seed Act, the Federal Noxious Weed Act, and applicable State and local seed and noxious weed laws.
- Remove dirt, plant, and foreign material from vehicles and equipment before mobilizing to the project site to prevent introduction of noxious weeds and non-native plant species into the work site.
- Follow applicable Federal land management agency requirements and State requirements. Maintain cleaning and inspection records.

With implementation of these measures, the proposed project is not expected to have a significant adverse impact on botanical resources.

3.8 Fauna

The following subsections on fauna summarize the findings of a biological assessment (see Appendix C) prepared by SWCA. Biologists with SWCA conducted field reconnaissance surveys of the project areas on September 26, 2014 and November 25, 2014. Pedestrian surveys were conducted to investigate the presence of known or suspected threatened, endangered, or candidate wildlife species and their habitats.

USFWS and National Oceanic and Atmospheric Administration (NOAA) lists 11 species that may occur in the Kawela and Nanahu bridges action areas[4]. Based on current distribution and habitat requirements, nine of the species have the potential to use the habitat in the project area. These include the Hawaiian coot (*Fulica alai*), Hawaiian moorhen (*Gallinula chloropus sandvicensis*), Hawaiian stilt (*Himantopus mexicanus knudseni*), Hawaiian duck (*Anas wyvilliana*), Hawaiian goose or nene (*Branta sandvicensis*), Hawaiian hoary bat (*Lasiurus cinereus semotus*), Hawaiian monk seal (*Neomonachus schauinslandi*), green sea turtle (*Chelonia mydas*), and hawksbill sea turtle (*Eretmochelys imbricate*). Because of the lack of suitable habitat, Hawaiian petrel (*Pterodroma sandwichensis*) and Newell's shearwater (*Puffinus auricularis newelli*) are unlikely to occur in the action areas but may be attracted to construction lights as they fly over.

[4] 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 or lighting from construction and maintenance of the project (see Appendix C).

3.8.1 Avifauna

3.8.1.1 Waterbirds - Hawaiian Coot, Hawaiian Moorhen, Hawaiian Stilt, and Hawaiian Duck

Hawaiian coot, Hawaiian moorhen, Hawaiian stilt, and Hawaiian duck have similar habitat needs and biological characteristics and are therefore described under a single group. Waterbirds were not observed during the surveys and suitable habitat for nesting and foraging was not observed in the survey areas. Suitable nesting and foraging habitat (freshwater ponds and marshes) for these endangered birds exists at James Campbell NWR and Links Golf Course at Turtle Bay (see Appendix C, Figures 7 and 8).

3.8.1.2 Hawaiian Goose (Nene)

The endangered Hawaiian goose, or nene, was not observed during the survey but suitable habitat for nesting and foraging was noted during the biological survey. The riparian, ornamental landscaping, and ruderal vegetation types are suitable for nene foraging. Nene have been observed nesting under ironwood, Christmas berry, and lantana and could next in the riparian, koa haole scrub, mixed non-native forest, and ruderal vegetation types in the action areas. Nene may be attracted to golf course golf greens and lawns in the Nanahu Bridge action area (see Appendix C, Figure 8).

3.8.1.3 Seabirds – Hawaiian Petrel and Newell's Shearwater

The endangered Hawaiian petrel and threatened Newell's shearwater have similar habitat needs and biological characteristics and are therefore described under a single group. While not observed during the survey, special status seabirds may fly over the survey area at night while travelling to and from their upland nesting sites to the ocean. Nesting habitat for these species is inland in the mountainous interior (Ainley et al., 1997; Mitchell et al., 2005). No suitable nesting sites are present in the survey area.

3.8.2 Other Avifauna

3.8.2.1 Kawela Bridge

The bird species observed in the Kawela Bridge survey area are species typically found in Hawaii's urban areas, gardens, and parklands. In all, eight bird species were documented: cattle egret (*bubulcus ibis*), chicken (*Gallus domesticus*), common myna (*Acridotheres tristis*), common waxbill (*Estrilda astrild*), Japanese white-eye (*Zosterops japonicas*), northern cardinal (*Cardinalis cardinalis*), Pacific golden-plover (*Pluvialis fulva*), and red-vented bulbul (*Pycnonotus cafer*).

Three species, the cattle egret, the northern cardinal, and the pacific golden-plover, are protected by the Migratory Bird Treaty Act (MBTA). All species are non-native permanent residents except the pacific golden-plover, which is migrant.

3.8.2.2 Nanahu Bridge

All bird species observed in the Kawela Bridge survey area were also observed in the Nanahu Bridge survey area, with two additional species observed; the spotted dove (*Streptopelia chinensis*) and zebra dove (*Geopelia striata*). One species of migrant shorebird—the Pacific golden-plover—was observed at the golf course north of the survey area. All other species observed were introduced species, common to developed areas. Because of the close proximity to James Campbell NWR, birds could pass through air space of the Nanahu Bridge survey and action areas while transiting to and from the refuge.

3.8.3 Mammalian Species

3.8.3.1 Hawaiian Hoary Bat

The endangered Hawaiian hoary bat is the only native terrestrial mammal species that is still extant 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. 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 at both bridges.

Hawaiian hoary bats typically roost in dense canopy foliage or in the subcanopy when canopy is sparse, with open access for launching into flight. Hawaiian hoary bats could use tree species within the vicinity of the project for foraging and roosting at both bridges.

3.8.3.2 Hawaiian Monk Seal

3.8.3.2.1 Kawela Bridge

Hawaiian monk seals were not observed during the surveys, but critical habitat for the Hawaiian monk seal occurs in the action area for the Kawela Bridge project (see Figure 3-3). They have been sighted in Kawela Bay and the North Shore coastline during previous surveys (Lee Sichter LLC, 2013). Suitable habitat for hauling-out was noted in the action area during SWCA's field survey. Critical habitat is discussed in Section 3.8.6, and shown in Appendix C. The endangered Hawaiian monk seal lives in warm subtropical waters throughout the entire Hawaiian Archipelago and Johnston Atoll. They rely on land habitat throughout all life stages for resting, molting, pupping, nursing, and avoiding marine predators. Although not observed during the surveys, they can be seen hauling-out on sand, corals, and volcanic rock to rest during the day and to give birth, preferring protected beaches surrounded by shallow waters when pupping. Oahu provides approximately 48 miles of coastline that supports pupping and nursing areas and important haul-out areas, as well as 363 square miles of marine foraging habitat essential to Hawaiian monk seal conservation (NOAA, 2015).

3.8.3.2.2 Nanahu Bridge

The action area for the Nanahu Bridge project does not include critical habitat for the Hawaiian monk seal and the project area is nearly a mile away from the closest beaches that could potentially provide suitable habitat.

3.8.3.3 Other Mammals

No mammals were observed in the survey areas. Horse (*Equus ferus caballus*) scat was observed in the area. While not observed during the biological survey, other mammals that can be expected onsite include dogs (*Canis familiaris*), cats (*Felis catus*), mongoose (*Herpestes auropunctatus*), mice (*Mus musculus*), and rats (*Rattus spp.*).

3.8.4 Invertebrates

Only non-native insects were observed during the survey, including honey bee (*Apis mellifera*), the Sonoran carpenter bee (*Xylocopa sonorina*), and an unidentified orange dragonfly in the Kawela Bridge survey area and mosquitos (Culicidae) in the Nanahu Bridge survey area.

3.8.5 Fish and Aquatic Invertebrates

3.8.5.1 Kawela Bridge

Shallow surface water was observed in the immediate vicinity of the bridge where the streambed contains dense vegetation. Some surface water flow was observed just upstream of the highway bridge. Surface water depth increased toward the north edge of the survey area. This portion of the stream was stagnant during the survey and did not connect to the Pacific Ocean.

Although an instream biological survey was not conducted in September and October 2014, a survey was previously conducted in this stream by AECOS, Inc. (2006). Most of the aquatic species observed during the 2006 survey are non-native to the Hawaiian Islands. In all, five native aquatic species were observed in this portion of Kawela Stream: two native oopu or gobies (oopu naniha [Eleotris sandvicensis] and oopu naniha [Stenogobius hawaiiensis]); one native crustacean (opae oehaa [Macrobrachium grandimanus]); and two native marine or brackish water fish (āholehole [Kuhlia xenura] and amaama [Mugil cephalus]) (AECOS, 2006). None of these native species are listed as threatened or endangered. No native species were recorded for the stream in the Atlas of Hawaiian Watersheds & Their Aquatic Resources (Parham et al. 2008).

3.8.5.2 Nanahu Bridge

Surface water was not present in the reach of Hoolapa Stream within the survey area and no aquatic wildlife were observed.

3.8.6 Reptiles and Amphibians

3.8.6.1 Sea Turtles

3.8.6.1.1 Kawela Bridge

A green sea turtle was seen outside of the survey area in the marine waters of Kawela Bay. None were seen within the survey areas for either bridge. Hawksbill turtles were not observed during the surveys for either bridge.

The threatened green sea turtle and endangered hawksbill sea turtle have similar habitat requirements and biological characteristics, as well as potential project impacts and conservation measures, and are therefore discussed as a single group.

Despite a declining trend globally, green turtle populations in Hawaii are estimated to have increased by 53 percent in the last 25 years (NMFS, 2015). NOAA lists Kawela Bay as a basking site for the green sea turtle (Parker and Balazs, 2010). Between 1989 and 1993, an average of seven green sea turtles were recorded at any given time (Lee Sichter LLC, 2013) and they were observed in Kawela Bay during a 2005 survey.

In comparison, the number of hawksbill turtles is low, approximately 100 adult females tagged on the Island of Hawaii between 1991 and 2009, as compared to current global estimates of between 60,000 and 78,000. While sightings are not regularly reported for the Island of Oahu, they have been observed on the North Shore of Oahu outside of the action area. Although there have not be verified sightings, it is highly likely that hawksbill turtles use Kawela Bay.

The adults of both species use the nearshore water for foraging and the shoreline for hauling-out to rest/bask and reproduce. Juveniles occupy deeper marine environments and migrate far from land after leaving the nest. The protected areas of Kawela Bay could provide suitable foraging habitat for both species.

3.8.6.1.2 Nanahu Bridge

Nanahu Bridge is located nearly a mile from the shore at its closest location; outside of suitable habitat for sea turtles.

3.8.6.2 Other Reptiles and Amphibians

One green anole (*Anolis carolinensis*) was seen during the survey of the Kawela Bridge area. No other terrestrial reptiles or amphibians were seen during the Kawela or Nanahu bridges survey. None of the terrestrial reptiles or amphibians in Hawaii are native to the islands.

3.8.7 Critical Habitat - Hawaiian Monk Seal

Critical habitat for the Hawaiian monk seal, described in greater detail in Appendix C, occurs in the Kawela Bridge action area. Critical habitat was first designated in 1986 and was expanded in 1988. Additional changes to critical habitat were published very recently in a final rule in August 2015 and became effective on September 21, 2015. Sixteen specific areas of terrestrial and marine habitats within the Hawaiian Archipelago are included in the designated critical habitat. The areas each contain one or more physical or biological features that are essential to conservation of the species including:

- Terrestrial areas and the adjacent shallow sheltered aquatic areas with characteristics preferred by monk seals for pupping and nursing.
- Marine areas from 0 to 565 feet in depth that support adequate prey quality and quantity for juvenile and adult monk seal foraging.
- Important areas used by monk seals for hauling-out, resting, or molting

3.8.8 Potential Impacts and Mitigation Measures

3.8.8.1 State- and Federally listed Species

3.8.8.1.1 Waterbirds

While waterbirds and suitable habitat were not observed on in the project area, waterbirds may be attracted to the area because of suitable nesting and foraging habitat within the Nanahu action area at James Campbell NWR and water features at Links Golf Course at Turtle Bay.

Direct impacts to waterbirds could occur in association with construction related activities (for example, 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 because of 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 at a far distance (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. 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.

3.8.8.1.2 Nene

The action area 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. With the 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 in the action areas 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 would 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 would know the appropriate steps to take if nene are present onsite.

- In a nene is found in the area during ongoing activities, all activities within 100 feet of the bird would cease, and the bird would not be approached. If a nest is discovered, USFWS will be contacted. If a nest is not discovered, work may continue after the bird leaves the area of its own accord.

3.8.8.1.3 Seabirds

Threats to the endangered Hawaiian petrel and threatened Newell's shearwater 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 conservation measures and BMPs, 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. Dark sky procedures would be used outside the peak fallout period if night work is required.
- 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).

3.8.8.1.4 Hawaiian Hoary Bats

Direct impacts to bats could occur 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. Potential direct impacts would be reduced by ensuring the top wire strand of fences in the project area (if present) is barbless.

Long-term, indirect impacts could occur with permanent removal of roosting habitat. Based on the small amount of habitat removed and the availability of adjacent roosting habitat for displaced bats, the potential impact would be minor.

Short-term, construction-related impacts could temporarily displace bats from roosting and foraging habitats. This could alter typical foraging and roosting patterns and could lead to increased expended energy to search for new locations. Displacement could lead to increased predation on individual bats if a bat is forced to leave its roost during daylight hours, making it more visible to potential predators.

The possibility of adversely affecting Hawaiian hoary bats as a result of the proposed project is likely small. 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.
- In general, no 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 may be roosting in the trees; however, if a limited number of trees would need to be cleared during that time period, a qualified biologist would use appropriate protocols to surveys for bats before trimming or cutting.

3.8.8.1.5 Hawaiian Monk Seal

Construction-related activities (such as, noise and movement of equipment) could cause short term impacts to seals basking and could temporarily displace monk seals from hauling-out and/or foraging within the Kawela Bridge 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 and/or foraging habitat could lead to increased predation and/or boat strikes on individual monk seals if a seal is forced to search for other suitable habitat. 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 (NOAA, 2015). In addition, evidence from seal behavior suggests that basking seals are surprising tolerant of human activity. The thick vegetation between the existing Kawela Bridge and Kawela Bay may buffer any visual or noise disturbance to basking seals. If 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 areas (see below).

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, as described in the conservation measures.

Indirect harm from the accidental introduction of contaminants or construction-related debris into Kawela Stream has the potential to reduce water quality in the bay. The potential for these impacts would also be unlikely and discountable by ensuring appropriate BMPs are in place, as described in the conservation measures. 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 in the MHI (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.

Mitigation Measures/BMPs Monk Seal and Sea Turtles:

- Construction activities would not begin 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).
- Any construction-related debris that may pose an entanglement threat to monk seals and turtles would be removed from the construction area at the end of each day and at the conclusion of the construction project.
- Workers would not attempt to feed, touch, ride, or otherwise intentionally interact with any monk seals or sea turtles.
- Shielded lighting would be considered to reduce direct and ambient light to potential nearby beach habitat.
- Lights that use longer wavelength (yellow) lights that are not attractive to hatchling turtles would be used wherever possible.

The following BMPs to protect marine water quality are recommended by NMFS Protected Resources Division (NMFS, 2015). The applicability of these conservation measures to the proposed project would depend on the site-specific construction means and methods chosen:

- A contingency plan to control toxic materials would be developed.
- Appropriate materials to contain and clean potential spills would be stored at the work site and be readily available.
- All project-related materials and equipment placed in the water would be free of pollutants.
- 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.

- Fueling of land-based vehicles and equipment would take place at least 50 feet away from the water, preferably over an impervious surface. Fueling of vessels would be done at approved fueling facilities.
- Turbidity and siltation from project-related work would be minimized and contained through the appropriate use of erosion control practices, effective silt containment devices, and the curtailment of work during adverse weather and tidal/flow conditions.
- A plan would be developed to prevent debris and other wastes from entering or remaining in the marine environment during the project.

Sea Turtles

Sea turtles have been documented in the Kawela Bridge action areas during various surveys. They 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/or foraging habitat could lead to increased predation and/or boat strikes on individual turtles if forced to search for suitable habitat. Because there is a thickly vegetated buffer zone between the existing Kawela Bridge and the beach, it is unlikely that basking turtles would be disturbed, if 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, as described in the conservation measures.

Indirect harm from the accidental introduction of contaminants or construction-related debris into Kawela Stream has the potential to reduce water quality in the bay. The potential for these impacts would also be unlikely and discountable by verifying appropriate BMPs are in place, as described in the conservation measures. 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. To avoid exacerbating the incidence of fibropapilloma tumors in green sea turtles as a result of the proposed project, BMPs would be implemented to confirm that the proposed project does not increase 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 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.

3.8.8.2 Critical Habitat

The Kawela Bridge action area falls within recently designated critical habitat for the Hawaiian monk seal (Figure 3-3). 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 implementation of BMP measures would maintain water quality. Low levels of light and noise from the construction activities could impact critical habitat. The conservation measures regarding nighttime lighting, as listed in Section 3.8.7.1, 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.

3.8.8.3 Migratory Bird Treaty Act

SWCA observed three bird species Federally protected under the MBTA during the biological survey: the migratory Pacific golden-plover and northern cardinal, 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.

3.8.8.4 Aquatic Resources

SWCA did not conduct in-stream surveys in the project area. 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. Additionally, the gobi species are migratory and fish passage would be provided during dewatering operations at Kawela Bridge.

3.8.8.5 Essential Fish Habitat

Consultation with NMFS is ongoing to address essential fish habitat. An essential fish habitat report will be submitted to the agencies and consultation will occur within a separate process.

3.9 Archaeological Resources

3.9.1 Existing Conditions

The Kawela and Nanahu bridges are located in the Kahuku, Opana, Kawela, and Pahipahialua ahupuaa. There are few historical references to the three ahupuaa at the Kawela Bridge, but there are several accounts of the Kahuku area around the Nanahu Bridge that provide general information on the setting, population, and land use in the vicinity of the two bridges. The Kahuku area has been inhabited and used for much of Hawaii's known history; population in the surrounding area declined in the late 1700s because of the spread of disease introduced by visiting ships during this time period. By the mid-1800s, cultivation in the surrounding area had largely stopped and the land was mostly used for house lots and taro fields, surrounded by dry uncultivated land. Cattle ranching became a large industry in the area surrounding both bridges in the latter half of the 19th century. A large sugar cane plantation operated from 1892 to 1971 near the Nanahu Bridge, and plantation agriculture was present near Kawela Bridge as well.

Previous archaeological studies have identified historic properties near the two bridges that include archaeological sites and artifacts, military infrastructure, burial sites, and historic structures. None of these sites are located within the Kawela or Nanahu bridges Area of Potential Effects (APE). Given the extensive prior ground disturbance near the both bridges, the probability of encountering archaeological resources is low (CSH, 2015a and 2015b).

Cultural Surveys Hawaii (CSH) archaeologists conducted archaeological field work in September 2014 and subsurface testing in September 2015 at both bridges; copies of the Archaeological Inventory Survey Reports are contained in Appendix D. No archaeological resources were identified in the project area during field work or subsurface testing. Seven historic cultural resources were identified during field investigations and are addressed in the next section on Historic Architecture Resources.

3.9.2 Potential Impacts and Mitigation Measures

The proposed project would have "No Historic Properties Affected" in accordance with 36 CFR 800.5 and "No Effect" in accordance with HAR §13-13-275-7, as further discussed in the next section on Historic Architecture Resources.

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

3.10 Historical Architectural Resources

3.10.1 Existing Conditions

As part of the field work conducted by CSH, as described previously, seven historic architectural resources were identified within the project area (see Appendix D):

- State Inventory of Historic Properties (SIHP) #50-80-02-7821: Kawela Bridge
- SIHP #50-80-02-7822: Mortared basalt foundation remnant
- SIHP #50-80-02-7823: Water control ditch
- SIHP #50-80-02-7824: Structural concrete slab remnant
- SIHP #50-80-02-7825: Nanahu Bridge
- SIHP #50-80-02-7826: Plantation bridge
- SIHP #50-80-02-7827: Plantation road

Construction of the Kawela and Nanahu bridges was completed in 1931 as part of a Federal Aid Project that constructed a portion of the Kamehameha Highway. The bridges are concrete tee beam bridges with solid panel concrete parapets with curved end stanchions and four support beams on the superstructure. The bridges were built by Kalihi Contracting Co., Ltd.

The plantation road (SIHP #50-80-02-7827) follows a former railroad alignment that carried cane from the Kahuku Plantation fields until the mid-1950s, when the railroad was phased out by the use of trucks. The concrete slab bridge (SIHP #50-80-02-7826) was built in place of the original railroad bridge circa 1954, and the plantation roadway was created when the railroad track and ties were removed.

The mortared basalt foundation remnant (SIHP #50-80-02-7822) is not associated with any known structures or infrastructure in this location. The water control ditch (SIHP #50-80-02-7823) is located along the south side of Kamehameha Highway and was dry at the time of the survey. The ditch is a historic plantation ditch used for water control. The structural concrete slab remnant (SIHP #50-80-02-7824) lies approximately 1 m below grade. The slab is of unknown origin but is possibly associated with the cane haul road or former plantation railroad.

3.10.2 Significance Statement

The Kawela and Nanahu bridges are included in the *Hawaii State Historic Bridge Inventory and Evaluation* (MKE Associates, LLC, and Fung Associates, Inc., 2013). This inventory describes the two bridges as eligible for listing on the National Register of Historic Places (NRHP) under Criterion C for their association with early developments in concrete bridge construction in Hawaii.

Nanahu Bridge was reevaluated by Mason Architects in 2015 and was found to be ineligible for the Hawaii or NRHP because it lacks distinguishing characteristics and is not a significant example of its bridge type. A copy of the Historic Inventory Forms are contained in Appendix D.

According to published National Park Service guidance "Severe structural deterioration can affect eligibility of a property for listing in the National Register. If the building has lost its structural integrity it may be determined that the building is beyond the point of rehabilitation and therefore beyond the point of making a lasting contribution to the community, State, or nation. In such an instance, the property would not be listed in the National Register" (National Park Service, 1992). The Kawela Bridge was evaluated in the 2009 Kawela Stream Bridge Replacement EA (FHWA-CFLHD, 2009) and was found to be ineligible for the Hawaii or NRHP because it lacks integrity because of its deteriorated condition.

The plantation road and bridge are evaluated as not eligible for the NRHP because they do not have distinguishing characteristics that would make them eligible. The remaining resources are evaluated as not eligible for the NRHP because they lack integrity of design, materials, workmanship, feeling, and association.

3.10.3 Potential Impact and Proposed Mitigation Measures

Because no eligible historic properties are located within the project APE, the proposed project would have "No Historic Properties Affected" in accordance with 36 CFR 800.5 and "No Effect" in accordance with HAR §13-13-275-7.

3.11 Cultural Resources

3.11.1 Existing Conditions

Consistent with the requirements of HRS Chapter 343, CSH conducted a cultural impact assessment (CIA) to evaluate the potential effect of the proposed project on cultural beliefs, practices, and resources. The assessment included archival research of relevant background history, *kaao* (legends), traditional *moolelo* (stories), *wahi pana* (storied places), *olelo noeau* (proverbs), *oli* (chants), and traditional cultural practices. Ethnographic interviews were also conducted with persons knowledgeable about cultural resources, practices, and beliefs relevant to the study area. Specifically, CSH conducted one interview for the project: Jan Becket. The preliminary findings of the CIA are summarized below; a copy of the Draft CIA is provided in Appendix E.

Many *heiau*, *koa*, salt pans, and other points of interest can be found within Kahuku Ahupuaa, suggesting this area was somewhat populated and industrious during the pre- and post-Contact periods.

Early accounts of the area by Captain George Vancouver (1798) and John B. Whitman (early 1800s) (Whitman, 1979) describe the area as being arid and uncultivated. However, other accounts by Lieutenant James King and Charles Clerk (1779) note the area to be rich and cultivated. Testimonies for the ahupuaa indicate intense taro cultivation in the area and Hawaiian habitation surrounding fishponds located on the Kahuku plain. From 1850-1851, ranching became the dominant industry for Kahuku Ahupuaa. A lack of walls and fences to contain the animals resulted in trampled homesteads and dwindling native vegetation. Native Hawaiians of the area wrote to missionaries urging them to build fences and to establish and enforce trespass laws. The *hala* forests and Hawaiian population began to disappear over the years. As a result, Kahuku became a lonely sheep and cattle ranch.

In November 1889, James Campbell leased his Kahuku and Honouliuli lands to Benjamin Franklin Dillingham. The lease to Dillingham was for 50 years. Dillingham's development plan involved expanding the sugar industry and construction of a railroad system on Oahu (Kuykendall, 1967). Kahuku Plantation planted 2,800 acres of sugarcane and harvested its first crop in 1892. The plantation first relied on pumped spring water, stream water, and rain to irrigate its crops but later resorted to artesian wells. During the first 9 years of the plantation, transportation to Honolulu was exclusively via boat. In 1890, 5 miles of railway with some portable sections were laid to haul cane from the field to the mills. In 1899, the Oahu Railway and Land

Company (OR&L) finally completed its terminal at Kahuku so sugar could be transported directly to Honolulu by train.

In 1916, Kahuku Plantation leased some of its land for pineapple cultivation to C. Okayama and other individual growers. Eventually growers were obligated to sell their crops to the Hawaiian Pineapple Company; Libby, McNeill & Libby of Honolulu; and the California Packing Corporation (later known as Del Monte Corporation). During the early 1930s, many different ethnic groups worked the Kahuku cane fields. By 1935, the plantation acquired 4,490 acres under cultivation and 1,137 workers. Various plantation camps housed the workers. Camps included Main Village, New Camp, Camp 2, Camp 3, Camp 5, Hauula Camp, and Laie Camp (Dorrance, 1998). During World War II, the Kahuku Golf Course was used as an emergency landing field. The Army Air Force on Oahu originally planned to build an emergency landing strip at the Kahuku Golf Course but it had not been completed by the time of the Pearl Harbor attack.

3.11.2 Potential Impact and Proposed Mitigation Measures

Based on information gathered from the cultural and historic background, the proposed project may potentially impact undetected iwi kupuna (ancestral bones) *makai* of Kawela Bridge. Cultural practices near the proposed project (should any occur) would be temporarily restricted during the construction period for safety reasons. All permitted activities would resume once the improvements have been completed. If cultural resources or human remains were inadvertently discovered during construction, the contractor would comply with State law and administrative rules for handling them.

3.12 Population and Demographic Factors

3.12.1 Existing Conditions

The project area is not located in a residential neighborhood. The closest residence to either bridge is located approximately 650 feet to the west of the Kawela Bridge, and approximately 170 feet northwest of the western limit of construction.

There is one census tract in the northern area of the Oahu (Census Tract 101, Honolulu County). For the Census Tract 101, the U.S. Census counted a population of 7,487 in 2000 (U.S. Census Bureau, 2000), and a population of 7,881 in 2010 (U.S. Census Bureau, 2010). Compared to 2000, the region experienced a net increase of 395 persons, or approximately 5.3 percent.

3.12.2 Potential Impacts and Mitigation Measures

The proposed project would replace the existing Kawela and Nanahu bridges with no change in the carrying capacity of the structures. Therefore, the project is not expected to affect the number of area residents or demographic characteristics. Improving the transportation infrastructure would meet the mobility needs of the population for regional access for the southern and eastern shores and communities.

Environmental Justice. The project involves replacement of existing structures that are not located in a residential area. The project would not have a disproportionately high or adverse impact on minority or low-income populations, or both, and would maintain the bridges as safe and functional features of the transportation system for nearby residents.

3.13 Economic and Fiscal Resources

3.13.1 Existing Conditions

Honolulu, on the Island of Oahu, serves as the major business and trading center for the Hawaiian Islands. Honolulu Harbor handles cargo for several international steamship companies and is within a successful Foreign Trade Zone. Other elements of Honolulu's economic base include tourism, military defense, research and development, and manufacturing. Pearl Harbor Naval Shipyard, Marine Corps Base Hawaii in Kaneohe, and the U.S. Army’s Schofield Barracks provide continuous revenue to the region. As the home of the University of Hawaii at Manoa, Honolulu is a center for research and development, especially in the

areas of oceanography, astrophysics, geophysics, and biomedicine. CCH also contains many commercial, industrial, and retail properties. Diversified agriculture (for example, aquaculture) has grown in recent years as the closure of sugar plantations has opened up land for productive use as well as conversion to residential and commercial development.

The Kawela Bridge and Nanahu Bridge projects are located in Oahu's North Shore, an area that draws many tourists. The area offers many recreation opportunities to tourists including Kawela Bay, Turtle Bay, Turtle Bay Resort and Golf Course, the James Campbell NWR, and the Kulima Golf Course.

According to the U.S. Bureau of Labor Statistics' Honolulu Economic Summary, 2015, the largest industries in terms of jobs are government (97,800); trade, transportation, and utilities (84,700); leisure and hospitality (69,800); professional and business services (66,500); and education and health services (63,100) (U.S. Bureau of Labor Statistics, 2015). Median household income for the period 2009 and 2013 was $72,764 (U.S. Census Bureau, 2015).

The national economic recession of the late 2000s had a ripple effect on tourism. But economic conditions have since improved and the unemployment rate for the Honolulu area in June 2015 is 4.1 percent, compared to a 4.1 percent unemployment rate statewide and 5.5 percent nationwide.

3.13.2 Potential Impacts and Mitigation Measures

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 $6.6 million, 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. Because project funds would come 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 Kawela and Nanahu bridges, the existing structures have exceeded their normal lifespans. Replacing the bridges 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

3.14.1.1 Kawela Bridge

At the Kawela Bridge, the surrounding lands to the northwest, north, and northeast of Kamehameha Highway are a mix of undeveloped and developed terrain, with a sliver of land occupied by residential development, an undeveloped swath of land, and a golf course. Further north lies Kawela Bay. To the south of the bridge, the landscape is developed for agricultural uses, with a patchwork of subdivided farmland laid out along the highway. Because of the thickness of the vegetation that exists on both sides of the highway corridor at the Kawela Bridge, the landscape features described above are not generally visible to highway users, nor is the bridge visible to non-highway users located at the nearby residences, golf course, or to agricultural workers.

The Kawela Bridge is a single span reinforced concrete girder bridge. Its existing abutments are founded on spread footings, and the bridge has two, 11-foot-wide lanes of traffic, one in each direction, with 1-foot shoulders and reinforced concrete barriers along each side of the bridge. The roadway approaches consist of two, 11-foot lanes with 4-foot shoulders on each side. The area surrounding the bridge approaches is relatively flat. Guardrails on either side of the highway provide protection from the drop off to Kawela Stream.

3.14.1.2 Nanahu Bridge

Area surrounding the Nanahu Bridge is largely rural with agricultural uses and a golf course located in the immediate vicinity of the bridge. To the south of the bridge the terrain ranges from flat to gently rolling hills; some of this area is used by the Kahuku Wind Farm, and some of the wind farm's turbines are visible from Kamehameha Highway. Because of intervening topography, for the most part the bridge is not visible to non-highway users. Similar to the Kawela Bridge area, at this location the view is dominated by the flat linear form of the highway, framed by the thick vegetation and the regularly placed electrical poles along the highway's edge. For highway users, the Nanahu Bridge railings provide a brief but notable visual counterpoint to the regularity of the other physical features of the area.

The Nanahu Bridge is a single span reinforced concrete girder bridge, constructed in 1931. The Nanahu Bridge is founded on spread footings. There are two 11-foot wide traffic lanes, one in each direction, with 1-foot shoulders and reinforced concrete barriers along each side of the bridge. The roadway approaches consist of two 11-foot lanes and 4-foot shoulders on each side. A guardrail and bridge rail provide protection from the steep slopes leading into Hoolapa Stream.

3.14.2 Potential Impacts and Mitigation Measures

The proposed project would involve replacement of the Kawela and Nanahu bridges, and minor (less than approximately 10 feet) realignment of the Kamehameha Highway at the bridge approaches. Although the proposed project would result in visual changes to each site, features of the new bridges would be substantially similar in character to the existing structures. A visual simulation was prepared to illustrate what the Nanahu Bridge would look like after project implementation, and is shown in Figure 3-4. Because the Nanahu Bridge design is very similar to the Kawela design, a simulation was not prepared for the Kawela Bridge. The following analysis applies to both bridges.

From the vantage point of highway users, the new bridge railing structures would be the most noticeable change compared to existing conditions. But in general, this and other visual changes would be considered minimal and would not affect the quality of views toward the bridge. Other project features, such as lane width alterations and road shoulder establishment would be even less noticeable compared to existing conditions than the more visually salient new guard railing. In addition, the proposed bridge deck and roadway elevations would closely match the existing bridge deck and roadway elevations.

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 minimal and because the project site is not highly visible from areas outside the project site's immediate vicinity.

The project could result in temporary visual impacts during the construction period as a result of dust, the presence of heavy equipment at the project site, lighting associated with night-time construction activities, and the presence of additional vehicles traveling throughout construction areas. Also, the proposed temporary detour road and bypass bridge would alter the visual character of the project site. These impacts would be considered less than significant because they would be minimal and temporary.

3.15 Roads and Traffic

3.15.1 Existing Conditions

Kamehameha Highway (State Route 83) is the main transportation corridor for the northern portion of Oahu. In the vicinity of the Kawela and Nanahu bridges, the highway had an AADT of 7,800 in 2012. The highway, in the project vicinity, is classified as Urban Principal Arterial with a posted speed limit of 45 mph.

3.15.2 Potential Impacts and Mitigation Measures

3.15.2.1 Development in the State Highway Right-of-Way

3.15.2.1.1 Kawela Bridge

The Kawela Bridge project would affect approximately 1,500 feet of Kamehameha Highway. The ROW width at Kawela Bridge, and the associated bridge approaches, is approximately 50 feet. The replacement bridge would be constructed within the ROW of the existing highway facility, and on adjacent ROW for the purposes of bridge construction, staging, and access. Use of permanent ROW, permanent easements, and construction parcels is described in Section 2.3.3 Properties Affected by the Project.

3.15.2.1.2 Nanahu Bridge

The Nanahu Bridge project would affect approximately 1,900 feet of Kamehameha Highway. The ROW width at Nanahu Bridge, and the associated bridge approaches, is approximately 50 feet. The replacement bridge would be constructed within the ROW of the existing highway facility, and on adjacent ROW for the purposes of bridge construction, staging, and access. Use of permanent ROW, permanent easements, and construction parcels is described in Section 2.3.3 Properties Affected by the Project. The new Nanahu Bridge would be operated within the ROW of the existing highway facility.

3.15.2.2 Traffic Impacts

Short-term Construction-related Impacts. Temporary bypass roads and bypass bridges would be located adjacent to, and *mauka* of, both the existing Kawela and Nanahu bridges. The bypass road and bridge would consist of two travel lanes for the Kawela Bridge and a one-lane bypass road and bridge for Nanahu Bridge, with one lane of the existing road and bridge being used for the other direction, thereby accommodating travel in both directions. The detours are being design for a travel speed of 25 mph (compared to the highway speed of 45 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.

Traffic Control. A traffic management plan would be developed by the Contractor before construction and would be 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 help with travel planning. All temporary signs, signals, and pavement markings would conform to standards contained in FHWA's Manual on Uniform Traffic Control Devices issued (FHWA, 2009).

Emergency Services. Kamehameha Highway is a lifeline transportation facility for police, fire, and emergency medical services. The project includes temporary bypass roads adjacent to the existing structures that are 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 would be required to 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.

3.16 Public Utilities and Services

3.16.1 Existing Conditions

3.16.1.1 Water and Wastewater Systems

The BWS provides water service throughout the island. Water lines are generally located in ROWs and distribute potable water for domestic, industrial, and commercial consumption and for fire protection. An underground 16-inch distribution water line is located on the *mauka* side of the Kawela Bridge. A 12-inch distribution water line is located on the *mauka* side of the Nanahu Bridge.

The CCH wastewater management system is managed by the Department of Environmental Services. Wastewater generated on Oahu is processed by one of nine wastewater treatment plants, which are spread over the island and either owned or operated by CCH. There are no sewer lines or treatment facilities in the project area.

3.16.1.2 Solid Waste Management

The County's solid waste management system is managed by the Department of Environmental Services. There is one municipal landfill on Oahu, Waimanalo Gulch Landfill, located in Kapolei. CCH owns the landfill, but contracts the management and operation of the site with Waste Management of Hawaii. The County is currently evaluating options for expansion of the landfill. One additional landfill is privately owned by PVT Land Company, Ltd., and is designated specifically for construction and demolition waste.

3.16.1.3 Electrical and Telecommunications Systems

Hawaiian Electric Company (HECO) 12 kilovolt overhead power lines run along the *mauka* side of the road at both Kawela Bridge and Nanahu Bridge.

Hawaiian Telcom provides land-line telecommunications service to customers on the island. Overhead fiber optic and copper cables are located on the *mauka* sides of both bridges. Oceanic Time Warner Cable provides wired cable television service to customers on the island. Army Joint Trunk Signal (communication) cables are located on the *mauka* sides of both bridges.

3.16.2 Potential Impacts and Mitigation Measures

Solid-waste impacts are expected to be short-term and related to construction activities. Removing the existing bridges would generate debris consisting primarily of concrete slabs, asphalt pavement, and metal guardrails, posts, and fastenings. The Contractor will be required to dispose of or recycle all materials at approved sites and with proper handling during transport. The Contractor will 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.

By State law (HRS §§103D-407), highway and road construction projects funded by the State or County are required to use a minimum of 10 percent crushed-glass aggregate in all base course and sub-base, when glass is available to the Contractor at a price no greater than the equivalent aggregate.

The proposed project would not generate demand for water or wastewater disposal. The Kawela water line is anticipated to remain underground in the existing location. Potential impacts to the Nanahu Bridge waterline would be accommodated underground by a utility easement outside of the existing Nanahu Bridge. Because of the short span of the bridges, telecommunications cables that are currently supported on the existing bridges may be temporarily relocated overhead during construction. Temporary and permanent impacts to the existing overhead utilities are anticipated because of the detour and the permanent bridge widening. HDOT is coordinating with affected utility companies for temporary relocation and long-term disposition of utility lines. This project would not adversely impact utilities, as service for all utilities would be maintained during and after construction.

3.17 Parks and Recreational Facilities

3.17.1 Existing Conditions

Per analysis performed for the project, there is one unnamed publicly owned park property (composed of two parcels) in the project study area located along Kawela Bay, just south of the Turtle Bay Resort in the vicinity of Kawela Bridge.

3.17.1.1 City and County of Honolulu Unnamed Park Property

CCH own two contiguous parcels along Kawela Bay just west of the Turtle Bay Resort. This westernmost parcel of the property was recently acquired by CCH from the Turtle Bay Resort. The unnamed park property (both parcels) totals 9.9 acres in size and currently does not contain any formal park or recreational amenities (the parcel does contain beach land along Kawela Bay). However, CCH are planning to develop the property for recreational purposes, and as such the property is being considered as a Section 4(f) resource.

CCH recreational plans for the property known at this point in time include the development of a trail and construction of 22 public parking spaces.

3.17.2 Description of Impacts

The proposed project would permanently incorporate approximately 4,108 square feet of land from the unnamed park property for a permanent easement. The purpose of the permanent easement is to install and maintain riprap along Kawela Stream.

The described project work would not adversely affect any existing or planned recreational features, attributes, or activities of the park property.

3.18 Secondary and Cumulative Impacts

Replacement of the Kawela and Nanahu bridges is a self-contained project. Because it would not change the capacity of the existing highway, it is not expected to have secondary impacts such as population change, land development, or effects on public facilities and services.

The HDOT repaving project from Dairy Road to Laiewa Bridge is adjacent to the project and is anticipated to be limited to the existing Kamehameha Highway ROW. Although the repaving project and the proposed project may have overlapping construction schedules, temporary impacts to highway users as a result of construction (for example, more visible construction equipment, construction noise, and travel-time delays) would be minimized with the implementation of BMPs throughout construction. As a result, any cumulative temporary impacts are not anticipated to be significant. After construction, operation of the repaved Kamehameha Highway would not represent any additional permanent impacts to natural or human resources, and therefore would not represent a cumulative impact when combined with the proposed project.

In October 2015, Turtle Bay Resort and CCH finalized their conservation agreement, which includes preserving the land *makai* of Kawela Bridge for city park use. As a result, the project would have no effect on any future Turtle Bay Resort expansion.

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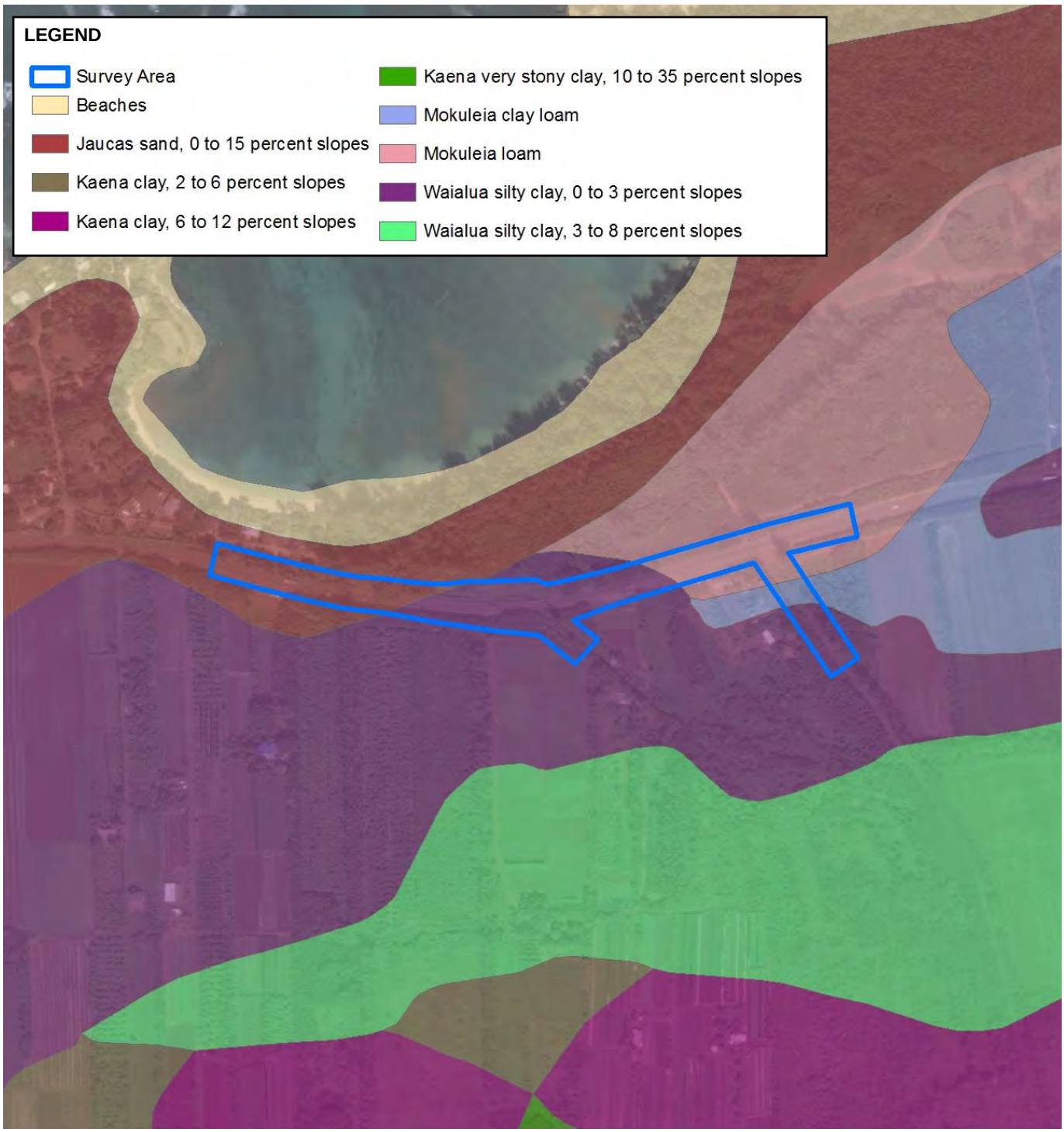


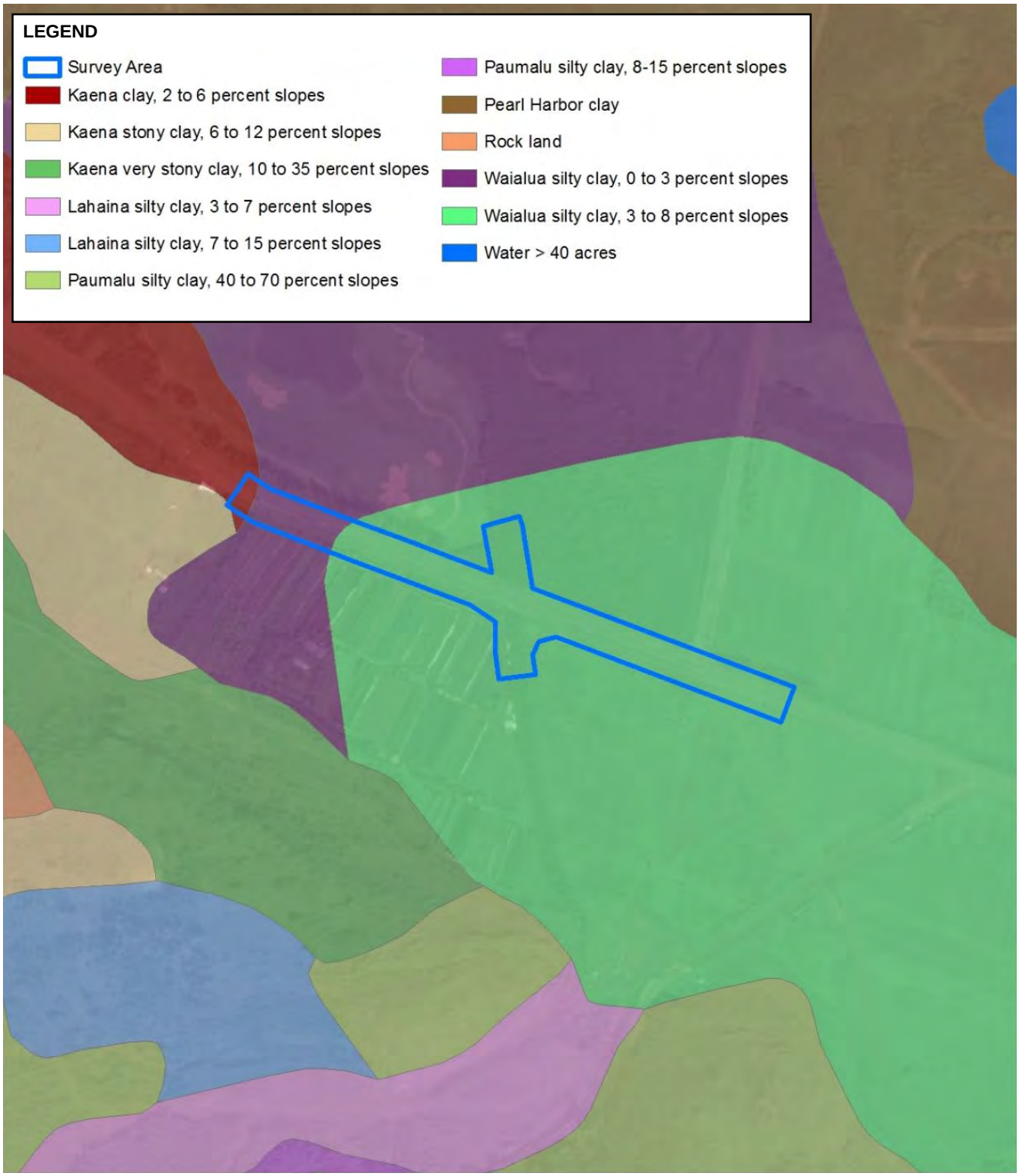
Source: SWCA Environmental Consultants. 2015. Determination and Delineation of Wetlands and Other Waters of U.S. for the Kawela Bridge Project, Kamehameha Highway, Route 83, Kahuku, O'ahu Island, Hawai'i. March

North

0 200 400

Approximate scale in feet

FIGURE 3-1a
Soils – Kawela
Kawela/Nanahu Bridge Project
Hawaii Bridges Program –
Central Federal Lands Highway Division and
Hawaii Department of Transportation



Source: SWCA Environmental Consultants. 2015. Determination and Delineation of Wetlands and Other Waters of U.S. for the Kawela Bridge Project, Kamehameha Highway, Route 83, Kahuku, O'ahu Island, Hawai'i. March

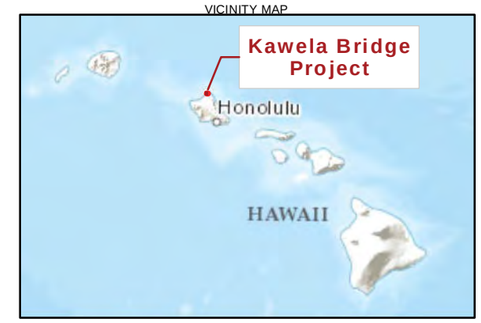
North

0 200 400

Approximate scale in feet

FIGURE 3-1b
Soils – Nanahu
Kawela/Nanahu Bridge Project
Hawaii Bridges Program –
Central Federal Lands Highway Division and
Hawaii Department of Transportation

VICINITY MAP



LEGEND

- Permanent Impact Area
- Temporary Impact Area
- Waters of the U.S.
- Waters of the U.S. within the Project Area

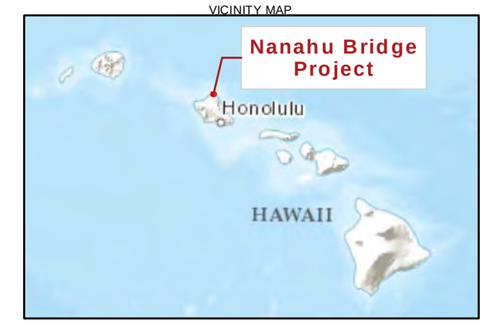
Notes:
1. High-Res Imagery Source: Google Earth 01/16/2013
2. Low-Res Imagery Source: Digital Globe 01/11/2011
3. Imagery base map is not orthorectified; therefore project features may not properly align with the imagery.

N

0 150 300
Feet

FIGURE 3-2a
Waters of the U.S. – Kawela Bridge
Kawela/Nanahu Bridge Project
Hawaii Bridges Program –
Central Federal Lands Highway Division and
Hawaii Department of Transportation

VICINITY MAP



LEGEND

- Permanent Impact Area
- Temporary Impact Area
- Waters of the U.S.
- Waters of the U.S. within the Project Area

Notes:
1. High-Res Imagery Source: Google Earth 01/16/2013
2. Low-Res Imagery Source: Digital Globe 01/11/2011
3. Imagery base map is not orthorectified; therefore project features may not properly align with the imagery.

N

0 150 300
Feet

FIGURE 3-2b
Waters of the U.S. – Nanahu Bridge
Kawela/Nanahu Bridge Project
Hawaii Bridges Program –
Central Federal Lands Highway Division and
Hawaii Department of Transportation

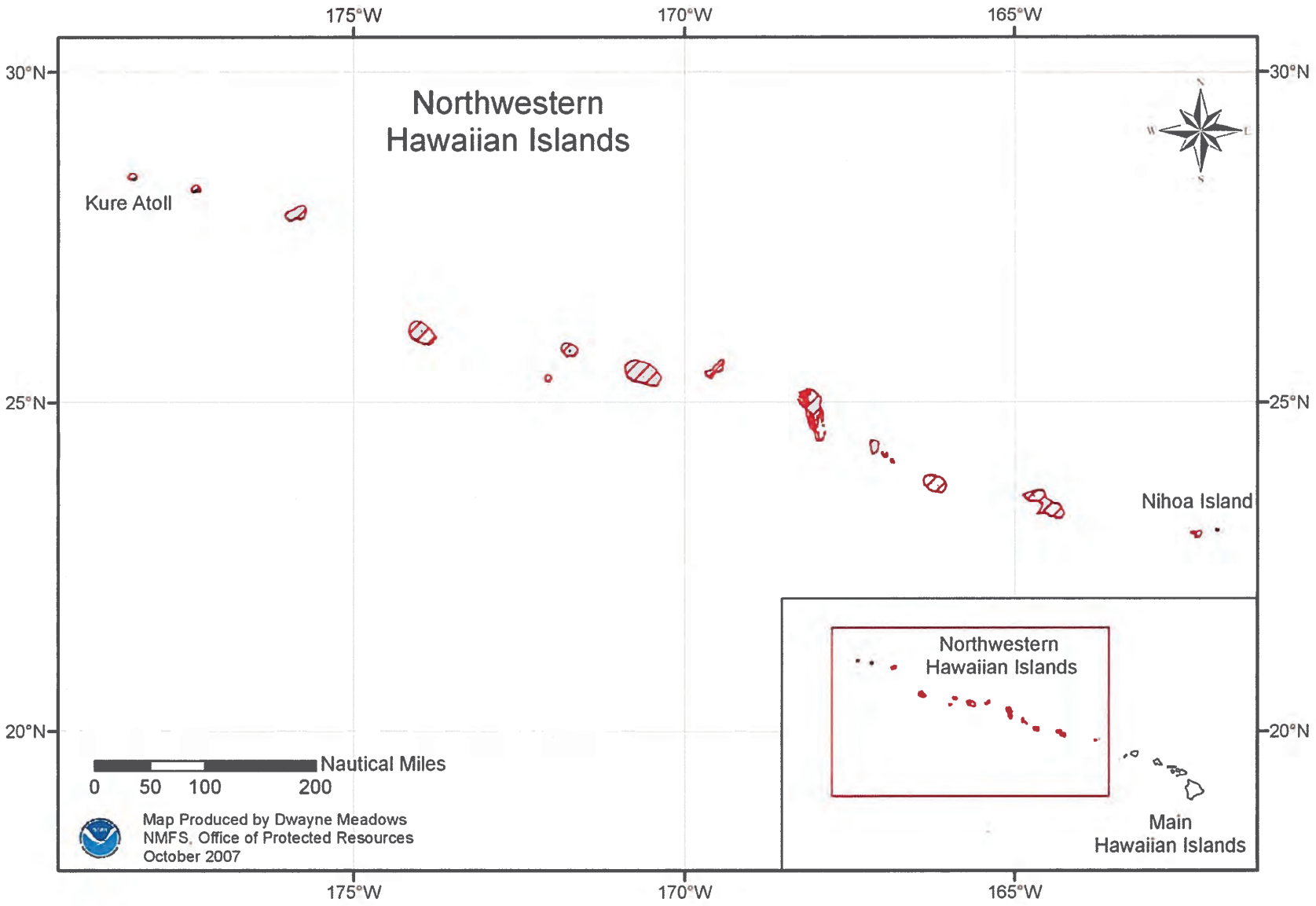


FIGURE 3-3
Monk Seal Designated Critical Habitat
Kawela/Nanahu Bridge Project
Hawaii Bridges Program –
Central Federal Lands Highway Division and
Hawaii Department of Transportation

Existing Bridge

Visual Simulation

FIGURE 3-4
Visual Simulation
Kawela/Nanahu Bridge
Hawaii Bridges Program –
Central Federal Lands Highway Division and
Hawaii Department of Transportation

Note: Simulation performed for Nanahu Bridge only. The effect at Kawela Bridge would be similar.

CHAPTER 4

4 Relationships to Plans, Policies, and Controls

The plans and policies related 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 involve the use of Federal funds through the FHWA. As a result, the proposed project must comply with various Federal statutory and regulatory requirements.

4.1.1 National Environmental Policy Act of 1970

The proposed project would be partially funded by FHWA; this Federal funding subjects the project to the environmental review requirements of National Environmental Policy Act (NEPA), prescribed under 40 CFR Parts 1500 – 1508 (Council on Environmental Quality [CEQ]). 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 Part 771, Environmental Impact and Related Procedures.

The NEPA determination of impact significance is related to the type of 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 when there would be 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 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 relative abundance of resources in the project limits. 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, FHWA anticipates issuing a CE.

4.1.2 Section 106 of the National Historic Preservation Act of 1966

The National Historic Preservation Act 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 National Historic Preservation Act of 1966 (16 U.S.C. 470f) requires that Federal agencies consider the effects of their projects on historic properties. 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 potential effects of the proposed project on 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 the proposed project may adversely affect historic properties, and developing a reasonable and acceptable resolution in the monitoring and treatment of any historic properties in agreement with the agency, SHPO, and consulting government agencies, community associations, and Native Hawaiian organizations and families.

Meetings were held with the SHPO on September 9, 2014, 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. Letters were sent to potential consulting parties as part of the Section 106 consultation process in May 2016. A legal notice requesting public input to the Section 106 process was published in the *Hawaii Star Advertiser* on May 4, 2016.

Copies of the documents related to the Section 106 consultation process are provided in Appendix D. Consultation on the project will continue through project development and be completed by FHWA before its project approval.

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

Section 4(f) of the U.S. Department of Transportation (DOT) Act of 1966, 49 U.S.C. 303(c) is a federal law that protects publicly owned parks, recreation areas, wildlife and/or waterfowl refuges, as well as significant historic sites, whether publicly or privately owned. Section 4(f) requirements apply to all transportation projects that require funding or other approvals by USDOT. As a USDOT agency, CFLHD must comply with Section 4(f).

Per analysis performed for the project, there is one park property in the project study area: an unnamed publicly owned park property (composed of two parcels) located along Kawela Bay, just south of the Turtle Bay Resort in the vicinity of Kawela Bridge. There are no designated wildlife or waterfowl refuges in the study area.

Per cultural resources analysis performed for the project, the project area does not contain any sites that are listed in, or determined eligible for, the NRHP; consequently, there are no Section 4(f) historic sites in the study area. Nanahu Bridge was reevaluated by Mason Architects in 2015 (see Appendix D) and was found to be ineligible for the Hawaii State Register of Historic Places or NRHP because it lacks distinguishing characteristics and is not a significant example of its bridge type. The Kawela Bridge was evaluated in the 2009 Kawela Stream Bridge Replacement EA (FHWA-CFLHD, 2009) and was found to be ineligible for the Hawaii State Register of Historic Places or NRHP because it lacks integrity due to its deteriorated condition. Because no eligible historic properties are located within the project APE, the proposed project would have "No Historic Properties Affected" in accordance with 36 CFR 800.5 and "No Effect" in accordance with HAR §13-13-275-7.

Unnamed City and County of Honolulu Park Property

CCH owns two contiguous parcels along Kawela Bay just west of the Turtle Bay Resort. This westernmost parcel of the property was recently acquired by CCH from the Turtle Bay Resort. The unnamed park property (both parcels) totals 9.9 acres in size and currently does not contain any formal park or recreational amenities (the parcel does contain beach land along Kawela Bay). However, CCH is planning to develop the property for recreational purposes, and as such the property is being considered as a Section 4(f) resource. CCH recreational plans for the property known at this point in time include the development of a trail and construction of 22 public parking spaces.

The proposed project would permanently incorporate approximately 4,108 square feet of land from the unnamed park property for a permanent easement, which would be a use under Section 4(f). The purpose of the permanent easement is to install and maintain riprap along Kawela Stream.

The described project work would not adversely affect any existing or planned recreational features, attributes, or activities qualifying the property for protection under Section 4(f). Based on this assessment, CFLHD is preliminarily determining that the project would result in *de minimis* impacts at the unnamed CCH park property.

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 protections 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 are treated and equitably and would receive assistance in moving from the property they occupy.

This project involves the replacement of two existing structures within the existing HDOT ROW. A total of approximately 2.66 acres of land would be needed from four TMKs to accommodate bridge, approach, and highway construction. This would affect two property owners: the Aina Nui Corporation and Turtle Bay Resort. Construction parcels would be coordinated through HDOT. 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 USFWS and NMFS.

To initiate consultation with agencies that have authority over protected species, 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 project. USFWS responded by letter dated December 22, 2014, providing location-specific biological information and recommended standard BMPs. Discussions continued through meetings held with USFWS on January 12, 2015, and with USFWS, USEPA, NMFS, and DLNR-DAR on March 15, 2015.

A Biological Assessment was prepared for the Kawela Bridge and Nanahu Bridge projects (see Appendix C) and was submitted as part of the informal Section 7 consultation process.

4.1.6 Migratory Bird Treaty Act

The MBTA of 1918, as amended (16 U.S.C. 760), protects migratory wild birds found in the U.S. The MBTA makes it unlawful to pursue, hunt, take, capture, possess, sell, purchase, barter, import, export, or transport any migratory bird or any part, next, 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. The proposed project is not expected to affect migratory birds. Three migratory and one introduced bird species Federally protected under the MBTA were observed during the biological survey as described in Section 3.8. 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. The possibility of adversely affecting migratory birds as a result of the proposed project, is likely small. With the implementation of mitigation described in Section 3.8, impacts to MBTA-protected species would be avoided.

4.1.7 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1855(b)), as amended, establishes provisions relative to Essential Fish Habitat (EFH), to identify and protect important habitats for federally managed marine and anadromous fish species. EFH is defined as those waters and substrate necessary to fish for spawning, breeding, feeding and/or growth to maturity. "Waters" include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include areas historically used by fish where appropriate. "Substrate" includes sediment, hard bottom, and structures underlying the waters and associated biological communities. Federal agencies which fund, permit, or undertake activities that may adversely affect EFH (including actions outside EFH, such as upstream/upslope activities) are required to consult with NMFS regarding the potential effects of their actions on EFH, and respond to NMFS recommendations. An adverse effect is defined as any impact that reduces quality and/or quantity of EFH, including direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to, species and their habitat, and other ecosystem components.

The extent of impacts associated with the proposed project that have the potential to effect EFH are limited to sound and the transport of sediment and/or pollutants via live water. Kawela Stream is a low gradient reach that exhibits periods of disconnectivity to Kawela Bay which is likely related to tidal activity (see Section 4, Affected Environment in Appendix C). BMPs and other methods (described in Sections 3.3.4, 3.6.2 and 3.8.8) would reduce the extent to which sediment disturbed as a result of construction would be transferred to live water. As a result, effects to water quality would be minimal and any turbidity in the water as a result of construction would dissipate quickly. However, designated EFH does occur within the defined action area relative to noise impacts (see Section 2.4 in Appendix C). An overview of the proposed project and a discussion of potential project-related impacts was the subject of meetings with NMFS on December 8 and December 5, 2015. Consultation with NMFS is ongoing.

4.1.8 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.

4.1.9 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 Waters of the U.S., 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. The project will result in discharge to Kawela and Hoolapa Streams, which are considered Waters of the U.S.; as such, the project will require a Section 404 Department of Army Permit and Section 401 WQC.

Section 402 of the CWA requires a NPDES permit for point source discharges, including stormwater discharges associated with construction activities. The permit is required for construction activities that disturb 1 acre or more and discharge stormwater from the project site to Waters of the U.S. The project will require an NPDES permit.

4.1.10 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. Pursuant to the CAA and amendments, State-operated permit programs serve to control emissions. In Hawaii, the operating permit program is implemented by the HDOH, and emissions of regulated air pollutants within the state may be subject to permitting as required under HAR 11-60.1.

The purpose of this project is to replace the Kawela and Nanahu bridges and their approaches to maintain the crossings on Kamehameha Highway as a safe and functional component of the regional transportation system. This project has been determined to generate minimal air quality impacts for CAA criteria pollutants (discussed in Section 3.2 of this document) and has not been linked with any special 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 that of the no-build alternative.

Moreover, EPA 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 EPA'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 while vehicle-miles of travel are projected to increase by over 100 percent. This would both reduce the background level of MSAT as well as the possibility of even minor MSAT emissions from this project (FHWA, 2012).

4.1.11 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. USACE and U.S. Coast Guard (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 USGS 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. 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. Hawaii has conditionally certified its Section 404 Nationwide Permits, as long as the work complies with all general conditions. These conclusions are subject to confirmation by USACE Honolulu District.

FHWA-CFLHD would coordinate with USACE and USCG regarding permitting actions under this Act.

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 will, at a minimum, require the construction of Federal structures and facilities to be in accordance with the criteria of the National Flood Insurance Program.

The Kawela Bridge project area is located within Zone VE. Zone VE identifies areas that are within the 100-year coastal flood zone with velocity hazards (wave action), where base flood elevations are determined. Therefore, Kawela Bridge is in a Special Flood Hazard Area and must comply with the rules and regulations of the National Flood Insurance Program (44 CFR) and local flood ordinances.

The Nanahu Bridge is located within a FEMA-regulated floodway, Zone AE. These are areas subject to inundation by the 1-percent-annual-chance (100-year) flood event and 0.2-percent-annual-chance (or 500-year) flood event.

CCH regulates development within flood hazard districts under ROH § 21-9.10. A FEMA "No Rise" analysis and certification would be required in accordance with CCH's flood hazard regulations. The design of the replacement bridge would be required to comply with the National Flood Insurance Program's regulations and requirements.

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 delineation of Waters of the U.S. (including wetlands) was conducted and no wetlands were identified within the survey area, such that there would be no long- or short-term impacts to wetlands.

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 (CZMA) to verify 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 would be carried out in a manner that 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 CZMA would 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 the CZMA under the Hawaii Coastal Zone Management (CZM) Program (HRS Chapter 205A), and therefore, the discussion of the project's consistency with CZM objectives is discussed in Section 4.2.5.

4.1.16 Environmental Justice, Executive Order 12898

Executive Order 12898 (Federal Actions to Address Environmental Justice to Minority and Low Income Populations) was signed on February 11, 1994. The intent of Executive Order 12898 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 the Council on Environmental Quality indicate minority populations exist 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 project area is not located in a residential neighborhood. The closest residence is located approximately 650 feet to the west of the Kawela Bridge. There is one census tract in the northern area of the Oahu (Census Tract 101, Honolulu County). For the Census Tract 101, the U.S. Census counted a population of 7,487 in 2000 (U.S. Census Bureau, 2000), and a population of 7,881 in 2010 (U.S. Census Bureau, 2010). Compared to 2000, the region experienced a net increase of 395 persons, or approximately 5.3 percent.

The project involves replacement of existing structures that are not located in a residential area. As a result, the project would not have a disproportionately high or adverse impact on minority or low-income populations, or both. Therefore, for the purpose of compliance with Executive Order 12898 on Environmental Justice, neither a minority nor a low-income population is determined to be present. The construction and operation of the proposed project would not result in adverse effects to the environment near the project limits, including on adjacent properties or 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 will, 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 complies with Title VI through coordination with and outreach to Native Hawaiian communities required under Section 106, HRS Chapter 343.4.2, and Act 50.

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 a written guide for the long-range development of the state by describing a desired future for the residents of Hawaii and providing a set of goals, objectives, and policies that are intended to shape the general direction of public and private development.

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

> *Facility Systems – Transportation*
>
> *(a)(1) An integrated multi-modal transportation system that services statewide needs and promotes the efficient, economical, safe, and convenient movement of people and goods.*
>
> *(a)(2) A statewide transportation system that is consistent with and will accommodate planned growth objectives throughout the State.*
>
> *(b)(2) Coordinate state, county, federal, and private transportation activities and programs toward the achievement of statewide objectives.*
>
> *(b)(3) Encourage a reasonable distribution of financial responsibilities for transportation among participating governmental and private parties.*
>
> *(b)(6) Encourage transportation systems that serve to accommodate present and future development needs of communities.*
>
> *(b)(10) Encourage the design and the development of transportation systems sensitive to the needs of affected communities and the quality of Hawaii's natural environment.*
>
> *Facility systems – in general*

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

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

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

4.2.2 State Functional Plans

The 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. Of these, the State Transportation Functional Plan is most applicable to the proposed project.

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.

Comment: 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. The replacement bridge and roadway 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 Chapter 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 within and surrounding the project area are classified in the Agricultural District (see Figure 4-1). Roadways are a permitted use in the Agricultural District; no change in land use classification would be needed as a result of the project.

4.2.4 Coastal Zone Management Program and Federal Consistency Determination

In 1977, Hawaii enacted HRS Chapter 205A, Hawaii CZM Program to carry out the State's CZM policies and regulations under the Federal Coastal Zone Management Act (discussed above in Section 4.1.16). 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 is subject to consistency with the CZM program objectives and policies. The Hawaii CZM 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**:** The project area does not contain coastal recreation resources nor would it affect access to coastal recreation opportunities. 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 important to Hawaiian and American history and culture.

- 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 archaeology, historic architecture, and cultural perspectives were conducted for this project, but no eligible historic resources were found within the APE that would be adversely affected by the proposed 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 ensure visual compatibility with the surrounding environment. The project is not located along the shoreline and is not anticipated to negatively impact coastal and scenic and open space resources.

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

  Discussion**:** The Kawela Bridge project is located adjacent to a coastal ecosystem. Implementation of BMPs would protect the coastal environment.

- 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**:** The project is not a coastal dependent development.

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

  Comment**:** The Kawela Bridge project area is located within the tsunami evacuation zone (PDC, 2010). The Nanahu Bridge project area is outside of the tsunami evacuation zone (PDC, 2010). The Kawela and Nanahu bridges are located within the FEMA Zone VE floodplain and Zone AE floodplain, respectively. The design of the replacement bridges are required to comply with the National Flood Insurance Program's regulations and requirements. Hydrologic design for the Kawela and Nanahu bridges replacement are based on a 50-year storm event. The Kawela Bridge proposed project does not meet HDOT criteria requiring 2 feet of freeboard. The project engineer would coordinate with HDOT to obtain a design exception.

  The proposed project would be designed to conform to AASHTO LRFD Bridge Design Specifications, including specifications and recommendations for seismic design. Therefore, no significant impacts relative to seismic activity are anticipated with implementation of the proposed project.

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

  Discussion**:** Opportunity for public review of the project is provided through the EA public comment 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 was elicited through the HRS Chapter 343 EA process. Opportunity for public review of the project is also provided through the 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 because of erosion.

  Discussion**:** The project is not located adjacent to any beaches. Additionally, the Kawela Bridge is not visible from the beaches at Kawela Bay as the two are separated by a thick swath of dense vegetation. Any temporary visual and/or noise disruptions to beach activities in Kawela Bay as a result of construction would be mitigated through the use of BMPs.

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

  Discussion**:** The proposed project at Kawela Bridge would not impact marine resources.

Other key areas of the CZM program include: a permit system to control development within a SMA managed by each County and the Office of Planning (see Section 4.3.4); a Shoreline Setback Area which 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 Honolulu SMA. The proposed project does not involve the placement, construction, or removal of materials near the coastline. The proposed project does not have the potential to substantially affect coastal resources. The proposed project is consistent with the CZM objectives that are relevant to this type of project. FHWA will submit their Federal Consistency determination to the Office of Planning for their concurrence.

4.2.5 Hawaii 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 Chapter 343 HRS to consider cultural practices in a CIA. A CIA is being conducted for the project in compliance with this requirement (see Section 3.11 and Appendix E).

4.3 City and County of Honolulu

4.3.1 City and County of Honolulu General Plan

The CCH General Plan is a policy document for the long-range comprehensive development of the Island of Oahu and also provides the direction for future growth of the City and County. The current General Plan was amended in October 2002 as Resolution 02-205, CD1 and outlines objectives and policies that address the social, economic, physical, environmental, and design objectives for the general welfare and prosperity of the people of Oahu. The project is consistent with the transportation objective of the General Plan which is:

> "To create a multi-modal transportation system which moves people and goods safely, efficiently, and at a reasonable cost and minimizes fossil fuel consumption and greenhouse gas emissions; serves residents and visitors, including limited income, elderly and disabled populations; and is integrated with existing and planned development."

4.3.2 Community Development Plans

The CCH General Plan requires that community development plans be adopted by the County Council for each judicial district in CCH. It is intended to provide detail to the elements presented in the General Plan and emphasize those elements most relevant to the issues and conditions of the specific area plan.

The County Council approved the Koolau Loa Sustainable Communities Plan in October 1999, with revisions in 2012. The proposed project is consistent with the transportation system goals identified in the plan.

4.3.3 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. At both bridge locations, the adjacent land is zoned as AG-1 (Restricted Agricultural District) and AG-2 (General Agricultural District) on the *mauka* side and as P-2 (General Preservation) on the *makai* side (see Figure 4-2). The proposed project would not require a change in the existing zoning designations.

4.3.4 Special Management Area

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 an SMA permit that is administered by CCH. The permitting process provides a heightened level of public scrutiny to ensure consistency with SMA objectives.

Both bridge locations are located within the southern (*mauka*) edge of the SMA (see Figure 4-3). As such, it is expected that an SMA Use permit will be required for the proposed project.

4.4 Transportation Plans

4.4.1 Statewide Federal-aid Highways 2035 Transportation Plan

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

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

TABLE 4-1
Statewide Land Transportation Goals and Objectives

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

4.4.2 Oahu Regional Transportation Plan 2035

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 Oahu Regional Transportation Plan (ORTP) (Oahu Metropolitan Planning Organization, 2011) considers a nearly 25-year planning horizon that incorporates forecasted population, housing, employment, environmental, land-use, and technology changes. Based upon projected transportation needs, financial resources, and community input, the ORTP identifies strategies and actions to promote the development of an integrated, inter-modal, surface transportation system that facilitates the safe, efficient, and economic

movement of people and goods. It also identifies specific highway, transit, freight, bicycle, and pedestrian projects that are designed to improve safety, mitigate congestion, and increase mobility for Oahu's residents and visitors. Projects that appear in the ORTP are eligible for Federal transportation funding assistance. The ORTP is updated every 5 years.

No ORTP projects are currently planned for the North Shore. Therefore, the proposed project would not conflict with or preclude any ORTP project.

4.4.3 Oahu Bike Plan

The Oahu Bike Plan, adopted in August 2012, guides the CCH Department of Transportation Services (DTS) bikeway planning for the entire Island of Oahu. The plan contains objectives and implementing actions, an inventory of existing facilities, and proposals to expand the network of bicycle facilities.

The bike plan includes a proposal for a future bike path that runs approximately 25 miles along the *makai* side of Kamehameha Highway, including through the project area. The proposed project provides improved bicycle and pedestrian access on this section of the Kamehameha Highway via shoulder widening, and does not preclude the development of future bicycle and pedestrian facilities.

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 does not identify pedestrian infrastructure projects along this segment of the Kamehameha Highway, including at the Kawela and Nanahu bridges. Nevertheless, the 8-foot shoulders included in the proposed project would improve safety for pedestrians who may be travelling on these segments of Kamehameha Highway.

4.5 References

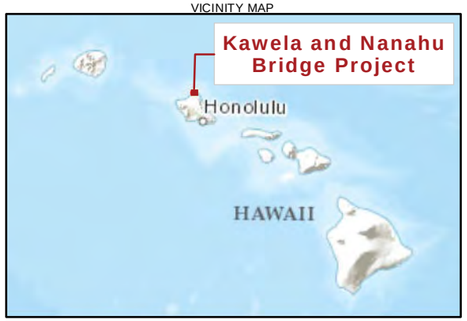
City and County of Honolulu (CCH) Department of Transportation Services (DTS). 2012. Oahu Bike Plan. August. Available at https://www.honolulu.gov/rep/site/dts/bike_docs/Bicycle-OahuBikePlan-8G-August2012.pdf

FHWA. 2012. Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA. December 6. Available at http://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/aqintguidmem.cfm

Oahu Metropolitan Planning Organization. 2011. Oahu Regional Transportation Plan 2035. April. Available at http://www.oahumpo.org/wp-content/uploads/2013/01/11.1.2AdoptedPlan20110411.pdf

Pacific Disaster Center (PDC). 2010. Tsunami Evacuation Zones, Oahu, 2010. Available at http://static.pdc.org/tsunami/#oahu. Accessed September 2, 2015.

VICINITY MAP



LEGEND

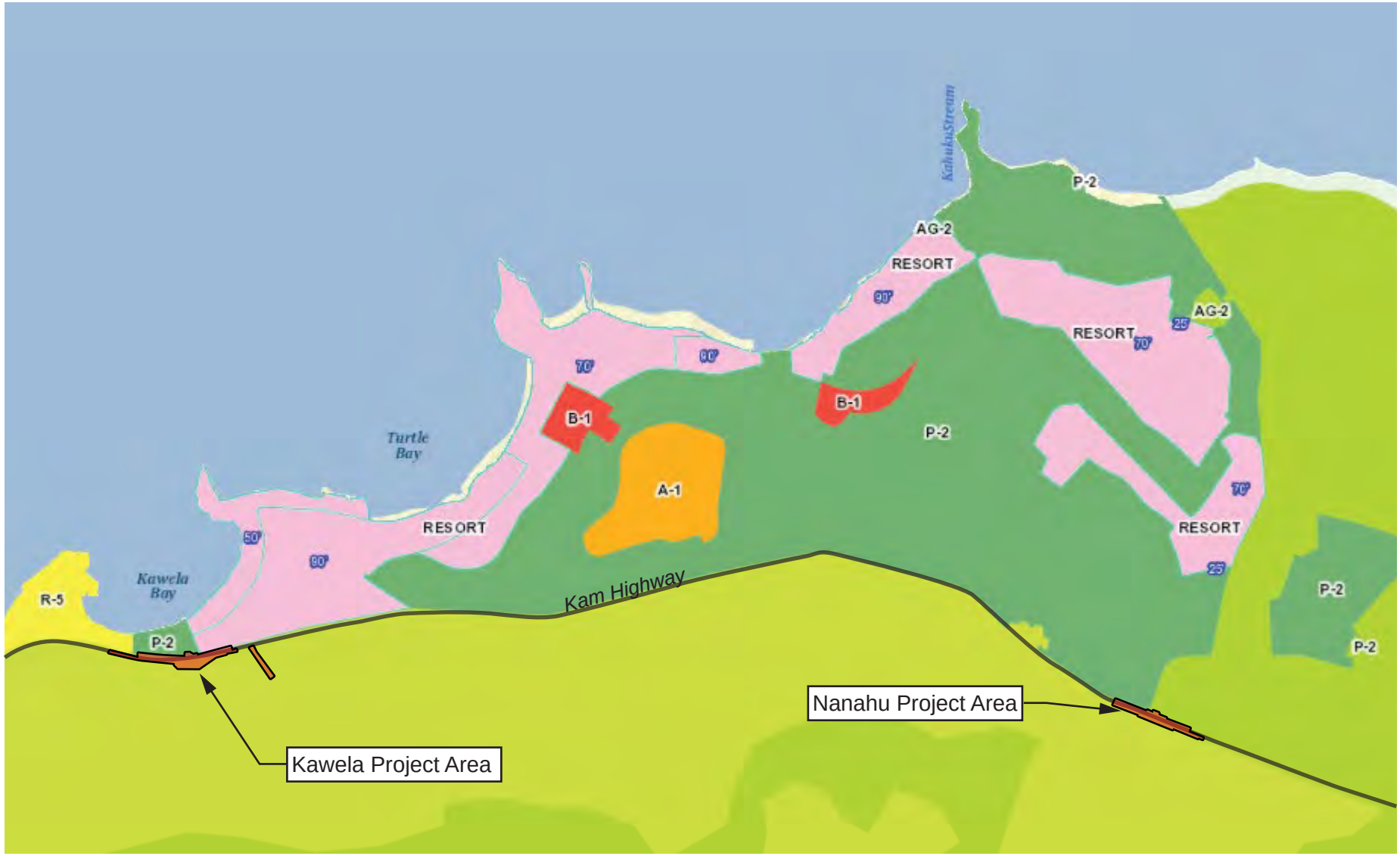
- Project Area
- Agricultural Land Use District
- Conservation Land Use District
- Urban Land Use District

Notes:
1. High-Res Imagery Source: Google Earth 01/16/2013
2. Low-Res Imagery Source: Digital Globe 01/11/2011
3. Imagery base map is not orthorectified; therefore project features may not properly align with the imagery.

N

0 1,000 2,000
Feet

FIGURE 4-1
State Land Use District Boundaries
Kawela/Nanahu Bridge Project
Hawaii Bridges Program –
Central Federal Lands Highway Division and
Hawaii Department of Transportation



Source: City & County of Honolulu, 2015

North

0 1,000 2,000

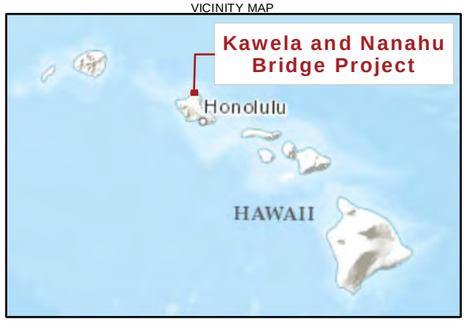
Approximate scale in feet

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

CH2MHILL.

TR0603151048RDD Fig4-2_737_HDOT_ZoningMap_V1.ai cmont 11/12/15

VICINITY MAP



LEGEND

Project Area

Special Management Areas

Notes:
1. High-Res Imagery Source: Google Earth 01/16/2013
2. Low-Res Imagery Source: Digital Globe 01/11/2011
3. Imagery base map is not orthorectified; therefore project features may not properly align with the imagery.

N

0 1,000 2,000
Feet

FIGURE 4-3
Special Management Areas
Kawela/Nanahu Bridge Project
Hawaii Bridges Program –
Central Federal Lands Highway Division and
Hawaii Department of Transportation

CHAPTER 5

5 Findings and Reasons Supporting the Anticipated 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 project area.

The potential effects of the proposed project were evaluated based on the Significance Criteria specified in HAR Section 11-200-12 (revised in 1996). The following is a summary of potential effects of the action.

5.1 Significance Criteria

5.1.1 Irrevocable Commitment to, Loss or Destruction of 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.

5.1.2 Curtailment of the Range of Beneficial Uses of the Environment

The proposed project would replace an existing structure that is structurally deficient and would have no impact on the beneficial uses of the environment within the project area. In addition, the project area is highly urbanized and does not provide unique habitat in the area. The timing of tree trimming and the minimal construction footprint would ensure that there are no significant or long-term effects to the Hawaiian hoary bat. Therefore, no candidate, proposed, or listed threatened or endangered species would be disturbed.

5.1.3 Conflicts with the State's Long-term Environmental Policies or Goals and Guidelines

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.

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.*

The Kamehameha Highway is included as part of the National Highway System and FHWA STRAHNET, and serves multiple modes of land transportation on a daily basis, including passenger vehicles, buses, freight trucks, and bicyclists. The Kawela and Nanahu bridges provide critical crossings of the Kawela Stream and Hapaa Stream, connecting the north shore to the residential and business areas in on the south shore.

The existing bridges have exceeded their design life and replacement structures are needed to maintain the integrity of the transportation system.

5.1.4 Economic or Social Welfare of the Community or State

The proposed project would not result in significant socio-economic 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.

5.1.5 Public Health

With the exception of short-term, construction-related impacts to ambient air and noise levels, no long-term significant impacts to the public's 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.

5.1.6 Secondary Impacts

The proposed project does not include improvements that would change the carrying capacity of the bridge or the roadway. Therefore, 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.

5.1.7 Environmental Quality

The proposed project would not cause any impacts that would substantially degrade environmental quality. By design and function, the proposed bridge would provide a safe crossing while minimizing harm to the surrounding environment. Construction activities associated with the proposed project are anticipated to result in relatively insignificant short-term impacts to noise, air quality, 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.

5.1.8 Effect on the Surrounding Environment

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 agricultural use. No other past, present, or future actions associated with the surrounding uses have been identified that would contribute to significant cumulative impacts for any of the resources considered in this EA.

5.1.9 Rare, Threatened, or Endangered Species or Habitat

Biological surveys in September 2014 identified nine Federally listed species that have the potential to occur in the action area: Hawaiian coot, Hawaiian moorhen, Hawaiian stilt, Hawaiian duck, Hawaiian goose or nene, Hawaiian hoary bat, Hawaiian monk seal, green sea turtle, and hawksbill sea turtle. Potential impacts from the proposed project to these species are expected to be discountable and temporary. The conservation measures described in Section 3.8 would ensure that there are no significant or long-term effects to these Federally listed species.

5.1.10 Air or Water Quality and Noise Levels

There would be minimal short-term impacts on air quality and noise levels during the construction period. Mitigation measures would be implemented to minimize construction-related noise and dust impacts. In the long term, there would be no adverse impacts on air and water quality.

5.1.11 Environmentally Sensitive Area

This project is not located in an environmentally sensitive area. The project is being designed in accordance with standards appropriate to the geologic, hydrologic, and seismic setting.

5.1.12 Scenic Vistas and Views Identified in County or State Plans or Studies

The overall visual quality of the project area would not change substantially as a result of bridge replacement. The proposed project would not obstruct any view planes or scenic vistas.

5.1.13 Energy Consumption

Fuel would be consumed by construction vehicles and equipment, but this use would be comparable to other construction projects and no adverse effects are expected.

5.2 Conclusion

Through bridge design, impact avoidance and minimization actions, and proposed BMPs and mitigation measures, the analysis contained in this EA has determined that the project would have no significant adverse impacts or would have impacts that can be mitigated to less than significant levels.

CHAPTER 6

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

CHAPTER 7

7 Consultation and Coordination

7.1 Agencies, Organizations and Individuals Consulted During Preparation of the Draft Environmental Assessment

The following agencies, organizations, and individuals 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 National Historic Preservation Act [NHPA] Section 106 and ESA Section 7) or for general assistance in preparing the Draft EA and/or were engaged through project-related meetings. A template of the general consultation letter is included at the end of this section.

Consultation with Native Hawaiian Organizations regarding Historic Preservation is required as part of compliance with NHPA Section 106 and HRS Chapter 6E. Consultation is also occurring with the DLNR SHPO.

7.1.1 Federal

- USACE
- USFWS
- USEPA
- NMFS
- Oahu National Wildlife Refuge Complex

7.1.2 State of Hawaii

- Oahu Civil Defense Agency
- Department of Accounting and General Services
- Department of Hawaiian Home Lands
- HDOH, Clean Water Branch
- HDOH, Environmental Planning Office
- DLNR
- Office of Hawaiian Affairs
- Office of Planning
- SHPD

7.1.3 City and County of Honolulu

- DTS
- Department of Design and Construction
- Honolulu Fire Department
- Department of Planning and Permitting
- Department of Parks and Recreation
- Honolulu Police Department
- Department of Facility Maintenance
- Department of Environmental Services
- Department of Emergency Services
- Department of Emergency Management

7.1.4 Utilities

- Honolulu BWS
- HECO
- Hawaii Gas

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

7.1.5 Organizations

- Sierra Club, Oahu Group of Hawaii Chapter

7.2 Early Consultation Comment Letters Received

A total of 12 agencies responded to requests for comments during the Draft EA preparation period, all of which originated from the State and county level. Seven of the 12 responding agencies provided substantive comments. Substantive comments from these agencies are summarized herein, and are incorporated into relevant sections of the Draft EA. Letters are reproduced in full at the end of this section.

7.2.1 State Agencies

- **HDOH, Clean Water Branch** (letter dated May 18, 2015).
    1. A project that potentially impacts State waters must meet the following: (1) antidegradation policy, (2) designated uses, and (3) water quality criteria.
    2. NPDES permit coverage may be required.
    3. Permit from USACE may be required.
    4. Compliance with State water quality standards is required.
    5. All projects must reduce, reuse, and recycle to protect, restore, and sustain water quality and beneficial uses of State waters.
- **HDOH, Environmental Planning Office** (letter dated May 12, 2015)
    1. Use of the online Hawaii Environmental Health Portal is encouraged.
    2. Water Quality Standards Maps have been updated and are posted online.
    3. University of Hawaii studies related to potential sea level rise changes in Hawaii are available online.
- **DLNR, Commission on Water Resource Management** (memo dated January 7, 2015, attached to letter from Russell Tsuji, Administrator, Land Division, DLNR, dated January 15, 2015)
    1. A Stream Channel Alteration Permit is needed before alteration(s) can be made to the stream bed and/or banks.
- **State Office of Planning** (letter dated May 1, 2015)
    1. Verify project TMKs.
    2. The Draft EA should contain an analysis of project conformance with the Hawaii State Plan.
    3. The Draft EA should contain an assessment of project conformance with CZM objectives.
    4. Confirm whether a Special Management Area permit is required.
    5. Federal Consistency Review should be listed as a potential requirement.
    6. DEA should include a section on watershed protection and management (see Hawaii Watershed Guidance developed by the Office of Planning).
    7. Consider the Office of Planning's Stormwater Impact Assessment when evaluating project-related stormwater impacts.
    8. Consider Low Impact Development design concepts and BMPs.

7.2.2 County Agencies

- **Honolulu Police Department** (letter dated April 27, 2015)
  1. The stability of the bridges and the disturbance of traffic flow require measures to be implemented for the safety of the motorists driving on the bridges.
  2. The integrity of the bridges must be preserved to prevent them from any structural breakdown and collapsing.
  3. When construction begins, traffic control devices (e.g., flag persons, clear signage and cones, and special duty officers, etc.) should be used to facilitate movements throughout the project area.
- **Honolulu Department of Emergency Management** (email dated June 5, 2015): Some of the projects may be within the tsunami evacuation zone and pose a hazard to workers during construction/renovation.
- **Honolulu Fire Department** (letter dated April 28, 2015):
  1. Bridge should be brought up to current standards to allow our apparatuses to traverse without any restrictions.
  2. The Honolulu Fire Department should be informed of road closures, lane closures, or any condition that would affect our emergency response.

7.3 Distribution List for the Draft Environmental Assessment

The following agencies, organizations, and individuals will be included on the distribution list for notification of the Draft EA public review and comment period. Comments received on the Draft EA will be considered and incorporated into the Final EA, as appropriate.

7.3.1 Federal

- USACE
- USFWS
- NMFS

7.3.2 State of Hawaii

- Oahu Civil Defense Agency
- Department of Accounting and General Services
- Department of Hawaiian Home Lands
- HDOH, Clean Water Branch
- HDOH, Environmental Planning Office
- DLNR
- Office of Hawaiian Affairs
- Office of Planning
- SHPO
- Senator Gil Riviere, Senate District 23
- Representative Feki Pouha, House District 47

7.3.3 City and County of Honolulu

- DTS
- Department of Design and Construction
- Honolulu Fire Department
- Department of Planning and Permitting

- Department of Parks and Recreation
- Honolulu Police Department
- Department of Facility Maintenance
- Department of Environmental Services
- Department of Emergency Services
- Department of Emergency Management
- Honolulu Councilmember Ernest Martin

7.3.4 Utilities

- Honolulu BWS
- HECO
- Hawaii Gas
- Hawaiian Telcom
- Oceanic Time Warner Cable
- Sandwich Isles Communications

7.3.5 Media

- *The Honolulu Star-Advertiser*

7.3.6 Public Library

In addition, a copy of the Draft EA will be distributed to the following outlets to allow for public review of the project information.

- Kahuku Public Library

REQUEST FOR PRE-ASSESSMENT COMMENTS

Template Letter with Project Sheet (attachment)

Comments Received

- State of Hawaii Department of Health, Clean Water Branch
- State of Hawaii Department of Health, Environmental Planning Office
- State of Hawaii Department of Land and Natural Resources, Commission on Water Resource Management
- State of Hawaii Office of Planning
- Honolulu Police Department
- Honolulu Department of Emergency Management
- Honolulu Fire Department

U.S. Department of Transportation
Federal Highway Administration

Central Federal Lands Highway Division

12300 West Dakota Avenue
Suite 380
Lakewood, CO 80228
720-963-3647
michael.will@dot.gov

March 24, 2015

In Reply Refer To:
HFPM-16

Dear :

Subject: Hawaii Bridge Program for Island of Oahu
Federal Highway Administration, Central Federal Lands Highway Division
Pre-Assessment Consultation
Chapter 343, Hawaii Revised Statutes and National Environmental Policy Act

The Federal Highway Administration, Central Federal Lands Highway Division (CFLHD), in partnership with the Hawaii Department of Transportation (HDOT), is conducting environmental studies to examine the impacts of three projects to improve four bridges on the island of Oahu. We are assisted in this effort by our consultant, CH2M HILL.

- Halona Street Bridge on Halona Street, adjacent to the H-1 Freeway
  Honolulu District, TMK: [1] 1-6
- Roosevelt Bridge on Kamehameha Highway crossing Kipapa Gulch
  Ewa District, TMK: [1] 9-4
- Nanahu Bridge on Kamehameha Highway
  Koolauloa District, TMK: [1] 5-6
- Kawela Bridge on Kamehameha Highway
  Koolauloa District, TMK: [1] 5-7

Attached to this letter are fact sheets for each of the bridge projects, including photos and maps. We are requesting comments and input regarding environmental concerns in all resource areas, and information that might help us to evaluate the projects.

The environmental review for this project is being conducted in accordance with the National Environmental Policy Act (NEPA) and Hawaii Revised Statutes (HRS), Chapter 343.

Please send any concerns or comments to Kathleen Chu, CH2M Hill program manager (CH2M Hill, Inc, 1132 Bishop Street, Suite 1100, Honolulu, HI 96813) or myself, within 30 days receipt of this letter. If you have questions, please contact Ms. Chu at Ph. 440-0283 or kathleen.chu@ch2m.com or myself at Ph. 720-963-3647 or Michael.will@dot.gov. Thank you.

Sincerely,

J. Michael Will, P.E.
Program Engineering Manager

Enclosure:

Fact Sheets for Roosevelt Bridge, Halona Street Bridge, Kawela Bridge and Nanahu Bridge

cc: Nicole Winterton/FHWA-CFLHD
Kathleen Chu/CH2M HILL
Paul Luersen/CH2M HILL
Elizabeth Cutler/CH2M HILL

Nanahu Bridge

Kahuku, Oahu
TMK: [1] 5-6-030

Location

The project area for the improvements includes Nanahu Bridge and its immediate environs. The bridge is located on Kamehameha Highway (State Route 83) at Mile Post 13.39, west of the Marconi Road and Kamehameha Highway intersection on the north side of the Island of Oahu (see Project Location Map). The bridge crosses Hoolapa Stream.

Existing Conditions

Built in 1938, Nanahu Bridge is a 2-lane bridge about 28 feet wide and a total length of 24 feet. The posted speed on Kamehameha Highway at the project location is 45 mph. Kamehameha Highway is classified as an urban principal arterial.

Photo 1: View of Nanahu Bridge looking makai

Purpose and Need

The purpose of this project is to improve Nanahu Bridge and its approaches, by rehabilitation or replacement, to create a stream crossing of Kamehameha Highway that remains a safe and functional component of the regional transportation system for highway users. Based on bridge inspections and studies, a number of conditions were identified that need to be remedied, including: replace the bridge railing and transitions, replace the bridge approaches, and lengthen the bridge to reduce flooding conditions on the roadway.

Project Description

Bridge design alternatives are being developed in conjunction with ongoing environmental studies. However, design options will include the following components:

- Restore structural integrity of the stream crossing via bridge rehabilitation or replacement
- Meet live load and seismic requirements
- Provide for adequate hydrological flow under flood conditions
- Mitigate scouring on foundations
- Widen bridge to include adequate shoulders and travel lane widths
- Upgrade bridge railings in compliance with crash test requirements
- Replace/relocate existing utilities, as necessary
- Develop a traffic management plan with appropriate construction-period detours

Project Location Map

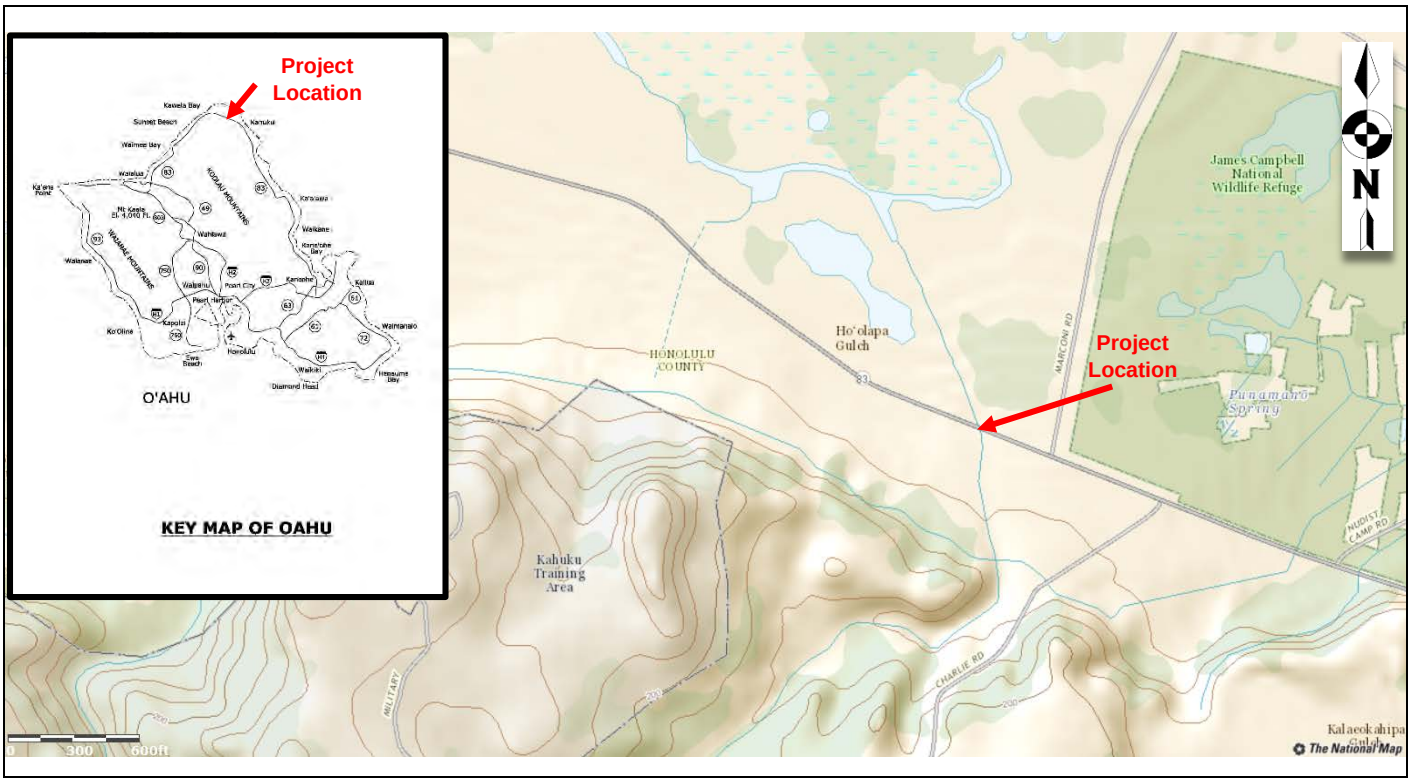


Photo 2: View of Nanahu Bridge looking south

Photo 3: View of Nanahu Bridge looking mauka

Kawela Bridge

Kawela, Kahuku, Oahu
TMK: [1] 5-7-001

Photo 1: View of Kawela Bridge looking mauka

Location

The project area for the improvements includes Kawela Bridge and its immediate environs. The bridge is located on Kamehameha Highway (State Route 83) at milepost 11.39, west of the Kawela Camp Road intersection and Turtle Bay Resort on the island of Oahu (see Project Location Map).

Existing Conditions

Built in 1931, Kawela Bridge is a 2-lane bridge about 27 feet wide and a total length of 24 feet. The posted speed on Kamehameha Highway at the project location is 45 mph. Kamehameha Highway is classified as an urban principal arterial.

Purpose and Need

The purpose of this project is to improve Kawela Bridge and its approaches, by rehabilitation or replacement, to create a stream crossing of Kamehameha Highway that remains a safe and functional component of the regional transportation system for highway users. Based on bridge inspections and studies, a number of conditions were identified that need to be remedied, including: replace the bridge railing and transitions, and bridge approaches.

HDOT completed a final environmental assessment (EA) and finding of no significant impact (FONSI) in 2009. The EA will provide a basis for the NEPA document.

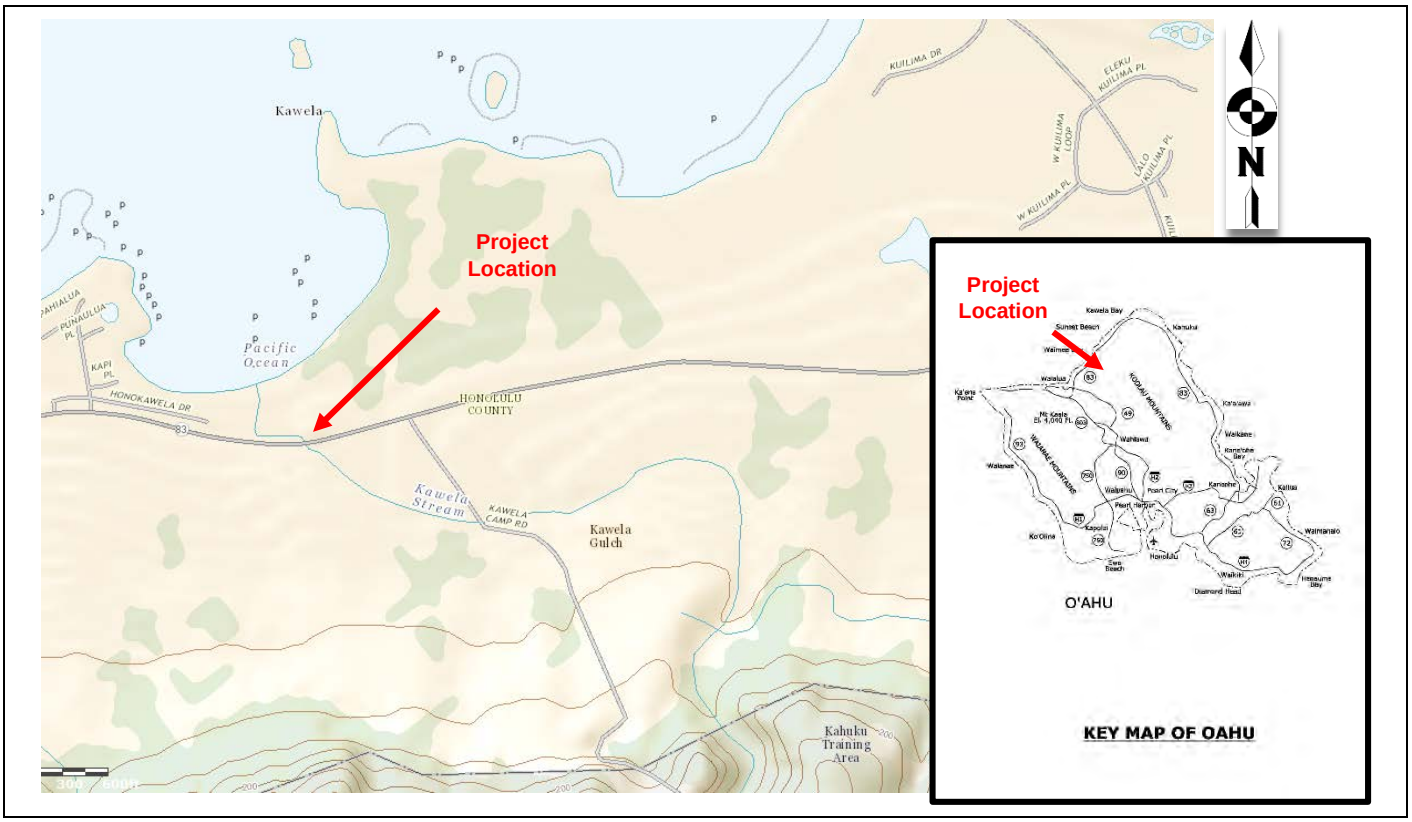
Project Description

Bridge design alternatives are being developed in conjunction with ongoing environmental studies. However, design options will include the following components:

- Restore structural integrity of the stream crossing via bridge rehabilitation or replacement
- Meet live load and seismic requirements
- Provide for adequate hydrological flow under flood conditions
- Mitigate scouring on foundations
- Widen bridge to include adequate shoulders and travel lane widths
- Upgrade bridge railings in compliance with crash test requirements
- Replace/relocate existing utilities, as necessary
- Develop a traffic management plan with appropriate construction-period detours

This project is included in the Statewide Transportation Improvement Program (STIP) and will be funded, in part, with federal monies.

Project Location Map



Photos 2: View of Kawela Bridge deck

Photo 3: View of Kawela Bridge looking north

DAVID Y. IGE
GOVERNOR OF HAWAII

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

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

In reply, please refer to:
EMD/CWB

05028PNN.15

May 18, 2015

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

Dear Mr. Will:

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

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

1. Any project and its potential impacts to State waters must meet the following criteria:

   a. Antidegradation policy (HAR, Section 11-54-1.1), which requires that the existing uses and the level of water quality necessary to protect the existing uses of the receiving State water be maintained and protected.

   b. Designated uses (HAR, Section 11-54-3), as determined by the classification of the receiving State waters.

   c. Water quality criteria (HAR, Sections 11-54-4 through 11-54-8).

2. You may be required to obtain National Pollutant Discharge Elimination System (NPDES) permit coverage for discharges of wastewater, including storm water runoff, into State surface waters (HAR, Chapter 11-55).

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

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

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

4. Please note that all discharges related to the project construction or operation activities, whether or not NPDES permit coverage and/or Section 401 WQC are required, must comply with the State's Water Quality Standards. Noncompliance with water quality requirements contained in HAR, Chapter 11-54, and/or permitting requirements, specified in HAR, Chapter 11-55, may be subject to penalties of $25,000 per day per violation.

5. It is the State's position that all projects must reduce, reuse, and recycle to protect, restore, and sustain water quality and beneficial uses of State waters. Project planning should:

   a. Treat storm water as a resource to be protected by integrating it into project planning and permitting. Storm water has long been recognized as a source of irrigation that will not deplete potable water resources. What is often overlooked is that storm water recharges ground water supplies and feeds streams and estuaries; to ensure that these water cycles are not disrupted, storm water cannot be relegated as a waste product of impervious surfaces. Any project planning must recognize storm water as an asset that sustains and protects natural ecosystems and traditional beneficial uses of State waters, like

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

b. Clearly articulate the State's position on water quality and the beneficial uses of State waters. The plan should include statements regarding the implementation of methods to conserve natural resources (e.g., minimizing potable water for irrigation, gray water re-use options, energy conservation through smart design) and improve water quality.

c. Consider storm water Best Management Practice (BMP) approaches that minimize the use of potable water for irrigation through storm water storage and reuse, percolate storm water to recharge groundwater to revitalize natural hydrology, and treat storm water which is to be discharged.

d. Consider the use of green building practices, such as pervious pavement and landscaping with native vegetation, to improve water quality by reducing excessive runoff and the need for excessive fertilization, respectively.

e. Identify opportunities for retrofitting or bio-engineering existing storm water infrastructure to restore ecological function while maintaining, or even enhancing, hydraulic capacity. Particular consideration should be given to areas prone to flooding, or where the infrastructure is aged and will need to be rehabilitated.

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

Sincerely,

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

NN:ay

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

U.S. Department of Transportation
Federal Highway Administration

Central Federal Lands Highway Division

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

December 7, 2015

In Reply Refer To:
HFPM-16

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

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

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

Dear Mr. Wong:

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

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

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

Sincerely yours,

J. Michael Will, P.E.
Project Manager

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

DAVID Y. IGE
GOVERNOR OF HAWAII

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

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

In reply, please refer to:
File:
HFPM-16

EPO 15-094

May 12, 2015

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

Dear Mr. Will:

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

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

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

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

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

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

Mahalo nui loa,

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

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

U.S. Department of Transportation
Federal Highway Administration

Central Federal Lands Highway Division

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

December 7, 2015

In Reply Refer To:
HFPM-16

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

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

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

Dear Ms. McIntyre:

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

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

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

Sincerely yours,

J. Michael Will, P.E.
Project Manager

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

DAVID Y. IGE
GOVERNOR OF HAWAII

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

FIRST DEPUTY

WILLIAM M. TAM
INTERIM DEPUTY DIRECTOR - WATER

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

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

January 15, 2015

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

Dear Mr. Will,

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

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

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosure(s)

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

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

RECEIVED
LAND DIVISION
2015 JAN 14 PM 1:19
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

December 2, 2014

MEMORANDUM

TO: **DLNR Agency:**

X Div. of Aquatic Resources
__ Div. of Boating & Ocean Recreation
X Engineering Division
X Div. of Forestry & Wildlife
__ Div. of State Parks
X Commission on Water Resource Management
X Office of Conservation & Coastal Lands

X Land Division – Oahu District
X Land Division – Kauai District
__ Land Division – Maui District
X Land Division – Hawaii District
X Historic Preservation

FR

TO:

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Notification of Intent to Construct the Hawaii Bridge Program, Request for Information
LOCATION: Various (see cover letter) including all Districts except Maui
APPLICANT: Federal Highway Administration, Central Federal Lands Highway Division, in cooperation with the Hawaii Department of Transportation

Transmitted for your review and comment on the above-referenced document. We would appreciate your comments on this document.

Please submit any comments by December 18, 2014. If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
(X) Comments are attached.

Signed: _____
Print Name: WILLIAM M. TAM, Deputy Director
Date: January 7, 2015

FILE ID: RFO. 4095.0
DOC ID: 11897

DAVID Y. IGE
GOVERNOR OF HAWAII

CARTY S. CHANG
ACTING CHAIRPERSON

DENISE ANTOLINI
KAMANA BEAMER
MICHAEL G. BUCK
MILTON D. PAVAO
VIRGINIA PRESSLER, M.D.
JONATHAN STARR

WILLIAM M. TAM
DEPUTY DIRECTOR

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

January 7, 2015

REF: RFD.4095.0

TO: Russell Tsuji, Administrator
Land Division

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

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

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

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

Our comments related to water resources are checked off below.

☐ 1. We recommend coordination with the county to incorporate this project into the county's Water Use and Development Plan. Please contact the respective Planning Department and/or Department of Water Supply for further information.

☐ 2. We recommend coordination with the Engineering Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.

☐ 3. We recommend coordination with the Hawaii Department of Agriculture (HDOA) to incorporate the reclassification of agricultural zoned land and the redistribution of agricultural resources into the State's Agricultural Water Use and Development Plan (AWUDP). Please contact the HDOA for more information.

☐ 4. We recommend that water efficient fixtures be installed and water efficient practices implemented throughout the development to reduce the increased demand on the area's freshwater resources. Reducing the water usage of a home or building may earn credit towards Leadership in Energy and Environmental Design (LEED) certification. More information on LEED certification is available at http://www.usgbc.org/leed. A listing of fixtures certified by the EPA as having high water efficiency can be found at http://www.epa.gov/watersense/.

☐ 5. We recommend the use of best management practices (BMP) for stormwater management to minimize the impact of the project to the existing area's hydrology while maintaining on-site infiltration and preventing polluted runoff from storm events. Stormwater management BMPs may earn credit toward LEED certification. More information on stormwater BMPs can be found at http://hawaii.gov/dbedt/czm/initiative/lid.php.

☐ 6. We recommend the use of alternative water sources, wherever practicable.

☐ 7. We recommend participating in the Hawaii Green Business Program, that assists and recognizes businesses that strive to operate in an environmentally and socially responsible manner. The program description can be found online at http://energy.hawaii.gov/green-business-program

☐ 8. We recommend adopting landscape irrigation conservation best management practices endorsed by the Landscape Industry Council of Hawaii. These practices can be found online at http://www.hawaiiscape.com/wp-content/uploads/2013/04/LICH_Irrigation_Conservation_BMPs.pdf

☐ 9. There may be the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.

Permits required by CWRM:
Additional information and forms are available at http://hawaii.gov/dlnr/cwrm/info_permits.htm.

☐ 10. The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit is required prior to use of water. The Water Use Permit may be conditioned on the requirement to use dual line water supply systems for new industrial and commercial developments.

☐ 11. A Well Construction Permit(s) is (are) required before any well construction work begins.

☐ 12. A Pump Installation Permit(s) is (are) required before ground water is developed as a source of supply for the project.

☐ 13. There is (are) well(s) located on or adjacent to this project. If wells are not planned to be used and will be affected by any new construction, they must be properly abandoned and sealed. A permit for well abandonment must be obtained.

☐ 14. Ground water withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.

☒ 15. A Stream Channel Alteration Permit(s) is (are) required before any alteration(s) can be made to the bed and/or banks of a stream channel.

☐ 16. A Stream Diversion Works Permit(s) is (are) required before any stream diversion works is (are) constructed or altered.

☐ 17. A Petition to Amend the Interim Instream Flow Standard is required for any new or expanded diversion(s) of surface water.

☐ 18. The planned source of water for this project has not been identified in this report. Therefore, we cannot determine what permits or petitions are required from our office, or whether there are potential impacts to water resources.

☐ OTHER:

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

U.S. Department of Transportation
Federal Highway Administration

Central Federal Lands Highway Division

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

December 7, 2015

In Reply Refer To:
HFPM-16

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

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

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

Dear Mr. Hardy:

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

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

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

Sincerely yours,

J. Michael Will, P.E.
Project Manager

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

OFFICE OF PLANNING
STATE OF HAWAII

DAVID Y. IGE
GOVERNOR

LEO R. ASUNCION
ACTING DIRECTOR
OFFICE OF PLANNING

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

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

Ref. No. P-14732

RECEIVED
MAY 4 2015

May 1, 2015

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

Dear Ms. Chu:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Sincerely,

Leo R. Asuncion
Acting Director

c: J. Michael Will, P.E., Program Engineering Manager

U.S. Department of Transportation
Federal Highway Administration

Central Federal Lands Highway Division

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

December 7, 2015

In Reply Refer To:
HFPM-16

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

Dear Mr. Asuncion:

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

1. Tax Map Key numbers will be verified.

2. The Draft Environmental Assessment (DEA) will discuss consistency with the Hawaii State Plan.

3. The DEA will discuss consistency with Coastal Zone Management objectives.

4. Where relevant, the Special Management Area permit will be listed as a potential requirement.

5. Federal Consistency Review will be listed as a potential requirement.

6. The DEA will assess potential impacts on water resources.

7. We acknowledge the availability of the Office of Planning's Stormwater Impact Assessment as an environmental planning resource.

8. Stormwater management measures are being considered in project design and will be addressed in the DEA.

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

Sincerely yours,

J. Michael Will, P.E.
Project Manager

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

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU
801 SOUTH BERETANIA STREET · HONOLULU, HAWAII 96813
TELEPHONE: (808) 529-3111 · INTERNET: www.honolulupd.org

RECEIVED
APR 29 2015

KIRK W. CALDWELL
MAYOR

LOUIS M. KEALOHA
CHIEF

DAVE M. KAJIHIRO
MARIE A. McCAULEY
DEPUTY CHIEFS

OUR REFERENCE MT-DK

April 27, 2015

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

Dear Ms. Chu:

This is in response to a letter from the Central Federal Lands Highway Division of the Federal Highway Administration, U.S. Department of Transportation (dated March 24, 2015), requesting environmental concerns for the Hawaii Bridge Program on the island of Oahu.

The Honolulu Police Department has reviewed the fact sheets for the bridge projects. Based on the information provided, we have no concerns regarding any impact to the environment. However, the stability of the bridges and the disturbance of traffic flow require measures to be implemented for the safety of the motorists driving on the bridges.

The integrity of the bridges must be preserved to prevent them from any structural breakdown and collapsing. When construction begins, traffic control devices (e.g., flag persons, clear signage and cones, and special duty officers, etc.) should be utilized to facilitate vehicle movements throughout the project area.

If there are any questions, please contact the following commanders for their respective areas: Major Kerry Inouye of District 2 (Wahiawa – Roosevelt Bridge) at 723-8703; Major Ryan Borges of District 4 (Kailua/Kaneohe/Kahuku – Kawela and Nanahu Bridges) at 235-7621; and Major Crizalmer Caraang of District 5 (Kalihi – Halona Street Bridge) at 723-8202.

Thank you for the opportunity to review this project.

Sincerely,

LOUIS M. KEALOHA
Chief of Police

By Mark Tsuyemura
MARK TSUYEMURA,
Management Analyst VI
Office of the Chief

U.S. Department of Transportation
Federal Highway Administration

Central Federal Lands Highway Division

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

December 7, 2015

In Reply Refer To:
HFPM-16

TO: MARK TSUYEMURA FOR LOUIS M. KEALOHA
HONOLULU POLICE DEPARTMENT
801 SOUTH BERETANIA STREET
HONOLULU, HI 96813

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

SUBJECT: PRE-ASSESSMENT CONSULTATION
HAWAII BRIDGE PROGRAM, OAHU PROJECTS
HALONA STREET BRIDGE
ROOSEVELT (KIPAPA) BRIDGE
KAWELA BRIDGE
NANAHU BRIDGE

Dear Mr. Tsuyemura:

Thank you for pre-assessment comments on the subject projects transmitted by letter dated April 27, 2015. We offer the following responses:

- Traffic Management Plans will be prepared for all bridge projects.
- Bridges are being designed to meet current standards, including standards for structural integrity and seismic resistance.
- Traffic control devices will be provided through the construction zone in accordance with the Manual of Uniform Traffic Control Devices.

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

Sincerely yours,

J. Michael Will, P.E.
Project Manager

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

Mirikitani, Sharon S/HNL

From: Chu, Kathleen/HNL
Sent: Friday, June 05, 2015 10:09 AM
To: Mirikitani, Sharon S/HNL; Luersen, Paul/HNL
Subject: Fwd: Letter HFPM-16

- Kathleen

Begin forwarded message:

> **From:** "Hirai, Peter J.S." <PHirai@honolulu.gov>
> **Date:** June 5, 2015 at 10:46:59 AM PDT
> **To:** "'kathleen.chu@ch2m.com'" <kathleen.chu@ch2m.com>
> **Subject: Letter HFPM-16**
>
> Dear Ms. Chu:
>
> The City and County of Honolulu Department of Emergency Management is in receipt of letter HFPM-16 from the Central Federal Lands Highway Division regarding the Hawaii Bridge Program for Island of Oahu.
>
> The Department has no comments or inputs on the environmental concerns; however some of the projects near the coast may be within the tsunami evacuation zone http://www.honolulu.gov/demevacuate/tsunamimaps.html and would pose a hazard to workers during construction/renovation.
>
> Thank you for allowing us to comment on your projects. I can be reached for any comments or questions.
>
> Sincerely,
> Peter
> Peter J.S. Hirai, MSS, CEM®
> Deputy Director
> Department of Emergency Management
> 650 South King Street
> Honolulu, Hawaii 96813-3078
> Voice: (808) 723-8960 Fax: (808) 768-1458
>
> Follow DEM—
> On the World Wide Web: www.OahuDEM.org
> On Facebook: www.facebook.com/OahuDEM
> On Twitter: www.twitter.com/Oahu_DEM
> Sign up for free alerts to your cell phone at www.nixle.com/DEM, provided by the City & County of Honolulu

U.S. Department of Transportation
Federal Highway Administration

Central Federal Lands Highway Division

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

December 7, 2015

In Reply Refer To:
HFPM-16

TO: PETER J.S. HIRAI, MSS, CEM
DEPUTY DIRECTOR
DEPARTMENT OF EMERGENCY MANAGEMENT
650 SOUTH KING STREET
HONOLULU, HI 96813

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

SUBJECT: PRE-ASSESSMENT CONSULTATION
HAWAII BRIDGE PROGRAM, OAHU PROJECTS
HALONA STREET BRIDGE
ROOSEVELT (KIPAPA) BRIDGE
KAWELA BRIDGE
NANAHU BRIDGE

Dear Mr. Hirai:

Thank you for pre-assessment comments on the subject projects transmitted by letter dated June 5, 2015.

We acknowledge that some coastal projects may be located within the tsunami evacuation zone. The Draft Environmental Assessment (DEA) will address potential coastal hazards.

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

Sincerely yours,

J. Michael Will, P.E.
Project Manager

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

HONOLULU FIRE DEPARTMENT

CITY AND COUNTY OF HONOLULU

636 South Street
Honolulu, Hawaii 96813-5007
Phone: 808-723-7139 Fax: 808-723-7111 Internet: www.honolulu.gov/hfd

RECEIVED
MAY 1 2015

KIRK CALDWELL
MAYOR

MANUEL P. NEVES
FIRE CHIEF

LIONEL CAMARA JR.
DEPUTY FIRE CHIEF

April 28, 2015

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

Dear Ms. Chu:

Subject: Preassessment Consultation
Hawaii Bridge Program for Island of Oahu
Federal Highway Administration, Central Federal Lands Highway Division

In response to a letter dated March 24, 2015, from Mr. Michael Will of the U.S. Department of Transportation's Central Federal Lands Highway Division regarding the above-mentioned subject, the Honolulu Fire Department (HFD) reviewed the information provided and has no comments regarding the environmental concerns for these projects. However, we request that:

1. The bridges be brought up to current standards to allow our apparatuses to traverse without any restrictions; we can provide you with a list of our apparatus specifications if needed.

2. The HFD be informed of road closures, lane closures, or any condition that would affect our emergency response.

Should you have questions, please contact Battalion Chief Terry Seelig of our Fire Prevention Bureau at tseelig@honolulu.gov or 723-7151.

Sincerely,

Socrates D. Bratakos

SOCRATES D. BRATAKOS
Assistant Chief

SDB/JW:bh

U.S. Department of Transportation
Federal Highway Administration

Central Federal Lands Highway Division

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

December 7, 2015

In Reply Refer To:
HFPM-16

TO: SOCRATES D. BRATAKOS
ASSISTANT CHIEF
HONOLULU FIRE DEPARTMENT
636 SOUTH STREET
HONOLULU, HI 96813

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

SUBJECT: PRE-ASSESSMENT CONSULTATION
HAWAII BRIDGE PROGRAM, OAHU PROJECTS
HALONA STREET BRIDGE
ROOSEVELT (KIPAPA) BRIDGE
KAWELA BRIDGE
NANAHU BRIDGE

Dear Mr. Bratakos:

Thank you for pre-assessment comments on the subject projects transmitted by letter dated April 28, 2015.

Bridge improvements will be designed to meet current AASHTO standards and, therefore, will support unrestricted use by fire apparatuses. The construction management team will keep the Honolulu Fire Department and other emergency responders apprised of access modifications during the construction period.

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

Sincerely yours,

J. Michael Will, P.E.
Project Manager

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