

FINAL ENVIRONMENTAL ASSESSMENT

Hilea and Ninole Bridge Replacement Project, Mamalahoa Highway, Route 11, Kau District, Island of Hawaii, Hawaii

Project No. HI STP SR11(1) and SR 11(2)

TMKs: [3] 9-5-017:007 por. and 008 por.; 9-5-019:011 por., 016 por., 024 por., and 035 por.; 9-5-027: 020 por.
and Mamalahoa 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

March 2017

**HILEA AND NINOLE BRIDGE REPLACEMENT PROJECT
MAMALAHOA HIGHWAY
Project No. HI STP SR11(1) AND SR11(2)
Kau District, Island of Hawaii, Hawaii**

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

Submitted Pursuant to
Hawaii Revised Statutes, Chapter 343

State of Hawaii, Department of Transportation, Highways Division

3.24.17

Date of Approval


For State of Hawaii, Department of Transportation

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Department of Transportation
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This Final Environmental Assessment (EA) documents impact studies for a proposed project to replace the existing Hilea and Ninole bridges on Mamalahoa Highway, which cross Hilea and Ninole Streams, respectively.

The existing timber bridges would be replaced with longer and wider bridges with no change in the highway alignment. The new bridges would continue to carry two travel lanes (one lane in each direction), with a typical section consisting of two 11-foot lanes, two 9-foot shoulders, and crash-tested railings. For each bridge, temporary two-lane bypass roads and bridges would be provided on the *mauka* side of the highway throughout the construction period.

Project implementation would result in short-term, construction-related impacts (noise, dust, and erosion), but best management practices (BMPs) would be implemented to minimize the environmental effects. Seven Federally-protected wildlife species (Hawaiian goose, Hawaiian hawk, Hawaiian petrel, Newell's shearwater, Hawaiian hoary bat, band-rumped storm petrel, and Blackburns sphinx moth) have the potential to occur within the project limits, but restrictions on the timing of construction and minimization of the project footprint would preclude any long-term effects to the species. Critical habitat and protected plant species do not exist within the project limits. As both Hilea Bridge and Ninole Bridge are eligible for listing on the National and Hawaii Registers of Historic Places, the proposed project would have an "adverse effect" on historic architectural resources in accordance with Federal regulations (36 CFR 800.5) and an "effect, with proposed mitigation commitments" in accordance with State regulations (HAR §13-13-275-7). Impacts would be mitigated to the extent that they are expected to be less than significant. Based on the conclusions of this EA, a Finding of No Significant Impact (FONSI) has been issued under HRS, Chapter 343.

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- Consultation Letter with Determination of Eligibility and Effects (dated January 26, 2016)
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Acronyms and Abbreviations

°F	degrees Fahrenheit
µg/m ³	micrograms per cubic meter
AADT	annual average daily traffic
AASHTO	American Association of State Highway and Transportation Officials
AC	acre
amsl	above mean sea level
APE	Area of Potential Effects
BMP	best management practice
CAA	Clean Air Act
CDP	Community Development Plan
CE	Categorical Exclusion
CEQ	Council on Environmental Quality
CER	computerized environmental report
CFR	<i>Code of Federal Regulations</i>
CFLHD	Central Federal Lands Highway Division
cfs	cubic feet per second
CRM	concrete rubble masonry
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
EA	Environmental Assessment
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FFY	Federal Fiscal Year
FHWA	Federal Highway Administration
FWCA	Fish and Wildlife Coordination Act
FWPCA	Federal Water Pollution Control Act
HAR	Hawaii Administrative Rules
Hawaii General Plan	<i>County of Hawaii General Plan (County of Hawaii, 2005)</i>
HDOH	State of Hawaii Department of Health
HDOT	State of Hawaii Department of Transportation
HRS	Hawaii Revised Statutes
LBP	lead-based paint
LRFD	Load and Resistance Factor Design

<i>makai</i>	oceanward
<i>mauka</i>	mountainward
MBTA	Migratory Bird Treaty Act
MP	Milepost
mph	miles per hour
MSAT	mobile source air toxics
N/A	not applicable
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Services
NPDES	National Pollutant Discharge Elimination System
OEQC	Office of Environmental Quality Control
OHWM	Ordinary High Water Mark
PM _{2.5}	particulate matter less than 2.5 microns
ppb	parts per billion
ppm	parts per million
ROW	right-of-way
SHPD	State Historic Preservation Division
SHPO	State Historic Preservation Officer
SIHP	State Inventory of Historic Properties
SMA	Special Management Area
SO ₂	sulfur dioxide
SSURGO	Soil Conservation Services Soil Survey Geographic
State Route 11	Mamalahoa Highway
STIP	Statewide Transportation Improvement Program
SWCA	SWCA Environmental Consultants
TMK	Tax Map Key
USACE	U.S. Army Corps of Engineers
U.S.C.	U.S. Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WQC	water quality certification

Project Summary

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

TABLE PS-1

Project Summary

Project Name	Hilea and Ninole Bridge Replacement Project, Mamalahoa Highway, Route 11, Kau District, Island of Hawaii, Hawaii
Proposing/Determination Agency	State of Hawaii Department of Transportation (HDOT)
Determination	Finding of No Significant Impact under Hawaii Revised Statutes (HRS) Chapter 343
Tax Map Key(s)	[3] 9-5-017:007 por. and 008 por.; 9-5-019:011 por., 016 por., 024 por., and 035 por.; 9-5-027:020 por. and Mamalahoa Highway Right-of-Way
Existing Uses of the Project Corridor	Hilea Bridge area - Roadway through largely undeveloped area with rolling terrain and heavy vegetation. Ninole Bridge area – Roadway through largely rural area with rolling terrain and heavy vegetation. The Sea Mountain Golf Course straddles Mamalahoa Highway. A golf cart path connecting both sides of the course is located beneath Ninole Bridge. A residential development is located nearby on Alahaki Road.
State Land Use	Hilea Bridge area – Agricultural District (<i>mauka</i> [mountainward]) and Conservation District (<i>makai</i> [oceanward]) Ninole Bridge area – Urban District
Special Management Area	Hilea and Ninole Bridges – Yes
Hawaii General Plan	Hilea Bridge area – Agriculture and Conservation Ninole Bridge area – Urban
Zoning	Hilea Bridge area - Agricultural A-20a (<i>mauka</i>) and Open (<i>makai</i>) Ninole Bridge area - Agricultural A-20a and Single-family Residential RS-20 on the <i>mauka</i> side of the bridge and Multiple-family Residential RM-3 and Open on the <i>makai</i> side of the bridge
Proposed Project	The proposed project involves replacement of the existing Hilea and Ninole bridges, which cross Hilea and Ninole Streams, respectively. The existing timber bridges would be replaced with longer and wider bridges with no change in the highway alignment. The new bridges would continue to carry two travel lanes (one lane in each direction), with a typical section consisting of two 11-foot lanes, two 9-foot shoulders, and crash-tested railings. For each bridge, temporary two-lane bypass roads and bridges would be provided on the <i>mauka</i> side of the highway throughout the construction period.
Anticipated Impacts	Short-term, construction-related impacts (noise, dust, and erosion) would occur, but the implementation of best management practices (BMPs) would minimize the effects to the environment. Seven Federally-protected wildlife species (Hawaiian goose, Hawaiian hawk, Hawaiian petrel, Newell’s shearwater, Hawaiian hoary bat, band-rumped storm petrel, and Blackburns sphinx moth) have the potential to occur within the project limits, but restrictions on the timing of construction and minimization of the project footprint would preclude any long-term effects to the species. Critical habitat and protected plant species do not exist within the project limits. As both Hilea Bridge and Ninole Bridge are eligible for listing on the National and State Registers of Historic Places, the proposed project would have an “adverse effect” on historic architectural resources in accordance with Federal regulations (36 Code of Federal Regulations 800.5) and an “effect, with proposed mitigation commitments” in accordance with State regulations (Hawaii Administrative Rules §13-13-275-7). Impacts would be mitigated to the extent that they are expected to be less than significant.

Preface

The proposed project involves replacement of Hilea and Ninole bridges, which are located on Mamalahoa Highway (State Route 11) (Milepost [MP] 57.7 and 56.7, respectively) in the Kau District, County of Hawaii. As the proposed project would involve the use of State funds and State lands (comprising the Mamalahoa Highway right-of-way, under the jurisdiction of State of Hawaii Department of Transportation [HDOT]) and use of land classified as Conservation District, compliance with Hawaii Revised Statutes (HRS) Chapter 343 is required. This Environmental Assessment (EA) has been prepared pursuant to HRS Chapter 343 (as amended), and Hawaii Administrative Rules (HAR) Title 11, Chapter 200, Environmental Impact Statement (EIS).

The project would also use Federal funding provided by the U.S. Department of Transportation Federal Highway Administration (FHWA). Use of Federal funds subjects the project to environmental documentation requirements set forth under the National Environmental Policy Act (NEPA) of 1969, (42 U.S. Code [U.S.C.] 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 would be consistent with the findings of this EA.

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 replacing Hilea and Ninole bridges on Hawaii Island. This Environmental Assessment (EA) has been prepared in compliance with Hawaii Revised Statutes (HRS) Chapter 343, with HDOT as the proposing agency.

This project would replace the existing Hilea Bridge with a 100-foot-long, single-span bridge, while the existing Ninole Bridge would be replaced with a 65-foot-long, single-span bridge. The new bridges would accommodate two 11-foot travel lanes, a 9-foot shoulder on each side, and a 1-foot, 2-inch-wide guardrail (metal railing on the bridge approaches) on each side. This project would improve mobility for highway users and address existing structural deficiencies by strengthening the bridges' foundations and designing their approaches, decks, and railings to meet current standards.

The Hilea and Ninole Bridge projects are combined for environmental review because of their close proximity (approximately 1 mile apart), similar deficiencies, similar proposed bridge design, and ability to use shared staging areas and equipment for simultaneous construction of both bridges.

1.2 Existing Conditions

Hilea Bridge is located along Mamalahoa Highway (State Route 11) at Milepost (MP) 57.7, approximately 1.2 miles southwest of the Alahaki Road and Ninole Loop Road intersection. Ninole Bridge is located along the same highway at MP 56.6, approximately 500 feet southwest of the Alahaki Road and Ninole Loop Road intersection. Hilea and Ninole bridges and Mamalahoa Highway are under the jurisdiction of the HDOT. Figures 1-1a and 1-1b show the study area, as defined for project-related planning and environmental surveys. Photos of Hilea and Ninole bridges are included in Figures 1-2a and 1-2b.

The existing Hilea Bridge was built in 1940 and is a two-span, wooden-timber bridge (approximately 41 feet long and 24 feet wide). Its piers consists of a timber on a cement rubble masonry (CRM) wall, while the abutments are concrete on CRM walls. The driving surface consists of asphaltic concrete pavement.

The existing Ninole Bridge was built in 1940 and is a three-span, wooden-timber bridge (60 feet long and approximately 24 feet wide). Its piers consist of timber on a CRM wall, while the abutments are concrete on CRM walls. The driving surface consists of asphaltic concrete pavement. There is a paved pathway used for golf carts, associated with the Sea Mountain Golf Course, which runs under the existing bridge.

Mamalahoa Highway is a two-lane undivided highway classified as a Rural Minor Arterial. The posted speed at the project location is 55 miles per hour (mph). Near Hilea Bridge, travel lanes are approximately 10 feet wide with 2-foot shoulders on either side. Near Ninole Bridge, travel lanes are between approximately 10 and 12 feet wide, with shoulders varying from 4 to 13 feet. For 2012, HDOT reported an annual average daily traffic (AADT) of 2,400 on Mamalahoa Highway within the project vicinity. Traffic volumes are projected to reach 2,510 in 2016 and 5,360 in 2035 (the project's design year) (FHWA-CFLHD, 2015).

Although it is not on the National Highway System, the project is eligible for Federal funding. Mamalahoa Highway (also designated State Route 11 through the project area) is part of the Hawaii Belt Road, which encircles Hawaii Island.

1.3 Project Purpose and Need

The purpose of the project is to improve Hilea and Ninole bridges and their approaches to maintain stream crossings on Mamalahoa Highway that remain safe and functional components of the regional transportation system for highway users.

The project is needed because the existing bridges do not meet the current (2014) American Association of State Highway Transportation Officials (AASHTO) and HDOT structural and design standards for load capacity, bridge railing and transitions, and bridge approaches. Both bridges are considered structurally deficient and functionally obsolete.

Specifically, the existing Hilea and Ninole bridges have the following deficiencies:

- The inventory load rating (daily carrying capacity) for Hilea Bridge is 27 tons, and for Ninole Bridge is 27.9 tons, which are below the minimum standard of 36 tons.
- Hilea and Ninole bridges neither meet current design standards, nor current live load and seismic requirements.
- The approach roadway width for Hilea Bridge consists of two, 10 foot lanes and two shoulders that are approximately 2 feet wide. The approach roadway width for Ninole Bridge consists of two lanes that vary from 10 feet to 16 feet and two shoulders that vary in width from approximately 4 feet to 13 feet. Neither meet the current design standards of 11-foot-wide lanes and 9-foot-wide shoulders.
- The Hilea and Ninole bridge railings do not meet standards for barrier crashworthiness of a TL-3 rail; that is, able to withstand the impact of a car or light truck traveling 62 mph (AASHTO, 2009).
- Hilea Bridge needs to be widened to meet current roadway design standards and extended to meet hydraulics standards.
- Ninole Bridge needs to be widened to meet roadway design requirements.

1.4 Purpose of the Environmental Assessment

This EA discloses the environmental and cultural impacts that may result from the project's implementation, and commits to specific mitigation measures that would be implemented to avoid and/or minimize potential impacts. The EA has been prepared to satisfy the requirements of HRS Chapter 343 and Hawaii Administrative Rules (HAR) Title 11, Chapter 200, Environmental Impact Statement (EIS), and other environmental compliance requirements. The proposed project triggered the rules and regulations for environmental review because the project would use State lands and State funds, as well as land classified in the conservation district.

1.5 Public Comment on the Environmental Assessment

The 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*. OEQC officially announced the availability of the Draft EA on May 8, 2016, which initiated a 30-day review and comment period that ended on June 8, 2016. A total of 13 comments were received during the review period. These are included in Chapter 7.

1.6 Permits, Approvals, and Compliance Required or Potentially Required

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

1.6.1 Federal

- Department of the Army Permit (Section 404 of the Clean Water Act [CWA]), U.S. Army Corps of Engineers (USACE) (Hilea Bridge only)

- Section 106 Consultation (National Historic Preservation Act), Hawaii Department of Land and Natural Resources (DLNR) State Historic Preservation Officer (SHPO)
- Section 7 Consultation (Endangered Species Act [ESA]), U.S. Fish and Wildlife Service (USFWS); National Marine Fisheries Services (NMFS)

1.6.2 State

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

1.6.3 County

- Special Management Area (SMA) Permit, Hawaii County Planning Department
- Grading, Grubbing and Stockpiling Permits, Hawaii County Department of Public Works

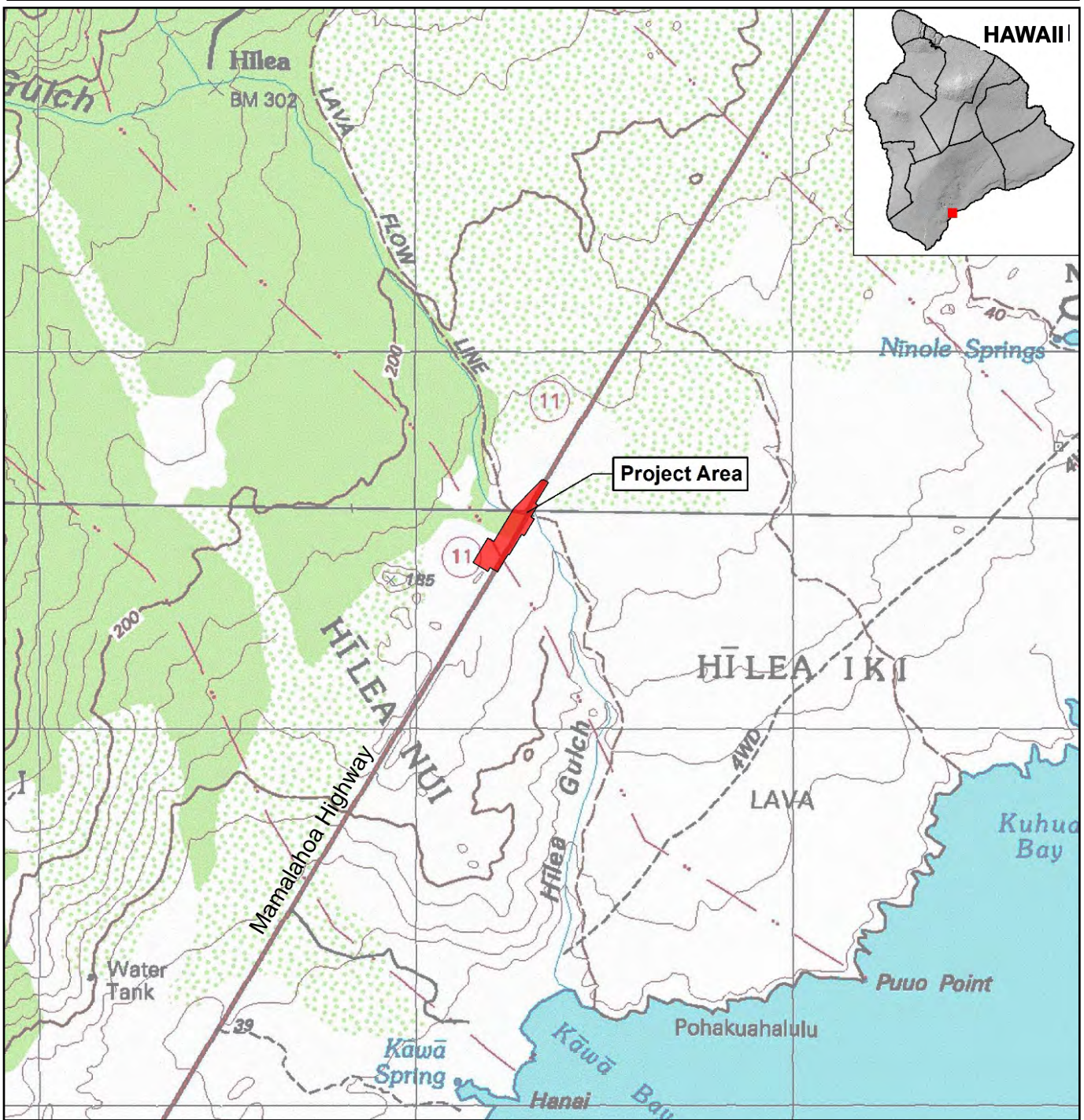
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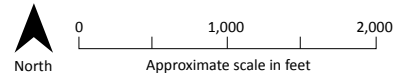
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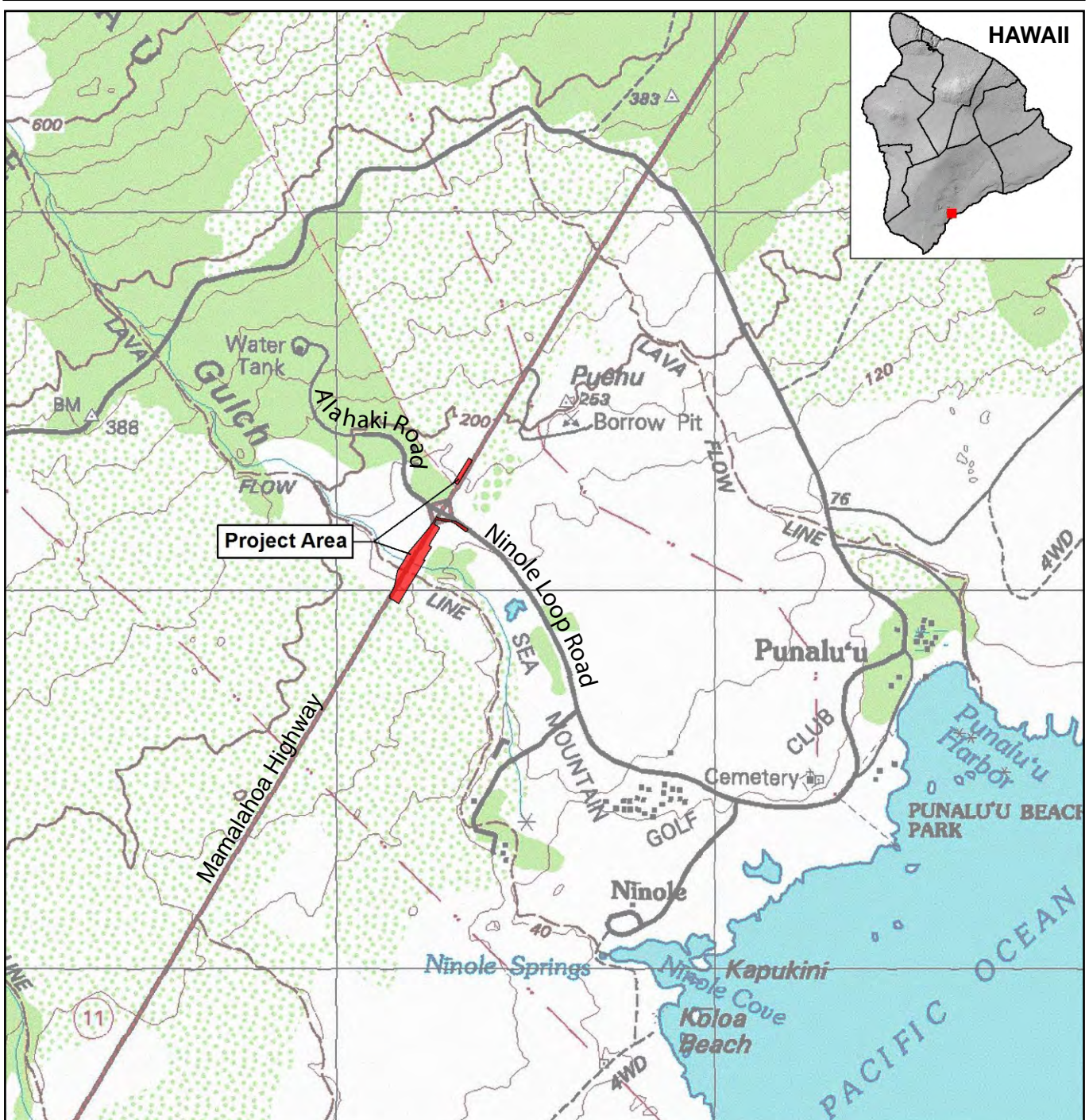
Source: CSH
 Base Map: USGS Topographic Map, Naalehu (1995) and Punaluu (1982) Quadrangles



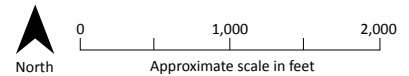
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 Project Area

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



Source: CSH
 Base Map: USGS Topographic Map, Punaluu (1982) Quadrangle



LEGEND

 Project Area

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



Photo 1. Hilea Bridge asphalt deck, view to southwest



Photo 2. Hilea Bridge timber columns and footings on makai side of bridge, view upstream



Photo 3. Hilea Bridge, view to northeast

FIGURE 1-2a
Project Area Photos – Hilea Bridge
Hilea-Ninole Bridge Project
Hawaii Bridges Program –
Central Federal Lands Highway Division and
Hawaii Department of Transportation



Photo 1. Ninole Bridge, view to northeast



Photo 2. Ninole Bridge, view to southwest



Photo 3. Ninole Bridge timber columns and footings on mauka side of bridge, view downstream



Photo 4. Golf Cart Path beneath the Ninole Bridge

FIGURE 1-2b
Project Area Photos – Ninole Bridge
Hilea-Ninole Bridge Project
Hawaii Bridges Program –
Central Federal Lands Highway Division and
Hawaii Department of Transportation

Project Description

2.1 Project Location

The project area is located on State Route 11 in the Kau District of Hawaii Island. Hilea Bridge crosses Hilea Stream and is located at MP 57.7, approximately 1.2 miles southwest of the Alahaki Road and Ninole Loop Road intersection (see Figure 1-1a). Ninole Bridge crosses Ninole Stream and is located at MP 56.6, approximately 500 feet southwest of the Alahaki Road and Ninole Loop Road intersection (see Figure 1-1b). Hilea and Ninole bridges and Mamalahoa Highway are under the jurisdiction of HDOT. Figures 2-1a and 2-1b show the limits of the proposed project, which includes areas that would be either temporarily or permanently disturbed.

The proposed project would require work at Hilea Bridge, and would also include a proposed bypass route and crossing, approach, and staging areas (see approximate project limits in Figure 2-1a). The project limits extend approximately 900 feet along Mamalahoa Highway and extend approximately 75 feet beyond the existing right-of-way (ROW) (on the *makai* [oceanward] side of the highway) and 150 feet beyond the proposed temporary bypass crossing (on the *mauka* [mountainward] side of the highway). The project limits encompass approximately 3.4 acres in this location.

The proposed project would require work at Ninole Bridge, and would also include a proposed bypass route and crossing, approach, and potential staging area (see approximate project limits in Figure 2-1b). The project extends approximately 900 feet along Mamalahoa Highway and extends approximately 50 feet beyond the existing ROW (on the *makai* side of the highway) and 50 feet beyond the proposed temporary bypass crossing (on the *mauka* side of the highway). Where Ninole Stream crosses beneath Ninole Bridge, the project limits would extend approximately 400 feet along the drainage and would be 200 feet wide surrounding the drainage. The project limits encompass approximately 2.1 acres in this location.

2.1.1 Surrounding Land Uses

The proposed project is located in the Kau District on the southern part of Hawaii Island, along the Kau Scenic Byway. Rolling terrain and heavy vegetation surround both bridges.

2.1.1.1 Hilea Bridge

The land surrounding Hilea Bridge is largely undeveloped. Hilea Stream is an intermittent stream that drains a watershed of approximately 31,500 acres on the southern slope of Mauna Loa, and flows beneath Hilea Bridge. On the northern side of Hilea Bridge are rock walls that limit runoff and sediment during storm events. On the southern side of the bridge is a steep slope on the *makai* side. The southwestern approach also has a roadside ditch with a steep slope on the *mauka* side.

The lands surrounding Hilea Bridge are classified as Agricultural District (on the *mauka* side of the highway) and Conservation District (on the *makai* side of the highway).

2.1.1.2 Ninole Bridge

The land surrounding the Ninole Bridge project area is largely rural. Ninole Stream is an intermittent stream that drains a watershed of approximately 12,350 acres on the southern slope of Mauna Loa, and flows under Ninole Bridge. The Sea Mountain Golf Course is located adjacent to Ninole Bridge, with a residential neighborhood located approximately 400 feet northeast, on the *mauka* side of the highway. A paved pathway for golf carts runs under Ninole Bridge, connecting the golf course on either side of the highway. In addition, a concrete golf cart path crosses Ninole Stream at ford crossings approximately 150 feet upstream and 280 feet downstream of the bridge.

The lands surrounding Ninole Bridge are classified as Urban District.

2.1.2 Other Nearby State and County Projects

HDOT projects are approved through the Statewide Transportation Improvement Program (STIP) process, which also provides a multiyear listing of State and County transportation projects and identifies those projects slated for Federal funding. No proposed projects are included in the approved 2015-2018 STIP project list that would intersect the project area for either Hilea or Ninole bridges. The Mamalahoa Highway Drainage Improvements project at Kawa Flats is listed in the STIP, and is located approximately 0.5 mile southwest of Hilea Bridge (HDOT, 2015).

2.2 Existing Conditions along the Project Corridor

2.2.1 Right-of-Way and Surrounding Elevations

The HDOT ROW at Hilea and Ninole bridges, including the associated bridge approaches, is approximately 60 feet wide. Both bridges are at an elevation of approximately 140 feet above mean sea level (amsl). Mamalahoa Highway is a two-lane undivided highway. Near Hilea Bridge, the existing lane width is approximately 10 feet, and there are approximately 2-foot shoulders provided on both sides. Near Ninole Bridge, approach travel lanes are between 10 to 16 feet wide and shoulders vary from 4 to 13 feet wide. In the case of both bridges, the posted speed limit is 55 mph. There are no parking areas, pullouts, or dedicated bicyclists and pedestrians facilities.

2.2.2 Bridge Structure and Approaches

2.2.2.1 Hilea Bridge

Constructed in 1940, the existing Hilea Bridge is a two-span timber bridge that is approximately 41 feet long and approximately 24 feet wide. The existing Hilea Bridge is overtopped during 10-year storm flows, based on flows of 4,300 cubic feet per second (cfs).

On the southern end of the bridge, there is a steep slope on the *makai* side. The southern approach also has a roadside ditch with a steep slope on the *mauka* side. Guardrails extend approximately 50 feet on the southeastern corner of the *makai* side of the bridge and approximately 50 feet on the *mauka* side of the bridge on the northern side.

2.2.2.2 Ninole Bridge

Constructed in 1940, the existing Ninole Bridge is a three-span, timber bridge with a total length of approximately 60 feet. Existing fill slopes at the northern approach are steep, but guardrails are provided and extend approximately 130 feet on both sides. At the southern approach, guardrails extend approximately 30 feet on the *makai* side. South of the abutment, existing cut slopes range from 1:1 to 4:1.

2.2.3 Utilities

Providers with utilities in the project area include:

- Hawaii Electric Light Company - Overhead Power
- Oceanic Time Warner Cable - Internet/Cable/Telephone
- Hawaiian Telcom - Telephone/Internet

2.2.3.1 Hilea Bridge

Utilities on the *mauka* side of the bridge include telephone and cable utility poles (shared poles) within 210 feet of the southern side of the bridge, as well as overhead telephone lines. Utilities on the *makai* side of the bridge include a power pole within 100 feet of the northern end of the bridge, and overhead power lines. There are no water or sewer lines in proximity of the bridge.

2.2.3.2 Ninole Bridge

Utilities on the *mauka* side of the bridge include overhead telephone lines. Utilities on the *makai* side of the bridge include overhead power lines and a utility pole located approximately 25 feet from the edge of the

roadway. There is a 2-inch landscape irrigation line located under the golf path and used by the golf course. No utilities are located on the bridge.

2.3 Proposed Project

New single-span bridges to replace Hilea and Ninole bridges are proposed to address structural and functional deficiencies described in Section 1.3, Project Purpose and Need. In each bridge location, the highway section would be closed during the construction period and a two-way bypass bridge would be provided *mauka* of the highway. Upon project completion, there would be no changes in highway operations. Figures 2-2a and 2-2b show typical sections for each bridge, and Figures 2-3a and 2-3b show the preliminary bridge design for each bridge, respectively.

HDOT and AASHTO standards and regulations govern the final design criteria and construction methods and procedures for the proposed project. The final design would meet or exceed both HDOT and AASHTO criteria (see Tables 2-1 and 2-2). A design exception would be triggered if AASHTO minimum criteria are not met.

TABLE 2-1
Hilea Bridge Project Design Criteria

Design Criteria	Existing Conditions	Standards		Proposed
		AASHTO	State	
Design Speed	Posted speed = 55 mph	Rural 60 mph (minimum)	Urban 45 mph (minimum)	Design speed = 55 mph Posted speed = 55 mph
Travel Way Width (feet)	10	11	11	11
Shoulder Width (feet)	2.5	8	10	9
Bridge Width (feet)	24	N/A	N/A	42 and 4 inches (outside to outside)

Note:

N/A = not applicable

TABLE 2-2
Ninole Bridge Project Design Criteria

Design Criteria	Existing Conditions	Standards		Proposed
		AASHTO	State	
Design Speed	Posted speed = 55 mph	Rural 60 mph (minimum)	Urban 45 mph (minimum)	Design speed = 55 mph Posted speed = 55 mph
Travel Way Width (feet)	10	11	11	11
Shoulder Width (feet)	2.5	8	10	9
Bridge Width (feet)	24	N/A	N/A	42 and 4 inches (outside to outside)

HDOT's *Design Criteria for Bridge and Structures* (2014) would be followed for structure design.

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

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

2.3.1 Replacement Bridge Structure

The existing Hilea and Ninole bridges would be demolished and replaced with new bridges. The new bridges would consist of single-span structures and would accommodate two 11-foot travel lanes, a 9-foot shoulder on each side, and a 1-foot, 2-inch-wide guardrail (metal railing on the bridge approaches) on each side. The roadway approaches to the bridges would be widened, which would require extending embankment slopes or installing retaining walls.

Bridge railings and transitions would meet requirements for crashworthiness (see Section 1.3). Concrete post and beam railings would have a height of 3 feet, 6 inches. Concrete end posts with metal railings would be provided along the length of the approach slab as a transition from the metal guardrails of the roadway. These railings would be similar to the railings on Keaiwa Stream Bridge (see Figure 2-4), which is located on State Route 11 approximately 7 miles north of Hilea Bridge at MP 50.35.

2.3.1.1 Hilea Bridge

The replacement bridge would be a straight, single-span bridge that is 100 feet long with a sloping downhill profile from south to north, centered on the existing roadway baseline alignment. The structure would be supported on shallow footing foundations bearing on or embedded into hard basalt. The existing stone abutments would be removed and grading would take place to transition from the existing channel to the new bridge abutments. The new bridge abutments would be socketed into the underlying basalt strata and would be set back from the main channel to provide greater hydraulic capacity.

The single-span bridge option eliminates interior piers that could be an obstruction during high stream flows. For the proposed bridge to convey the 1-in-50-year flow of 8,100 cfs with a 2-foot freeboard and no need for the roadway to be raised, a wider bridge opening is required. The proposed 100-foot-long bridge opening would meet the conveyance and freeboard requirements (HDOT, 2010).

2.3.1.2 Ninole Bridge

The replacement bridge would be a straight, single-span bridge that is 65 feet long with a sloping downhill profile from south to north, centered on the existing roadway baseline alignment. The structure would be supported on shallow footing foundations bearing on or embedded into hard basalt. The existing stone (lava-rock facing) pier foundations would be left in place to retain the existing golf cart path, contain the ordinary high water flow, and retain the existing historic stone features. The existing abutments, which are outside of the ordinary high water limits, would be removed and new abutments would be placed farther back from the stream channel than the existing abutments. The southern abutment would be embedded into hard basalt. The northern abutment would be along the paved golf cart path.

2.3.2 Construction Activities

2.3.2.1 Construction

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

- Installing temporary roadways and bridges
- Demolishing existing bridge structures
- 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 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 the Kona and Hilo vicinities, within 50 miles of the site. Materials for the bridge superstructure (such as girders and reinforcement) and temporary bridges would likely come from Honolulu.

The proposed project would construct the new bridges and demolish the existing in three stages. The first would install erosion and sedimentation control measures, construct the temporary bypass roads and stream crossings, and route traffic to the temporary bypass roads. Specific to Ninole Bridge, the existing golf cart path would also be temporarily rerouted away from the bridge, along Ninole Loop Road. The second would demolish the existing bridges and construct the new bridges and roadway approaches. The third would route traffic to the new bridges, remove the temporary bypass roads and stream crossings, and complete permanent erosion control devices.

At each 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 Mamalahoa Highway. The bypass roads would provide a 10-foot-wide lane in each direction, 2-foot-wide shoulders, and barriers, as needed.

Construction of the new bridge foundations, abutments, or piers and demolition of the existing structures within the streams would use a dewatering structure (such as a cofferdam and/or stream diversion) to allow work to occur in dry conditions, as needed. All or portions of the bridge construction area would be dewatered before in-stream work. The dewatering structure would be constructed where needed for dewatering below the Ordinary High Water Mark (OHWM) and would be sized as needed to dewater the bridge construction area. The dewatering structure would be removed immediately after it is no longer needed.

Replacement of Hilea Bridge would involve work within the streambed (below the OHWM), which is considered a Waters of the U.S. Replacement of Ninole Bridge is expected to involve only temporary work within the streambed (below the OHWM). The specific area to be disturbed below the OHWM and detailed dewatering plans would be determined before application for the CWA Section 404/401 and other required permits.

Demolition debris would require disposal at an approved landfill. Disposal of any dredged material and water from dewatering activities would also require approval.

2.3.2.2 Maintenance of Traffic During Construction

Temporary traffic control plans would be developed and implemented to keep Mamalahoa 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 use would be maintained by implementing an alternate one-way movement of travel through the construction area. Provisions would be made for this alternate one-way movement using such methods as flagger

control, a flag transfer, a pilot car, or traffic control signals. Provisions would be made to restrict these alternate one-way movement of travel conditions as much as practicable.

Full closure of Mamalahoa Highway may be needed for certain construction activities. Provisions would be made to restrict these full closures to when road use is minimal, such as nighttime periods. Provisions would also be made to restrict these full closures as much as practicable. 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 projects are 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, similar to the current conditions. Provisions to aid in lowering vehicular speeds through the construction zone would be implemented. The existing posted speed limit of 55 mph is proposed to be lowered in 10 mph increments through the construction zone (to a posted 25 mph speed limit on the bypass bridge). 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, which potentially may have a significant influence on construction activities. Pedestrians would be seldom encountered in this rural setting. However, 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

One County-owned and one privately owned parcel are located adjacent to Hilea Bridge (see Table 2-3 and Figure 2-5a). Three privately owned parcels and one State-owned parcel are located adjacent to Ninole Bridge (see Table 2-4 and Figure 2-5b). The proposed project would not require fee acquisition of private property outside of the existing ROW for either bridge. The proposed project would require permanent easements on private properties located outside the existing ROW for riprap and maintenance access. Construction parcels would be required during construction to accommodate the temporary roadway and bridge. HDOT would execute a construction parcel agreement to use the adjacent lands during construction.

TABLE 2-3
Right-of-Way Requirements for Hilea Bridge

TMK	Land Use	Estimate of Area Needed (AC)	Project Requirement
Hilea Bridge			
(3) 9-5-017: 007 County of Hawaii	Undeveloped	0.42	Construction parcel for earthwork
(3) 9-5-017: 008 Edmund C. Olson	Undeveloped	1.73	Permanent easement for maintenance and riprap access
	Undeveloped	0.22	Temporary bypass road and staging

Note:

AC = acre

TMK = Tax Map Key

TABLE 2-4
Right-of-Way Requirements for Ninole Bridge

TMK	Land Use	Estimate of Area Needed (AC)	Project Requirement
Ninole Bridge			
(3) 9-5-019: 011 SM Investment Partners	Undeveloped	0.25	Permanent easement for access and maintenance
	Undeveloped	0.09	Construction parcel for staging
(3) 9-5-019:016 State of Hawaii	Undeveloped	0.22	Construction parcel for staging
	Undeveloped	0.20	Permanent easement for access and maintenance
(3) 9-5-019: 024 SM Investment Partners	Undeveloped	0.45	Temporary bypass road and staging
	Undeveloped	0.29	Construction parcel for temporary cart path
(3) 9-5-019: 035 SM Investment Partners	Undeveloped	0.06	Permanent easement for access and maintenance

2.4 No Action Alternative

The No Action Alternative would retain the existing Hilea and Ninole bridges with no changes. There would be no effort to replace either of the bridges to meet current design standards for roadway width and load capacity. Deficiencies in bridge railings, transitions, and bridge approaches would continue.

Under the No Action Alternative, environmental impacts resulting from bridge replacement activities would be averted and bridge replacement costs would not be incurred by HDOT. But the existing bridges would continue to deteriorate, requiring regular inspection and increasing maintenance to maximize their useful lifespan. Eventually, both or either bridge may no longer provide a safe support for vehicle and pedestrian traffic and could face weight restrictions or closure.

2.5 Structure Alternatives Considered and Dismissed

2.5.1 Rehabilitation

Rehabilitation of the existing Hilea and Ninole bridges was considered but eliminated from further consideration because deficiencies including not meeting current design standards, and current live load and seismic requirements would not be adequately addressed.

In addition, rehabilitation of the existing Hilea Bridge was considered but eliminated because, even if the bridge were upgraded to address existing deficiencies, it would continue to have inadequate hydraulic capacity. The preliminary hydraulics analysis for Hilea Bridge indicates that a new single-span bridge with a clear opening of 100 feet would accommodate high stream flows (FHWA-CFLHD, 2015).

The existing Ninole Bridge has numerous splits and checks in the timber columns and beams, and decay in the timber deck. In addition, the existing bridge travelway width needs to be widened by approximately 17 feet to meet roadway design requirements. Therefore, rehabilitation of the existing bridge was eliminated from further consideration.

2.5.2 Ninole Bridge Replacement 80-foot-long Single-span Girder Bridge

A single-span, 80-foot-long bridge was considered but eliminated as a bridge replacement option for Ninole Bridge. This alternative was evaluated because initially it was thought that, because of its close

proximity and similar site conditions, using the same framing system as was used for Hilea Bridge would create cost savings from similarities in design and constructability. After cost analyses were completed, the shorter plank bridge remained the more cost-effective option.

2.5.3 Highway Alignment Shift

Two alternatives were considered to permanently shift the highway alignment, thereby circumventing and preserving the existing historic bridges. Theoretically, these alternatives could apply to both the Hilea and Ninole bridges. However, the hydraulics deficiencies of Hilea Bridge—where the opening below the bridge and the stream bank configuration are incapable of conveying flood waters from severe storms—mean that retaining the existing structure would not meet the project's Purpose and Need.

2.5.3.1 Permanently Shift the Highway Facility onto the Currently Proposed *Mauka* Bypass Alignment

This alternative avoids the adverse effect and use of the Hilea and Ninole bridges by shifting the permanent highway facility onto the currently proposed *mauka* bypass roadway alignment and bridge location. This alternative is not prudent as the geometry of the temporary bypass cannot be used for a permanent highway facility due to the design speed. The proposed *mauka* bypass alignment would not meet roadway design criteria for a state highway system because the alignment uses a reduced design speed of 25 mph, from the design standard of 55 mph. Additionally, the temporary bypass road alignment would provide a 10-foot-wide lane in each direction, 2-foot-wide shoulders, and barriers, as needed. The dimensions to accommodate traffic during construction are not suitable as a permanent bypass alignment. This alternative does not meet the project purpose and need and is therefore not prudent.

2.5.3.2 Build New Structure in a Different Location without Using the Hilea or Ninole Bridges

Another option would avoid the adverse effect and use of the Hilea and Ninole Bridges by realigning the roadway to cross these drainages at another location. A *mauka* alignment for this alternative was selected because Mamalahoa Highway is bounded by Conservation District lands on the *makai* side of the road. This alternative would provide new bridges that would consist of single-span structures and would accommodate two 11-foot-wide travel lanes, a 9-foot-wide shoulder on each side, and a 1-foot, 2-inch wide guardrail (metal railing on the bridge approaches) on each side. The roadway approaches to the bridges would be widened, which would require extending embankment slopes or installing retaining walls. Bridge railings and transitions would meet requirements for crashworthiness. Concrete post and beam railings would have a height of 3 feet, 6 inches. Concrete end posts with metal railings would be provided along the length of the approach slab as a transition from the metal guardrails of the roadway.

The permanent design speed for Mamalahoa Highway is 55 mph. This design speed calls for a minimum horizontal curve radius of 1,060 feet based on AASHTO guidance. The design for both Hilea and Ninole consist of two reverse horizontal curves each with a 205 tangent section connecting to the reverse curves. The minimum tangent length between the reverse curves is based on minimum super-elevation runoff length with two-thirds of the super-elevation transition on the tangent and one-third on the curve.

The realignment would preserve the historic Ninole Bridge and enable future use limited to pedestrians and bicyclists. However, the new highway corridor would have potentially substantial environmental effects as it passes through land that is occupied by an existing golf course and residential subdivision or undeveloped land further *mauka* that is in the Conservation District. Because of uneven terrain, considerable bedrock excavation and/or large fill areas would be needed to construct the new road bed and stream crossing. This alternative was dismissed based on the magnitude of anticipated impacts on surrounding land uses and natural resources, and the extraordinary costs and engineering difficulties associated with site constraints.

2.5.4 Construction Period Alternatives

2.5.4.1 Bypass Route with Low-water Crossing

At Hilea Bridge, a temporary low-water crossing route was considered as an alternative to the bypass bridge. Suitable sites for low-water crossings are located on the *mauka* side of the existing bridge. Because the crossing would need to meet (at a minimum) a 1-in-5-year storm event and the water surface level would be higher than some of the stream banks in the event of such a storm, this alternative was dismissed from further consideration.

At Ninole Bridge, a temporary low-water crossing route was considered as an alternative to the bypass bridge. A suitable location for a low-water crossing was identified *mauka* of the bridge, along an existing golf cart path. Because of the large change in grade between the two abutments, this alternative was dismissed from further consideration.

2.5.4.2 Phased Construction

Phased construction was considered as an alternative traffic management option. With phased construction, one lane would remain open to traffic on Mamalahoa Highway. This alternative was removed from further consideration because of the cost, duration, and logistics of implementing phased construction.

2.6 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, Revision #1 Approved, which covers the period from Federal Fiscal Year (FFY) 2015 to FFY 2018 (and FFY 2019 to 2020 for information purpose only) was published by the HDOT on March 30, 2015. The Hilea and Ninole Bridge projects (HS18 and HS26, respectively) are listed in the STIP as system preservation projects (HDOT, 2015).

2.7 Preliminary Cost and Schedule

The current construction cost estimate is \$7.6 million for Hilea Bridge and \$7.3 million for Ninole Bridge. The estimates include survey and staking, relocation of utilities, a two-lane temporary bypass road with a temporary bridge, the new bridge, and associated roadway elements. Construction is anticipated to begin in mid-2017 and last for approximately 13 months. Construction would occur after final design is completed and necessary entitlements are obtained.

2.8 References

American Association of State Highway and Transportation Officials (AASHTO). 2011. *A Policy on Geometric Design for Highways and Streets*.

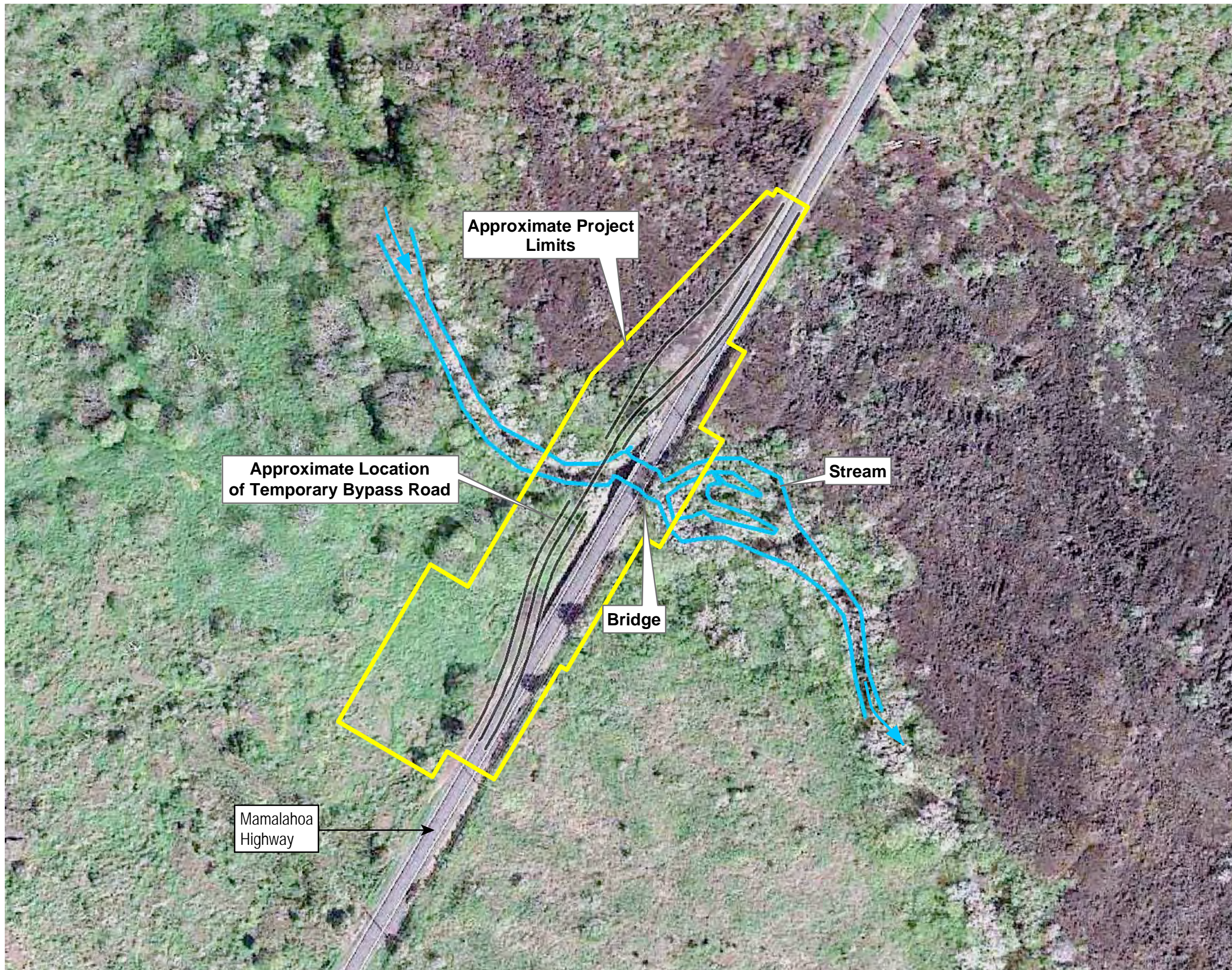
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State of Hawaii Department of Transportation (HDOT). 2015. Statewide Transportation Improvement Program FFY 2015 thru 2018 (FFY 2019-2020 Informative Only) Revision #1 Approved. Fiscal Years 2015-2018 – Project Location Maps for Big Island of Hawaii. Accessed August 2015. March 30.



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

- Notes:
1. High-Res Imagery Source: Google Earth 01/08/2013
 2. Low-Res Imagery Source: Digital Globe 02/27/2010
 3. Imagery base map is not orthorectified; therefore project features may not properly align with the imagery.

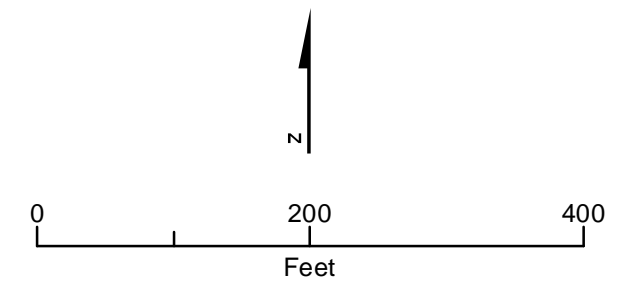
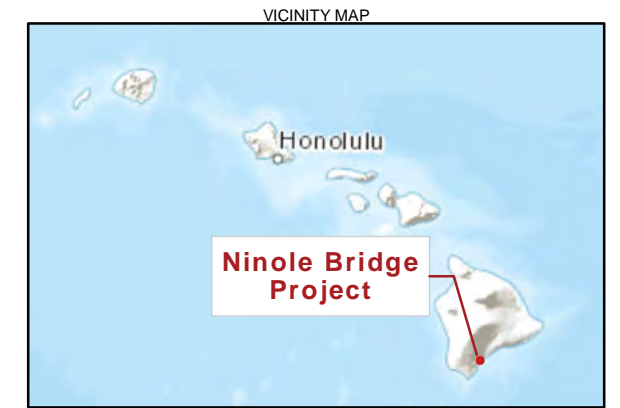
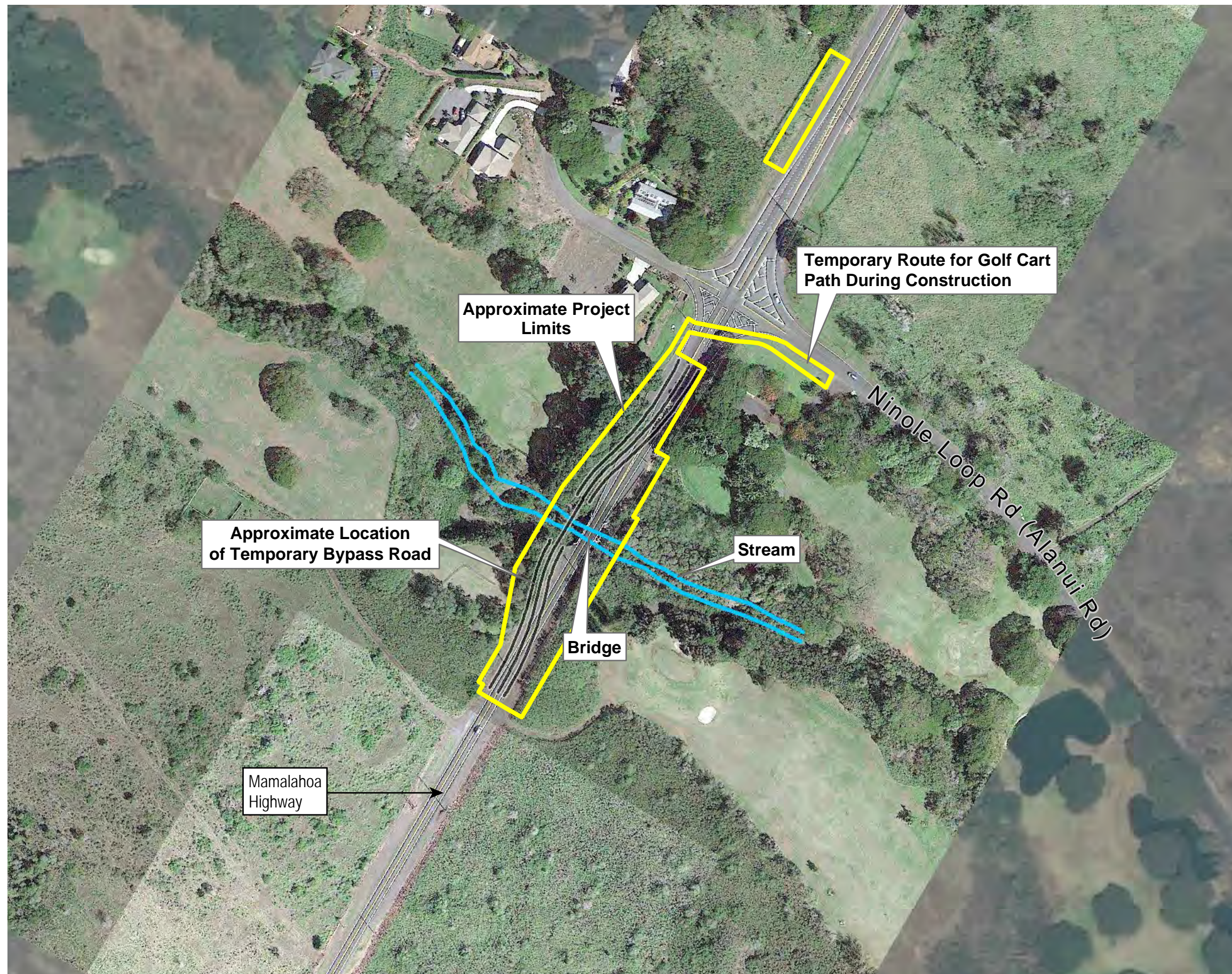


FIGURE 2-1a
Project Limits and Survey Area – Hilea Bridge
 Hilea/Ninole Bridge Project
 Hawaii Bridges Program –
 Central Federal Lands Highway Division and
 Hawaii Department of Transportation



LEGEND

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

Notes:

1. High-Res Imagery Source: Google Earth 01/08/2013
2. Low-Res Imagery Source: Digital Globe 02/27/2010
3. Imagery base map is not orthorectified; therefore project features may not properly align with the imagery.

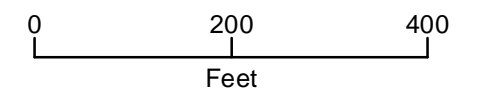


FIGURE 2-1b
Project Limits and Survey Area – Ninole Bridge
 Hilea/Ninole Bridge Project
 Hawaii Bridges Program –
 Central Federal Lands Highway Division and
 Hawaii Department of Transportation

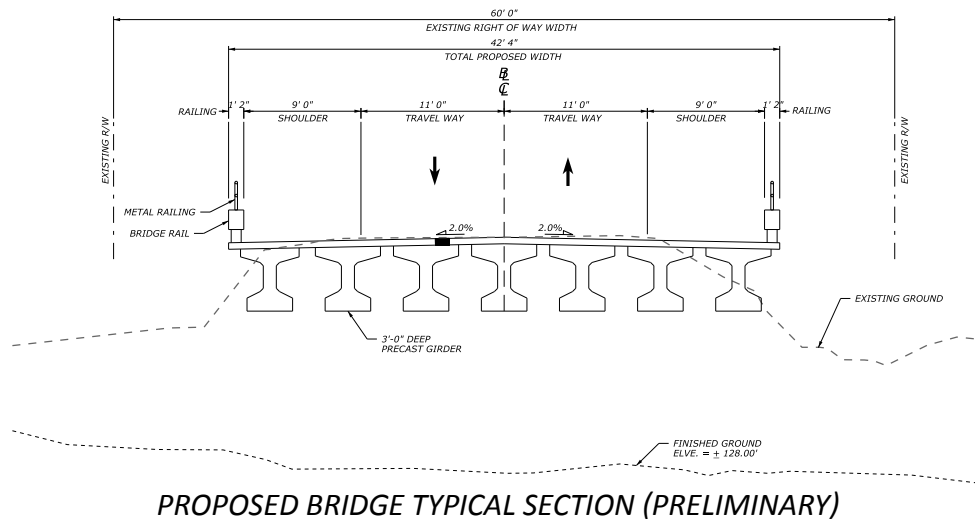
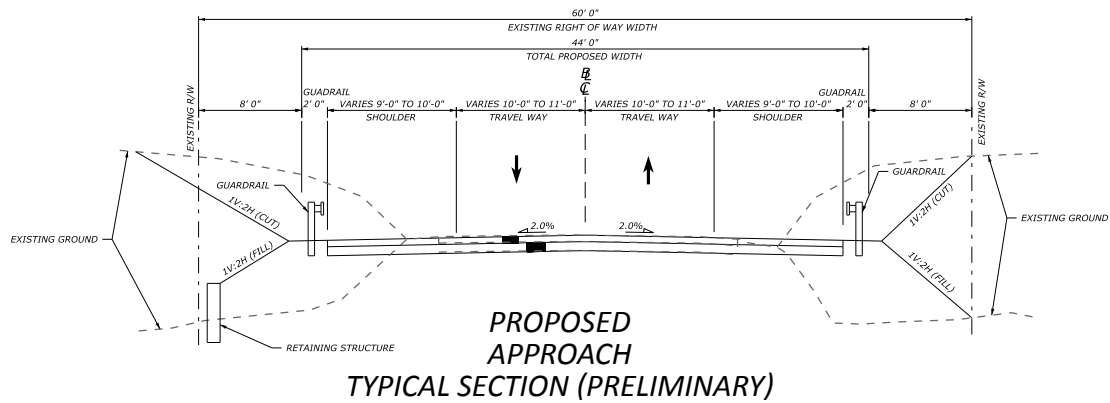
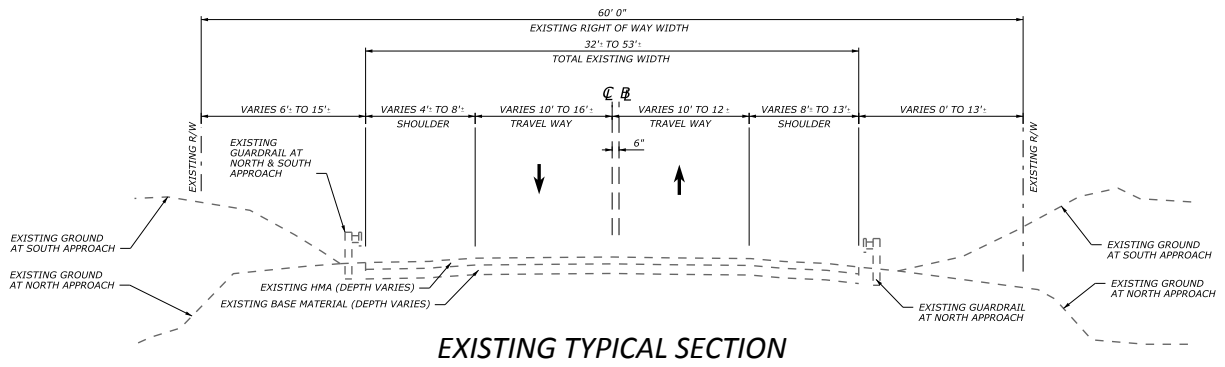


FIGURE 2-2a
Typical Sections – Hilea Bridge
Hilea/Ninole Bridge Project
Hawaii Bridges Program –
Central Federal Lands Highway Division and
Hawaii Department of Transportation

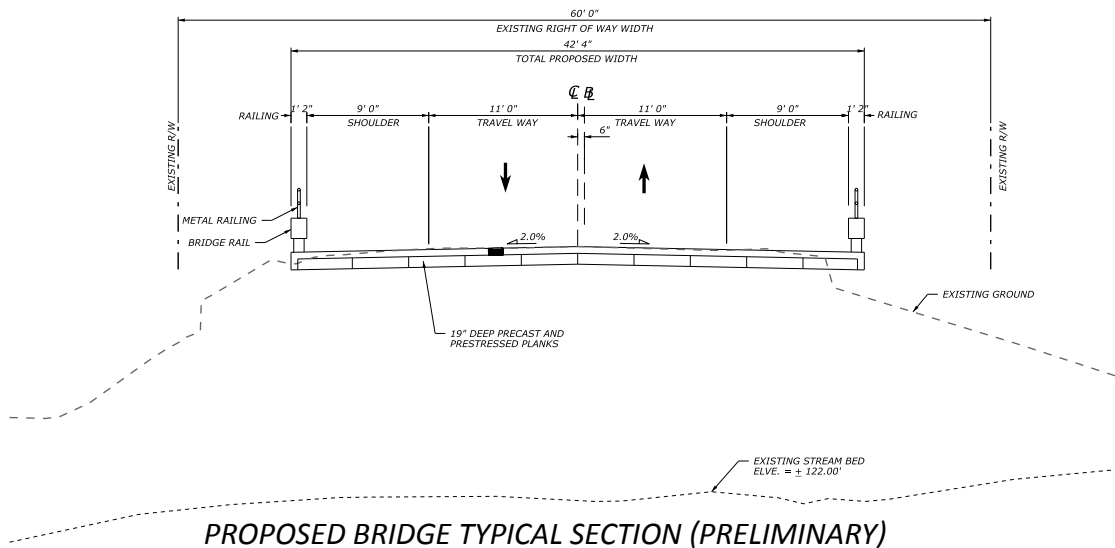
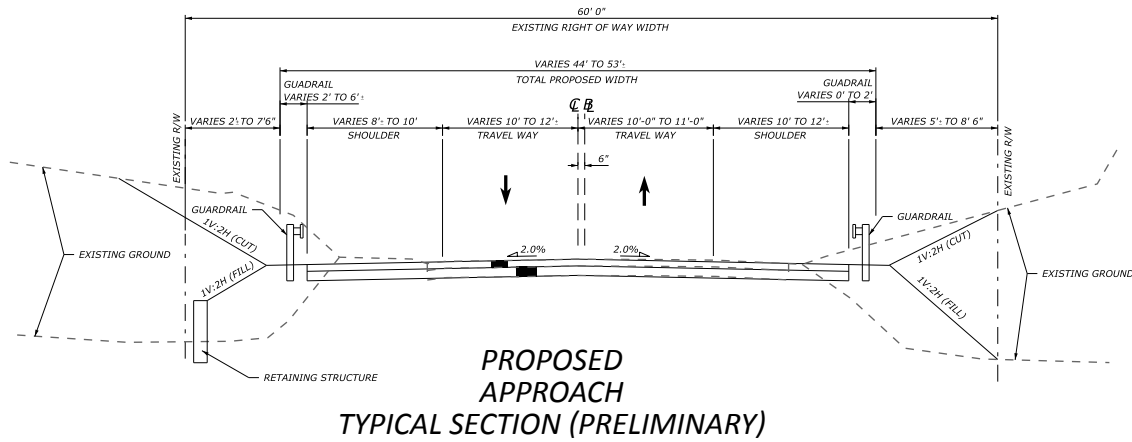
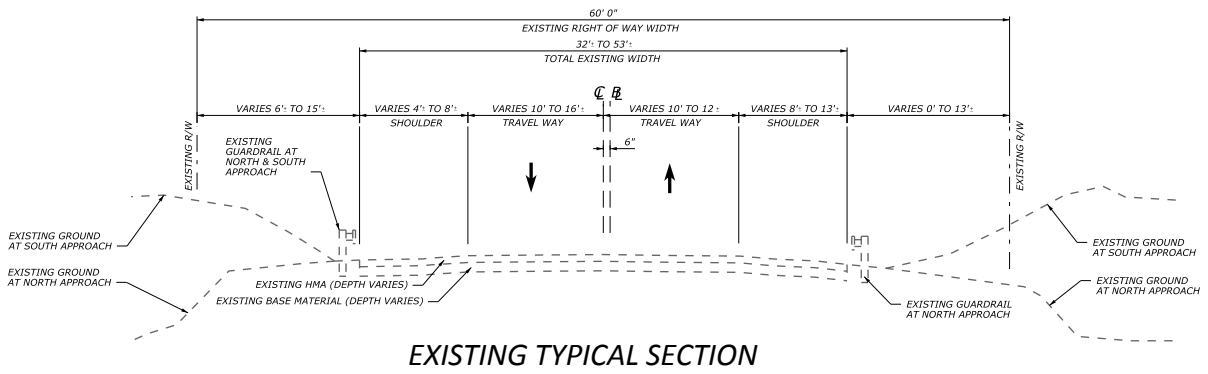
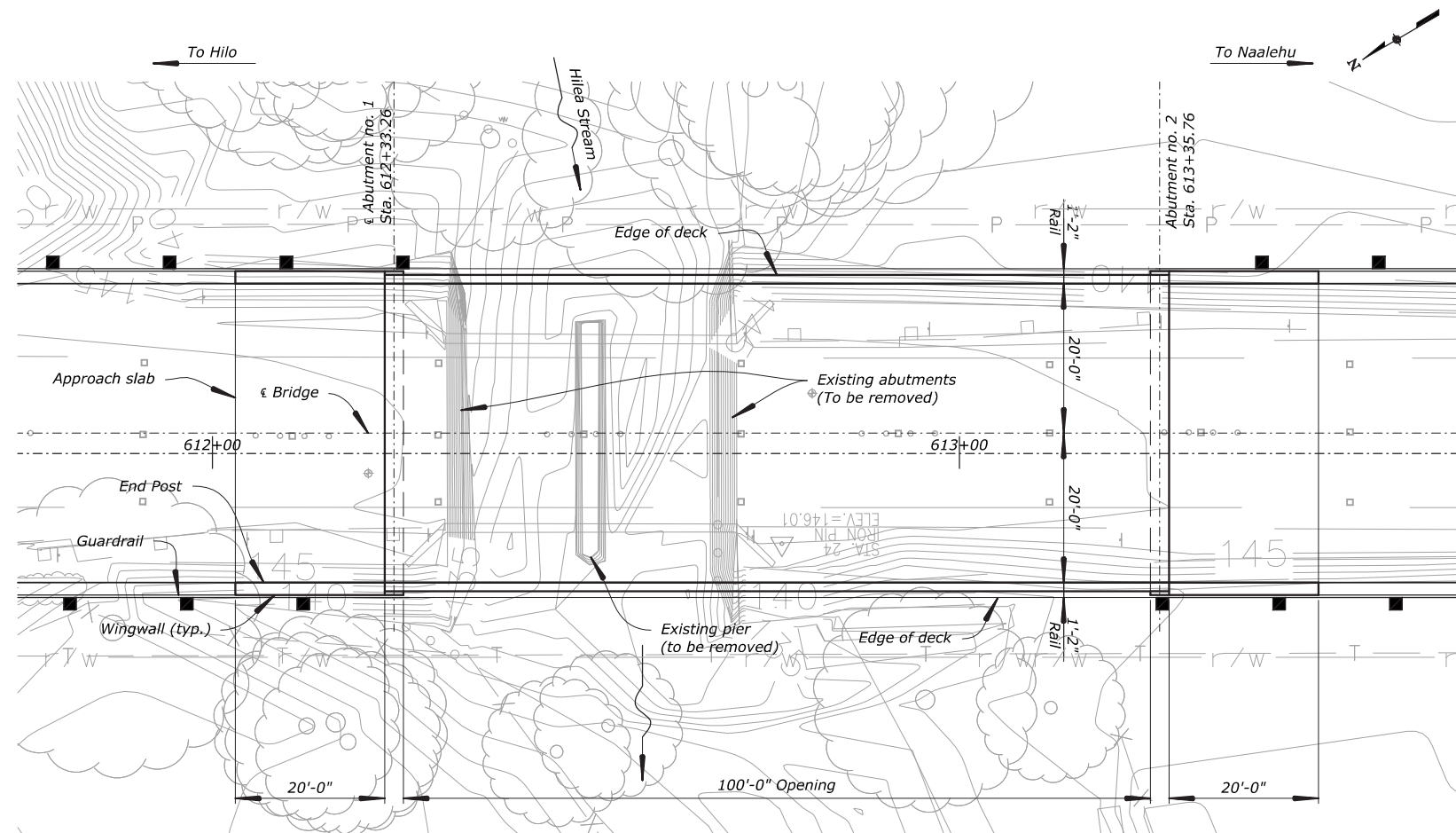
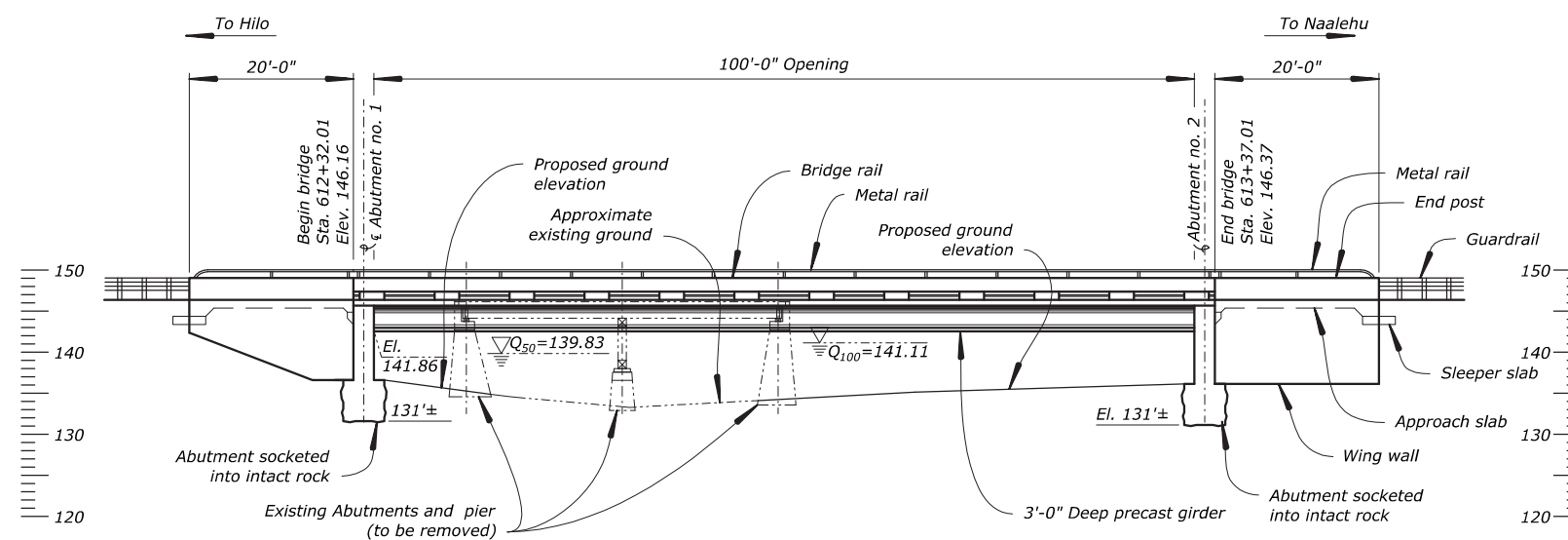


FIGURE 2-2b
Typical Sections – Ninole Bridge
 Hilea/Ninole Bridge Project
 Hawaii Bridges Program –
 Central Federal Lands Highway Division and
 Hawaii Department of Transportation



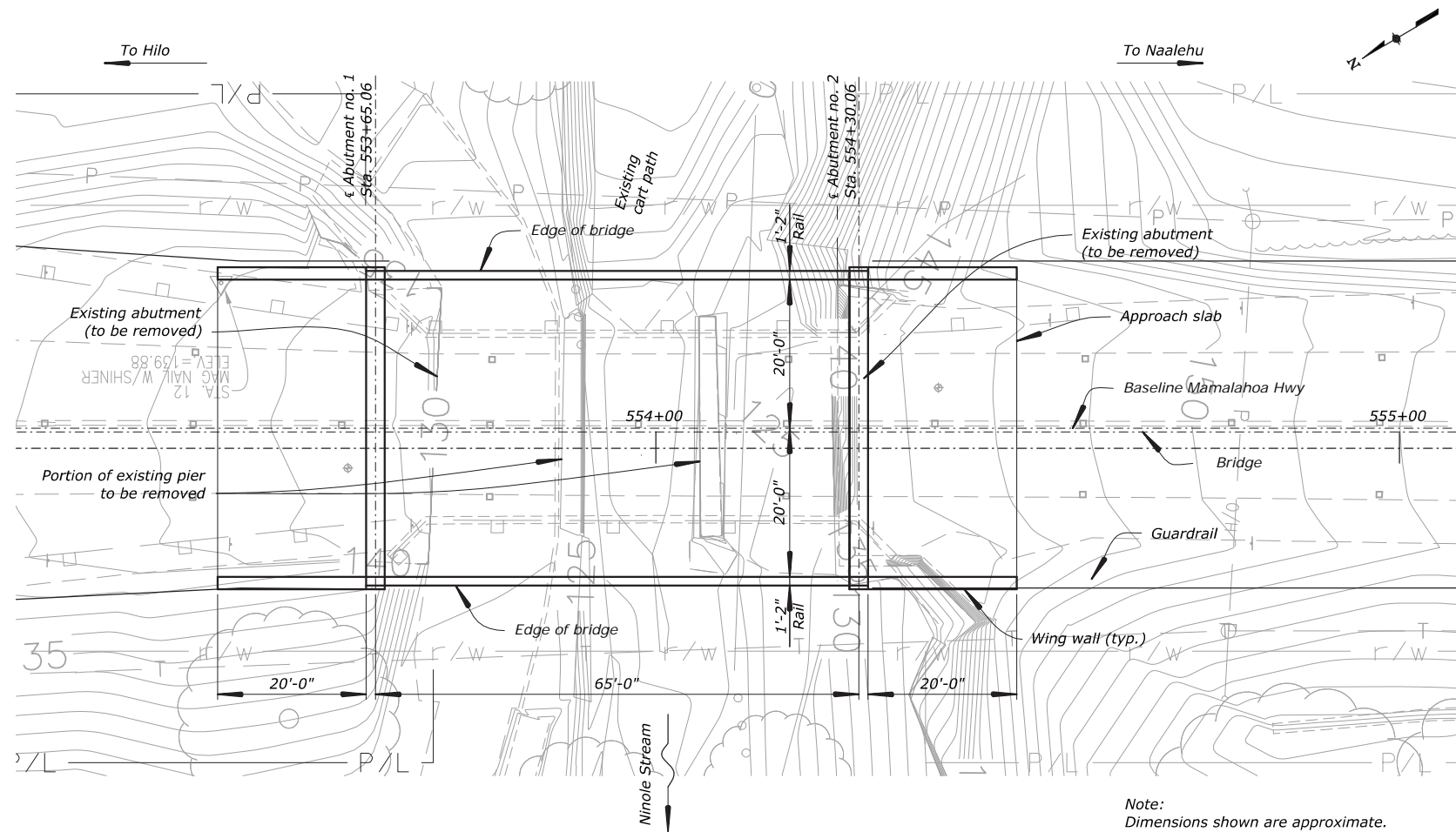
PLAN

Note: Dimensions shown are approximate.

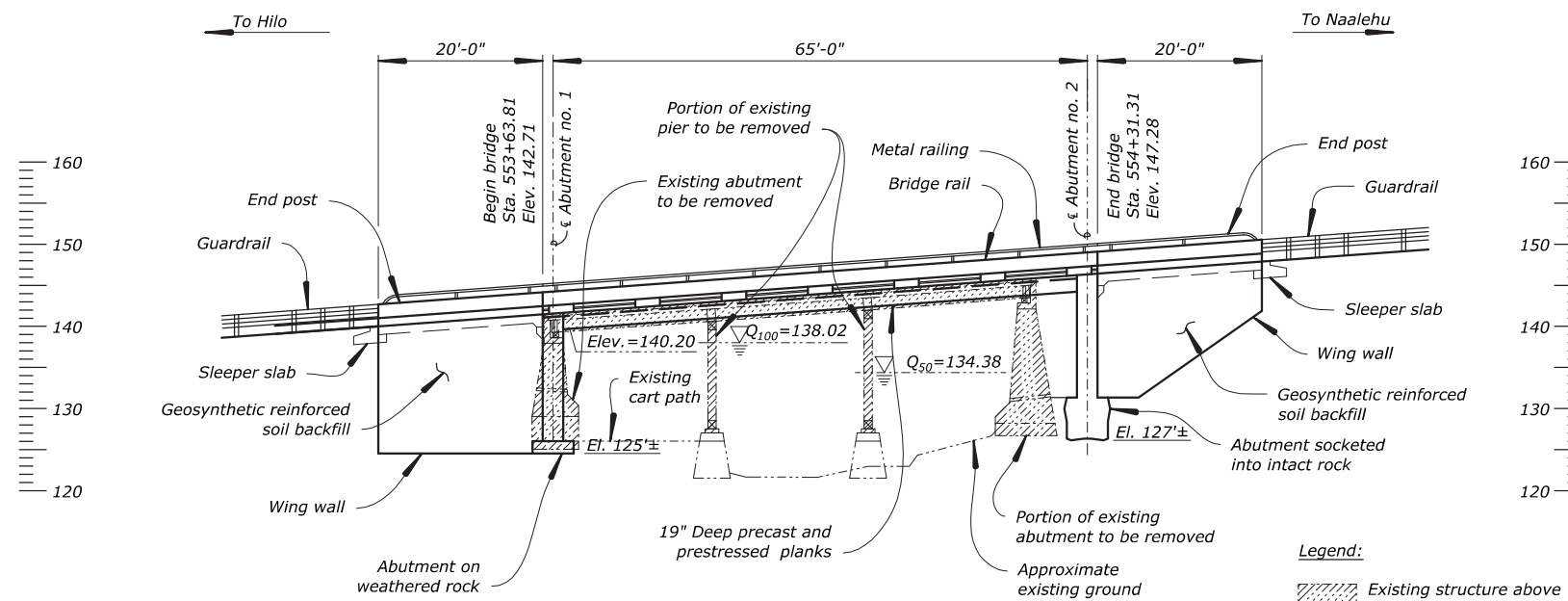


ELEVATION

FIGURE 2-3a
Bridge Design (Preliminary) – Hilea Bridge
 Hilea/Ninole Bridge Project
 Hawaii Bridges Program –
 Central Federal Lands Highway Division and
 Hawaii Department of Transportation



PLAN



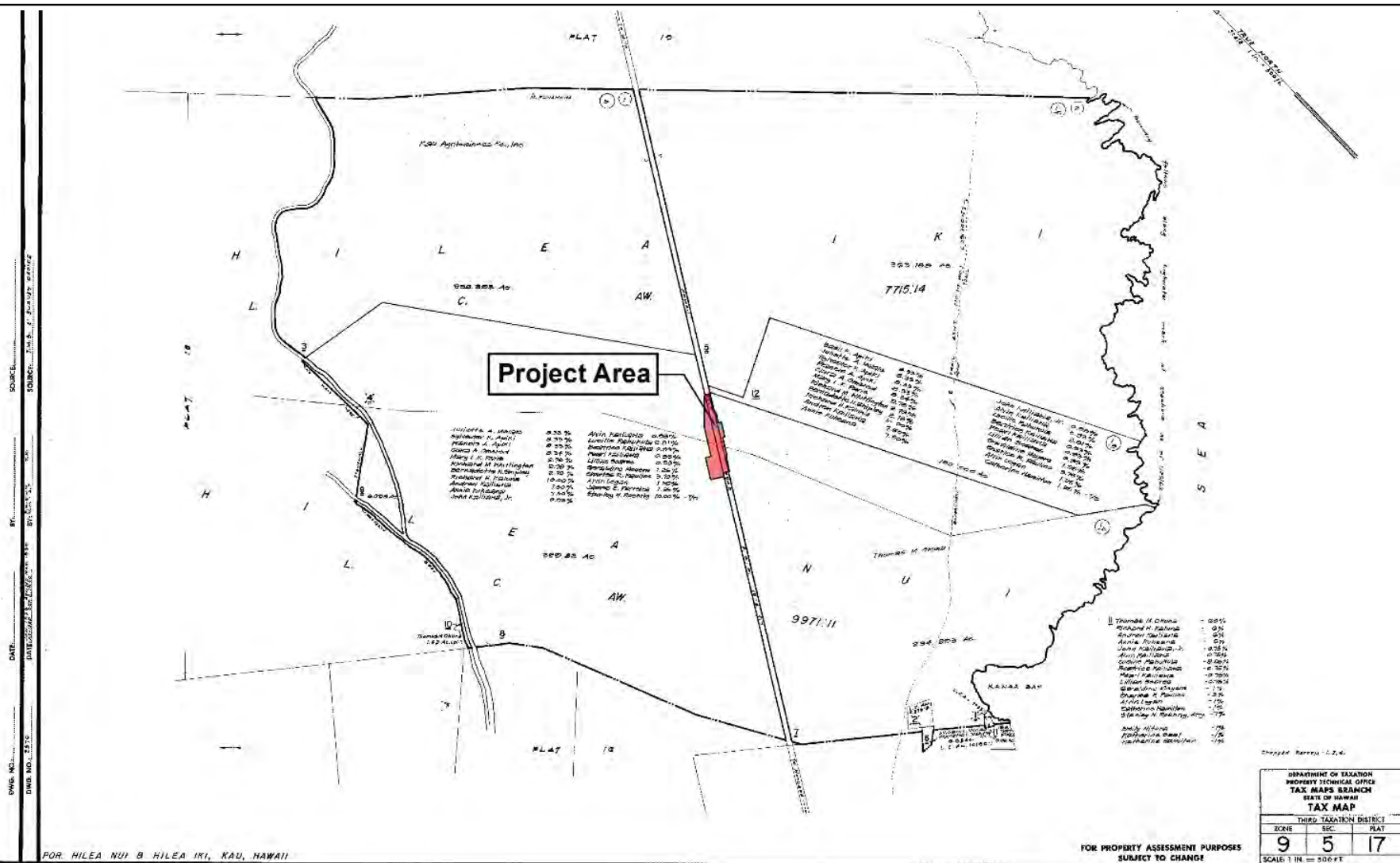
ELEVATION

FIGURE 2-3b
Bridge Design (Preliminary) – Ninole Bridge
 Hilea/Ninole Bridge Project
 Hawaii Bridges Program –
 Central Federal Lands Highway Division and
 Hawaii Department of Transportation



Representative bridge railings on the Keaiwa Stream Bridge, located at Mile Post 50.35, approximately 6-7 miles from the Hilea and Ninole Bridges.

FIGURE 2-4
Railing Section
Hilea/Ninole Bridge Project
Hawaii Bridges Program –
Central Federal Lands Highway Division and
Hawaii Department of Transportation

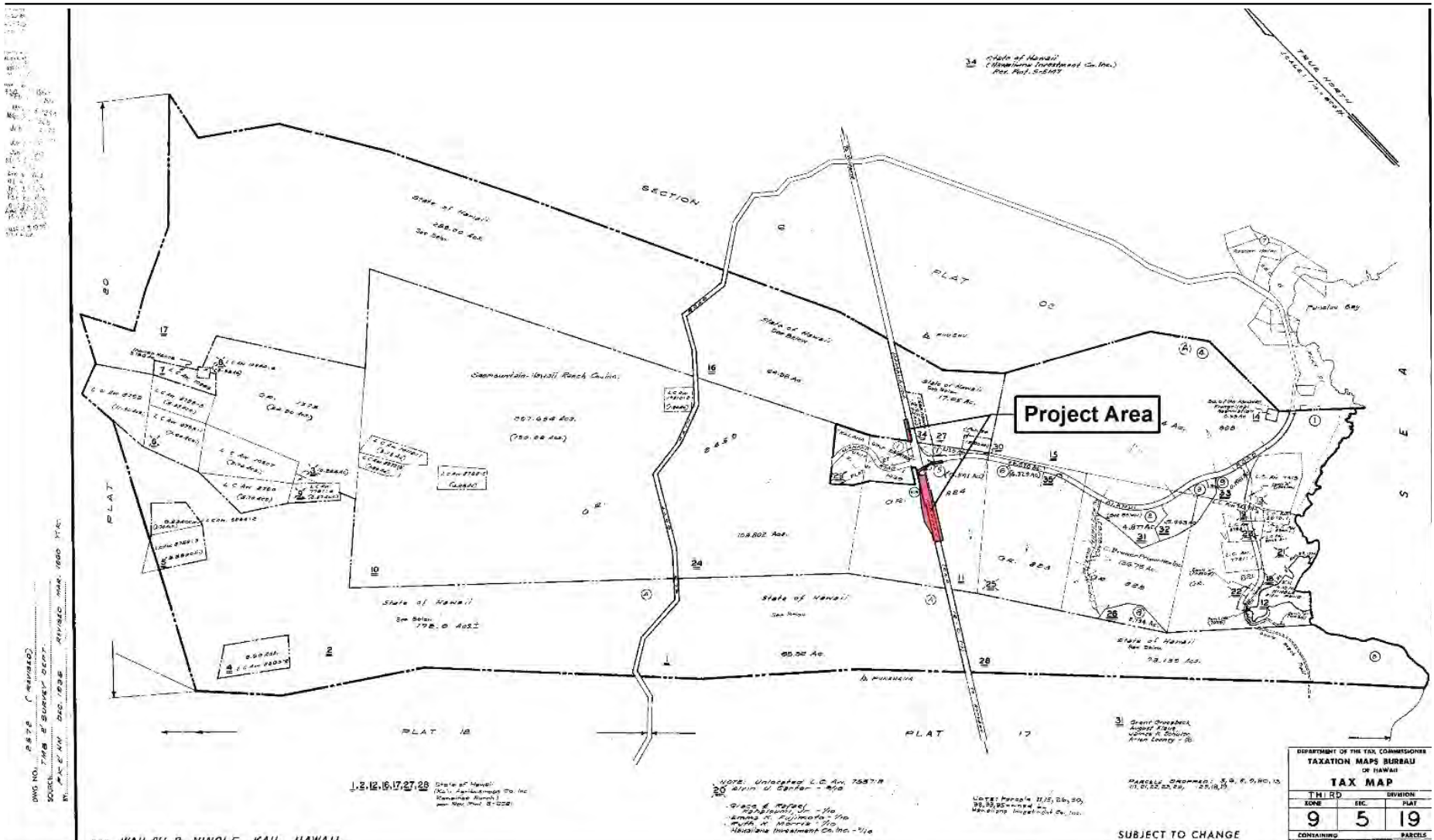


Source: Draft Archaeological Inventory Survey Report for the Hilea Bridge Replacement Project, Hilea Ahupua'a, Ka'u District, Hawai'i Island, Federal Highway Administration/Central Federal Lands Highway Division
 Base Map: Tax Map Key (TMK) [3] 9-5-017
 Data Sources: CSH



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

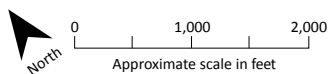
Note: TMKs: (3)9-5-017:007 POR., (3)9-5-017:008 POR., (3)9-5-017 HAWAII BELT ROAD / MAMALAHOA HIGHWAY RIGHT-OF-WAY



Source: Draft Archaeological Inventory Survey Report for the Ninole Bridge Replacement Project, Ninole Ahupua'a, Ka'u District, Hawaii Island, Federal Highway Administration/Central Federal Lands Highway Division
 Base Map: Tax Map Key (TMK) [3] 9-5-19
 Data Sources: CSH

LEGEND

Study Area



Note: TMKs: (3) 9-5-019 and 9-5-027 (various plats and parcels)

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

Affected Environment, Impacts, and Mitigation

This chapter describes the affected environment, impacts, and mitigation for relevant resource areas. Resources that are not present (or otherwise do not apply) are not discussed. Specifically, the proposed project would not generate any demand for water or sanitary wastewater disposal, thus, these resources are not evaluated. Nor would the project affect the number of area residents, demographic characteristics, or the carrying capacity of Hilea and Ninole bridges, such that population and demographic factors are not evaluated. Public safety is discussed within Section 3.14, Roads and Traffic.

3.1 Topography, Geology, and Soils

3.1.1 Existing Conditions

The Island of Hawaii was created by five separate shield volcanoes that erupted somewhat sequentially. These are (from oldest to youngest) Kohala, Mauna Kea, Hualalai, Mauna Loa, and Kilauea. Kohala Mountain is believed to be the oldest volcano that makes up the Island of Hawaii. The project area is located on the southern flank of Mauna Loa (USGS, 2006).

Elevations in the project area range from approximately 141 to 147 feet amsl.

3.1.1.1 Hilea Bridge

The U.S. Department of Agriculture Soil Conservation Services Soil Survey Geographic (SSURGO) database (2001) and soil survey data gathered by Sato et al. (1973) identify the soil type in the northeastern portion of the project area as aa lava flows (rLV) and in the southwestern half as pahoehoe lava flows (rLW) (see Figure 3-1a). These soil types are described as follows:

- **Lava flows, aa (rLV):** This lava has practically no soil covering and is bare of vegetation, except for mosses, lichens, ferns, and a few small ohia trees. It is at an elevation ranging from near sea level to 13,000 feet and receives 10 to 250 inches of rainfall annually (Sato et al., 1973).
- **Lava flows, pahoehoe (rLW):** This lava has a relatively smooth, billowy, and glassy surface. In some areas, the surface is rough and broken, and there are hummocks and pressure domes. Pahoehoe lava has no soil covering and is typically bare of vegetation except for mosses and lichens. In the areas of higher rainfall, scattered ohia trees, ohelo berry, and aalii have gained a foothold in cracks and crevices (Sato et al., 1973).

In September 2014, two exploratory test borings were drilled at Hilea Bridge behind the northeastern and southwestern bridge abutments. The near-surface soils consisted of grayish brown, well-graded gravel mixed with silt, basaltic sand, and cobbles. The granular soils extended to depths of about 11 to 15 feet. It was derived from volcanic cinder and clinker and appeared to be fill material. Underlying the granular material was gray, slightly weathered basalt in a hard condition, extending to the maximum depths (27 feet and 33 feet) drilled. Voids ranging from about 0.5 to 2.5 feet in thickness between depths of about 18.5 to 27.5 feet were encountered in one boring. Neither groundwater nor seepage water was encountered in the borings (FHWA-CFLHD, 2015a).

3.1.1.2 Ninole Bridge

According to the U.S. Department of Agriculture SSURGO database (2001) and soil survey data gathered by Sato et al. (1973), soils within the project area consist of aa lava flows (rLV), Punaluu extremely rocky peat with 6 to 20 percent slopes (rPYD), and very stony land (rVS) (see Figure 3-1b).

- **Lava flows, aa (rLV):** This lava has practically no soil covering and is bare of vegetation, except for mosses, lichens, ferns, and a few small ohia trees. It is at an elevation ranging from near sea level to 13,000 feet and receives 10 to 250 inches of rainfall annually (Sato et al., 1973).

- **Soils of the Punaluu Series (rPYD):** The Punaluu series consists of well-drained, thin organic soils over pahoehoe lava bedrock. These soils are gently sloping to moderately steep. They are on uplands at an elevation ranging from near sea level to 1,000 feet and receives 60 to 90 inches of rainfall annually (Sato et al., 1973).
- **Very stony land (rVS):** Very stony land is a miscellaneous land type consisting of very shallow soil material and a high proportion of aa lava outcrops. The dominant slope is between 10 and 15 percent. Between the lava outcrops and in the cracks of the lava, the soil material extends to a depth of 5 to 20 inches. This land is at an elevation ranging from near sea level to 13,000 feet and receives 10 inches to more than 150 inches of rainfall annually (Sato et al., 1973).

In September 2014, two exploratory test borings were drilled at Ninole Bridge behind the northeastern and southwestern bridge abutments. The near-surface soils consisted of grayish brown silty gravel mixed with basaltic sand and cobbles, and poorly-graded gravel mixed with silt, basaltic sand, and cobbles, generally in medium-dense conditions. The granular soils extended to depths of about 10 and 5.5 feet at the northeastern and southwestern abutments, respectively. The granular material was derived from volcanic cinder and clinker, and appeared to be fill material. Underlying the granular material was gray, slightly- to moderately-weathered basalt in a medium-hard to hard condition, extending to the maximum depths (33 feet and 40.5 feet) drilled. The gray basalt transitioned to mottled gray and reddish brown, moderately- to highly-weathered basalt between depths of about 17 to 32 feet in both borings. Neither groundwater nor seepage water was encountered in the borings (FHWA-CFLHD, 2015a).

3.1.2 Potential Impacts and Mitigation Measures

The proposed project is neither constrained by geological and topographic site conditions, nor would it affect any unique geologic formations. To address subsurface conditions, shallow footing foundations bearing on or embedded into hard basalt would support the bridge structures. Probing and grouting for foundations would be performed because of the potential for voids and lava tubes.

Construction of the Hilea and Ninole bridges and roadway approaches would involve land disturbance that could result in waterborne and airborne soil erosion. However, the erosion potential is relatively low because of the small area of disturbance and type of soils present. To minimize the potential for construction-related erosion impacts, best management practices (BMPs) would be implemented as part of the construction. See Section 3.2, Climate and Air Quality, and Section 3.3, Wetlands, Hydrology, and Water Quality for a list of applicable BMPs.

3.2 Climate and Air Quality

3.2.1 Existing Conditions

Climate in the project area is influenced by elevation and the prevailing northwestern tradewinds. The average maximum daily temperature is approximately 80 degrees Fahrenheit (°F), with an average minimum of 65°F (U.S. Climate Data, 2015). Mean annual rainfall for the project area is approximately 37 inches. Rainfall is typically highest in November and lowest in May and June (Giambelluca et al., 2013).

Hawaii Island, like the rest of the state, meets the standards set by the Clean Air Act (CAA) and Hawaii state law (HRS Chapter 342B) and is within an attainment area. The majority of air monitoring stations on Hawaii Island measure air quality impacts from volcanic and geothermal energy production. Eruption of the Kilauea Volcano is a major source of sulfur dioxide (SO₂) emissions on the Island of Hawaii. Monitoring stations in communities near the volcano record higher levels of SO₂ and occasional exceedances of the National Ambient Air Quality Standards (NAAQS) for particulate matter less than 2.5 microns (PM_{2.5}). The U.S. Environmental Protection Agency (USEPA) considers the volcano a natural, uncontrollable event and therefore exclusion of the exceedances because of the volcano resulted in attainment of all NAAQS in 2014 (HDOH, 2015).

There are seven air monitoring stations on Hawaii Island, with the closest air monitoring station located approximately 5.5 miles east-southwest of the project site in Pahala. The readings at this location show that criteria pollutant levels were below State and Federal ambient air quality standards for 2014 (see Table 3-1).

TABLE 3-1
Island of Hawaii Air Monitoring Station (Pahala) Data (2014)

Pollutant	Annual Mean	Federal Air Quality Standard (Primary)	State Air Quality Standard
PM _{2.5} (24-hour)	5.4 µg/m ³	35 µg/m ³	None
SO ₂ (1-hour)	0.935 ppm	75 ppb	None
SO ₂ (3-hour)	0.024 ppm	0.50 ppm ^a	0.50 ppm
SO ₂ (24-hour)	0.024 ppm	None	0.14 ppm

Notes:

^a. Federal secondary standard

Source: State of Hawaii Annual Summary 2014 Air Quality Data (HDOH, 2015)

µg/m³ = micrograms per cubic meter

ppb = parts per billion

ppm = parts per million

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. 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, as further discussed below.

Fugitive Dust. BMPs for dust control would be implemented to minimize air quality impacts during the project construction phase. HAR Title 11 Chapter 60.1 (Air Pollution Control) specifies that the best practical operation or treatment be implemented such that there is no discharge of visible fugitive dust beyond the property lot line.

Measures that are expected to be used to control airborne emissions are the following:

- Use water, dust fences, disturbance area limitations, and re-vegetation to minimize dust emissions, as appropriate.
- Limit the amount of disturbed areas at any given time and/or stabilize inactive areas that have been exposed.
- Keep clean adjacent paved roads.
- Cover open-bodied trucks whenever hauling material that can be blown away.
- Revegetate disturbed area as soon as possible after construction.
- Stabilize construction entrances to avoid offsite tracking of sediment.

Exhaust Emissions. Emissions from engine exhausts of onsite mobile and stationary construction equipment could also affect air quality. Emission impacts 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. 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, the proposed project would not result in any meaningful changes in traffic volumes, vehicle mix, location of the existing structures, or any other factor that could cause an increase in emissions impacts. As such, the proposed project would generate minimal air quality impacts for CAA criteria pollutants and would not be linked with any special mobile source air toxics (MSAT) concerns.

3.3 Wetlands, Hydrology, and Water Quality

3.3.1 Surface Water

The Department of Land and Natural Resources, Division of Aquatic Resources (DLNR-DAR) identifies two non-perennial streams in the project area: Hilea Stream and Ninole Stream. These streams are part of a complex of intermittently flowing streams that arise on the southeastern slope of Mauna Loa.

Hilea Stream — Hilea Stream (State Code No. 83015) is classified by DLNR-DAR as a “non-perennial stream” with a total channel length of 16.9 miles (DLNR-DAR, 2009). The area of the watershed is 49.2 square miles, with a maximum elevation of 9,610 feet amsl. The highest reach of Hilea Stream originates at 4,590 feet amsl, a little more than midway up the southeastern flank of Mauna Loa. State Route 11 crosses over Hilea Stream at approximately 200 feet amsl. The streambed is nearly always dry in this location (Photo 3-1a). Between State Route 11 and the coast, Hilea Stream skirts along the edge of a recent lava flow (dated at between 200 and 750 years old (Sherrod et al., 2007) and discharges into Kawa Bay (AECOS, 2015).



Photo 3-1a. Hilea Stream is usually a dry streambed at State Route 11.

Upstream from Hilea Bridge, the eastern edge of the stream is lined with a soil and boulder berm. This berm appears to be man-made, constructed during the sugar cane period to minimize damage from freshets overtopping the stream and flooding the fields. Within the project area, the bed of Hilea Stream consists of basaltic lava and includes sand- to boulder-sized deposited material. Here, the stream is incised about 3 to 6 feet relative to the surrounding land. Downstream of the bridge, the stream channel splits into three channels, any or all of which can carry flow depending on streamflow volume. The two bars, which define the three channels, are composed of especially dense basalt and have resisted erosion better than the channel basalt. The three channels merge into one channel approximately 215 feet downstream from the bridge (AECOS, 2015).

Ninole Stream — Ninole Stream (State Code No. 83014) is classified by DLNR-DAR as a “non-perennial stream” with a total channel length of 12.5 miles (DLNR-DAR, 2009). The watershed area is 19.3 square miles, with a maximum elevation of 7,644 feet amsl. The highest reach of Ninole Stream originates at 3,871 feet amsl, about halfway up the southeastern flank of Mauna Loa. State Route 11 crosses over Ninole Stream at approximately 164 feet amsl. The streambed is nearly always dry in this location (Photo 3-1b).

In the vicinity of the highway, Ninole Stream bisects Sea Mountain Golf Course; the stream disperses underground at the *makai* end of the golf course at approximately 82 feet amsl, presumably where it intersects with highly permeable lava. Consequently, when flowing, Ninole Stream does not empty into the ocean. What water it carries, arrives at the coast at Ninole Cove after dispersing underground. The U.S. Geological Survey (USGS) established a partial-record station (Station No. 16768000) on Ninole Stream at 230 feet amsl from July 2011 through May 2014 (USGS, 2014). The only measurable flow (minimum measurable flow was 1.6 cfs) during this almost 3-year time period was recorded on May 28, 2013: 11.87 feet gage height and 93 cfs (AECOS, 2015).



Photo 3-1b. Ninole Stream is typically dry at State Route 11.

Within the project area, the stream bed of Ninole Stream consists of basalt rock with sand- to boulder-sized deposits. Here, the stream is incised only about 3 to 6 feet relative to the surrounding land. A concrete spillway directs flow from the middle bay of the bridge into the channel. Stream flow has deposited gravel and sand just downstream from this spillway at a point where stream velocity decreases in a wider channel. Two concrete golf cart paths cross Ninole Stream near the bridge: one approximately 130 feet upstream from the bridge and one approximately 100 feet downstream from the bridge (AECOS, 2015).

Biologists with AECOS, Inc. delineated Waters of the U.S. on October 27, 2014 (see Appendix A). The biologists used methods for determining the presence of wetlands as prescribed by the USACE’s *Corps of Engineers Wetlands Delineation Manual* (1987) and the *Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Hawaii and Pacific Island Region* (2012). Based on these documents, jurisdictional wetlands were delineated 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

No wetlands were identified within the survey area. The survey area covered approximately a 1,000-foot reach of Hilea Stream and an 800-foot reach of Ninole Stream (see Appendix A).

No groundwater was encountered in borings at either project location.

3.3.2 Non-wetland Waters

Two non-tidal, non-wetland Waters of the U.S. were delineated in the survey area. During the survey, the streambeds were dry.

The boundaries of potential non-wetland Waters of the U.S. were delineated by recording the location of the OHWM. Consistent with USACE guidance (2005), a variety of physical characteristics were used as OHWM indicators as at various points along the streams. A break in the bank slope was the most common OHWM indicator in both Hilea and Ninole Streams. The OHWM was documented every 30 to 45 feet by placing flagging tape in pairs on each side of the channel. The amount of jurisdictional waters delineated in Hilea Stream was 0.90 acre and the amount of jurisdictional waters in Ninole Stream was 0.53 acre (shown as blue lines in Figures 3-2a and 3-2b, respectively).

3.3.3 Clean Water Act, Section 303(d)

The Federal CWA requires states to collect and review surface water quality data and related information, and to prepare and submit to USEPA biennial lists of waterbodies that are impaired (that is, not meeting State water quality standards). The current list is included in the *2014 State of Hawaii Water Quality Monitoring and Assessment Report* (HDOH, 2014). According to the report, neither Hilea Stream nor Ninole Stream has been listed as an impaired waterway.

3.3.4 Potential Impacts and Mitigation Measures

3.3.4.1 Short-term Construction Impacts

At Hilea and Ninole bridges, the proposed projects would involve demolition, excavation, grading, and construction in the streams and on the streambanks. Erosion would be reduced by implementing BMPs during construction. Because new disturbances would exceed 1 acre, an NPDES permit (Notice of Intent Form C) would be obtained under CWA Section 402. An approved erosion control plan would be held onsite.

BMPs to protect water quality include the following:

- Minimize sedimentation via onsite drainage or other pollution discharge to streams through BMPs and/or erosion control devices.
- Stabilize all disturbed areas with erosion control measures.
- Revegetate disturbed areas, 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 below the OHWM to construct the bypass at Hilea or Ninole bridges.

If water is present, portions of the bridge construction area containing water would be dewatered prior to in-stream work using a dewatering structure (such as a coffer dam and/or stream diversion), as appropriate for the location. The dewatering structure would be constructed where needed for dewatering below the

OHWL and would be sized as needed to dewater the bridge construction area. The dewatering structure would be removed immediately after it is no longer needed. The specific area below OHWL that would be temporarily disturbed by dewatering activities would be determined prior to application for the CWA Section 404 and other required permits.

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

Overall, implementation of BMPs would reduce the potential for sediment and/or pollutants to reach downstream waters. Small plumes of sediment could occur, primarily as a result of construction and/or removal of the dewatering/isolation structures; however, any turbidity released as a result of construction activities would be minimal and would be expected to dissipate quickly.

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

Construction of Hilea Bridge would result in a beneficial impact to hydrology in Hilea Stream because the wider bridge would meet hydraulics standards and would have a clear opening of 100 feet to accommodate high stream flows. Permanent impacts would be a result of channel grading to transition the channel to match the new bridge and a very small amount of rip rap for scour protection. No permanent impacts below the OHWL of Ninole Stream are anticipated. Federal (Sections 401 and 404) and State (Stream Channel Alteration) permits would be obtained for discharges or fill in regulated waters (including any temporary disturbance associated with dewatering, as discussed above).

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 0.07 acre at Hilea Bridge and 0.06 acre at Ninole Bridge. This increased area includes a wider bridge deck 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

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map Community Panel No. 1695C (Map Revised September 16, 1988) shows Hilea and Ninole bridges and other nearby areas are located within Other Areas Zone X, which represents areas determined to be outside the 1-in-500-year (that is, the 0.2-percent annual chance) floodplain (FEMA, 1988). No base flood elevations or depths are shown within these zones (DLNR, 2015). Because neither Hilea Bridge nor Ninole Bridge are located within a floodplain mapped by FEMA, the design of the replacement bridge is not required to comply with Hawaii National Flood Insurance Program's regulations and requirements.

Hydrologic design for the replacement bridge is based on a 1-in-50-year storm event, based on the highway classification as a Rural Minor Arterial and on applicable FHWA Hydraulic Engineering Circulars. Because of the project's inland location, no hydraulic parameters generated from coastal events (such as storm surges, storm waves, tsunamis, or hurricanes) were used to analyze the capacity or stability design of the replacement bridges.

3.4.1.1 Hilea Bridge

Hydraulic analysis performed for Hilea Bridge found that hydraulics (the capacity to accommodate floodwaters) play a role in sizing the replacement bridge. Preliminary modeling results indicate that the existing bridge (with a 40-foot opening) is overtopped with a 1-in-10-year runoff of 4,300 cfs. About 200 yards upstream of the bridge, the water exceeds stream channel capacity and spreads out into the overbanks as it approaches Mamalahoa Highway. There is a wooden-slat guardrail on each side of the road over the bridge. The rail collects debris and blocks flows when the roadway overtops. Split-flow conditions

occur upstream, allowing flow to break away from the channel and overtop the road just northeast of the bridge (FHWA-CFLHD, 2015b).

Floodwaters occurred in Hilea Stream during Tropical Storm Iselle, in August 2014 (see Photo 3-2a). This resulted in overtopping of the roadway northeast of the bridge (see Photo 3-2b). Climate change in the future may result in weather patterns that affect the frequency of storms.

For the proposed bridge to convey the 1-in-50-year flow of 8,100 cfs with a 2-foot freeboard and no roadway raising, a wider bridge opening is required. The proposed bridge with a single-span length of 100 feet would convey the 1-in-50-year flow and meet the 2-foot freeboard requirement (FHWA-CFLHD, 2015a).



Photo 3-2a. Hilea Stream during Tropical Storm Iselle.



Photo 3-2b. Overtopping of roadway northeast of Hilea Bridge during Tropical Storm Iselle.

3.4.1.2 Ninole Bridge

Hydraulic analysis performed for Ninole Bridge found that hydraulics does not play a key role in sizing the replacement bridge. The new structure is sized to match the opening of the existing structure and would maintain the same or greater conveyance capacity as the existing structure. No roadway raising is required for the bridge replacement.

During Tropical Storm Iselle, Ninole Stream conveyed floodwaters within its banks (see Photo 3-2c). No overtopping of Ninole Bridge or the adjacent roadway occurred during the storm.



Photo 3-2c. Ninole Stream during Tropical Storm Iselle.

3.4.2 Seismic Activity

Hawaii experiences thousands of earthquakes each year; most earthquakes are small and only detectable by instruments, though some are strong enough to be felt and a few cause minor to moderate damage. Earthquake hazards on the Island of Hawaii are directly related to volcanic activity beneath the earth's surface. The largest Hawaiian earthquake in recorded history occurred in 1868, beneath the Kau District on the southeastern flank of Mauna Loa; it had an estimated magnitude between 7.5 and 8.1. The earthquake caused damage across the Island of Hawaii and was felt as far away as the Island of Kauai (USGS, 1997).

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. The Island of Hawaii is designated Seismic Zone 4 (USGS, 1997).

3.4.3 Volcanic Hazard

The USGS (2006) established nine hazard zones for the Island of Hawaii, which are primarily based on the location and frequency of both historical and prehistoric eruptions. Zone 1 is the area of greatest hazard and Zone 9 is of the least hazard. The project area is in Zone 3. Zone 3 areas are less hazardous than Zone 2 because of their greater distance from recently active vents, because the topography makes it less likely that flows would cover these areas, or both. The project area is located on the southern flank of Mauna Loa. The summits of Mauna Loa and Kilauea volcanoes are located approximately 25 miles from the project area (USGS, 2006).

3.4.4 Potential Impacts and Mitigation Measures

The proposed Hilea Bridge is sized to convey the full 1-in-50-year runoff from the drainage basin and, therefore, a beneficial effect would occur. Split-flow conditions would continue to occur upstream, allowing flow to break away from the channel and overtop the road just northeast of the bridge. There would be no impact on the potential for flooding at Ninole Bridge. Hilea and Ninole bridges would also be designed to meet current standards for seismic performance.

3.5 Noise

3.5.1 Existing Conditions

3.5.1.1 Hilea Bridge

Given the absence of urban development in the vicinity of Hilea Bridge, traffic on Mamalahoa Highway is the primary noise generator. 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, nor are there any nearby noise receptors.

3.5.1.2 Ninole Bridge

As with Hilea Bridge, traffic on Mamalahoa Highway is the primary noise generator in the vicinity of Ninole Bridge. The nearest residential neighborhood to Ninole Bridge is located approximately 400 feet to the northeast, on the *mauka* side of the highway. 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.

3.5.2 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. Construction Noise Model User's Guide (FHWA, 2006) indicates that the loudest equipment generally emits noise in the range of 80 to 90 A-weighted decibels (dBA) at a distance of 50 feet, which exceeds permissible levels.

Per HAR §11-46-3, the project areas are located in Class A Zoning District (open space, conservation and residential), and Class C Zoning District (agriculture). Under the Class A Zoning District, the 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). Under the Class C Zoning District, the maximum permissible sound levels are 70 dBA during the daytime (7 am to 10 pm) and 70 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 and the specific permit restrictions required for construction projects, including the following:

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

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

3.5.2.2 Long-term Noise Impacts

Replacing Hilea and Ninole bridges would not change traffic counts 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 a download from select Federal and State standard source environmental databases that identifies sites within a search radius of up to 1 mile. CH2M HILL reviewed each environmental database to determine whether certain sites identified in the CER are suspected to represent a material negative environmental impact to the subject property. The CER is included in Appendix B.

3.6.1.1 Hilea Bridge

The CER did not identify any sites within the search distance of Hilea Bridge that are suspected to represent a material negative environmental impact.

3.6.1.2 Ninole Bridge

According to the CER, one leaking underground storage tank site was reported approximately 0.3 mile east of Ninole Bridge, at the Sea Mountain Golf Course. Site cleanup was completed in February 1996. No other hazardous waste sites occur within 0.5 mile of the project limits (the American Society for Testing and Materials 1527-13 database search radius) for Ninole Bridge, as identified in the CER.

3.6.2 Potential Impacts and Mitigation Measures

Based on the results of the CER no known hazardous waste is located at either the Hilea Bridge or Ninole Bridge site.

Project construction would require removal of the existing structures. Surveys of both structures would be performed to determine whether asbestos-containing material and/or lead-based paint (LBP) are present. If asbestos is present or suspected, an Asbestos Abatement Plan would be prepared to establish the appropriate protocols for abatement. If LBP is identified, work practices (in accordance with applicable State and Federal regulations) would be implemented before LBP removal to contain debris and control airborne dust, and properly dispose of materials with LBP.

Construction-related activities would also involve use of hazardous materials, including lubricants of various weights and viscosities, 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 and the handling of hazardous materials. Development and execution of the plan would reduce potential impacts to a less than significant level. The contents and requirements of the hazardous materials spill plan include the following:

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

- Hazardous waste generated as a result of removal, demolition, and rehabilitation activities would be managed to the highest and best end use, and in a manner to ensure the protection of human health (workers, visitors to the site, and the general public) and the environment in accordance with applicable laws, rules, and regulations.
- A hazardous waste determination for all anticipated waste would be prepared to determine whether the waste is classified as hazardous waste, universal waste, excluded waste, wastewater, or solid waste. Before removal, demolition, and rehabilitation activities related to ACM or LBP commence, all applicable permits will be obtained from, and notifications be provided to, the Federal, State, and local permitting and regulatory agencies with jurisdiction over this work. These permits and notifications will be documented in the project files.

3.7 Flora¹

3.7.1 Existing Conditions

SWCA Environmental Consultants (SWCA) conducted field reconnaissance surveys of the project areas on October 6 and 29, 2014. Representative portions of the areas were driven or walked, to describe vegetation types, fauna, and wetlands or streams, as well as known or suspected presence of threatened, endangered, or candidate plant species and their habitats.

3.7.1.1 Hilea Bridge

No State- or Federally-listed threatened, endangered, or candidate plant species were recorded in the survey area. Eight Native Hawaiian plants, ae (*Polypodium pellucidum*), alahee (*Psydrax odorata*), *Cyperus polystachyos*, koaliawa (*Ipomoea indica*), kupukupu (*Nephrolepis exaltata subsp. Hawaiiensis*), ohia (*Metrosideros polymorpha*), uhaloa (*Waltheria indica*), and ulei (*Osteomeles anthyllidifolia*) were observed during the survey. These indigenous species (found on the Hawaiian Islands and elsewhere) are not considered rare throughout the Hawaiian Islands.

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

Guinea grass grassland: This vegetation type is characterized by large, open areas of Guinea grass (*Urochloa maxima*) occurring west of the streambed, adjacent to the northern side of Mamalahoa Highway. Lantana (*Lantana camara*) and partridge pea (*Chamaecrista nictitans*) grass are commonly found among the Guinea grass. There are two common trees—monkeypod (*Samanea saman*) and kukui (*Aleurites moluccana*)—which are widely spaced from one another. The native alahee occurs rarely in this vegetation type and the native uhaloa is uncommon in this vegetation type.

Non-native forest: Flanking each side of Hilea Stream is a non-native forest dominated by Java plum (*Syzygium cumini*) and koa haole (*Leucaena leucocephala*) trees. Monkeypod trees are also common. The most common understory plant is Guinea grass, which grows up to 6 feet in height. Few other plants occur with the dense Guinea grass. The only native plant found in this area is kupukupu fern. Only a few isolated individuals exist within the survey area.

Lantana scrubland: The western side of Hilea Stream along the northern side of Mamalahoa Highway is an aa lava flow dominated by lantana shrubs that are up to 4.5 feet in height. Much of the aa lava flow is without plants, because soil substrate has yet to develop. Kupukupu fern is abundant, growing low between the lava rocks. Native ohia lehua trees are uncommon in the Hilea Bridge survey area. Most of the vegetation is concentrated near the streambed and becomes less dense as distance increases eastward and away from the stream.

Ohia Open Forest: A small portion of the Hilea Bridge survey area, on the northeastern tip underlain by aa lava, is dominated by scattered ohia trees (see Appendix C, Figure A3). Other native species in this

¹ The plant names used in this assessment follow Wagner et al. (2012), Wagner and Herbst (2003), and Wagner et al. (1999).

vegetation type include kupukupu and ulei. The most common non-native plants are koa haole, sourbush (*Pluchea carolinensis*), and lantana.

Ruderal: This vegetation type occurs in and along the highway ROW and adjacent to parking areas, and is dominated by a mix of non-native plants. Abundant and common herbaceous species found in the ruderal vegetation type are Guinea grass, swollen fingergrass (*Chloris barbata*), pitted beardgrass (*Bothriochloa pertusa*), natal redtop (*Melinis repens*), *Macropitium atropurpureum*, hairy spurge (*Euphorbia hirta*), and buttonweed (*Spermacoce assurgens*). Low-growing thickets of koa haole trees and Christmas berry (*Schinus terebinthifolius*) are also common in this vegetation type.

3.7.1.2 Ninole Bridge

No State- or Federally-listed threatened, endangered, or candidate plant species were recorded in the survey area. Four Native Hawaiian plants, *Fimbristylis dichotoma*, uhaloa, koaliawa, and kou (*Cordia subcordata*) were observed during the survey. These indigenous species (found on the Hawaiian Islands and elsewhere) are not considered rare throughout the Hawaiian Islands.

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

Koa haole – Christmas berry forest: This vegetation type is found along the streambed roughly perpendicular to Ninole Bridge on Mamalahoa Highway. It is characterized by dense stands of koa haole and Christmas berry trees (see Appendix C, Figure A4), which create a closed canopy cover over a dry lava rock streambed devoid of plants. Java plum is a common tree in Ninole Bridge survey area. Guinea grass is the most abundant understory plant along the streambed edges, and few other non-native herbaceous plants are present. No native species were observed.

Ruderal: Ruderal plant species are dominant within the highway ROW. This vegetation type is dominated by a mix of weedy non-native plants (see Appendix C, Figure A5). Abundant and common herbaceous species found in the ruderal vegetation type are Guinea grass, swollen fingergrass, pitted beardgrass, lovegrass (*Eragrostis amabilis*), and coat buttons (*Tridax procumbens*). These weedy areas are likely mowed occasionally. Stands of koa haole are also common.

Ornamental landscaping: Ornamental trees and shrubs are planted adjacent to buildings and golf course facilities. Moreton bay figs (*Ficus macrophylla*) line the highway to the east of the bridge. Other ornamental plantings in Ninole Bridge survey area include wedelia (*Sphagneticola trilobata*), peregrine (*Jatropha integerrima*), royal poinciana (*Delonix regia*), century plant (*Agave americana*), and mock orange (*Murraya paniculata*). The fairways on the golf course are planted with Bermuda grass (*Cynodon dactylon*).

3.7.2 Potential Impacts and Mitigation Measures

Construction of the proposed project would require trimming and/or removing vegetation within the temporary and permanent work areas. However, the vegetation types and species identified during the survey are not unique. The species observed are found on the Hawaiian Islands and elsewhere and are common throughout the Hawaiian Islands. No threatened or endangered plants were found. In addition, no designated plant critical habitat occurs nearby. Based on the lack of sensitive botanical resources and with implementation of the following BMPs, the proposed project is not expected to have a significant adverse impact on botanical resources.

- Retain natural vegetation, especially grass, where possible.
- Vegetation disturbed during construction would be replaced as part of the project, to the extent practicable. Using native species for revegetation will be considered where warranted and suitable for the site conditions.
- 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.
- Implement sanitation procedures for vehicles, equipment and materials, as needed to limit the spread of invasive species.
- Follow applicable Federal land management agency requirements and state requirements. Maintain cleaning and inspection records.
- Two weeks before any tree cutting, survey the project site to determine if there are any ohia trees infected with the fungus responsible for Rapid Ohia Death. If infected ohia are suspected at the site, the appropriate resource agencies will be contacted. BMPs will be implemented before cutting any ohia and following construction, including proper cleaning of tools, equipment and shoes, and proper disposal of affected ohia trees.

3.8 Fauna

SWCA biologists also investigated the presence of known or suspected threatened, endangered, or candidate wildlife species during the field surveys conducted on October 6 and 29, 2014. The USFWS lists seven species that may occur in the Hilea Bridge and Ninole Bridge project areas. These include the endangered Hawaiian goose or nene (*Branta sandvicensis*), the endangered Hawaiian hawk (*Buteo solitarius*), the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), three seabird species (the endangered Hawaiian petrel [*Pterodroma sandwichensis*], the threatened Newell's shearwater [*Puffinus auricularis newelli*], and the proposed endangered band-rumped storm-petrel [*Oceanodroma castro*]), and the endangered Blackburn's sphinx moth (*Manduca blackburni*).

3.8.1 Avifauna

3.8.1.1 Nene (Applicable to both Hilea Bridge and Ninole Bridge)

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 ornamental landscaping, and ruderal vegetation types are suitable for nene foraging. The nene has been observed nesting in ohia, Christmas berry, and lantana and could nest in the lantana scrubland, ohia open forest, koa haole – Christmas berry forest, and ruderal vegetation types in the Hilea and Ninole project areas. Nene may be attracted to golf course golf greens and lawns, and they have been known to use portions of nearby golf courses, including the golf course within Ninole Bridge project area (Misajon, 2014).

3.8.1.2 Hawaiian Hawk (Applicable to both Hilea and Ninole)

The endangered Hawaiian hawk is endemic to the Island of Hawaii. The Hawaiian hawk was not seen during SWCA's survey and was not detected in the area during previous surveys in 2007. The identified breeding range, including nesting and foraging habitat of breeding birds, is located approximately 0.6 mile from the Hilea Bridge and Ninole Bridge survey areas. Native-exotic forest, mature native forest, mature native forest with grass understory, and orchards generally support greater densities of Hawaiian hawks than do shrubland, pioneer native forest, or urban habitats. Densities in certain habitats showed considerable difference among regions (Gorresen et al., 2008). Hawaiian hawks could occasionally forage in the Hilea and Ninole bridge project areas.

3.8.1.3 Seabirds (Applicable to Hilea and Ninole Bridges)

While not observed during the survey, special status seabirds, particularly the endangered Hawaiian petrel, threatened Newell's shearwater, and proposed endangered band-rumped storm-petrel 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.

3.8.1.4 Other Avifauna (Applicable to Hilea Bridge)

The bird species observed in and near the project area are species typically found in Hawaii's urban areas, gardens, and parklands. In all, 10 bird species were documented: common myna (*Acridotheres tristis*), house sparrow (*Passer domesticus*), Japanese white-eye (*Zosterops japonicas*), northern cardinal (*Cardinalis cardinalis*), Pacific golden-plover (*Pluvialis fulva*), red-billed leiothrix (*Leiothrix lutea*), spotted dove (*Streptopelia chinensis*), yellow-billed cardinal (*Paroaria capitata*), yellow-fronted canary (*Serinus mozambicus*), and zebra dove (*Geopelia striata*).

Two species, the house sparrow 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.

3.8.1.5 Other Avifauna (Applicable to Ninole)

The bird species observed in and near the project area are species typically found in Hawaii's urban areas, gardens, and parklands. In all, 13 bird species were documented: common myna, domestic duck (*Anas platyrhynchos domesticus*), house finch, house sparrow, Japanese white-eye, northern cardinal, nutmeg mannikin (*Lonchura punctulata*), Pacific golden-plover, red-billed leiothrix, spotted dove, yellow-billed cardinal, yellow-fronted canary, and zebra dove.

Two species, the house finch and the Pacific golden-plover, are protected by the MBTA. All species are non-native permanent residents except the Pacific golden-plover, which is migrant.

3.8.2 Mammalian Species

3.8.2.1 Hawaiian Hoary Bat (Applicable to Hilea and Ninole Bridges)

The endangered Hawaiian hoary bat or opeapea (*Lasiurus cinereus semotus*) is the only native terrestrial mammal species that is still present within the Hawaiian Islands (USFWS, 1998). 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 (USDA, 2009; USFWS, 2014; SWCA, 2015).

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.

3.8.2.2 Other Terrestrial Mammals (Applicable to Hilea Bridge)

Cattle (*Bos taurus*) and horses (*Equus ferus caballus*) were observed grazing in the Hilea Bridge project area. Mongoose (*Herpestes auro-punctatus*) were also observed during the survey. While not observed during the biological survey, other mammals that can be expected onsite include dogs (*Canis familiaris*), cats (*Felis catus*), mice (*Mus musculus*), and rats (*Rattus spp.*).

3.8.2.3 Other Terrestrial Mammals (Applicable to Ninole Bridge)

Mongoose were observed during the survey. While not observed during the biological survey, other mammals that can be expected onsite include dogs, cats, mice, and rats.

3.8.3 Terrestrial Invertebrates

3.8.3.1 Blackburn's Sphinx Moth (Applicable to Hilea and Ninole Bridges)

The endangered Blackburn's sphinx moth is one of the largest insects in the archipelago, with a wingspan of up to 4.7 inches. It can be found in a wide range of topographic landscapes and non-native vegetation. Specific surveys for adult or larval-endangered Blackburn's sphinx moth were not conducted in the Hilea Bridge and Ninole Bridge survey areas but the potential for moth habitat presence was evaluated during the botanical survey. While no larvae host plants were observed, plants known to be adult host plants were seen during the survey.

3.8.3.2 Other Terrestrial Invertebrates (Applicable to Hilea Bridge)

Only non-native insects were observed during the survey, including honey bee (*Apis mellifera*), the black witch moth (*Ascalapha odorata*), and the koa haole moth (*Macaria abydata*).

3.8.3.3 Other Terrestrial Invertebrates (Applicable to Ninole Bridge)

Only non-native insects were observed during the survey, including honey bee, the black witch moth, and the koa haole moth.

3.8.3.4 Reptiles and Amphibians (Applicable to Hilea and Ninole Bridges)

A metallic skink (*Niveoscincus metallicus*) was observed during the survey. No other reptiles or amphibians were seen.

3.8.4 Aquatic Resources

SWCA did not conduct in-stream surveys in the project area as both streambeds were dry. Fish were not observed at either Hilea Bridge or Ninole Bridge project area.

3.8.5 Cave and Lava Tube Communities

Although none were seen during the survey, naturally occurring caves (for example, voids and cavities) and lava tubes (subterranean channels created by flowing molten lava) may occur under the project area. These subsurface environments may support a diverse array of rare cave-adapted plants and invertebrates, and may contain interesting geological or mineral formations and features (Howarth et al., 2007; Stone and Howarth, 2007). No State or Federally-listed cave-adapted invertebrates occur on the Island of Hawaii.

Surface alterations (such as removal or modification of vegetation, or alteration of cave entrances and passages that change the cave microclimate) can adversely impact cave communities. Plant roots that penetrate deep underground to obtain water and nutrients are the main energy source for cave ecosystems (Stone and Howarth, 2007).

3.8.6 Potential Impacts and Mitigation Measures

3.8.6.1 State and Federally listed Species

A Biological Assessment was prepared to evaluate potential impacts to State and Federally listed species from the proposed project; a copy of the Biological Assessment is contained in Appendix C. With implementation of measures and BMPs listed in this section, the proposed project would not likely adversely affect these species.

Nene. The project area contains areas 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 implementation of conservation measures and the BMPs listed in this section, adverse impacts are unlikely.

While not likely to occur, permanent removal of nesting habitat would constitute a long-term indirect impact. This impact would be discountable because of the small amount of habitat removed under the proposed project and the availability of adjacent nesting habitat for displaced nene to use.

In the short term, the human noise and disturbance associated with construction activities could temporarily displace nene from roosting or foraging habitats, or both. This displacement could alter an individual's

typical foraging and roosting patterns, forcing it to expend energy to search for new foraging and roosting locations. Displacement from roosting or foraging habitat could lead to increased predation and car strikes on individual nene if a nene is forced to change its behavior and search for suitable habitat.

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

- A biologist familiar with the nesting behavior of the nene 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 know the appropriate steps to take if nene are present onsite.
- If a nene is found in the area during ongoing activities, all activities within 100 feet of the bird would cease, and the bird would not be approached. If a nest is discovered, USFWS would be contacted. If a nest is not discovered, work may continue after the bird leaves the area of its own accord.

Hawaiian Hawk. The koa haole–Christmas berry forest vegetation type is found along Ninole Stream streambed and is dominated by koa haole and Christmas berry trees, with some Java plum trees. Considering that preferred nest tree species are not in the forested portions of the survey areas, and that the project areas are just outside of the extent of the breeding range, the likelihood of nesting occurring in the project areas is very low but it is possible that Hawaiian hawks could occasionally forage in the project areas. Because all impacts on the Hawaiian hawk would be minor, with implementation of the following conservation measure and BMP, the project would not likely adversely impact the Hawaiian hawk:

- If brush or tree clearing is anticipated to occur during the hawk breeding season (March through September), a nest survey would be conducted in the project areas before construction. This survey would be conducted by a qualified biologist using appropriate survey methods (Gorresen et al., 2008; USFWS, 2008).

Seabirds. Major threats to the endangered Hawaiian petrel, threatened Newell’s shearwater, and proposed endangered band-rumped storm-petrel include the attraction of adults and newly fledged juveniles to bright lights while transiting between their nest sites and the ocean. Juvenile birds are particularly vulnerable to light attraction and are sometimes grounded when they become disoriented by lights. Many of the grounded birds are vulnerable to mammalian predators or to being struck by vehicles. With implementation of the following conservation measures and BMPs, the project would not likely adversely impact the Hawaiian Petrel, Newell’s shearwater, or band-rumped storm-petrel:

- 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).

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

Blackburn's Sphinx Moth. Direct impacts to Blackburn's sphinx moth could occur if tree tobacco is determined to provide habitat for moths, and if the plants or pupae still occupy the soil within a 33-foot (10-meter) radius of the plants are removed or disturbed as a result of construction. Because no larval host plants were observed during the initial botanical survey and because very few adult host plants were seen, direct impacts are unlikely to occur. With implementation of the following conservation measures/BMPs, the project would not likely adversely impact the Blackburn's sphinx moth.

- A survey for potential larval host plants for the Blackburn's sphinx moth (particularly tree tobacco) would be conducted by biologists before construction and vegetation clearing. Results of the surveys would be provided to the USFWS.
- If host plants are found, surveys for Blackburn's sphinx moths would be performed according to the most recent USFWS guidance, and preferably during the wet season (January to April) roughly 4 to 8 weeks following a significant rainfall event. Results of the survey would be provided to the USFWS and any necessary follow-up actions would be coordinated with the USFWS.

Long-term impacts to the Blackburn's sphinx moth are also unlikely because no larval host plants were seen during the botanical survey. If larval host plants are established in the project areas and provide breeding habitat for the species, permanent removal of these plants would constitute a long-term indirect impact. This impact would be discountable because of the small number of host plants removed under the proposed project. Impacts to Blackburn's sphinx moths resulting from light attraction are not considered likely, and potential impacts would be avoided by reducing light pollution, as recommended by the USFWS for avoidance of light impacts to seabirds.

Aquatic Resources. While the type and extent of impacts would depend on the final project design, the following mitigation measures would be implemented to reduce potential impacts to aquatic resources in the area:

- Turbidity and siltation from project-related work would be minimized and contained through the appropriate use of erosion control practices, effective silt retention devices, and work curtailment during adverse weather and flow conditions.
- Erosion and sediment control measures would be in place before initiating earth-moving activities. Functionality would be maintained throughout the construction period.
- Any soil exposed near water would be protected from erosion and stabilized as soon as practicable.
- A contingency plan to control toxic materials would be developed.
- All project-related materials and equipment placed in the water would be free of pollutants.
- Fueling of land-based vehicles and equipment would take place at least 50 feet away from the water, preferably over an impervious surface.
- Appropriate materials to contain and clean potential spills would be stored at the worksite and be readily available.
- No project-related materials would be stockpiled in the water.
- No contaminants (such as trash or debris) would be placed in adjacent habitats.

3.8.6.2 Migratory Bird Treaty Act

The MBTA provides Federal protection to all migratory birds, as well as their nests and eggs. Thirteen bird species were observed during the field surveys, with two of them non-native bird species protected under

the MBTA. The human noise and activity as a result of construction at the site may temporarily displace some of these birds, but long-term impacts are not expected. These birds (likely limited to a few individuals) are expected to find abundant foraging habitat in nearby areas. The temporary displacement of these individuals at the site is not expected to affect an individual's survival or overall species' abundance. Impacts would be temporary and minor; therefore, the proposed project would not adversely affect birds protected under the MBTA.

3.9 Archaeological Resources

3.9.1 Existing Conditions

Hilea and Ninole bridges are located in the Kau District. The population in the Kau District declined precipitously during the first half of the nineteenth century because of the effect of newly introduced diseases, cultural unravelling, and emigration to new commercial centers. The nearby town of Hilea was historically a small village with fish ponds.

In 1868, a sequence of major earthquakes, eruptions of Mauna Loa, and a tsunami resulted in destruction of coastal villages and many deaths. Change within the Kau District during the remainder of the nineteenth century and into the twentieth century centered on the activities of the two sugar operations: Hutchinson Sugar Plantation and the Hawaiian Agricultural Company. The land was farmed for sugar production, and foreign laborers from China, Japan, and the Philippines settled in the area to work for the sugar plantations.

Previous archaeological studies have identified historic properties near the project area that include both pre- and post-Western-Contact structures (predominantly walls), as well as house sites and one burial site. None of these sites are located in the current project area.

Archaeological field work was conducted by archaeologists from Cultural Surveys Hawaii (CSH) in June 2015; copies of the Archaeological Inventory Survey Reports are contained in Appendix D. Two cultural resources were identified during field investigations; both resources are discussed in Section 3.10, Historic Architecture Resources. No archaeological resources were identified in the project area.

3.9.2 Potential Impacts and Mitigation Measures

The proposed project is not expected to affect any archaeological resources, as none were identified in the project area. Specific to historic architectural resources, the proposed project would have an "adverse effect" in accordance with Federal regulations (36 CFR 800.5) and "effect, with proposed mitigation commitments" in accordance with HAR §13-13-275-7, as discussed in Section 3.10.

No further archaeological fieldwork is proposed for this project. If cultural resources or human remains are inadvertently discovered during construction, the Contractor would comply with State law and administrative rules for handling them.

3.10 Historic Architectural Resources

3.10.1 Existing Conditions

A field inspection was conducted along the roadway for a distance of approximately 0.5 mile to either side of Hilea and Ninole bridges. Three historic architectural resources were identified within the project area:

- State Inventory of Historic Properties (SIHP) #50-1-74-30298: Hilea Bridge
- SIHP #50-10-68-30299: Ninole Bridge
- SIHP #50-10-47-30187: 1940s by-pass portion of Mamalahoa Highway

Hilea and Ninole bridges were constructed in 1940 as part of a Federal Aid Project that constructed a portion of the Mamalahoa Highway. The bridges are built of wooden timbers that have been treated with coal tar creosote. They have wooden railings asphalt roadways over wooden decks.

William R. Bartels, a bridge engineer for the Hawaii Territorial Highway Department, was the designer of the bridges. During his tenure (1932 to 1958), he was a prolific designer, responsible for large and sophisticated bridge construction projects in Hawaii, including many tee-beam and rigid-frame concrete bridges. The bridges were built by contractor Moses Akiona.

Significance Assessment for Hilea and Ninole Bridges

Hilea and Ninole bridges are included in the November 2013 Hawaii State Historic Bridge Inventory and Evaluation by 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 under Criterion C for their association with early developments in timber bridge construction in Hawaii.

Both bridges were re-evaluated by Mason Architects in 2015 and were confirmed to be eligible for listing on the National and State Registers of Historic Places; copies of the Historic Inventory Forms are contained in Appendix E. Hilea and Ninole bridges are evaluated as eligible under Criterion C for their association with timber bridge construction in Hawaii. They are good examples of wood bridges built in the 1940s, in their use of materials, method of construction, craftsmanship, and design. Both bridges are also considered eligible under Criterion C as the work of a master, William R. Bartels. Hilea and Ninole bridges are the last remaining timber bridges in the Hawaii State Highway System, representing rare remaining examples of a historic bridge type.

Significance Assessment for the 1940s By-Pass Portion of Mamalahoa Highway

Mamalahoa Highway, SIHP #50-10-47-30187, retains integrity of location, design, setting, materials, workmanship, feeling, and association. The historic property is evaluated as eligible for inclusion in the National Register (per 36 CFR 60.4) under Criterion A (associated with events that have made a significant contribution to the broad patterns of our history) and Criterion D (have yielded, or may be likely to yield, information important in prehistory or history). SIHP #50-10-47-30187 is evaluated as eligible for listing on the Hawaii Register (per HAR §13-198-8) under Criterion A (associated with events that have made a significant contribution to the broad patterns of our history) and Criterion D (have yielded, or may be likely to yield, information important in prehistory or history). The assessment of significance and evaluation of eligibility is based on the historic property's association with "important late nineteenth and early twentieth events in establishing a regional transportation network that has its roots in antiquity" (Clark et al 2014: 81).

3.10.2 Potential Impacts and Mitigation Measures

The proposed project would demolish and replace both bridges and would therefore have an "adverse effect" on Hilea Bridge (SIHP #50-1-74-30298) and Ninole Bridge (SIHP #50-10-68-30299) in accordance with Federal regulations (36 CFR 800.5). The integrity and significance of Mamalahoa Highway would not be diminished as the alignment would remain unchanged and the road surface would be replaced in kind where impacted by project work. The effect determination is "effect, with proposed mitigation commitments" pursuant to State regulations (HAR §13-13-275-7). The SHPD provided concurrence with the determinations by letter dated March 8, 2017.

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 *mooolelo* (stories), *wahi pana* (storied places), *olelo noeau* (proverbs), *oli* (chants), *mele* (songs), traditional subsistence and gathering methods, and ritual and ceremonial practices. Ethnographic interviews were also conducted with persons knowledgeable about cultural resources, practices, and beliefs relevant to the study area. Specifically, CSH consulted with the following individuals: Earl Louis, Demetrius Oliveira, and Kawehi

and Debbie Ryder. The preliminary findings of the CIA are summarized below; a copy of the Final CIA is provided in Appendix F.

The *ahupuaas* (land division) of Ninole and Hilea extend across slender land segments from Kilauea to the sea within the *moku* of Kau. Ninole literally translates to “bending.” Hilea translates to “careless” (Pukui et al. 1974). The *ahupuaa* of Hilea is technically split into two: Hilea Iki (“small Hilea”) and Hilea Nui (“great Hilea”).

The most famous *wahi pana* associated with the study area is the reproducing stones of Koloa Beach. The stones are said to reproduce (*iliili hanau*, birth pebbles believed to reproduce themselves; the smooth nonporous being male, the porous being female) and create small, smooth stones. The beach at Koloa is covered in the smooth, round pebbles.

Several *heiau* (pre-Christian places of worship) are located within Ninole Ahupuaa, including Kaieie Heiau and Mokini Heiau. Two springs can be found near Koloa Beach: Puhau and Kauale. Puhau Springs feeds into Ninole Fishpond, which is located *makai* and fronts Koloa Beach. Kauale is east of Puhau and said to be the female counterpart to Puhau, the male spring.

Keeku Heiau is a heavy-walled enclosure on the northeastern side of Kawa Bay. The massive *heiau* consists of several platforms and features including a *kuaha* (altar or place of worship in a private house), *lele* (sacrificial altar), and *kahua hoomaha* (platform for resting). In the *mauka* region on Puu Makaanau is Kohaikalani Heiau. The enclosure overlooks Hilea Iki Ahupuaa. A majority of the walls along with the interior features have been dozed because of sugarcane cultivation.

Early accounts of the Kau District describe the area as ridden with lava, often lacking water and resources. However, in 1823 during Reverend William Ellis’ visit, he described neighboring Punaluu Ahupuaa as being abundant in fresh water and cultivated in sugarcane, taro, and bananas. Land Commission Awards indicate crops of taro, pumpkin, sweet potatoes, and *olona* (*Touchardia latifolia*) were being cultivated.

Life in the Kau District was disrupted during the 1860s by the forces of nature. In March 1868, a sequence of major earthquakes and eruptions at Mauna Loa began that resulted in loss of property and livestock, as well as human death. The following month, an earthquake, which precipitated a tsunami, destroyed villages along the coastline and created landslides.

Tragedy and natural disasters did not hinder foreign business interests in Kau. In 1868, the same year as the streak of natural disasters, Alexander Hutchinson established the Naalehu Sugar Company and built a mill in Naalehu town. Wharves, flumes, and a railway were built to accommodate the sugar plantations in the area. In June 1878, the first railroad was constructed that traveled from Punaluu to the village of Keaiwa. Multiple rail lines were built and realigned, which spanned from Naalehu to Hilea to Honuapo and from Punaluu to Pahala. The railroads continued to operate until the 1940s.

3.11.2 Potential Impacts and Mitigation Measures

Based on the preliminary results of the CIA, cultural resources and practices are not expected to be affected by the proposed project. Cultural practices near the project area (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. Should cultural resources or human remains be inadvertently discovered during construction, all work would immediately cease, the appropriate agencies (including the Office of Hawaiian Affairs) would be contacted, and the contractor would comply with applicable State law and administrative rules for handling them.

3.12 Economic and Fiscal Resources

3.12.1 Existing Conditions

The economy of the Island of Hawaii has transformed over time from a plantation economy to a modern economy with a mix of tourism, diversified agriculture, construction, retail, and professional businesses. As reported in the 2013 edition of County Business Patterns, Hawaii County had a total of 3,923 business

establishments with 50,266 paid employees and an annual payroll of approximately \$2 million (U.S. Department of Commerce, Census Bureau, 2013).

The largest industries in Hawaii County in terms of jobs are retail trade, accommodation and food services, and health care and social assistance. In 2013, retail trade accounted for 9,128 jobs, accommodation and food services had 11,943, and healthcare and social assistance had 8,299 (U.S. Department of Commerce, Census Bureau, 2013).

The national economic recession of the late 2000s had a ripple effect on tourism in the State of Hawaii. Economic conditions have since improved and the unemployment rate for Hawaii County in May 2015 was 4.8 percent, compared to a 3.9 percent unemployment rate Statewide and 5.3 percent nationwide (State of Hawaii, 2015).

3.12.2 Potential Impacts and Mitigation Measures

3.12.2.1 Economic Impacts

The proposed project is anticipated to have several types of economic impacts, with one being construction-related employment and income. With a preliminary estimated cost of \$7.6 million for Hilea Bridge and \$7.3 million for Ninole Bridge, the project is expected to support a number of construction workers for the duration of the project (approximately 13 months for both bridges). Unless the economy expands significantly and existing firms are working at full capacity, this project is more likely to help sustain existing employment and income levels rather than create new jobs. Because the project includes funds that are coming from both State and Federal sources, 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.

3.12.2.2 Fiscal Impacts

Public funds are needed for long-term operations and maintenance of all bridge structures. In the case of Hilea and Ninole 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, notably for Hilea Bridge by providing a single-span bridge eliminating interior piers that may be an obstruction during high stream flows. These changes would provide long-term fiscal benefits to HDOT.

3.13 Visual and Aesthetic Resources

3.13.1 Existing Conditions

The 2005 *County of Hawaii General Plan* (Hawaii General Plan) (County of Hawaii, 2005) identifies goals intended to protect, preserve, and enhance the quality of areas endowed with natural beauty. It protects scenic vistas and viewsheds from being obstructed and maximizes opportunities to appreciate and enjoy natural and scenic beauty. The proposed project site is located within the Kau District of the County of Hawaii. The Hawaii General Plan identifies various Natural Beauty Sites in the Kau District, one of which is located in the vicinity of Hilea Bridge: on the *makai* side of the bridge, an adjacent parcel (TMK: 9-5-017:007) is listed in the Hawaii General Plan as a Natural Beauty Site, District of Kau, for the site Kawa (Kawaa Bay and Spring) (County of Hawaii, 2005). Kawaa Bay and Spring can be accessed from two locations off State Route 11, one at MP 58.4 and the other at MP 58.6. These access points are located approximately 0.7 mile southwest and *makai* of Hilea Bridge.

State Route 11 has been designated by HDOT as the Kau Scenic Byway, a route that offers a long stretch of unspoiled natural scenery on the Island of Hawaii. The route begins at Kona on the western side of the island and ends partly within the Hawaii Volcanoes National Park to the east. Both Hilea and Ninole bridges are located along the Kau Scenic Byway route.

3.13.1.1 Hilea Bridge

At Hilea Bridge, the surrounding lands are largely undeveloped with rolling terrain and heavy vegetation surrounding the bridge. The bridge spans Hilea Stream, which is an intermittent stream that drains parts of the southern slope of Mauna Loa. On the northern side of Hilea Bridge, there are rock walls that limit runoff and sediment during storm events, while on the southern side of the bridge, there is a steep slope on the *makai* side. The southern approach also has a roadside ditch with a steep slope on the *mauka* side. As shown in Photo 1 of Figure 1-2a, to users of the highway, the stream, rock walls, and steep slopes are nearly invisible because of the heavy vegetation that lines both sides of the highway. 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 Hilea Bridge railings provide a brief but notable visual counterpoint to the regularity of the other physical features of the area.

Kawaa Bay, located southeast of Hilea Bridge, is identified in the Hawaii General Plan as a Natural Beauty Site (Kawaa Bay and Spring) (County of Hawaii, 2005). The undeveloped shoreline at Kawa on the Island of Hawaii protects nesting areas for the critically-endangered Hawaiian hawksbill turtle. The land includes the 2-acre Kaalaiki intertidal fishpond, estuary, and spring system, which is the second-largest on the island. Also on the Kawa shoreline are numerous Hawaiian cultural sites, such as Keeku Heiau, one of the largest intact *heiau* in the region.

3.13.1.2 Ninole Bridge

At Ninole Bridge, the project area is largely rural with rolling terrain and heavy vegetation surrounding the bridge. The bridge spans Ninole Stream, which is an intermittent stream that drains parts of the southern slope of Mauna Loa. The Sea Mountain Golf Course is located adjacent to Ninole Bridge, and a nearby residential neighborhood is located approximately 400 feet to the northeast, on the *mauka* side of the highway. A paved pathway for golf carts runs under the bridge, connecting the golf course on either side of the highway. As shown in Photo 1 of Figure 1-2b, to users of the highway, the stream, the golf cart path, and the nearby residential neighborhood are nearly invisible because of the heavy vegetation and mounded landforms that line both sides of the highway. Similar to the Hilea 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, Ninole Bridge railings provide a brief but notable visual counterpoint to the regularity of the other physical features of the area. For patrons of the golf course traveling along the nearby golf cart path in the immediate vicinity of the bridge, views toward the proposed project site are co-dominated by the bridge's support structure and the area's thick vegetation. Because of distance and intervening topography, the bridge is not visible from the nearby residential neighborhood.

3.13.2 Potential Impacts and Mitigation Measures

3.13.2.1 Hilea Bridge

The proposed project would replace the existing Hilea Bridge with a longer (100-foot), single-span bridge, which would alter the visual appearance of the project site. Although the proposed project would result in visual changes to the site, features of the new bridge would be similar in character to the recently replaced Keaiwa Stream Bridge, which is located approximately 6 miles north of Ninole Bridge and 7 miles north of Hilea Bridge at MP 50.35 on State Route 11. From the vantage point of highway users, the longer bridge and 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 bridge length and railing.

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 project site is not highly visible from areas outside the project site's immediate vicinity. Therefore, in terms of the Natural Beauty Site at Kawaa Bay, views from Kawaa Bay would not be affected as a result of project implementation.

The proposed Hilea Bridge would be similar in character to the recently replaced Keaiwa Stream Bridge, also located along the Kau Scenic Byway. The project would not result in a substantial change to the existing landscape or in a noticeable change to the project viewshed; therefore, views of the Kau Scenic Byway would not be affected as a result of project implementation.

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 bypass road and bridge would alter the visual character of the project site, which is agricultural. These impacts would be considered less than significant because they would be minimal and temporary. The areas where the temporary bypass road and bridge would be located would be graded to match pre-construction contours and revegetated with appropriate species.

3.13.2.2 Ninole Bridge

The proposed project would replace the existing Ninole Bridge with a longer (65-foot), single-span bridge, which would alter the visual appearance of the project site. Although the proposed project would result in visual changes to the site, features of the new bridge would be substantially similar in character to the existing structures. From the vantage point of highway users, the longer bridge and new bridge railing structures would be the most noticeable change compared to existing conditions, but in general, this and other visual changes 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 bridge length and railing.

For users of the golf cart path, project-related changes would be evident because existing abutments would be removed and new abutments would be placed farther back from the stream channel than the existing abutments. The northern abutment would be along the paved golf cart path. Construction would occur along the golf cart path for the width of the HDOT ROW under the bridge. During periods of active construction, it is expected that golf carts would be temporarily routed away from the bridge along a designated path that would cross the highway to the north, adjacent to Ninole Loop Road. Given that this change would be temporary and would not substantially degrade landscape views, and the golf cart users' exposure to the project would be relatively brief, the project's impact would be considered less than significant. 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 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 bypass road and bridge would alter the visual character of the project site, adjacent to the golf course. These impacts would be considered less than significant because they would be minimal and temporary. The areas where the temporary bypass road and bridge would be located would be graded to match pre-construction contours and revegetated with appropriate species.

3.14 Roads and Traffic

3.14.1 Existing Conditions

State Route 11 is the main transportation corridor for the southern portion of the Island of Hawaii. In the vicinity of Hilea and Ninole bridges, the highway had an AADT of 2,400 in 2012; traffic volumes are projected to reach 2,510 in the 2016 construction year and 5,360 in 2035 (project's design year) (FHWA-CFLHD, 2015a). The highway, in the project vicinity, is classified as a Rural Minor Arterial with a posted speed limit of 55 mph.

3.14.2 Potential Impacts and Mitigation Measures

3.14.2.1 Development in the State Highway Right-of-Way

The proposed project at Hilea and Ninole bridges would affect approximately 450 to 500 feet of Mamalahoa Highway. The ROW width at both bridges is approximately 60 feet. The replacement bridges would be constructed within the ROW of the existing highway facility, and on adjacent ROW for the purposes of bridge construction, staging, and access (see Section 2.3.3). The new bridges would be operated within the ROW of the existing highway facility.

3.14.2.2 Traffic Impacts

Short-term Construction-related Impacts. Construction is expected to extend over 13 months. Temporary bypass roads and bridges would be located adjacent to, and *mauka* of, both existing bridges. The bypass roads and bridges would consist of two travel lanes, thereby accommodating travel in both directions. The bypass bridges are being designed for a travel speed of 25 mph (compared to the highway speed of 55 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 the FHWA *Manual on Uniform Traffic Control Devices for Streets and Highways* (2009).

Emergency Services. Mamalahoa Highway is a lifeline transportation facility for police, fire, and emergency medical services. The project includes a temporary bypass road adjacent to, and *mauka* of, the existing bridges, thereby resulting in no adverse impact to public health and safety. 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.

3.15 Park and Recreation Facilities

3.15.1 Existing Conditions

There are no public parks within the project limits. There are no designated recreational facilities at or directly adjacent to Hilea Bridge. Lands in the project vicinity *makai* of the highway were recently acquired by the County of Hawaii for preservation of open space and recreational access along the shoreline; no recreational activities are known to occur in the immediate vicinity of the project.²

The Sea Mountain Golf Course is a private facility located adjacent to Ninole Bridge, on both the *mauka* and *makai* sides of Mamalahoa Highway. A golf cart path traverses beneath Ninole Bridge, providing access to the Sea Mountain Golf Course on either side of the highway.

3.15.2 Potential Impacts and Mitigation Measures

As there are no recreational facilities at or adjacent to Hilea Bridge, this section addresses impacts only at Ninole Bridge. It is anticipated that during construction, golf carts would be temporarily routed away from the bridge along a marked path that would cross the highway to the north, adjacent to Ninole Loop Road. The Contractor would coordinate construction activities with the Sea Mountain Golf Course and measures to accommodate golf cart users (for example, temporary adjustments to the golf cart route) would be provided, with adequate provisions for safety. As such, the impact to recreational resources would be minimal.

² As part of the recent Mamalahoa Highway Drainage Improvement Project at Kawa Flats (FHWA and HDOT, 2012), it was determined that this property would not qualify as a Section 4(f) resource; this finding is concluded to still be valid.

3.16 Solid Waste Management

3.16.1 Existing Conditions

The County of Hawaii Department of Environmental Management, Solid Waste Division, is responsible for the operation and maintenance of the County's solid waste and recycling facilities. The Island of Hawaii has two landfills and 21 transfer stations. Two transfer stations are located near the project site, one in Pahala and the other in Naalehu.

The West Hawaii Sanitary Landfill is located in Puuanahulu on the northwestern side of the Island of Hawaii. The West Hawaii Sanitary Landfill has been in operation since 1993 and is located on approximately 300 acres, of which 149 acres are currently permitted for landfill activities. The West Hawaii Sanitary Landfill has an estimated 38 years of life remaining at current recycling rates (County of Hawaii, 2009).

The South Hilo Sanitary Landfill is located in Hilo on the eastern side of the Island of Hawaii. The South Hilo Sanitary Landfill has been in operation since 1970 and is located on approximately 40 acres, the majority of which are used for municipal and solid waste disposal.

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 would be required to dispose of or recycle all materials at approved sites and with proper handling during transport. The Contractor would be required to have a waste disposal plan that specifies proper removal and disposal of all debris from the project area. Project-related waste material would be a small proportion of the island-wide total, and is expected to be accommodated by the County's existing solid waste facilities.

3.17 Electrical and Telecommunications Systems

3.17.1 Electrical System

Hawaii Electric Light Company is the local electrical utility company, providing electrical power to service customers on the island. At Hilea Bridge, a power pole is located on the *makai* side within 100 feet from the northern side of the bridge. At Ninole Bridge, overhead power lines are located on the *makai* (southeastern) side of the bridge.

3.17.2 Telecommunications Systems

Hawaiian Telecom provides land-line telecommunications service to customers on the island. At Hilea Bridge, telephone and cable utility poles (shared poles) are located on the *mauka* side within 210 feet of the southern side of the bridge. At Ninole Bridge, overhead telephone lines are located on the *mauka* (northwestern) side of the bridge.

Oceanic Time Warner Cable provides wired cable television service to customers on the island. At Hilea Bridge, cable utility poles (shared with telephone) are located on the *mauka* side within 210 feet of the southern side of the bridge. At Ninole Bridge, poles are located on the *mauka* (northwestern) side of the bridge.

3.17.3 Highway Lighting and Power

There is no street lighting in the project area.

3.17.4 Potential Impacts and Mitigation Measures

Utilities would remain functional during construction but may experience temporary and short-term interruptions; these would be limited to the extent possible. Further coordination with utility owners would occur before and during construction. Temporary impacts on utilities would be negligible because service

would be maintained during construction, and there would be no long-term adverse impacts related to utilities.

3.18 Secondary and Cumulative Impacts

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

The Mamalahoa Highway Drainage Improvements project at Kawa Flats is proposed to occur 0.5 mile southwest of Hilea Bridge on State Route 11. The project is listed in the Hawaii STIP and is funded for construction in Fiscal Year 2019 (HDOT, 2015). Because the proposed project would begin construction in mid-2017, it is anticipated that construction of the projects would not occur simultaneously and no cumulative impact would occur. However, in the event that construction of the Hilea Bridge and Ninole Bridge project and the Mamalahoa Highway Drainage Improvements project at Kawa Flats were to occur at the same time, a temporary cumulative impact on traffic travelling on State Route 11 could occur as a result of traffic slowing down through multiple construction zones along the same stretch of highway. There could also be impacts associated with noise, dust, and surface runoff. However, it is anticipated that these effects would be temporary and would be minimized with implementation of BMPs, such that no significant cumulative impacts would occur.

3.19 References

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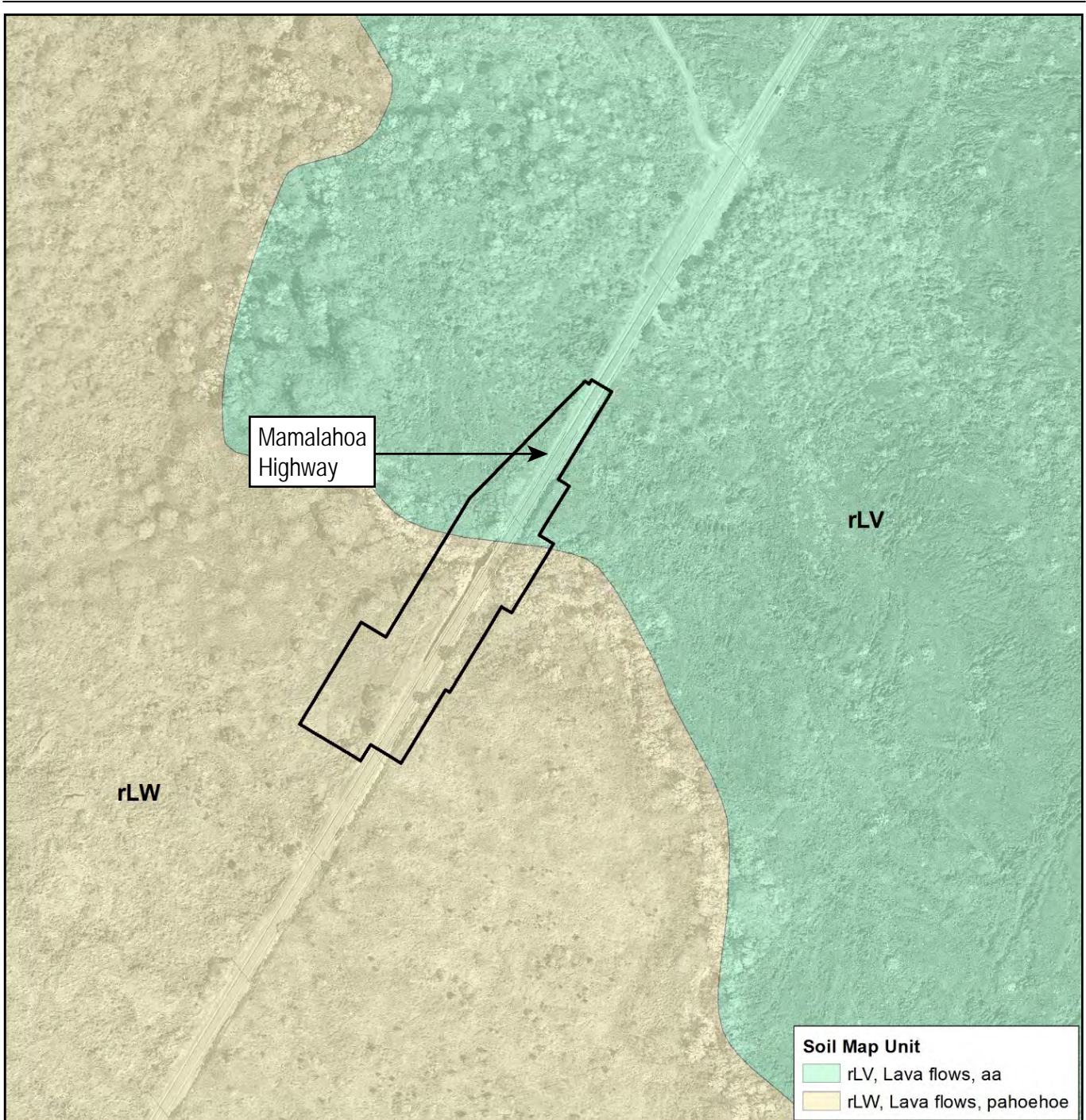
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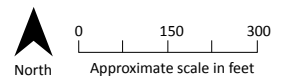
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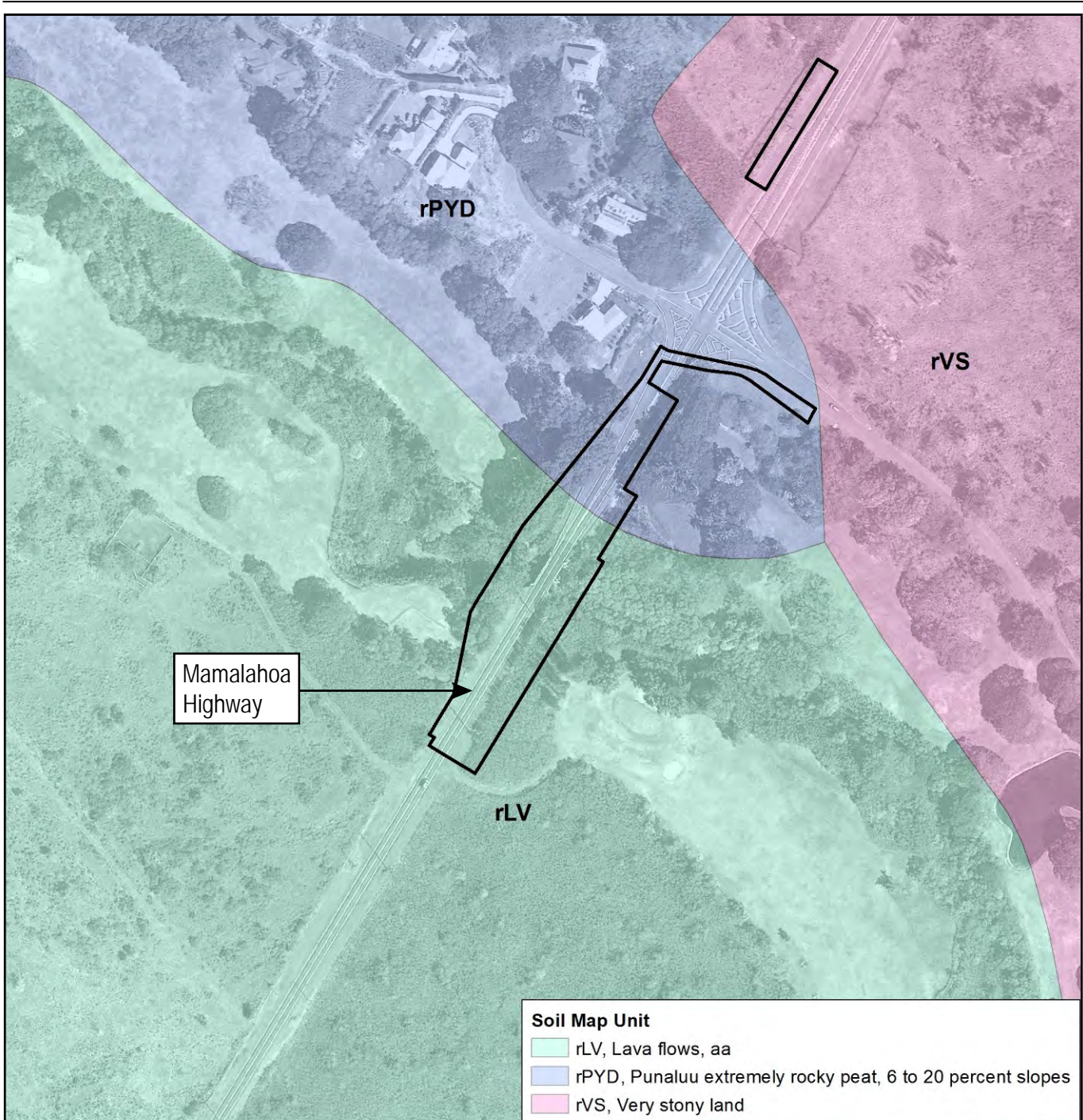
Base Map: Google Earth Aerial Imagery (2013)
 Data Sources: CSH



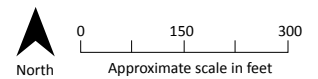
LEGEND

 Project Area

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



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



LEGEND

 Project Area

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



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 01/08/2013
2. Low-Res Imagery Source: Digital Globe 02/27/2010
3. Imagery base map is not orthorectified; therefore project features may not properly align with the imagery.

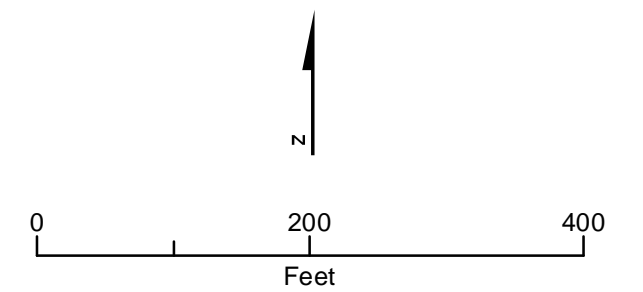


FIGURE 3-2a
Waters of the U.S. – Hilea Bridge
 Hilea/Ninole Bridge Project
 Hawaii Bridges Program –
 Central Federal Lands Highway Division and
 Hawaii Department of Transportation



- 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 01/08/2013
 2. Low-Res Imagery Source: Digital Globe 02/27/2010
 3. Imagery base map is not orthorectified; therefore project features may not properly align with the imagery.

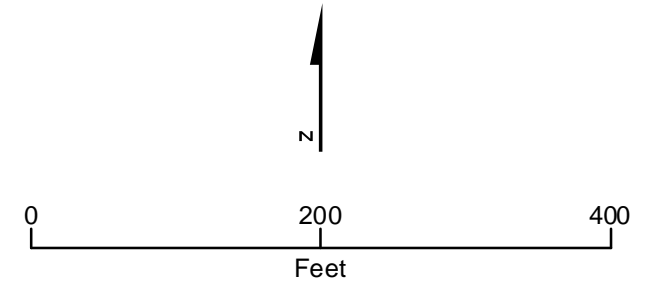


FIGURE 3-2b
Waters of the U.S. – Ninole Bridge
 Hilea/Ninole Bridge Project
 Hawaii Bridges Program –
 Central Federal Lands Highway Division and
 Hawaii Department of Transportation

Relationships to Public Plans and Policies

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

4.1 Federal

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

4.1.1 National Environmental Policy Act of 1970

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

Significance is defined in the CEQ regulations (40 CFR 1508.27). A “significant impact” is assessed in terms of an impact’s context and intensity. Context refers to the environment and the 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 for this project.

4.1.2 Section 106 of the National Historic Preservation Act of 1966

The NHPA of 1966, as amended (PL 89-665, codified as 16 U.S. Code [U.S.C.] 470), recognizes the nation’s historic heritage and establishes a national policy for the preservation of historic properties as well as the National Register of Historic Places. Section 106 of the NHPA of 1966 (16 U.S.C. 470f) requires that Federal agencies consider the effects of their projects on historic properties. 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 a good faith effort in ascertaining the existence and location of historic properties near and within the project site, establishing an Area of Potential Effects (APE) for 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 sites in agreement with the agency, the SHPO, and consulting government agencies, community associations, and Native Hawaiian organizations and families.

Meetings were held with the SHPO on September 9 and December 10, 2014, and March 12, 2015, to provide an overview of the CFLHD Hawaii Bridge Program, discuss the general parameters for historic preservation review, and discuss the preliminary design plans and possible effects and mitigation. A legal notice requesting public input to the Section 106 process was published in the *Hawaii Tribune Herald* and *West Hawaii Today* on August 28, 2015. Letters were also sent to potential consulting parties. A letter formally initiating the Section 106 consultation process was sent to the SHPO on January 26, 2016. This letter also included a description of the APE, determination of eligibility, and determination of effects.

A meeting was held with the Hawaii County Cultural Resources Commission on September 9, 2015 and a formal response letter was received from the Commission dated September 21, 2015. The Commission requested that protective fencing be installed around historic sites near (resources that occur outside the project limits) or within the APE and the drainage names be included on the concrete of the new bridges. The Commission also recommended a list of organizations and individuals to contact regarding the project's effects on the historic bridges. In a letter dated March 8, 2017 SHPD concurred with the determinations of Adverse Effect on Hilea and Ninole bridges (per Section 106) and Effect, With Proposed Mitigation Commitments (per HRS §6E-8). Copies of the documents related to the Section 106 consultation process are provided in Appendix G. A Memorandum of Agreement stipulating measures to mitigate effects on historic properties will be finalized prior to project implementation.

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

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

"Use" of Section 4(f) resources is defined in 23 CFR 774.17 as follows:

1. When land is permanently incorporated into a transportation facility; or
2. When there is a temporary occupancy of land that is adverse in terms of the statute's preservationist purpose as determined by the criteria in 23 CFR 774.13(d); or
3. When there is a constructive use of a Section 4(f) property as determined by the criteria in 23 CFR 774.15

Both Hilea Bridge (SIHP #50-1-74-30298) and Ninole Bridge (SIHP #50-10-68-30299) have been determined eligible for listing in the National Register of Historic Places. Both bridges subsequently qualify as Section 4(f) resources.³

Replacement of these bridges is considered a “use” of Section 4(f) resources. A Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges statement (FHWA, 1983) has been developed for projects meeting programmatic criteria. FHWA will continue consultation through the Section 106 process and will prepare project-specific documentation on the Programmatic Section 4(f) applicability before Federal project approval.

4.1.4 Uniform Relocation Assistance and Real Property Acquisition Act of 1970

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

The proposed project would be constructed within the existing ROW and would not require fee acquisition of land, structures, or residences, or displacement of persons or businesses. Permanent easements would be obtained to accommodate long-term maintenance. All applicable and appropriate measures would be followed in acquiring property interests consistent with the requirements of the Uniform Act.

4.1.5 Endangered Species Act of 1973

The ESA of 1973 (16 U.S.C. 1531-1544) establishes a process for identifying and listing threatened and endangered species. It requires Federal agencies to carry out programs for the conservation of Federally-listed endangered and threatened plants and wildlife and designated critical habitats for such species, and prohibits actions by Federal agencies that would likely jeopardize the continued existence of those species or result in the destruction or adverse modification of designated critical habitat. Section 7 of the ESA requires consultations with Federal wildlife management agencies, such as the USFWS and NMFS.

To begin consultations with agencies that have authority over protected species, 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 the location-specific biological information and recommended standard BMPs. Discussions continued through meetings held with the USFWS on January 12, 2015 and with USFWS, USEPA, NMFS, and DLNR-DAR on March 15, 2015. Input received from the resource agencies to date has been incorporated into the project and is reflected in this EA.

A Biological Assessment was prepared for the Hilea Bridge and Ninole Bridge project and was submitted as part of the informal Section 7 consultation process on January 26, 2015. USFWS provided its concurrence in a letter dated March 31, 2016 (see Appendix C).

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 United States. The MBTA makes it unlawful to pursue, hunt, take, capture, possess, sell, purchase, barter, import, export, or transport any migratory bird or any part, nest, or egg of any such bird, unless authorized under a permit issued by the Secretary of the U.S. Department of the Interior.

³ As discussed in Section 3.15.1, lands in the project vicinity were recently acquired by the County of Hawaii for preservation of open space and recreational access along the shoreline; no recreational activities are known to occur in the immediate vicinity of the project. As part of the recent Mamalahoa Highway Drainage Improvement Project at Kawa Flats (FHWA and HDOT, 2012), it was determined that this property would not qualify as a Section 4(f) resource; this finding is concluded to still be valid.

Consultation related to the MBTA has occurred as part of coordination with biological resource agencies.

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 affect EFH are limited to the transport of sediment and/or pollutants via live water. As described in Section 3.3.1, Hilea and Ninole Streams are non-perennial waterways. When it flows, Hilea Stream discharges to Kawa Bay, approximately 0.8 mile south of the project area. Ninole Stream does not have direct connectivity to the ocean; rather, it disperses underground at the *makai* end of the golf course. BMPs and other methods (described in Sections 3.3.4 and 3.8.6) would reduce the extent to which sediment disturbed as a result of construction would be transferred to live water. As a result, water quality impacts would be minimized such that they would not be expected to significantly affect downstream waters and construction-related turbidity would dissipate quickly. Designated EFH in the project vicinity is well downstream of any anticipated sediment impact area. In turn, the proposed project would have no effect on EFH "waters". Furthermore, no groundbreaking disturbance would occur in areas designated as EFH and hence no EFH "substrate" would be affected. Overall, the project will not adversely affect EFH and, per NMFS (2004) EFH consultation guidance, no consultation is required. Project information as been shared with NMFS through ongoing coordination with the agency.

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 has occurred as part of ongoing coordination with biological 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. As described in Section 3.3, the project would involve work within Waters of the U.S. at Hilea Bridge and potentially at Ninole Bridge. It is anticipated that this work would result in discharge, as regulated under Section 404 and 401 of the CWA. A Section 404 Department of the Army Permit and Section 401 WQC will be pursued as appropriate.

Section 402 of the CWA requires an NPDES permit for point source discharges, including 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. NPDES permits are issued by the HDOH Clean Water Branch. 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 NAAQS to protect public health and the environment.

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

4.1.11 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.

Neither Hilea Bridge nor Ninole Bridge is located in a floodplain regulated by FEMA.

4.1.12 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 identified two non-tidal non-wetland waters. No wetlands were identified within the survey area.

4.1.13 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.

4.1.14 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 ensure that each Federal agency undertaking an activity within or outside the coastal zone that affects any land or water use or natural resource of the coastal zone will 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 will 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 4.2.4.

4.1.15 Environmental Justice, Executive Order 12898

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

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

The project area is located on an undeveloped stretch of Mamalahoa Highway—approximately 4 miles east of Kawelohea, 8 miles east of Naalehu, and 6 miles west of Pahala. A residential neighborhood is located to the northeast of Ninole Bridge on the *mauka* side of the highway, the nearest residence being approximately 400 feet from the edge of Ninole Bridge. The area surrounding the proposed project does not show a proportional population of minority or a low-income population. Therefore, the construction and operation of the proposed project would not result in adverse effects on minority and low-income populations.

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

The proposed project supports and is consistent with the State Plan objectives and policies, as detailed in Table 4-1. None of the priority guidelines are applicable to the proposed project.

TABLE 4-1
Compliance with the Hawaii State Plan

Objective	Compliance with Specific Objectives and Policies
Population	This theme is not applicable to the project.
Economy—in general	<p>The project would be in compliance with this theme, particularly the following objectives and policies:</p> <p>(a)(1) Increased and diversified employment opportunities to achieve full employment, increased income and job choice, and improved living standards for Hawaii's people, while at the same time stimulating the development and expansion of economic activities capitalizing on defense, dual-use, and science and technology assets, particularly on the neighbor islands where employment opportunities may be limited.</p> <p>As described in Section 3, the proposed project is anticipated to provide economic benefits by supporting a number of construction workers for the duration of the project (approximately 13 months for both bridges).</p>
Economy—agriculture	This theme is not applicable to the project.
Economy—visitor industry	This theme is not applicable to the project.
Economy—federal expenditures	<p>The project would be in compliance with this theme, particularly the following objectives and policies:</p> <p>(b)(3) Promote the development of federally supported activities in Hawaii that respect statewide economic concerns, are sensitive to community needs, and minimize adverse impacts on Hawaii's environment.</p> <p>(b)(6) Strengthen federal-state-county communication and coordination in all federal activities that affect Hawaii.</p> <p>This project involves the use of federal funds as needed to improve Hilea and Ninole bridges such that they remain safe and functional components of the regional transportation system for highway users. It is being implemented through a partnership between HDOT and FHWA-CFLHD.</p>
Economy—potential growth and innovative activities	This theme is not applicable to the project.
Economy—information industry	This theme is not applicable to the project.
Physical environment—land-based, shoreline, and marine resources	<p>The project would be in compliance with this theme, particularly the following objectives and policies:</p> <p>(b)(3) Take into account the physical attributes of areas when planning and designing activities and facilities.</p> <p>(b)(6) Encourage the protection of rare or endangered plant and animal species and habitats native to Hawaii.</p> <p>The project would provide replacement bridges that substantially coincide with the footprint of the existing bridges, and is not expected to have a significant adverse effect on important natural resources. Biological surveys of the project area found no threatened or endangered plant or animal species; BMPs would be implemented to avoid and minimize contact with special-status species that could occur in the project area.</p>
Physical environment—scenic, natural beauty, and historic resources	<p>The project would be in compliance with this theme, particularly the following objectives and policies:</p> <p>(a)(1) Promote the preservation and restoration of significant natural and historic resources.</p> <p>(a)(3) Promote the preservation of views and vistas to enhance the visual and aesthetic enjoyment of mountains, ocean, scenic landscapes, and other natural features.</p> <p>(a)(4) Protect those special areas, structures, and elements that are an integral and functional part of Hawaii's ethnic and cultural heritage.</p> <p>Although the proposed project would result in visual changes to the site as a result of replacing the existing bridges, the visual changes are considered minimal and would not affect the quality of views toward the bridge. The project would not result in a substantial change to the existing landscape or in a noticeable change to the project viewshed.</p>

TABLE 4-1

Compliance with the Hawaii State Plan

Objective	Compliance with Specific Objectives and Policies
Physical environment—land, air, and water quality	<p>The existing bridges are both eligible for listing in the National and State Registers of Historic Places. The project would adversely affect both bridges, but mitigation as agreed upon with SHPD would be implemented to minimize the potential impacts.</p> <p>The project would be in compliance with this theme, particularly the following objectives and policies:</p> <ul style="list-style-type: none"> (a)(1) Maintenance and pursuit of improved quality in Hawaii's land, air, and water resources. (b)(3) Promote effective measures to achieve desired quality in Hawaii's surface, ground, and coastal waters. (b)(5) Reduce the threat to life and property from erosion, flooding, tsunamis, hurricanes, earthquakes, volcanic eruptions, and other natural or man-induced hazards and disasters. <p>The project would result in short-term, construction-related impacts (noise, dust, and erosion), but implementation of BMPs would minimize the effects to the environment. In the case of Hilea Bridge, a wider bridge opening would be provided, thereby reducing the potential for flooding as a result of the stream overtopping the highway bridge.</p>
Facility systems—in general	<p>The project would be in compliance with this theme, particularly the following objectives and policies:</p> <ul style="list-style-type: none"> (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. <p>HDOT's mission is to provide a safe, efficient, and accessible transportation system for the public. HDOT recognizes the need for replacement of the existing Hilea and Ninole bridges. The replacement bridges will be designed using current AASHTO guidelines that have been adopted by HDOT for planning and engineering of highway projects in Hawaii.</p>
Facility systems—solid and liquid wastes	This theme is not applicable to the project.
Facility systems—water	This theme is not applicable to the project.
Facility systems—transportation	<p>The project would be in compliance with this theme, particularly the following objectives and policies:</p> <ul style="list-style-type: none"> (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. <p>The project is a partnership between HDOT and FHWA-CFLHD, and would improve Hilea and Ninole bridges and their approaches such that they remain safe and functional components of the regional transportation system for highway users. The replacement bridges will be designed using current AASHTO guidelines that have been adopted by HDOT for planning and engineering of highway projects in Hawaii.</p>
Facility systems—energy	This theme is not applicable to the project.

TABLE 4-1

Compliance with the Hawaii State Plan

Objective	Compliance with Specific Objectives and Policies
Facility systems— telecommunications	This theme is not applicable to the project.
Socio-cultural advancement (housing, health, education, social services, leisure, individual rights and personal well-being, culture, public safety, and government)	These themes are not applicable to the project.

4.2.2 State Functional Plans

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

State Transportation Functional Plan

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

Objective I.A. Expansion of the transportation system.

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

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

Discussion: As discussed under the Hawaii State Plan, replacement of deficient bridges is integral to HDOT's mission of providing a safe, efficient, and accessible transportation system for the public. The replacement structures would be designed using current AASHTO guidelines that have been adopted by HDOT for the planning and engineering of highway projects in Hawaii.

4.2.3 State Land Use Law

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

4.2.4 Coastal Zone Management Program and Federal Consistency Determination

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

As a result, the project is within the CZM area and subject to being consistent with the CZM program objectives and policies. The Hawaii CZM Program focuses on the following 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 CZM 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. Two historic resources were found within the APE that would be affected by the proposed project, Hilea Bridge (SIHP #50-1-74-30298) and Ninole Bridge (SIHP #50-10-68-30299). The proposed project would have an “adverse effect” on both of these historic resources. Mitigation as agreed upon with SHPD would be implemented for the project.

- **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, but is located on a roadway identified as a scenic corridor in the Hawaii General Plan. The replacement bridges would not negatively impact coastal scenic resources and is not anticipated to obstruct views of the rural landscape. The most noticeable changes from the vantage point of highway users would be the longer bridge lengths and the new bridge railings. These changes would not negatively affect the quality of views along the scenic corridor.

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

Discussion: Because of its inland location, the project would not affect coastal ecosystems.

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

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

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

Discussion: The project is not located in a tsunami evacuation zone or floodplain, and is not subject to coastal hazards.

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

Discussion: A general public announcement was made regarding the CFLHD Hawaii Bridge Program, which covers a number of State highway bridges on three islands. An opportunity for public review and comment on the project was provided through the HRS Chapter 343 EA 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 obtained through the HRS Chapter 343 EA process.

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

Discussion: The project is located inland and does not affect Hawaii beaches.

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

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

Other key areas of the CZM program include: (1) a permit system to control development within an SMA managed by each County and the Office of Planning (see Section 4.3.3) and (2) a Shoreline Setback Area that serves as a buffer against coastal hazards and erosion, and protects view-planes and marine and coastal resources. Finally, a Federal Consistency provision requires that Federal activities, permits, and financial assistance be consistent with the Hawaii CZM program.

Portions of the proposed project on the *makai* side of Mamalahoa Highway are located within the County of Hawaii SMA (see Figure 4-2). Therefore, a SMA permit from the Hawaii County Planning Department would be required. The proposed project does not involve the placement, construction, or removal of materials near the coastline, and does not have the potential to significantly affect coastal resources. The proposed project is consistent with the CZM objectives that are relevant to preserving the existing highway infrastructure. FHWA would submit a Federal Consistency determination to the Office of Planning for its 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 HRS Chapter 343 to consider cultural practices in a cultural impact assessment and to comply with this requirement. A cultural impact assessment was conducted for the project in compliance with these requirements (see Section 3.11.1 and Appendix F).

4.3 County of Hawaii

4.3.1 County of Hawaii General Plan

The Hawaii General Plan (2005) is a policy document for the long-range comprehensive development of the Island of Hawaii and also provides the direction for future growth of the County. The current Hawaii General Plan became effective on February 9, 2005, and repeals the previous plan adopted on November 14, 1989.

The Hawaii General Plan included an assessment of the Hawaii General Plan elements relative to new data, laws, and methods of analysis. Each study element was then analyzed and evaluated in relation to all other elements, County and district goals, and the land use pattern. A total of 21 study elements are set forth in the Hawaii General Plan. The proposed bridge replacements are consistent with the following objectives and policies of the Hawaii General Plan (County of Hawaii, 2005):

- Policy 13. 2. 3(d) supports the development of programs to identify and improve hazardous and substandard sections or roadways and drainage problems.
- Policy 13. 2.5. 9.2(a) is to continue to improve Mamalahoa Highway, realigning it where necessary.

4.3.2 Kau Community Development Plan

The project site is located in the Kau Community Development Plan (CDP) planning area. A draft of the Kau CDP (County of Hawaii Department of Planning, 2015) is currently under consideration by the CDP Steering Committee. The proposed improvements are consistent with the following advocacy strategies of the CDP.

- Continue to improve Mamalahoa Highway, realigning where necessary and prioritizing shoulder safety (particularly for bicyclists), including on the stretch of highway between Honuapo and the Kau Police Station.
- Implement Bike Plan Hawaii.

4.3.3 Zoning

County zoning provides the most detailed set of regulations affecting land development before actual construction. The Hilea Bridge project area is classified in the Agricultural District and Open District (see Figure 4-3a). The Ninole Bridge area is classified in the Agricultural, Single-family Residential, Multiple-family Residential and Open Districts (see Figure 4-3b).

The proposed project is consistent with the current zoning and would not require any zoning change.

4.3.4 Special Management Area

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

For both bridges, the SMA extends up to the *makai* edge of the Mamalahoa Highway ROW. 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 4-2, which focus on prudent and timely investments in the transportation (highway) system to maintain functionality and longevity.

TABLE 4-2

Statewide Land Transportation Goals and Objectives

Goals	Objectives	Federal Planning Factor
3.1 Manage transportation assets and optimize investments	Plan and implement maintenance, resurfacing, rehabilitation, and reconstruction to optimize existing transportation system improvements and spending.	Aligns to FHWA MAP-21 Performance Goal: Infrastructure Condition—maintain highway infrastructure assets in state of good repair
3.2 Maintain safe, efficient, complete transportation system for the long term	Plan and implement existing system improvements to effectively sustain the overall transportation system’s safe, efficient, and complete operations.	FHWA 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

4.4.2 Federal-aid Highways 2035 Transportation Plan for the District of Hawaii

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

The *Federal-Aid Highways 2035 Transportation Plan for the District of Hawaii* (HDOT, 2014) includes a list of potential solutions that were evaluated based on ability to address local needs and deficiencies. The Hilea Bridge and Ninole Bridge projects are recommended in the plan as rehabilitation or replacement of the existing bridges.

4.4.3 Bike Plan Hawaii

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

The bike plan includes a proposal for a future signed shared route on Mamalahoa Highway (Bicycle Facility Maps Quadrant 3). The proposed project is consistent with bicycle planning because the replacement bridges includes 9-foot shoulders that accommodate possible development of a signed bike route; the bridges would not be chokepoints for bicyclists.

4.4.4 Statewide Pedestrian Master Plan

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

The pedestrian plan does not address foot traffic in the vicinity of Hilea or Ninole bridges because the area is devoid of land uses that would attract pedestrian travel. Nevertheless, the wider 9-foot shoulders on the replacement bridge would improve safety for pedestrians who may need to use it.

4.5 References

County of Hawaii. 2005. *County of Hawaii General Plan*. February.

County of Hawaii Department of Planning. 2015. *Kau Community Development Plan – Draft for Public Review*. March 2015.

Federal Highway Administration (FHWA). 1983. Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges. July 5.

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

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

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

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



LEGEND

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

Notes:

1. High-Res Imagery Source: Google Earth 01/08/2013
2. Low-Res Imagery Source: Digital Globe 02/27/2010
3. Imagery base map is not orthorectified; therefore project features may not properly align with the imagery.

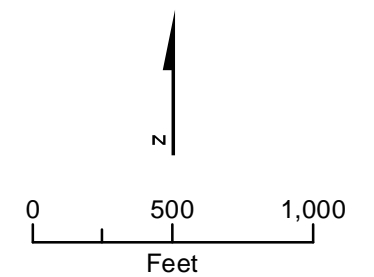
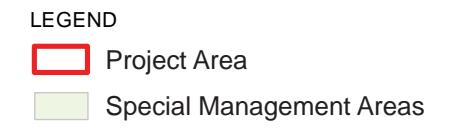


FIGURE 4-1
State Land Use District Boundaries
 Hilea/Ninole Bridge Project
 Hawaii Bridges Program –
 Central Federal Lands Highway Division and
 Hawaii Department of Transportation



- Notes:
1. High-Res Imagery Source: Google Earth 01/08/2013
 2. Low-Res Imagery Source: Digital Globe 02/27/2010
 3. Imagery base map is not orthorectified; therefore project features may not properly align with the imagery.

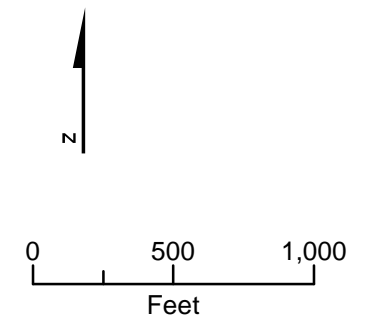


FIGURE 4-2
Special Management Areas (SMA)
 Hilea/Ninole Bridge Project
 Hawaii Bridges Program –
 Central Federal Lands Highway Division and
 Hawaii Department of Transportation

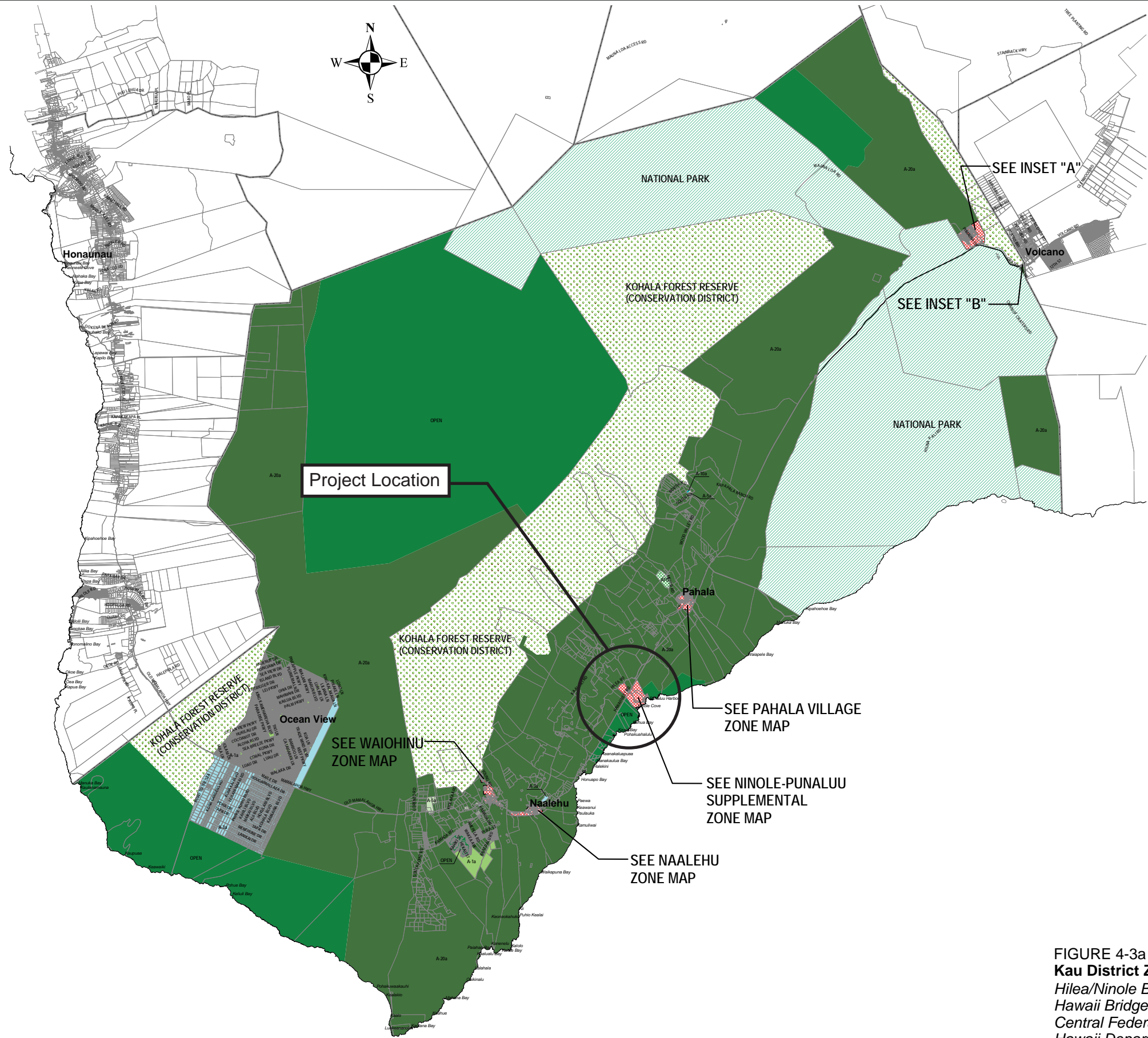


FIGURE 4-3a
Kau District Zone Map
 Hilea/Ninole Bridge Project
 Hawaii Bridges Program –
 Central Federal Lands Highway Division and
 Hawaii Department of Transportation

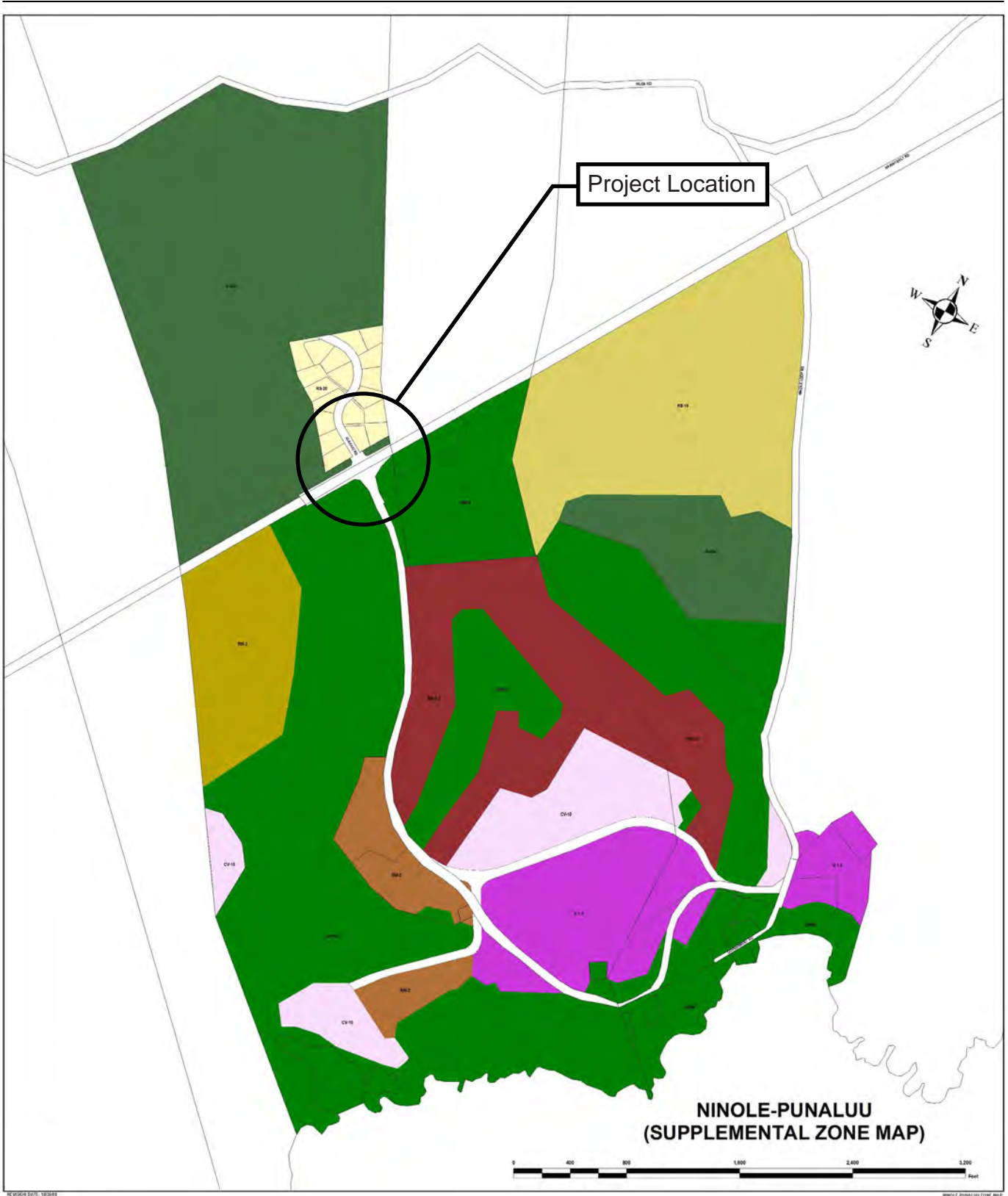


FIGURE 4-3b
Ninole-Punaluu – Supplemental Zone Map
Hilea/Ninole Bridge Project
Hawaii Bridges Program –
Central Federal Lands Highway Division and
Hawaii Department of Transportation

Findings and Reasons Supporting the Determination

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

5.1 Significance Criteria

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

- **Involves an irrevocable commitment to, loss, or destruction of any natural or cultural resources.** The proposed project would provide replacement bridges that substantially coincide with the footprint of the existing bridge. It would not have a significant adverse effect on important natural or cultural resources. Biological surveys of the project area found no threatened or endangered plant or animal species, but seven species have the potential to occur in the project area. These include the Hawaiian goose or nene, Hawaiian hawk, Hawaiian hoary bat, Hawaiian petrel, Newell's shearwater, band-rumped storm-petrel, and Blackburn's sphinx moth. BMPs and protocols would be implemented to avoid and minimize contact with special-status species and protected migratory birds that may be encountered in the project area.

The existing Hilea and Ninole bridges are more than 50 years old, and both are determined to be eligible for listing in the National and State Registers of Historic Places. The project would adversely affect both bridges, but mitigation as agreed upon with SHPD would be implemented to minimize the potential impacts. No other historic properties have been found in the project area. The Contractor would be required to comply with State laws and administrative rules for handling inadvertent discoveries of cultural artifacts and human remains during construction.

- **Curtails the range of beneficial uses of the environment.** Replacement of the existing structures in place would not curtail the range of beneficial uses of the environment.
- **Conflicts with the State's long-term environmental policies or goals and guidelines as expressed in HRS Chapter 344, and any revisions thereof and amendments thereto, court decisions or executive orders.** The proposed project is consistent with the environmental policies, goals, and guidelines defined in HRS Chapter 344. In particular, the project is consistent with transportation guidelines by improving the region's transportation infrastructure.

Transportation

- Encourage transportation systems in harmony with the lifestyle of the people and environment of the State.*
- Adopt guidelines to alleviate environmental degradation caused by motor vehicles.*
- 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.*

Hilea and Ninole bridges are integral components of the Mamalahoa Highway and are essential for traffic mobility around the southern regions of Hawaii Island. Both bridges need to be kept functional in order to maintain the movement of goods and services around the island.

- **Substantially affects the economic or social welfare of the community or state.** The proposed project would have a positive impact on the economic and social welfare of the community by providing construction related employment and income and by improving the long-term functionality of the highway system.
- **Substantially affects public health.** The bridge site is in an undeveloped stretch of Mamalahoa Highway and is part of a highway system that is a critical component of Hawaii's emergency response and recovery capabilities. Preserving this transportation system would benefit public health and safety.
- **Involves substantial secondary impacts, such as population changes or effects on public facilities.** The proposed project would not change the traffic volume using the structures or the highway; therefore, the new structures would not generate secondary impacts, such as population growth or the need to expand public facilities.
- **Involves a substantial degradation of environmental quality.** The replacement structures would not substantially degrade environmental quality. By design and function, the proposed structures would provide a safe crossing while minimizing harm to the surrounding environment.
- **Is individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions.** The proposed project is a self-contained action and is not part of additional and/or related actions. The Mamalahoa Highway Drainage Improvements project at Kawa Flats is located approximately 0.5 mile southwest of Hilea Bridge on State Route 11. It is anticipated that the proposed project would not occur at the same time and no cumulative impact would occur. There are no other HDOT or FHWA projects within a 1-mile radius of the proposed project.
- **Substantially affects a rare, threatened, or endangered species, or its habitat.** Biological surveys in October 2014 found no rare, threatened, or endangered species in the project area. The ornamental landscaping, and ruderal vegetation types are suitable for nene foraging. The project area is located outside the identified breeding range for the Hawaiian hawk, although it is possible that individuals may forage in the area. 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. Conservation measures and BMPs would be implemented, such that the project would not likely adversely impact the nene, Hawaiian Petrel, Newell's shearwater, band-rumped storm-petrel, or Hawaiian hoary bat. Impacts to birds protected under the MBTA would be temporary and minor; therefore, the proposed project would not adversely affect birds protected under the MBTA.
- **Detrimentially affects air or water quality or ambient 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.
- **Affects or is likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters.** This project is not located in an environmentally sensitive area; specifically, it is located neither within a FEMA-designated floodplain nor a coastal area. The replacement structures are being designed in accordance with standards appropriate to the geologic, hydrologic, and seismic setting.
- **Substantially affects scenic vistas and view planes identified in county or state plans or studies.** The proposed project site is located within the Kau District of the County of Hawaii. The Hawaii General Plan

identifies various Natural Beauty Sites in the Kau District; one of these, Kawa (Kawaa Bay and Spring), is located in the vicinity of the project site, on the *makai* side of Hilea Bridge. The project would not result in a substantial change to the existing landscape or result in a noticeable change to the project viewshed, because the changes would be minimal and the project site is not highly visible from areas outside the project site's immediate vicinity. Therefore, in terms of the Natural Beauty Site at Kawaa Bay, views from Kawaa Bay would not be affected as a result of project implementation.

- **Requires substantial 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 structure 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

Determination

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

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 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 in Appendix H.

7.1.1 Federal

- USEPA
- NMFS
- National Park Service, Hawaii Volcanoes National Park
- USACE
- USFWS

7.1.2 State of Hawaii

- Department of Accounting and General Services
- Department of Hawaiian Home Lands
- HDOH, Environmental Planning Office
- HDOH, Clean Water Branch
- DLNR
- Office of Hawaiian Affairs
- Office of Planning
- SHPD
- Senator Josh Green, Senate District 3
- Representative Richard Creagan, House District 5

7.1.3 County of Hawaii

- Civil Defense Agency
- Cultural Resources Commission
- Department of Environmental Management
- Department of Parks and Recreation
- Department of Public Works
- Department of Research and Development
- Department of Transportation
- Department of Water Supply
- Fire Department
- Mass Transit Agency
- Planning Department
- Police Department
- Hawaii Councilmember Brenda Ford

7.1.4 Utilities

- Aqua Engineers
- Hawaii Electric Light Company
- Hawaiian Telcom Inc.
- Oceanic Time Warner Cable

7.1.5 Organizations

- Hawaii Island Burial Council
- Hawaiian Civic Club of Kau
- Historic Hawaii Foundation
- Kau Preservation
- O Kau Kakou
- Kamehameha Schools
- The Nature Conservancy
- Kau Calendar
- Hawaii Farm Bureau
- Kau Chamber of Commerce
- Sierra Club, Moku Loa Group of Hawaii Chapter

7.1.6 Individuals

- Property Owner/Resident TML: (3) 9-5-017:003
- Property Owner/Resident TMK: (3) 9-5-017: 007
- Property Owner/Resident TMK: (3) 9-5-017: 008
- Property Owner/Resident TMK: (3) 9-5-017: 012
- Property Owner/Resident TMK: (3) 9-5-019: 001
- Property Owner/Resident TMK: (3) 9-5-019: 016
- Property Owner/Resident TMK: (3) 9-5-019: 030
- Property Owner/Resident TMK: (3) 9-5-019: 024
- Property Owner/Resident TMK: (3) 9-5-019: 011
- Property Owner/Resident TMK: (3) 9-5-027: 001
- Property Owner/Resident TMK: (3) 9-5-027: 003
- Property Owner/Resident TMK: (3) 9-5-027: 004 through 011
- Property Owner/Resident TMK: (3) 9-5-027: 012
- Property Owner/Resident TMK: (3) 9-5-027: 014 through 019

7.2 Early Consultation Comment Letters Received

A total of 10 agencies responded to requests for comments during the Draft EA preparation period. Of these, substantive comments from 7 agencies are summarized herein, and are incorporated into relevant sections of the Draft EA. A template of the early consultation letter and reproductions of the comment and response letters are included in Appendix H.

A total of five property owners responded to requests for comments during the Draft EA preparation period. Substantive comments received include a question on how golf carts would pass under Ninole Bridge, and a recommendation that construction of Hilea Bridge be prioritized as that bridge overtops during storm events.

7.2.1 Federal Agencies

National Park Service (letter dated April 27, 2015). Recommendation of BMPs to be included in the project specifications to minimize the potential for introduction and spread of invasive species, to include sanitation procedures for vehicles and equipment and use of materials that are free of invasive species, including

invasive ants (little fire ants and others), coqui frogs, and invasive plants. A list of standard operating procedures is provided.

Recommendation that dark sky lighting protocols be followed.

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

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

County Agencies

- **Hawaii County Planning Department** (letter dated May 7, 2015)

Properties surrounding Hilea Bridge are zoned Agricultural (A-20a) and Open (O) by the County of Hawaii and are situated within the State Land Use Agricultural and Conservation District, and are designated in the Hawaii General Plan as Extensive Agriculture and Conservation. Surrounding properties of Ninole Bridge are zoned Agricultural (A-20a) and Open (O) by the County of Hawaii and are situated within the State Land Use Urban District.

For both bridges, the SMA extends up to the *makai* (seaward) edge of the Mamalahoa ROW. This project is consistent with the Hawaii General Plan, as amended. Table 7-14, Natural Beauty Sites, District of Kau,

lists the site for Kawa (Kawaa Bay and Spring), which includes TMK: 9-5-017:007, an adjacent parcel on the *makai* side of Hilea Bridge.

The project site is located in the Kau CDP planning area.

- **Hawaii County Fire Department** (letter dated April 21, 2015)

There is currently no records on file indicating releases of hazardous materials or petroleum products as well as other environmental hazards at the Hilea Bridge or Ninole Bridge project site.

7.3 Agencies, Organizations, and Individuals Contacted during the Draft EA Review Period

7.3.1 Federal

- USEPA
- NMFS
- National Park Service, Hawaii Volcanoes National Park
- USACE
- USFWS

7.3.2 State of Hawaii

- Department of Hawaiian Home Lands
- HDOH, Environmental Planning Office
- HDOH, Clean Water Branch
- DLNR
- Office of Hawaiian Affairs
- Office of Planning
- SHPD
- Senator Josh Green, Senate District 3
- Representative Richard Creagan, House District 5

7.3.3 County of Hawaii

- Civil Defense Agency
- Cultural Resources Commission
- Department of Environmental Management
- Department of Parks and Recreation
- Department of Public Works
- Department of Research and Development
- Department of Transportation
- Department of Water Supply
- Fire Department
- Mass Transit Agency
- Planning Department
- Police Department
- Hawaii Councilmember Brenda Ford

7.3.4 Utilities

- Aqua Engineers
- Hawaii Electric Light Company
- Hawaiian Telcom Inc.
- Oceanic Time Warner Cable

7.3.5 Organizations

- Hawaii Island Burial Council
- Hawaiian Civic Club of Kau
- Historic Hawaii Foundation
- Kau Preservation
- O Kau Kakou
- Kamehameha Schools
- The Nature Conservancy
- Kau Calendar
- Hawaii Farm Bureau
- Kau Chamber of Commerce
- Sierra Club, Moku Loa Group of Hawaii Chapter

7.3.6 Individuals

- Property Owner/Resident TML: (3) 9-5-017:003
- Property Owner/Resident TMK: (3) 9-5-017: 007
- Property Owner/Resident TMK: (3) 9-5-017: 008
- Property Owner/Resident TMK: (3) 9-5-017: 012
- Property Owner/Resident TMK: (3) 9-5-019: 001
- Property Owner/Resident TMK: (3) 9-5-019: 016
- Property Owner/Resident TMK: (3) 9-5-019: 030
- Property Owner/Resident TMK: (3) 9-5-019: 024
- Property Owner/Resident TMK: (3) 9-5-019: 011
- Property Owner/Resident TMK: (3) 9-5-027: 001
- Property Owner/Resident TMK: (3) 9-5-027: 003
- Property Owner/Resident TMK: (3) 9-5-027: 004 through 011
- Property Owner/Resident TMK: (3) 9-5-027: 012
- Property Owner/Resident TMK: (3) 9-5-027: 014 through 019

7.3.7 Media

- Hawaii Tribune Herald
- West Hawaii Today

7.3.8 Public Library

- Pahala Public and School Library (hardcopy will available for public review)
- Naalehu Public Library (hardcopy will available for public review)

7.4 Draft EA Comments Received

The Draft EA comment period extended from May 8 to June 6, 2016. A total of 13 comment letters on the Draft EA were received:

- The Department of Accounting and General Services, Hawaii County Department of Environmental Management, and Hawaii County Fire Department indicated they had no comments.
- The HDOH Environmental Planning Office and Clean Water Branch provided information about planning resources and permit requirements.
- The Office of Environmental Quality Control recommended the EA address sanitation procedures to minimize impacts associated with invasive species, watershed protection and polluted runoff, use of native species for revegetation, and climate change.

- The Office of Hawaiian Affairs stated that they have no objections to the project, and requested assurances that if iwi kupuna or Native Hawaiian cultural deposits are identified, all work will cease and appropriate agencies (including the Office of Hawaiian Affairs) be contacted.
- The Office of Planning acknowledged that the EA responded to their previous comments provided during preparation of the draft document, confirmed the need for a Federal Consistency Determination, and stated that the analysis on the Hawaii State Plan should include a discussion on the project's ability to meet all of the objectives, policies, and priority guidelines.
- The Hawaii County Planning Department confirmed the County zoning and the need for an SMA review.
- The Hawaii County Police Department requested that sufficient traffic control personnel and devices are in place during construction.
- The Hawaii County Department of Water Supply stated that the project is not within their service limits, but noted the presence of a privately owned water system in the project vicinity.
- Roberts Hawaii requested information regarding the status of the appraisal and confirmation that the pier foundations for Ninole Bridge would be left in place.
- The Historic Hawaii Foundation expressed disagreement with the proposed Finding of No Significant Impact on the basis that the document fails to incorporate the results of the Section 106 process and does not adequately address significant impacts associated with demolition of Ninole Bridge, in particular.

Comment and response letters are reproduced at the end of this chapter. Response letters were sent only to those entities that provided substantive comments.

DRAFT EA COMMENT AND RESPONSE LETTERS⁴

- State of Hawaii Department of Accounting and General Services
- State of Hawaii Department of Health, Clean Water Branch
- State of Hawaii Department of Health, Environmental Planning Office
- Office of Environmental Quality Control
- Office of Hawaiian Affairs
- Office of Planning
- Hawaii County Department of Environmental Management
- Hawaii County Fire Department
- Hawaii County Planning Department
- Hawaii County Police Department
- Hawaii County Department of Water Supply
- Roberts Hawaii
- Historic Hawaii Foundation

⁴ DAGS and the Hawaii County Department of Environmental Management and Fire Department did not have comments. No response letter was sent to these agencies.

DAVID Y. IGE
GOVERNOR



DOUGLAS MURDOCK
COMPTROLLER

AUDREY HIDANO
Deputy Comptroller

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES

P.O. BOX 119, HONOLULU, HAWAII 96810-0119

JUN 13 2016

(P)1157.6

Mr. Mike Will
Central Federal Lands Highway Division
Federal Highway Administration
U.S. Department of Transportation
12300 West Dakota Avenue, Suite 380A
Lakewood, CO 80228-2583


Dear Mr. Will:

Subject: Draft Environmental Assessment
Hilea and Ninole Bridge Replacement
Project No. HI STP SR11 (1) and (2)
Mamalaho Highway, State Route 11, Kau District, Island of Hawaii
Various TMK Numbers

Thank you for the opportunity to provide comments for the subject project. The proposed project does not impact any of the Department of Accounting and General Services' projects or existing facilities, and we have no comments to offer at this time.

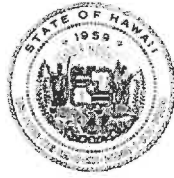
If you have any questions, your staff may call Mr. David DePonte of the Public Works Division at (808) 586-0492.

Sincerely,


DOUGLAS MURDOCK
Comptroller

c: Ms. Kathleen Chu, CH2M Hill
Mr. Jerry Watanabe, DAGS Hawaii District

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:

05037PGH.16

May 18, 2016

Mr. Mike Will
Central Federal Lands Highway Division
12300 West Dakota Avenue, Suite 380A
Lakewood, Colorado 80228-2583

Dear Mr. Will:

**SUBJECT: Comments on Draft Environmental Assessment for
Hilea and Ninole Bridge Replacment, Project No. HI STP SR11(1) and (2)
Mamalaho Highway
Kau District, Island of Hawaii, Hawaii**

The Department of Health (DOH), Clean Water Branch (CWB), acknowledges receipt of your letter, dated May 6, 2016, 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 a 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 Hawaii Administrative Rules (HAR), Chapter 11-54.

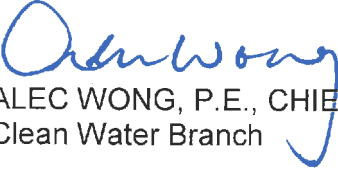
4. Please note that all discharges related to the project construction or operation activities, whether or not NPDES permit coverage and/or Section 401 WQC are required, must comply with the State's Water Quality Standards. Noncompliance with water quality requirements contained in HAR, Chapter 11-54, 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

GH:ak

c: Ms. Kathleen Chu, CH2M HILL [via e-mail Kathleen.Chu@ch2m.com 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

November 29, 2016

DRAFT

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: COMMENTS ON DRAFT ENVIRONMENTAL ASSESSMENT (EA), HILEA and
NINOLE BRIDGE REPLACEMENT, PROJECT NO. HI STP SR11 (1) AND (2)
MAMALAHOA HIGHWAY (STATE ROUTE 11), KAU DISTRICT, HAWAII
ISLAND, TMKS: [3]9-5-017:007 (POR) AND 008 (POR); 9-5-019:011 (POR), 016
(POR), 024 (POR), AND 035 (POR); 9-5-027:020 (POR) AND HAWAII BELT
ROAD/MAMALAHOA HIGHWAY RIGHT-OF-WAY

Dear Mr. Wong:

Thank you for sending comments on the Draft EA by letter dated May 18, 2016.

Your comments on permitting requirements, applicable regulations and policies, and online resources are helpful in moving the project forward. We will be submitting a request for Section 401 Water Quality Certification in conjunction with our application for a Department of the Army (Section 404) permit. The NPDES permit for construction will be obtained by the contractor.

We appreciate your participation in the environmental review process. 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:
Kevin Ito, HDOT
Thomas Parker, CFLHD
Kathleen Chu, CH2M HILL



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

RECEIVED

In reply, please refer to:
File:

EPO 16-152

May 10, 2016

MAY 19 2016

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

Dear Ms. Chu:

SUBJECT: Draft Environmental Assessment (DEA) for Hilea and Ninole Bridge Replacement Project, Mamalahoa Highway, Route 11, Kau District, Hawaii
TMKs: (3)9-5-017:007 por., (3)9-5-017:008 por., (3)9-5-017 Hawaii Belt Road /Mamalahoa Highway Right-of-Way
TMKs: (3)9-5-019:011, (3)9-5-019:016, (3)9-5-019:024, (3)9-5-019:035 por., (3)9-5-027:020 por., and (3)9-5-019, (3)9-5-027 Hawaii Belt Road /Mamalahoa Highway Right-of-Way

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

http://oecq.doh.hawaii.gov/Shared%20Documents/EA_and_EIS_Online_Library/Hawaii/2010s/2016-05-08-HA-5B-DEA-Ninole-Hilea-Bridge-Replacement.pdf

EPO strongly recommends that you review the standard comments and available strategies to support sustainable and healthy design provided at: <http://health.hawaii.gov/epo/landuse>. Projects are required to adhere to all applicable standard comments. EPO has recently updated the environmental Geographic Information System (GIS) website page. It now compiles various maps and viewers from our environmental health programs. The eGIS website page will be continually updated so please visit it regularly at: <http://health.hawaii.gov/epo/eqis>.

EPO also encourages you to examine and utilize the Hawaii Environmental Health Portal at: <https://eha-cloud.doh.hawaii.gov>. This site provides links to our e-Permitting Portal, Environmental Health Warehouse, Groundwater Contamination Viewer, Hawaii Emergency Response Exchange, Hawaii State and Local Emission Inventory System, Water Pollution Control Viewer, Water Quality Data, Warnings, Advisories and Postings.

We suggest you review the requirements for the National Pollutant Discharge Elimination System (NPDES) permit. We recommend contacting the Clean Water Branch at (808) 586-4309 or cleanwaterbranch@doh.hawaii.gov after relevant information is reviewed at:

1. <http://health.hawaii.gov/cwb>
2. <http://health.hawaii.gov/cwb/site-map/clean-water-branch-home-page/standard-npdes-permit-conditions>
3. <http://health.hawaii.gov/cwb/site-map/clean-water-branch-home-page/forms>

If noise created during the construction phase of the project may exceed the maximum allowable levels as set forth in Hawaii Administrative Rules, Chapter 11-46, "Community Noise Control". A noise permit may be required and should be obtained before the commencement of work. Please call the Indoor and Radiological Health Branch at (808) 586-4700 and review relevant information online at: <http://health.hawaii.gov/irhb/noise>.

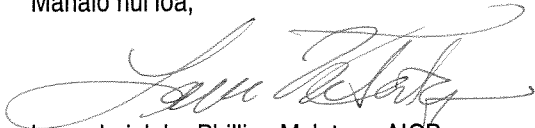
Ms. Kathleen Chu
Page 2
May 10, 2016

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

In order to better protect public health and the environment, the U.S. Environmental Protection Agency (EPA) has developed a new environmental justice (EJ) mapping and screening tool called EJSCREEN. It is based on nationally consistent data and combines environmental and demographic indicators in maps and reports. EPO encourages you to explore, launch and utilize this powerful tool in planning your project. The EPA EJSCREEN tool is available at: <http://www.epa.gov/ejscreen>.

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

Mahalo nui loa,

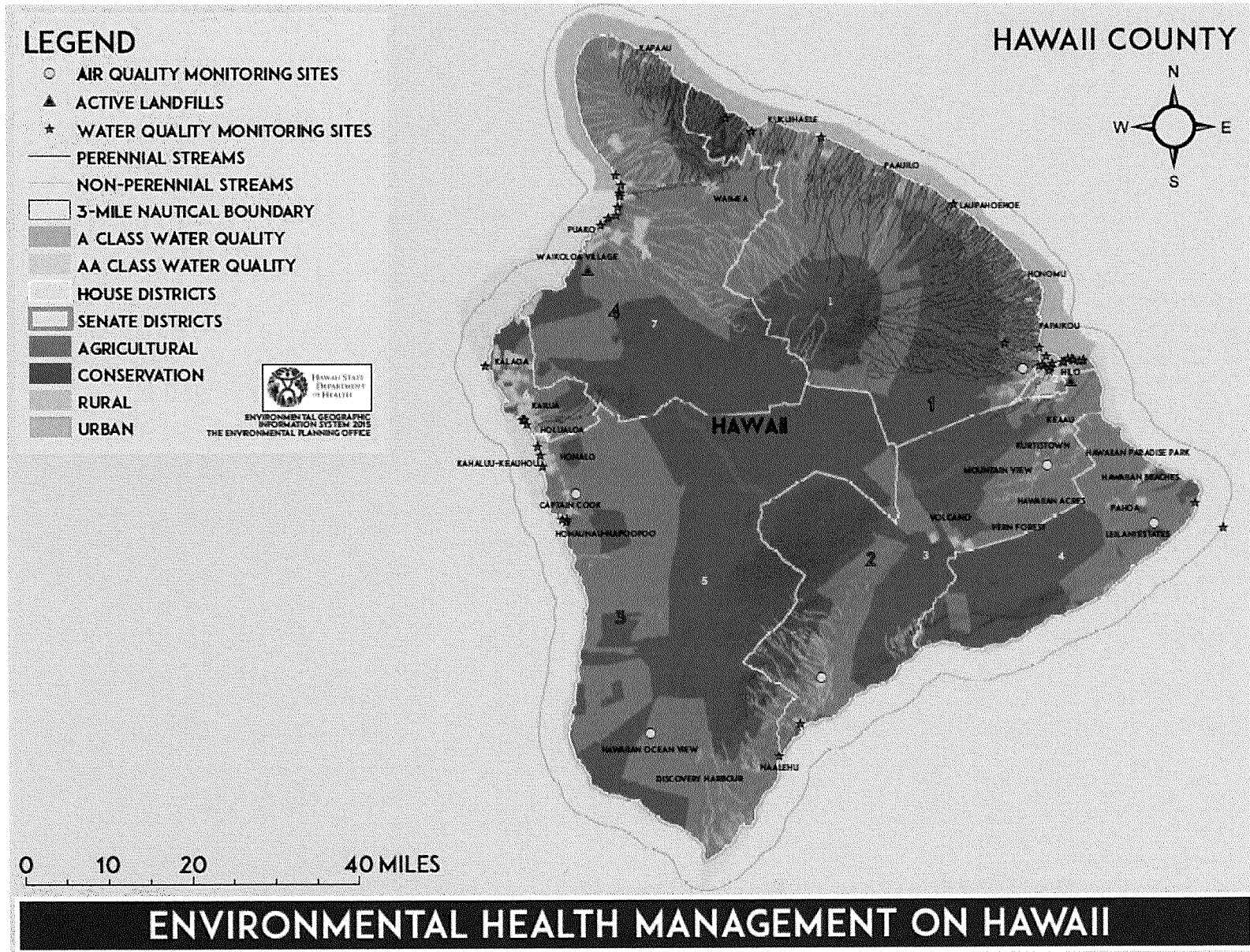


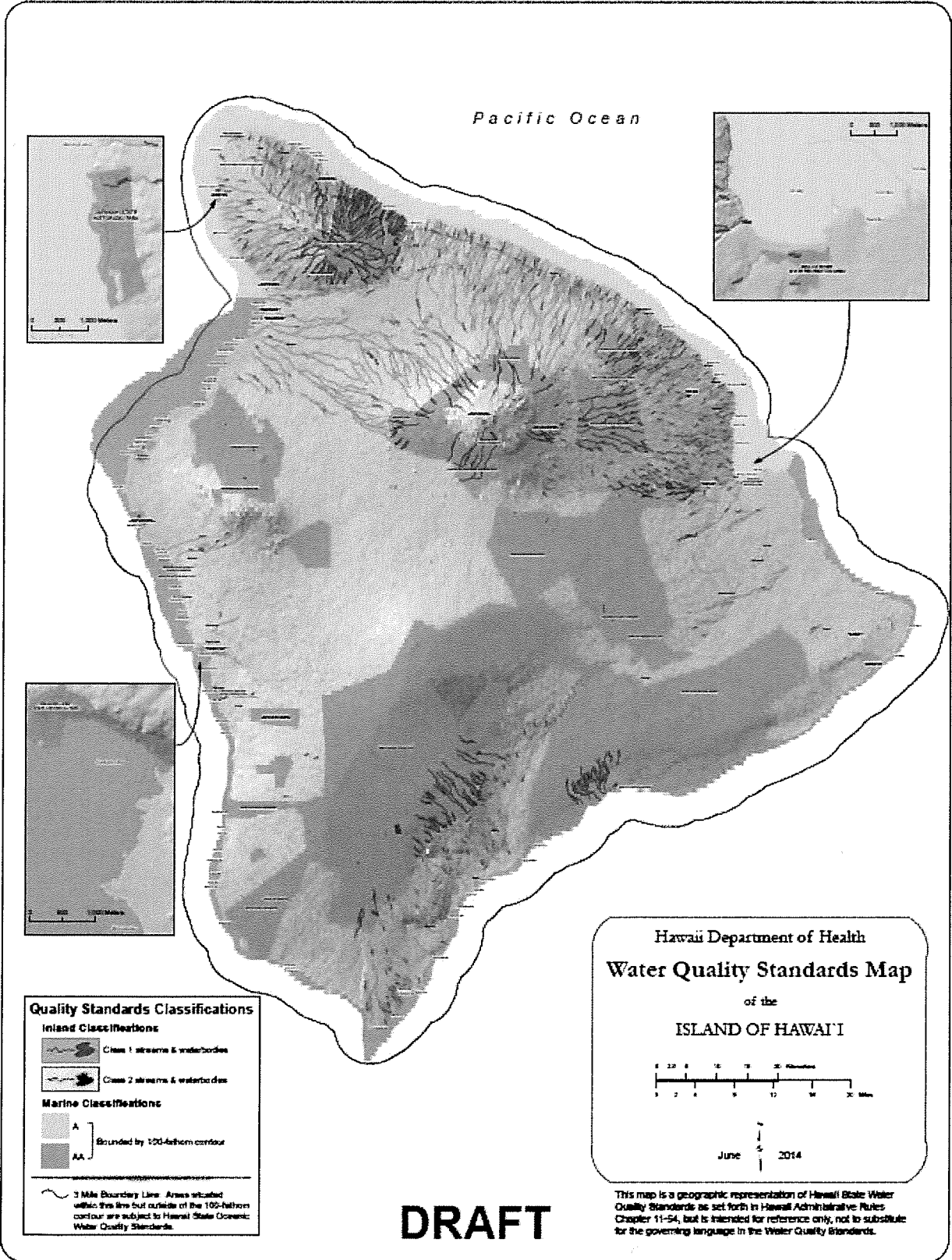
Laura Leialoha Phillips McIntyre, AICP
Program Manager, Environmental Planning Office

LM:nn

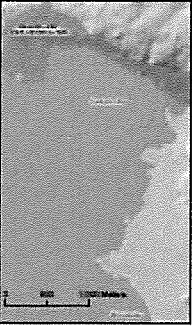
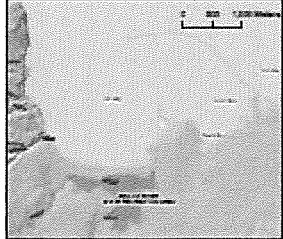
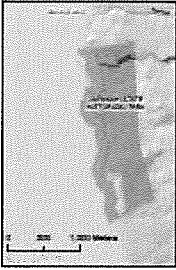
- Attachment 1: EPO Draft Environmental Health Management Map - (Hawaii)
- Attachment 2: Clean Water Branch: Water Quality Standards Map - (Hawaii)
- Attachment 3: Wastewater Branch: Recycled Water Use Map of Project Area
- Attachment 4: OEQC Viewer Map of Project Area
- Attachment 5: U.S. EPA EJSCREEN Report for Project Area

c: Kevin Ito, Department of Transportation {via email: Kevin.Ito@hawaii.gov}
DOH: DHO HI, CWB, IRHB {via email only}





Pacific Ocean



Quality Standards Classifications

Inland Classifications

- Class 1 streams & waterbodies
- Class 2 streams & waterbodies

Marine Classifications

- A } Bounded by 100-fathom contour
- AA }

3 Mile Boundary Line: Areas situated within this line but outside of the 100-fathom contour are subject to Hawaii State Oceanic Water Quality Standards.

Hawaii Department of Health
Water Quality Standards Map
of the
ISLAND OF HAWAII

0 2.5 5 7.5 10 12.5 15 Miles

June 2014

DRAFT

This map is a geographic representation of Hawaii State Water Quality Standards as set forth in Hawaii Administrative Rules Chapter 11-54, but is intended for reference only, not to substitute for the governing language in the Water Quality Standards.



Kau

23 sites found

Results Filter

Nettle Caterpillar Biocontrol and Agent Host Specificity Report (DEA-AFNS) Environmental Assessment (Agency)

Hawaiian Islands Humpback Whale National Marine Sanctuary (EISPP) Environmental Impact Statement (Agency)

Marine Turtle Research Program (DEA-AFNS) Environmental Assessment (Applicant)

WAIOHUKU PRODUCTION WELL RESERVOIR (FEA-FONS) Environmental Assessment (Agency)

WRIGHT RD FENCE (FEA-FONS) Environmental Assessment (Agency)

Biocontrol Strawberry Guava (DEA-AFNS) Environmental Assessment (Agency)

Field Release Fopius Biocontrol of Mealybugs (DEA-AFNS) Environmental Assessment (Agency)

Field Release Brachymeria Biocontrol of Melon Aphid (DEA-AFNS) Environmental Assessment (Agency)

Programmatic General Permit Agreement for Restoration of Fishponds (FEA-FONS) Environmental Assessment (Agency)

SANDWICH ISLES COMM SUB FIBER OPTIC CABLE (FEA-FONS) Environmental Assessment (Applicant)

Field Release of Eurytoma Erythrina Gall Wasp BioControl (FEA-FONS) Environmental Assessment (Agency)

Integrated Cultural Resources Man Plan (FEA-FONS) Environmental Assessment (Applicant)

SANDWICH ISLES COMM SUB FIBER OPTIC CABLE (FEA-FONS) Environmental Assessment (Applicant)

Nettle Caterpillar (FEA-FONS) Environmental Assessment (Agency)



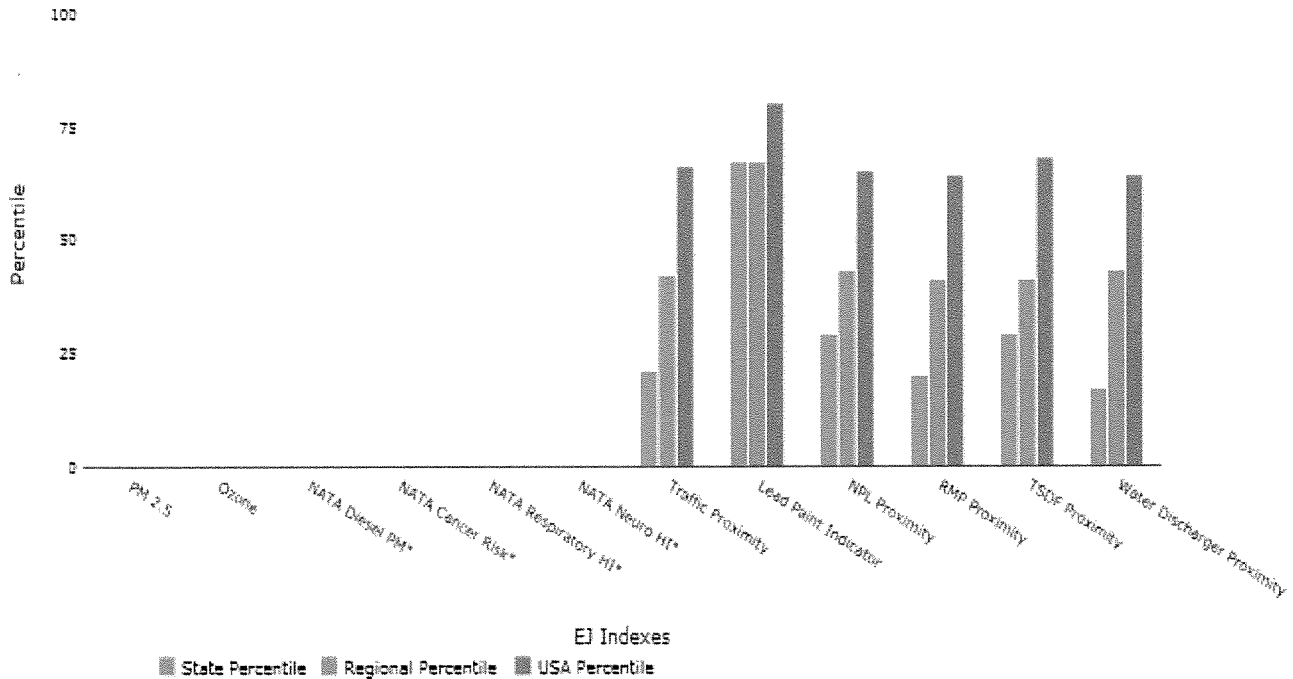


1 mile Ring Centered at 19.139879,-155.516558
HAWAII, EPA Region 9
 Approximate Population: 4

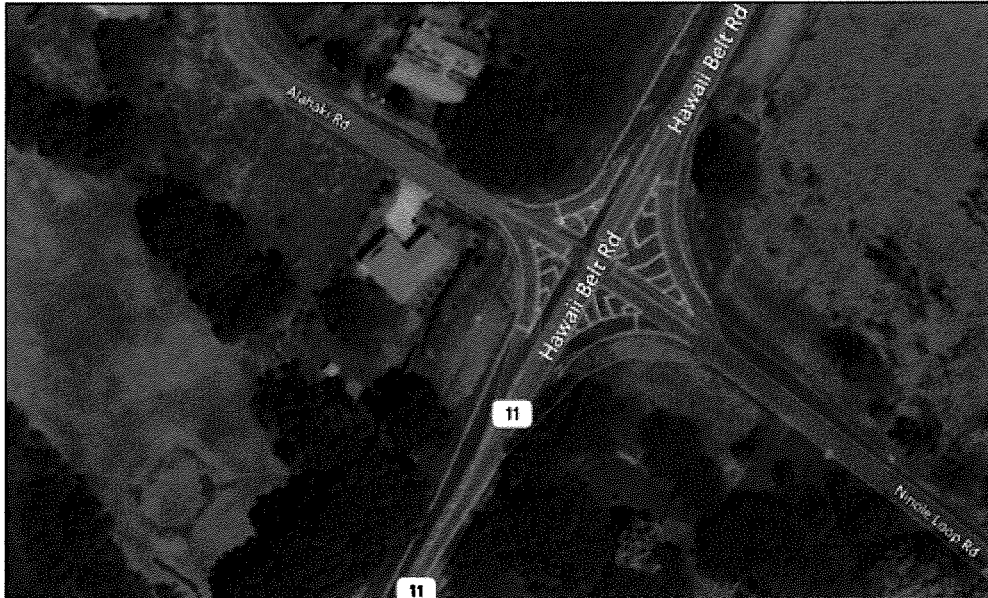


Selected Variables	Percentile in State	Percentile in EPA Region	Percentile in USA
EJ Indexes			
EJ Index for Particulate Matter (PM 2.5)	N/A	N/A	N/A
EJ Index for Ozone	N/A	N/A	N/A
EJ Index for NATA Diesel PM*	N/A	N/A	N/A
EJ Index for NATA Air Toxics Cancer Risk*	N/A	N/A	N/A
EJ Index for NATA Respiratory Hazard Index*	N/A	N/A	N/A
EJ Index for NATA Neurological Hazard Index*	N/A	N/A	N/A
EJ Index for Traffic Proximity and Volume	21	42	66
EJ Index for Lead Paint Indicator	67	67	80
EJ Index for NPL Proximity	29	43	65
EJ Index for RMP Proximity	20	41	64
EJ Index for TSDF Proximity	29	41	68
EJ Index for Water Discharger Proximity	17	43	64

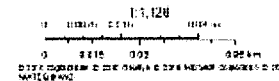
EJ Index for the Selected Area Compared to All People's Block Groups in the State/Region/US



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



May 10, 2010
 + Digitized Point



Selected Variables	Raw data	State Average	%ile in State	EPA Region Average	%ile in EPA Region	USA Average	%ile in USA
Environmental Indicators							
Particulate Matter (PM 2.5 in $\mu\text{g}/\text{m}^3$)	N/A	N/A	N/A	9.95	N/A	9.78	N/A
Ozone (ppb)	N/A	N/A	N/A	49.7	N/A	46.1	N/A
NATA Diesel PM ($\mu\text{g}/\text{m}^3$)*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NATA Air Toxics Cancer Risk (risk per 10M)*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NATA Respiratory Hazard Index*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NATA Neurological Hazard Index*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Traffic Proximity and Volume (daily traffic count/distance to road)	2.9	280	3	190	3	110	7
Lead Paint Indicator (% pre-1960s housing)	0.081	0.17	43	0.25	42	0.3	31
NPL Proximity (site count/km distance)	0.0027	0.092	7	0.11	0	0.096	0
RMP Proximity (facility count/km distance)	0.0096	0.18	0	0.41	0	0.31	0
TSDF Proximity (facility count/km distance)	0.0028	0.092	7	0.12	0	0.054	2
Water Discharger Proximity (count/km)	0.0095	0.33	0	0.19	0	0.25	0
Demographic Indicators							
Demographic Index	58%	51%	72	46%	67	35%	80
Minority Population	58%	77%	16	57%	49	36%	74
Low Income Population	58%	25%	95	35%	81	34%	84
Linguistically Isolated Population	0%	8%	25	9%	20	5%	45
Population with Less Than High School Education	8%	10%	52	18%	35	14%	39
Population under Age 5	6%	6%	55	7%	48	7%	52
Population over Age 64	13%	14%	45	12%	64	13%	54

*The National-Scale Air Toxics Assessment (NATA) environmental indicators and EJ indexes, which include cancer risk, respiratory hazard, neurodevelopment hazard, and diesel particulate matter will be added into EJSCREEN during the first full public update after the soon-to-be-released 2011 dataset is made available. The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: <http://www.epa.gov/national-air-toxics-assessment>.

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

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



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

November 29, 2016

DRAFT

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: COMMENTS ON DRAFT ENVIRONMENTAL ASSESSMENT (EA), HILEA and
NINOLE BRIDGE REPLACEMENT, PROJECT NO. HI STP SR11 (1) AND (2)
MAMALAHOA HIGHWAY (STATE ROUTE 11), KAU DISTRICT, HAWAII
ISLAND, TMKS: [3]9-5-017:007 (POR) AND 008 (POR); 9-5-019:011 (POR), 016
(POR), 024 (POR), AND 035 (POR); 9-5-027:020 (POR) AND HAWAII BELT
ROAD/MAMALAHOA HIGHWAY RIGHT-OF-WAY

Dear Ms. McIntyre:

Thank you for sending comments on the Draft EA by letter dated May 10, 2016.

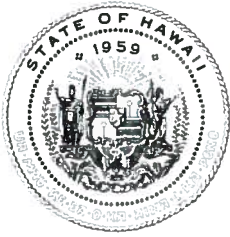
We acknowledge and have reviewed the information you provided on the Environmental Health Management Maps, NPDES and noise permit requirements, the Hawaii Environmental Health Portal, OEQC viewer, and EPA EISCREEN tool. These resources are helpful and are being utilized in project planning and permitting.

We appreciate your participation in the environmental review process. 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:
Kevin Ito, HDOT
Thomas Parker, CFLHD
Kathleen Chu, CH2M HILL



OFFICE OF ENVIRONMENTAL QUALITY CONTROL

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

DAVID Y. IGE
GOVERNOR

SCOTT GLENN
DIRECTOR

(808) 586-4185

June 7, 2016

Kevin Ito
State of Hawai'i
Department of Transportation
869 Punchbowl Street
Honolulu, Hawai'i 96813

Dear Kevin Ito,

SUBJECT: Draft Environmental Assessment (EA) for Hīlea and Nīnole Bridge Replacement,
Māmalahoa Highway, Route 11, Ka'ū District, Island of Hawai'i, Hawai'i

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

1. During early consultation, the National Park Service recommended including best management practices regarding invasive species. The OEQC encourages adding the recommended sanitation procedures to the project specifications to ensure vehicles, equipment, and machinery are free of invasive ants, coqui frogs, and plants.
2. The Office of Planning recommended including a section on watershed protection and management. The OEQC encourages adding this section into the final EA to address polluted runoff, as the project areas lie near agricultural land, urban development, and upstream from the coastline.
3. For any re-vegetation, the OEQC recommends planting native vegetation to absorb pollution and sediment, restore stability, and ensure compliance with Act 233, Session Laws of Hawai'i.
4. In general, the OEQC recommends considering climate change for this and all future projects. Changing weather patterns in the Pacific are projected to result in localized increased precipitation severity, such as periodic extreme heavy downpours. Please consider the fact that accelerating climate change may result in flood levels and frequencies higher than those identified in the assessment. More information can be found at <https://www3.epa.gov/climatechange/impacts/islands.html>.

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

Sincerely,

Scott Glenn, Director

cc: Kathleen Chu, CH2M HILL



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

November 29, 2016

DRAFT

In Reply Refer To:
HFPM-16

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

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

SUBJECT: COMMENTS ON DRAFT ENVIRONMENTAL ASSESSMENT (EA), HILEA and
NINOLE BRIDGE REPLACEMENT, PROJECT NO. HI STP SR11 (1) AND (2)
MAMALAHOA HIGHWAY (STATE ROUTE 11), KAU DISTRICT, HAWAII
ISLAND, TMKS: [3]9-5-017:007 (POR) AND 008 (POR); 9-5-019:011 (POR), 016
(POR), 024 (POR), AND 035 (POR); 9-5-027:020 (POR) AND HAWAII BELT
ROAD/MAMALAHOA HIGHWAY RIGHT-OF-WAY

Dear Mr. Glenn:

Thank you for sending comments on the Draft EA by letter dated June 7, 2016. We offer the following responses to your comments:

1. Consistent with the recommendation provided by National Park Service, Section 3.7.2 was revised to more explicitly state that the best management practices (BMPs) will include sanitation procedures for vehicles, equipment and materials, as needed to limit the spread of invasive species.
2. A discussion of potential impacts associated with runoff and implementation of BMPs to minimize potential impacts is provided in Section 3.3.4 of the EA (Wetlands, Hydrology and Water Quality). The Office of Planning submitted a comment letter on the Draft EA (dated May 31, 2016), which indicates that this discussion adequately addresses the comment in their pre-assessment consultation letter regarding stormwater management practices as part of watershed management. More detailed information related to addressing the potential for polluted runoff will be identified and implemented as part of the permitting requirements in compliance with the Clean Water Act, in coordination with the relevant resource agencies. As noted in the EA, the required permits will include Section 401 Water Quality Certification and a National Pollutant Discharge Elimination System (NPDES) permit.
3. We acknowledge the request to consider the use of native vegetation in landscaping. As noted in Section 3.7.2, use of native species will be considered for revegetation where warranted and suitable for the site conditions.

4. We acknowledge the request to consider climate change for this project. HDOT currently does not evaluate the future threat associated with climate change; however, the project has been designed to currently accepted federal and state standards, with design guidelines consistent with relevant criteria. Specifically, the hydrologic design for the replacement bridges is based on conveyance of a 1-in-50-year storm event, while providing for 2 feet of freeboard. In the case of Hilea Bridge, the existing structure is currently overtopped with a 1-in-10-year storm event; a wider bridge opening will be provided to achieve these criteria, thereby significantly reducing the potential for flooding. In the case of Ninole Bridge, the new structure is sized to match the opening of the existing structure and would maintain the same or greater conveyance capacity as the existing structure.

We appreciate your participation in the environmental review process. 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:

Kevin Ito, HDOT

Thomas Parker, CFLHD

Kathleen Chu, CH2M HILL



STATE OF HAWAII
OFFICE OF HAWAIIAN AFFAIRS
560 N. NIMITZ HWY., SUITE 200
HONOLULU, HAWAII 96817

HRD16-7602C

June 7, 2016

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

Re: Request for Comments the Draft Environmental Assessment for the Replacement of Hīlea and Nīnole Bridges [External Reference HFPM-16]
Hīleanui, Wailau, Nīnole, and Ka'a Ahupua'a, Ka'ū Moku; Hawai'i Moku
Tax Map Key (3) 9-5-017:007 (por.), 008 (por.), (3) 9-5-017, (3) 9-5-019:011, 016, 024, 035 (por.), (3) 9-5-027:020 (por.), (3) 9-5-019, and (3) 9-5-027

Aloha Mr. Will:

The Office of Hawaiian Affairs (OHA) is in receipt of your May 12, 2016 letter requesting comments on the draft environmental assessment for the replacement of Hīlea and Nīnole Bridges. The Federal Highway Administration, in partnership with the State of Hawai'i Department of Transportation, is proposing to replace the Hīlea and Nīnole Bridges; both are eligible for the National Register of Historic Places and the Hawai'i Register of Historic Places.¹

OHA previously commented through the consultation process under Section 106 of the National Historic Preservation Act by letter dated September 23, 2015, and on the adverse effect determination for both bridges by letter dated March 3, 2016. OHA understands that Hīlea and Nīnole Bridges will be demolished and replaced, and therefore adversely affected. Nevertheless, we have no objections to the proposed actions, due to the age and non-compliance with modern safety requirements of the existing bridges.

¹ Hīlea and Nīnole Bridges are eligible under criterion C for their association with wood bridge construction in Hawai'i and as the work of master engineer, William R. Bartels.

As with all projects involving subsurface ground disturbances, OHA does request assurances that should iwi kūpuna or Native Hawaiian cultural deposits be identified during any ground altering activities, all work will immediately cease and the appropriate agencies, including OHA, will be contacted pursuant to applicable law.

Mahalo for the opportunity to comment. Should you have any questions, please contact Jeannin Jeremiah at 594-1790 or by email at jeanninj@oha.org.

‘O wau iho nō me ka ‘oia ‘i‘o,



Kamana‘opono M. Crabbe, Ph.D.
Ka Pouhana, Chief Executive Officer

KC:jj

C: Kathleen Chu – CH2M HILL

**Please address replies and similar, future correspondence to our agency:*

*Dr. Kamana‘opono Crabbe
Attn: OHA Compliance Enforcement
560 N. Nimitz Hwy, Ste. 200
Honolulu, HI 96817*



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

November 29, 2016

DRAFT

In Reply Refer To:
HFPM-16

TO: KAMANA'OPONO CRABBE
CHIEF EXECUTIVE OFFICER
OFFICE OF HAWAIIAN AFFAIRS
560 NIMITZ HWY, SUITE 200
HONOLULU, HI 96817

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

SUBJECT: COMMENTS ON DRAFT ENVIRONMENTAL ASSESSMENT (EA), HILEA and
NINOLE BRIDGE REPLACEMENT, PROJECT NO. HI STP SR11 (1) AND (2)
MAMALAHOA HIGHWAY (STATE ROUTE 11), KAU DISTRICT, HAWAII
ISLAND, TMKS: [3]9-5-017:007 (POR) AND 008 (POR); 9-5-019:011 (POR), 016
(POR), 024 (POR), AND 035 (POR); 9-5-027:020 (POR) AND HAWAII BELT
ROAD/MAMALAHOA HIGHWAY RIGHT-OF-WAY

Dear Dr. Crabbe:

Thank you for sending comments on the Draft EA by letter dated June 7, 2016.

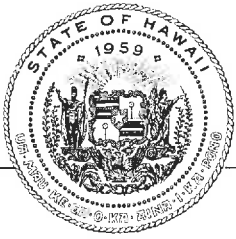
We appreciate your support for the proposed project. As specified in Section 3.11.2 of the EA, should cultural resources or human remains be inadvertently discovered during construction, all work would immediately cease, the appropriate agencies (including the Office of Hawaiian Affairs) would be contacted and the contractor would comply with applicable State law and administrative rules for handling them.

We appreciate your participation in the environmental review process. 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:
Kevin Ito, HDOT
Thomas Parker, CFLHD
Kathleen Chu, CH2M HILL



OFFICE OF PLANNING STATE OF HAWAII

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

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

DAVID Y. IGE
GOVERNOR

LEO R. ASUNCION
DIRECTOR
OFFICE OF PLANNING

Ref. No. P-15172

May 31, 2016

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

Dear Mr. Will:

Subject: Draft Environmental Assessment for Hilea and Ninole Bridge Replacement, Project No. HI STP (1) and (2) Mamalahoa Highway, State Route 11, Kau District, Hawaii Island

Tax Map Key: (3)9-5-017:007 por., (3)9-5-017:008 por., (3)9-5-017 Hawaii Belt Road / Mamalahoa Highway Right-of-Way; (3)9-5-019:011, (3)9-5-019:016, (3)9-5-019:024, (3)9-5-019:035 por., (3)9-5-027:020 por., and (3)9-5-019, (3)9-5-027 Hawaii Belt Road / Mamalahoa Highway Right-of-Way

Thank you for the opportunity to provide comments on the Draft Environmental Assessment (Draft EA) for the Hilea and Ninole bridges replacement project. The notification letter was transmitted to our office via memo dated May 6, 2016.

It is our understanding that the Federal Highways Administration, Central Federal Lands Highway Division, in partnership with the Hawaii Department of Transportation proposes the replacement of the existing Hilea and Ninole bridges, which cross Hilea and Ninole Streams. The existing timber bridges would be replaced with longer and wider bridges with no change in the highway alignment. For each bridge, temporary two-lane bypass roads and bridges will be provided throughout the construction period.

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

1. The Draft EA addresses a number of our comments made in a previous pre-consultation letter dated May 1, 2015 (Reference Number P-14732). The Draft EA verifies the Tax Map Key parcels involved in this project; has discussed the goals and objectives of the Hawaii Coastal Zone Management program as listed in Hawaii Revised Statutes (HRS)

Mr. J. Michael Will, P.E.
Project Manager
May 31, 2016
Page 2

§ 205A-2; acknowledges the need for a Special Management Area permit; lists best management practices to be used during the construction phase to limit coastal erosion/sediment loss issues such as sediment traps, silt fences, dust fences, inlet protection, and stabilized construction entrances; has considered stormwater runoff management practices; and demonstrates the project's consistency with the State Transportation Functional Plan, Objective I.A, policies I.A.1 and I.A.2.

2. We acknowledge the need for a Federal Consistency Determination for this project, as identified in Section 1.6.2, page 1-3, and in Section 4.2.4, pages 4-8 to 4-9. OP is the State agency which performs Federal Consistency evaluations. Please contact our office on the process for obtaining this certification.
3. Section 4.2.1, pages 4-6 to 4-7 of the Draft EA addresses the project's consistency with the objectives and policies of the Hawaii State Plan as listed in HRS Chapter 226. As stated in the Draft EA, the objectives and policies applicable to this project include:
 - HRS § 226-14 – facility systems in general; and
 - HRS § 226-17 – facility systems – transportation.

The analysis on the Hawaii State Plan should include a discussion on the project's ability to meet all of the objectives, policies, and priority guidelines or clarifies where it is in conflict with them. If any of the themes listed in HRS Chapter 226 are not applicable to this project, then the Final Environmental Assessment should list them as "not applicable." Itemizing these themes in tabular form is often the most efficient way to address this matter.

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

Sincerely,



Leo R. Asuncion
Director

c: Kathleen Chu, CH2M HILL



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

November 29, 2016

DRAFT

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: COMMENTS ON DRAFT ENVIRONMENTAL ASSESSMENT (EA), HILEA and
NINOLE BRIDGE REPLACEMENT, PROJECT NO. HI STP SR11 (1) AND (2)
MAMALAHOA HIGHWAY (STATE ROUTE 11), KAU DISTRICT, HAWAII
ISLAND, TMKS: [3]9-5-017:007 (POR) AND 008 (POR); 9-5-019:011 (POR), 016
(POR), 024 (POR), AND 035 (POR); 9-5-027:020 (POR) AND HAWAII BELT
ROAD/MAMALAHOA HIGHWAY RIGHT-OF-WAY

Dear Mr. Asuncion:

Thank you for your letter dated May 31, 2016 confirming that your pre-consultation comments were addressed in the Draft EA and acknowledging the need for a Federal Consistency Determination. The documentation for the Federal Consistency Determination will be submitted to your agency as part of the permitting process. In response to your request to list all of the themes from HRS Chapter 226, additional detail has been added to Section 4.2.1 of the EA.

We appreciate your participation in the environmental review process. 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:
Kevin Ito, HDOT
Thomas Parker, CFLHD
Kathleen Chu, CH2M HILL

Kettley, Lisa/HNL

From: Chu, Kathleen/HNL
Sent: Wednesday, June 29, 2016 4:45 PM
To: Nishikawa, Nancy/HNL; Luersen, Paul/HNL; Kettley, Lisa/HNL
Subject: FW: Hilea and Ninole Bridge Replacement Proj. HI STP SR1 1(1) and (2)

FYI -

From: Henry, Sharron [mailto:Sharron.Henry@hawaiicounty.gov]
Sent: Wednesday, June 29, 2016 9:32 AM
To: Michael.Will@dot.gov; Chu, Kathleen/HNL <Kathleen.Chu@CH2M.com>
Subject: Hilea and Ninole Bridge Replacement Proj. HI STP SR1 1(1) and (2)

The Department of Environmental Management has no comments to offer on this project.

Thank you for allowing us the opportunity to review.

Sharron Henry
Private Secretary to the Director
County of Hawai'i
Department of Environmental Management
345 Kekūanāo'a Street, Suite 41
Hilo, HI 96720
Phone: 808.961.8083
Fax: 808.961.8086
Email: Sharron.Henry@hawaiicounty.gov
cohdem@hawaiicounty.gov

http://secure-web.cisco.com/1M1naPBZxX66PLIWQhgAi8yOsEaXJguLSsD1Bz48rIDRddXOAHdbSyTlp_KPOWGfq4DZJdtsjdNtVGPDv1C_hyaiC0c8XGtgJGGh1PR-YekSH7IxzO87DSUQ8ouDc_fz-rUBfT0stnMCMGeQgpOclajDLMGFzKKA-VALB1d3b8OwQknDIIFwfifFSNsdIYEdlDzcmcYlzOyJKy2ogQ-WLlloL5JG6lZGYfWV9Yi099QB7vHTUGmb60jezSxOCPXc0E6zORmuuvJ4P4zTf3VVxlEcN5ZD44GDAk_7NdefLScMgHDggwJapZDb4vyagcY9K_pNdeSAYhzq_BBGsvGJbLkujimtZjL8yGW8orpygc5bJSrzm95WezllrGEm4A0akX3ZVfAXWY13P8r5VMqTqVPHixMvfi73HO5EfgLfquy8OZNY-YdJGpdV0xpVCXRrcRcfKhTjgUNEeQ8VNzoxA/http%3A%2F%2Fwww.hawaiicounty.gov%2Fenvironmental-management
Hawai'i County is an equal opportunity provider and employer

William P. Kenoi
Mayor



Darren J. Rosario
Fire Chief

Renwick J. Victorino
Deputy Fire Chief

County of Hawai'i
HAWAI'I FIRE DEPARTMENT
25 Aupuni Street • Suite 2501 • Hilo, Hawai'i 96720
(808) 932-2900 • Fax (808) 932-2928

May 27, 2016

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

Dear Mr. Michael Will:

SUBJECT: Draft Environmental Assessment for Hila and Ninole Bridge Replacement,
Project No. HI STP SR11(1) and (2).
Māmalahoa Hwy, State Route 11, Ka'ū District, Hawai'i Island

We are in receipt of your letter dated May 6, 2016 in regards to a Draft Environmental Assessment finding of no significant Impact for the above listed subject.

The Hawai'i Fire Department has no issues or comments with regards to the request for an Draft Environmental Assessment finding of no significant Impact as noted above.

If you should have any questions, please feel free to contact my office at (808)932-2911.

Mahalo,

Handwritten signature of Darren J. Rosario.

DARREN J. ROSARIO
Fire Chief

KV/ds

cc: Kathleen Chu



William P. Kenoi
Mayor



Duane Kanuha
Director

Joaquin Gamiao-Kunkel
Deputy Director

West Hawai'i Office
74-5044 Ane Keohokalole Hwy
Kailua-Kona, Hawai'i 96740
Phone (808) 323-4770
Fax (808) 327-3563

County of Hawai'i
PLANNING DEPARTMENT

East Hawai'i Office
101 Pauahi Street, Suite 3
Hilo, Hawai'i 96720
Phone (808) 961-8288
Fax (808) 961-8742

June 7, 2016

Mr. Mike Will
Central Federal Lands Highway Division
Federal Highway Administration
12300 West Dakota Avenue, Suite 380A
Lakewood, CO 80228-2583

Dear Mr. Will:

SUBJECT: Draft Environmental Assessment

Project: Ninole Bridge and Hilea Bridge on Māmalahoa Highway

TMKs: (3) 9-5-017:007 por. and 008 por.,

(3) 9-5-017 Hawai'i Belt Road/Māmalahoa Highway Right-of-Way

(3) 9-5-019:011, 016, 024 and 035 por., (3) 9 -5-027:020 por.,

(3) 9-5-019 and 027

Hawai'i Belt Road/Māmalahoa Highway Right-of-Way, Ka'ū, Hawai'i

This is in response to your request for comments on the above-referenced project to replace the Ninole Bridge and the Hilea Bridge.

The Planning Department provided preliminary comments by letter dated May 7, 2015. We note that additional parcels were added to those listed in your March 24, 2015, pre-consultation letter to our department. However, we concur with the County Zoning designations for all affected parcels that were listed in Section 4.3.3, Zoning. Also, as stated, since the project will include area makai (seaward) of the Māmalahoa Highway Right-of-Way, a Special Management Area review will be required.

Mr. Mike Will
Central Federal Lands Highway Division
June 7, 2016
Page 2

We have no further comments to offer at this time. If you have any questions, please contact Esther Imamura of this office at (808) 961-8139.

Sincerely,



f DUANE KANUHA
Planning Director

ETI:ja

\\Coh33\planning\public\wpwin60\ETI\EA\draftPre-consul\Chu Ninole & Hilea Bridges2 9-5-19, 9-5-17.doc

cc: Ms. Kathleen Chu
CH2M Hill, Inc.
1132 Bishop Street, Suite 1100
Honolulu, HI 96813



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

November 29, 2016

DRAFT

In Reply Refer To:
HFPM-16

TO: DUANE KANUHA
PLANNING DIRECTOR
PLANNING DEPARTMENT, COUNTY OF HAWAII
101 PAUAHI STREET, SUITE 3
HILO, HI 96720

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

SUBJECT: COMMENTS ON DRAFT ENVIRONMENTAL ASSESSMENT (EA), HILEA and
NINOLE BRIDGE REPLACEMENT, PROJECT NO. HI STP SR11 (1) AND (2)
MAMALAHOA HIGHWAY (STATE ROUTE 11), KAU DISTRICT, HAWAII
ISLAND, TMKS: [3]9-5-017:007 (POR) AND 008 (POR); 9-5-019:011 (POR), 016
(POR), 024 (POR), AND 035 (POR); 9-5-027:020 (POR) AND HAWAII BELT
ROAD/MAMALAHOA HIGHWAY RIGHT-OF-WAY

Dear Mr. Kanuha:

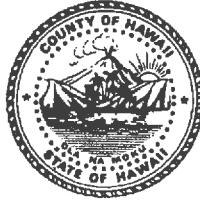
Thank you for your letter dated May 7, 2016 confirming the County zoning and the need for an SMA review, as presented in the Draft EA. We appreciate your participation in the environmental review process. If you have any questions, please contact me at (720) 963-3647, or by email at Michael.will@dot.gov.

Sincerely yours,

J. Michael Will, P.E.
Project Manager

Cc:
Kevin Ito, HDOT
Thomas Parker, CFLHD
Kathleen Chu, CH2M HILL

William P. Kenoi
Mayor



Harry S. Kubojiri
Police Chief

Paul K. Ferreira
Deputy Police Chief

County of Hawai'i

POLICE DEPARTMENT
349 Kapi'olani Street • Hilo, Hawai'i 96720-3998
(808) 935-3311 • Fax (808) 961-2389

May 19, 2016

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

Dear Mr. Will:

SUBJECT: PROJECT: HILEA AND NINOLE BRIDGE REPLACEMENT, PROJECT NO. HI
STP SR11 (1) AND (2)
LOCATION: MAMALAHOA HIGHWAY, STATE ROUTE 11, KAU DISTRICT,
HAWAII ISLAND
TMK: (3)9-5-017:007 POR., (3)9-5-017:008 POR., (3)9-5-017 HAWAII BELT
ROAD / MAMALAHOA HIGHWAY RIGHT-OF-WAY;
(3)9-5-019:011, (3)9-5-019:016, (3)9-5-019:24, (3)9-5-019:035 POR.,
(3)9-5-027:020 POR., AND (3)9-5-019, (3)9-5-027 HAWAII BELT
ROAD / MAMALAHOA HIGHWAY RIGHT-OF-WAY

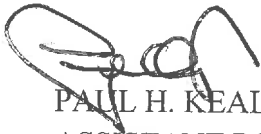
Staff has reviewed the above-referenced project and request that in the interest of public safety, sufficient traffic control personnel and devices are in place during the construction phase of these projects.

Mr. J. Michael Will, P.E.
May 19, 2016
Page 2

Should you have any questions or concerns, please contact Captain Burt Shimabukuro, Commander of our Ka'u District, at 939-2520.

Sincerely,

HARRY S. KUBOJIRI
POLICE CHIEF

A handwritten signature in black ink, appearing to read "Paul H. Kealoaha, Jr.", written over the printed name.

PAUL H. KEALOHA, JR.
ASSISTANT POLICE CHIEF
AREA II OPERATIONS

BS

cc: Ms. Kathleen Chu
CH2M Hill Program Manager
CH2M HILL
1132 Bishop Street, Suite 1100
Honolulu, HI 96813



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

Central Federal Lands Highway Division

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

November 29, 2016

DRAFT

In Reply Refer To:
HFPM-16

TO: HARRY KUBOJIRI, POLICE CHIEF
PAUL KEALOHA, ASSISTANT POLICE CHIEF
POLICE DEPARTMENT, COUNTY OF HAWAII
349 KAPIOLANI STREET
HILO, HI 96720

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

SUBJECT: COMMENTS ON DRAFT ENVIRONMENTAL ASSESSMENT (EA), HILEA and
NINOLE BRIDGE REPLACEMENT, PROJECT NO. HI STP SR11 (1) AND (2)
MAMALAHOA HIGHWAY (STATE ROUTE 11), KAU DISTRICT, HAWAII
ISLAND, TMKS: [3]9-5-017:007 (POR) AND 008 (POR); 9-5-019:011 (POR), 016
(POR), 024 (POR), AND 035 (POR); 9-5-027:020 (POR) AND HAWAII BELT
ROAD/MAMALAHOA HIGHWAY RIGHT-OF-WAY

Dear Mr. Kubojiri and Mr. Kealoha:

Thank you for sending comments on the Draft EA by memorandum dated May 19, 2016.

We appreciate your comment and acknowledge the need for sufficient traffic control personnel and devices during the construction phase of the project. As described in Section 3.14.2.2 of the EA, 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 the FHWA *Manual on Uniform Traffic Control Devices for Streets and Highways* (2009).

We appreciate your participation in the environmental review process. 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:
Kevin Ito, HDOT
Thomas Parker, CFLHD
Kathleen Chu, CH2M HILL



DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAII

345 KEKŪANAŌ'A STREET, SUITE 20 • HILO, HAWAII 96720

TELEPHONE (808) 961-8050 • FAX (808) 961-8657

June 6, 2016

Mr. Mike Will
Central Federal Lands Highway Division
Federal Highway Administration
12300 West Dakota Avenue, Suite 380A
Lake Wood, CO 80228-2583

Dear Mr. Will:

**Subject: Draft Environmental Assessment for Hilea and Nīnole Bridge Replacement Project
Māmalahoa Highway, Route 11
Ka'ū District, Island of Hawai'i, Hawai'i
Project No. HI STP SR11 (1) and (2)
Tax Map Key (3) 9-5-017:007 Portion (3) 9-5-017:008 Portion, (3) 9-5-017 Hawai'i Belt
Road; (3) 9-5-019:011, (3) 9-5-019:016, (3) 9-5-019:024, (3) 9-5-019:035 Portion,
(3) 9-5-027:020 Portion, (3) 9-5-019, and (3) 9-5-027 Hawai'i Belt Road**

We have reviewed the subject Draft Environmental Assessment and have no objection or comments to offer as the proposed project sites are not within the service limits of our existing water system in the area.

Please be informed that there is a water system in the area of the Nīnole Bridge that is privately owned and operated.

Should there be any questions, please contact Mr. Ryan Quitarano of our Water Resources and Planning Branch at 961-8070, extension 256.

Sincerely yours,

Keith K. Okamoto, P.E.
Manager-Chief Engineer

RQ:dfg

copy – CH2M HILL

... Water, Our Most Precious Resource ... Ka Wai A Kāne ...

The Department of Water Supply is an Equal Opportunity provider and employer.



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

November 29, 2016

DRAFT

In Reply Refer To:
HFPM-16

TO: KEITH OKAMOTO
MANAGER-CHIEF ENGINEER
DEPARTMENT OF WATER SUPPLY, COUNTY OF HAWAII
345 KEKUANAHOA STREET, SUITE 20
HILO, HI 96720

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

SUBJECT: COMMENTS ON DRAFT ENVIRONMENTAL ASSESSMENT (EA), HILEA and
NINOLE BRIDGE REPLACEMENT, PROJECT NO. HI STP SR11 (1) AND (2)
MAMALAHOA HIGHWAY (STATE ROUTE 11), KAU DISTRICT, HAWAII
ISLAND, TMKS: [3]9-5-017:007 (POR) AND 008 (POR); 9-5-019:011 (POR), 016
(POR), 024 (POR), AND 035 (POR); 9-5-027:020 (POR) AND HAWAII BELT
ROAD/MAMALAHOA HIGHWAY RIGHT-OF-WAY

Dear Mr. Okamoto:

Thank you for your letter dated June 6, 2016 confirming that the project would have no impact on your existing water system. We appreciate your input regarding the privately owned water system in the area of Ninole Bridge. This information is reflected in Section 2.2.3 of the EA.

We appreciate your participation in the environmental review process. 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:
Kevin Ito, HDOT
Thomas Parker, CFLHD
Kathleen Chu, CH2M HILL



June 9, 2016

phone 808 523 7750

fax 808 522 7866

Roberts Hawaii, Inc.
680 Iwilei Road
Suite 700
Honolulu, Hawaii 96817

robertshawaii.com

Mr. Michael Will
Central Federal Lands Highway Division
Federal Highway Administration
12300 West Dakota Ave., Ste. 380A
Lakewood, CO 80228-2583
Via email: Michael.Will@dot.gov

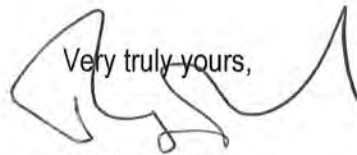
Re: **Comments to the Draft Environmental Assessment
Ninole Bridge Replacement Project
Kau District, Island of Hawaii, Hawaii**

Dear Mr. Will:

This is to submit our comments to the Draft Environmental Assessment to the Ninole Bridge Replacement Project dated April 2016 as follows:

1. Appraisal – in our teleconference of March 2, 2016, it was stated that an appraisal would be conducted in April for the purposes of the valuation of the easements on Sea Mountain property that would be required after the construction. Has the appraisal been completed?
2. Lava rock pier foundation – This is to confirm that per section 2.3.1.2 of the report, the existing stone (lava-rock facing) pier foundation is to be left in place to retain the existing golf cart path.

Thank you for your attention. Please contact me at email roy.pfund@robertshawaii.com or 808-539-9493 if there are any questions.

Very truly yours,

ROY PFUND
Vice President

cc: Kathleen Chu, CH2M HILL
Rodney Andres, Sea Mountain Golf Course





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

November 29, 2016

DRAFT

In Reply Refer To:
HFPM-16

TO: ROY PFUND
VICE PRESIDENT
ROBERTS HAWAII
680 IWILEI ROAD, SUITE 700
HONOLULU, HI 96817

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

SUBJECT: COMMENTS ON DRAFT ENVIRONMENTAL ASSESSMENT (EA), HILEA and NINOLE BRIDGE REPLACEMENT, PROJECT NO. HI STP SR11 (1) AND (2) MAMALAHOA HIGHWAY (STATE ROUTE 11), KAU DISTRICT, HAWAII ISLAND, TMKS: [3]9-5-017:007 (POR) AND 008 (POR); 9-5-019:011 (POR), 016 (POR), 024 (POR), AND 035 (POR); 9-5-027:020 (POR) AND HAWAII BELT ROAD/MAMALAHOA HIGHWAY RIGHT-OF-WAY

Dear Mr. Pfund:

Thank you for sending comments on the Draft EA by letter dated June 9, 2016.

With regards to your question about the completion of the appraisal, this work is still to be conducted pending approval of the rights-of-way (ROW) maps by the Hawaii Department of Transportation. A draft appraisal report is expected to be completed by November 21.

As requested in your comment letter, we confirm that per Section 2.3.1.2 of the EA, the existing stone (lava-rock facing) pier foundation is to be left in place to retain the existing golf cart path.

We appreciate your participation in the environmental review process. 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:
Kevin Ito, HDOT
Thomas Parker, CFLHD
Kathleen Chu, CH2M HILL

HISTORIC HAWAII FOUNDATION

June 7, 2016

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

**Re: Draft Environmental Assessment
Hilea and Nīnole Bridges Replacement, Project No. STP SR11(1) and SR 11(2)
Māmalahoa Highway, Route 11
Ka'ū District, Island of Hawai'i, Hilea Ahupua'a and Nīnole Ahupua'a**

**TMK: Hilea Bridge: (3)9-5-017:007 por., (3)9-5-017:008 por., (3)9-5-017
Hawai'i Belt Road / Māmalahoa Highway Right-of-Way;
Nīnole Bridge: (3)9-5-019:011, (3)9-5-019:016, (3)9-5-019:024,
(3)9-5-019:035 por., (3)9-5-027:020 por., and (3)9-5-019, (3)9-5-027
Hawai'i Belt Road / Māmalahoa Highway Right-of-Way**

FHWA Reference: HFPM-16

Dear Mr. Will:

Historic Hawai'i Foundation (HHF) is providing comments on the Draft Environmental Assessment (DEA) for the above-listed project. **Historic Hawai'i Foundation strongly disagrees with the proposed Finding of No Significant Impact (FONSI).**

The DEA was prepared by Federal Highway Administration (FHWA) Central Federal Lands Highway Division (CFLHD) in accordance with the National Environmental Policy Act (NEPA), its implementing regulations (CFR Title 11, Chapter 200) and the State of Hawai'i Environmental Impact Statement law (Hawai'i Revised Statutes Chapter 343). We note that the project is also subject to various historic preservation laws and regulations, including the National Historic Preservation Act (NHPA) and its implementing regulations (CFR 36 Part 800), as well as the State of Hawai'i historic preservation law (HRS 6E). Furthermore, the project is subject to Section 4F of the National Transportation Act.

Although the Advisory Council on Historic Preservation (ACHP) and the Council on Environmental Quality (CEQ) have issued a handbook for integrating NEPA and Section 106 (March 2013), the proposed undertaking has not integrated its compliance actions, determinations and project decisions to address the requirements of each law concurrently.

Historic Hawai'i Foundation Comments
Hilea and Nīnole Bridges (Project No. HI STP SR11(1) and (2))
Draft Environmental Assessment
June 7, 2016
Page 1 of 6

When the agency is preparing an EA and there are adverse effects to historic properties, as in this case, then the agency must develop a Memorandum of Agreement to conclude the Section 106 process before making the decision whether to proceed with the proposed action. A FONSI should make it clear that adverse effects have been resolved and the MOA comment process was concluded. Use of a mitigated FONSI does not replace the requirements and procedures implementing Section 106.

The resolution of adverse effects to historic properties through the Section 106 process is a factor to consider whether, for NEPA purposes, there are any potentially significant effects that require the preparation of an EIS. Although an “adverse effect” to a historic property does not necessarily mean an agency will be unable to reach a determination of Finding of No Significant Impact (FONSI) under the EIS regulations, the agency does need to determine whether an undertaking is a “major Federal action significantly affecting the quality of the human environment,” which includes the likely effects on historic properties.

Therefore, the agency still needs to determine whether the environmental effects of the action on historic properties are “significant.”

Historic Hawai‘i Foundation finds that demolition of Nīnole Bridge, in particular, would have a significant effect on the quality of the human environment.

DEA Fails to Incorporate Results of Section 106 Consultation and Agreement

The NHPA Section 106 process is not complete. The proposed demolition of two properties that are determined eligible for listing on the National Register of Historic Places is, by definition, an adverse effect. The Section 106 process is designed to resolve adverse effects, including efforts to avoid, minimize and/or mitigate the effects. Historic Hawai‘i Foundation is a consulting party to the Section 106 process. HHF has proposed alternative designs, avoidance measures and mitigation recommendations; FHWA has not provided a response.

The DEA Project Summary and Section 3.10 on Historic Architectural Resources acknowledge:

1. Hīlea Bridge is eligible for listing on the National Register of Historic Places;
2. Nīnole Bridge is eligible for listing on the National Register of Historic Places;
3. Demolition and replacement of both bridges is an adverse effect on historic properties.

The DEA neglects to note that Nīnole Bridge was determined by Hawai‘i Department of Transportation (HDOT) to be of High Preservation Value due to its intact condition and rarity of design and materials. Hīlea and Nīnole Bridges are the last remaining timber bridges in the Hawai‘i State Highway System, representing rare remaining examples of a historic bridge type [SHPD Historic Resource Inventory Forms, “Statement of Significance”].

DEA Fails to Include Binding Commitments to Resolve Adverse Effects

Despite the proposed demolition of these two historic properties, the DEA claims that “impacts would be mitigated to the extent that they are expected to be less than significant” (page xi).

However, no such mitigation measures are described; nor are the Section 106 or HRS 6E processes complete. Therefore, the mitigation measures are only theoretical and not actual “agreed upon mitigation commitments,” as required.

The CEQ/ACHP guidance makes it clear that if an agency finds there would be adverse effects from the proposed undertaking, it must document the resolution of those effects, incorporating a description of the agency’s binding commitments to measure to avoid, minimize, or mitigate such effects, with specific information regarding who will do what by when. The Record of Decision (ROD) should also include administrative provisions as a process for any continued consultation during implementation, timelines for implementation, procedures for post-review discoveries, a dispute resolution clause, and a provision addressing future changes to the undertaking.

As the draft Environmental Assessment contains none of this information, does not resolve adverse effects, does not contain binding commitments to avoid, minimize and mitigate the adverse effect, and does not address the requirements of the National Historic Preservation Act, it is incomplete and insufficient to meet the regulatory requirements.

Therefore, Historic Hawai’i Foundation strongly disagrees with the proposed FONSI.

It is premature to make any such determination. The implementing regulations make it clear that alternatives and proposed measures that are determined through consultation must be described in the Environmental Assessment, draft Environmental Impact Statement, or final Environmental Impact Statement.

DEA Fails to Address Prior Comments

Historic Hawai’i Foundation is a consulting party to the FHWA and is actively participating in the Section 106 consultation process. Prior actions have included:

- The project was discussed at a Section 106 consultation meeting on February 9, 2016 between Federal Highway Administration (FHWA) Central Federal Lands (CFL), the Hawai’i State Historic Preservation Division (SHPD) and HHF. FHWA sent HHF the letter initiating consultation (originally dated August 24, 2015), which was received February 11, 2016.
- HHF responded with consultation comments on April 22, 2016, concurring with the finding of Adverse Effect and discussing avoidance and mitigation options.
- On May 5, 2016 HHF received a determination of eligibility and effects letter dated February 5, 2016 with an attached letter to the Hawai’i State Historic Preservation Officer dated January 26, 2016 initiating consultation. Both of those letters find the bridges to be eligible

for inclusion on the National Register of Historic Places and make a determination of Adverse Effect.

HHF offers the following comments on each bridge:

A. Hīlea Bridge

- HHF understands that this bridge has issues with storm water ‘overtopping’ which require widening the stream channel below, resulting in the need for a longer bridge (from 41-feet to 100-feet).
- Although we would prefer to see this bridge retained in place, the functional requirements of the transportation system appear to make that infeasible. Therefore, we recommend that the historic bridge be offered for relocation or salvage of the materials for reuse in the replacement bridge, after it is documented following Historic American Engineering Record (HAER) standards.
- The design of the replacement bridge should be compatible and harmonious with the setting and context of the area.
 - In keeping with the Secretary of the Interior’s Standards for Rehabilitation (Standard No.9):

...New work shall be differentiated from the old and will be compatible with historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.
- The replacement bridge should be designed to be reflective of the historic design elements, with substructure and superstructure components that complement the original. We feel that a context sensitive design, while still contemporary, is more appropriate than merely replicating the design of other bridges on a different segment of the state highway.

A proposal for the Wainiha Bridges on Kaua’i utilized a railing design that is very similar to the existing wood bridge at Hīlea. This design may be a prototype or model for this bridge as well.
- The Memorandum of Agreement should include design parameters and design review opportunities to ensure that the replacement bridge is consistent with these goals. HHF requests to be included in the design review process.

B. Nīnole Bridge

- This bridge has been designated *high preservation value*:

Bridges within this category include those that are generally unique or possess characteristics of a type and exhibit high degrees of historic integrity. [Hawai’i State Historic Bridge Inventory & Evaluation (2013), p. 1-10]

- This bridge does not have streambed issues that require a longer bridge. The purpose of replacing the bridge is not explicit in the materials, but we infer that a replacement bridge is desired to address structural issues and traffic safety.
- HHF strongly recommends that this bridge be repaired and restored to the extent possible, maintaining the character of what will be the only remaining timber bridge on the state highway system.
- It appears that this project could accommodate the need for a wider roadway by building a new parallel bypass bridge for vehicular use, thereby preserving and reusing the historic bridge for bicycle and pedestrian use.

As the proposal already includes a plan to construct a temporary road and bridge during the construction phase, we recommend that the new road and bridge instead be designed to be the permanent transportation facility, thus allowing the historic bridge to remain.

- Significant character defining features of this bridge that should be retained and restored include:
 - Concrete rubble foundations and abutments
 - Triple span design
 - Timber substructure framing, stringers and wood deck
 - Wood railings with built in wheel guard
- The parallel (new) bridge should be designed to be reflective of the historic design elements, with substructure and superstructure components that complement the original. We feel that a context sensitive design, while still contemporary, is more appropriate than merely replicating the design of other bridges on a different segment of the state highway.

Prudent and Feasible Alternatives to the Use of a Historic Property

The DEA Section 1.6 “Compliance Required,” fails to note the applicability, these projects are also subject to the regulations of the US Department of Transportation Act (1966), Section 4f, and thus the consideration of feasible and prudent alternatives to the undertaking are required.

In addition to the above, some alternatives to be considered should include:

- Construction of a two-lane bypass bridge next to Nīnole Bridge that meets traffic and safety requirements, converting the repaired Nīnole Bridge to bicycle and pedestrian use.
- Construction of a detached pedestrian/bicycle bridge at Hīlea Bridge to minimize the need for widening the new bridge thus further impacting the landscape.

Mitigation: In addition to design considerations and alternatives discussed above, HHF believes that mitigation is warranted for the adverse effect of this project. Mitigation efforts could include:

- HHF is interested in seeing a mitigation effort related to ongoing training for DOT employees in context sensitive design, preservation standards for repair and maintenance, Section 106 and Section 4f considerations, and other standards and procedures inherent in stewardship of historic resources, including both the bridges and their historic contexts. The lack of knowledge about these issues should be remedied through regular training for all staff levels who work on the historic road, from management to maintenance.
- Additional mitigation may address other community concerns such as educational efforts, interpretation, traffic calming and enforcement along this rural belt road.
- HABS/HAER documentation of both bridges.
- Preparation of a Context Study of Hawai'i's historic timber railroad and automobile bridges. Following the completion of this project, only one timber bridge will survive in the state system (e.g. Nīnole Bridge, if HHF's recommendations are followed).

Historic Hawai'i Foundation strongly recommends that FHWA conclude the Section 106 process to resolve adverse effects, including the measures outlined above, and then to incorporate those commitments into its environmental compliance documents. Until and unless such resolution occurs, the Finding of No Significant Impact is premature and unwarranted.

Very truly yours,



Kiersten Faulkner, AICP
Executive Director

Copies via email:

FHWA: Meesa Otani and Nicole Winterton
HDOT: Harry Takiue
SHPD: Jessica Puff, Susan Lebo and Sean Naleimaile
CH2M Hill: Paul Luersen and Kathleen Chu
MAI: Barbara Shideler



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

November 18, 2016

In Reply Refer To:
HFPM-16

Kiersten Falkner, AICP
Executive Director
Historic Hawaii Foundation
680 Iwilei Road Suite 690
Honolulu, HI 96817

**Subject: National Historic Preservation Act (NHPA), Section 106 and Hawaii Revised Statutes (HRS), Chapter 6E Consultation
Hilea and Ninole Bridge Replacement, Project No. HI STP SR11(1) and SR 11(2)
Kau District, Hawaii Island, Hilea Ahupuaa and Ninole Ahupuaa
TMK: (3)9-5-017:007 por., (3)9-5-017:008 por., (3)9-5-017 Hawaii Belt Road / Mamalahoa Highway Right-of-Way; (3)9-5-019:011, (3)9-5-019:016, (3)9-5-019:024, (3)9-5-019:035 por., (3)9-5 027:020 por., and (3)9-5-019, (3)9-5-027 Hawaii Belt Road / Mamalahoa Highway Right-of-Way**

Dear Ms. Faulkner:

Thank you for your correspondence on the subject Hilea and Ninole Bridge Replacement project. This letter is in response to your comments on the "Draft Environmental Assessment," dated April 22, 2016, and June 7, 2016, regarding the subject project. The Federal Highway Administration (FHWA) Central Federal Lands Highway Division (CFLHD) appreciates the time Historic Hawai'i Foundation (HHF) has invested in the review of the undertaking as a consulting party to the FHWA.

The FHWA is committed to evaluating and designing Context Sensitive Solutions (CSS) on our projects. FHWA defines CSS as a collaborative, interdisciplinary, approach that involves all stakeholders in developing a transportation facility that complements its physical setting and preserves scenic, aesthetic, and historic and environmental resources while maintaining safety and mobility. Context Sensitive Design (CSD), on the other hand, applies to a transportation project's engineering design features, and may include features that help the project fit harmoniously into the community (e.g., aesthetic treatments, color matching, or curbing details). In general, CSS focuses on ensuring that designs are balanced with setting, significant resources, and transportation needs. It is an approach that leads to preserving and enhancing scenic, aesthetic, historic, community, and environmental resources, while improving or maintaining safety, mobility, and infrastructure conditions.

FHWA has determined that the Hilea and Ninole Bridges are eligible for listing on the National Register and the Hawaii State Register of Historic Places. The proposed bridge replacement project is considered a federal action/undertaking and must comply with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (2006) as well as Section 4(f). Section 4(f) refers to the original section within the U.S. Department of Transportation Act of

1966 which established the requirement for consideration of park and recreational lands, wildlife and waterfowl refuges, and historic sites in transportation project development. The law, now codified in 49 U.S.C. §303 and 23 U.S.C. §138, is implemented by FHWA through the regulation 23 CFR 774. In accordance with the before mentioned requirements; throughout project development the FHWA has considered feasible and prudent avoidance alternatives for the proposed action. Several alternatives were evaluated and dismissed as described within the April 2016 draft EA. In correspondence dated April 22, 2016 HHF provided comments on the proposed bridge designs as well as additional avoidance alternatives that you believed FHWA should consider. In correspondence dated June 7, 2016, the HHF provided additional comments on the April Draft EA and reiterated the comments made in your April 22, 2016 correspondence. Enclosed to this letter is an alternative analysis memorandum which documents and summarizes our consideration of additional avoidance and minimization alternatives for the proposed action. Additionally, our EA will be updated to further document this additional alternative analysis.

Under the proposed alternative, the existing Hilea and Ninole Bridges would be demolished and replaced with new bridges. The new bridges would consist of single-span structures and would accommodate two 11-foot travel lanes, a 9-foot shoulder on each side, and a 1-foot, 2-inch-wide bridge rail (with metal guardrail on the bridge approaches) on each side. The roadway approaches to the bridges would be widened, which would require extending earthwork slopes or installing retaining walls. Bridge railings and transitions would meet requirements for crashworthiness. Concrete post and beam bridge railings would have a height of 3 feet, 6 inches, including a metal railing on top. Concrete end posts with metal railings would be provided along the length of the approach slab as a transition from the metal guardrails of the roadway. HDOT and AASHTO standards and regulations govern the final design criteria and construction methods and procedures for the proposed project. With the proposed action, the final design would meet or exceed both HDOT and AASHTO criteria. A design exception would be triggered if AASHTO minimum criteria are not met.

Unfortunately, based on our evaluation of feasible and prudent alternatives against our stated project purpose and need; the proposed action has been identified as the prudent alternative. As proposed, the replacement Hilea and Ninole bridges would be completed within HDOT's existing built-out right-of-way. Implementing the project would not require any new permanent right-of-way and would avoid additional permanent impacts to the Hilea and Ninole Streams, biological, recreational 4(f) resources, conversion of conservation lands while limiting new ground disturbance from the project. The replacement bridges will meet current design, seismic and load standards and the replaced bridge rails will address the safety deficiencies while being consistent with other bridge designs along the route. This option addresses all structural and safety concerns associated with the existing structure. It is our determination, that the proposed alternative presented within the EA provides a CSS by considering the contextual setting of State Route 11 by utilizing a bridge design which has been constructed along State Route 11 in at least three other locations. These bridges occur at the Keaiwa Stream Bridge (see Figure 2-4 in EA), which is located approximately 7 miles north of Hilea Bridge as well as Kaalaala Gulch approximately 7.5 miles north of Hilea Bridge, and an unnamed Gulch approximately 8.3 miles north of Hilea Bridge. Our proposed bridge design continues this bridge design along this route and helps to establish a safe and consistent roadway bridge design for State Route 11.

As indicated in your June 7, 2016 correspondence, the Section 106 consultation process is ongoing. FHWA has determined that the proposed action would result in an adverse effect to historic

properties and as such has submitted our determination of eligibility and finding of effect to the State Historic Preservation Division (SHPD) and consulting parties. Additionally, a draft Memorandum of Agreement to resolve the projects adverse effects has been prepared and is enclosed with this letter. We look forward to your comments on the enclosed draft MOA and further coordination with HHF as a consulting party in the 106 process for this project. If you require further information or have questions, please contact Thomas Parker, Environmental Protection Specialist, by email at Thomas.W.Parker@dot.gov or by phone at (720) 963-3688. We appreciate your assistance with this project.

Sincerely,



Michael Will
Project Manager

Enclosure:

cc:

Thomas Parker
Kathleen Chu



HAWAII

HILEA AND NINOLE BRIDGES, MAMALAHOA HIGHWAY, ROUTE 11



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

Introduction

The Federal Highway Administration, Central Federal Lands Highway Division (FHWA-CFLHD), in cooperation with the Hawaii Department of Transportation (HDOT) is proposing to replace the Hilea and Ninole bridges in the Kau District on Hawaii Island. The project is located along Mamalahoa Highway (State Route 11). Hilea Bridge crosses Hilea Stream and is located at MP 57.7, approximately 1.2 miles southwest of the Alahaki Road and Ninole Loop Road intersection. Ninole Bridge crosses Ninole Stream and is located at MP 56.6, approximately 500 feet southwest of the Alahaki Road and Ninole Loop Road intersection. The bridges and highway are under the jurisdiction of HDOT. Figures depicting the location of the project are provided as Figure 1 and 2.

The purpose of the project is to improve Hilea and Ninole bridges and their approaches to maintain stream crossings on Mamalahoa Highway (State Route 11) that remain safe and functional components of the regional transportation system for highway users. These bridges are in a structurally deficient condition, with narrow roadway widths, limited load capacity, substandard bridge railings, and are undersized resulting in flood overtopping incapable of passing the Q-50 hydraulic criteria. The proposed project would replace the historic Hilea and Ninole Bridges on the Island of Hawaii. This project would replace the existing 41 foot long and 24 foot wide, two-span timber Hilea Bridge with a 100 foot -long, single-span bridge and, the existing 60 foot long and 24 foot wide, three-span timber Ninole Bridge would be replaced with a 65-foot long, single-span bridge. The new bridges would accommodate two 11 foot travel lanes, two 9 foot shoulders on each side, and a 1-foot, 2-inch-wide bridge rail (with metal guardrails on the bridge approaches) on each side. This project would improve mobility for highway users and address existing structural deficiencies by strengthening the bridges' foundations and substructure to meet current seismic and loading requirements, existing hydraulic deficiencies by expanding bridge opening to pass the 50 year hydraulic criteria (hilea) and existing functional deficiencies with approaches, decks, and railings that meet current standards.

The Hilea and Ninole Bridges have been determined to be historic sites eligible for listing on the National Register of Historic Places (NRHP). Subsequently, they are protected by the NHPA and Section 4(f) of the U.S. Department of Transportation Act of 1966. Before approving a project that uses a Section 4(f) property, FHWA must determine that there is no feasible and prudent alternative that avoids the Section 4(f) properties and that the project includes all possible planning to minimize harm to the Section 4(f) properties. A key requirement of Section 4(f) compliance is an attempt to show whether or not a property can be completely avoided while meeting the transportation need. When the alternatives under consideration use land from one or more Section 4(f) properties, alternatives that avoid each of the properties must be evaluated. Additionally, a statewide non-profit organization, the Hawaii Historic Foundation (HHF) in a letter dated April 22, 2016, has requested additional analysis of avoidance and mitigation alternatives for the Hilea and Ninole Bridge Projects. The HHF request seeks justification for not using the temporary Roadway Bypass alignments as permanent realignments of State Route 11 in order to keep the existing Hilea and Ninole bridges in their current locations. This analysis for consideration for additional alternatives are discussed and summarized in this technical memorandum.

It is FHWA policy that Section 4(f) properties should be identified as early as practicable in the planning and project development process in order that complete avoidance of the protected resources can be given full and fair consideration (See 23 CFR 774.9(a)). Avoidance alternatives should consider minor alignment shifts,

reduced cross-sections, retaining structures, modifications to the project and other factors. Avoidance alternatives that are eliminated from detailed study should be discussed in the Section 4(f) Evaluation with a clear explanation of why they are not feasible and prudent.

The Hilea Bridge and Ninole Bridge projects are combined for environmental review because of their close proximity (approximately 1 mile apart), similar deficiencies, similar proposed bridge design, and plan for simultaneous bridge construction. The Hilea and Ninole Bridges are under the jurisdiction of and maintained by HDOT. FHWA, as lead agency for Section 106 of the NHPA, has consulted with State Historic Preservation Division (SHPD) for this proposed project. In consultation with the SHPD, FHWA determined that the bridges are historic properties eligible for inclusion in the NRHP and that the project would result in an adverse effect on the Hilea and Ninole Bridges (State Inventory of Historic Properties [SIHP] #50-10-74-30298 and #50-10-74-30299).

As the proposed project would involve the use of State funds and State lands (comprising the Mamalahoa Highway rights-of-way, under the jurisdiction of State of Hawaii Department of Transportation [HDOT]) and use of land classified as conservation district, compliance with Hawaii Revised Statutes (HRS) Chapter 343 is required. A Draft Environmental Assessment (EA) has been prepared pursuant to HRS Chapter 343 (as amended), and Hawaii Administrative Rules (HAR) Title 11, Chapter 200, Environmental Impact Statement (EIS).

The project would also use Federal funding provided by the U.S. Department of Transportation FHWA. Use of Federal funds subjects the project to environmental documentation requirements set forth under the National Environmental Policy Act (NEPA) of 1969, (42 U.S. Code [U.S.C.] 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 also preparing environmental documentation for their records, which would be consistent with the findings of the EA. The EA assesses the potential for significant social, economic, and environmental impacts for all significant resources that occur within the project area. Throughout this process, The FHWA continues to coordinate with the appropriate agencies to ensure the project as proposed can satisfy the stated purpose and need while minimizing impacts to protected resources ensuring that a prudent alternative is selected. Based on the below evaluation, FHWA believes that there are no feasible and prudent alternatives that avoid the use of the historic Hilea and Ninole bridges, and the proposed action includes all possible planning to minimize harm to the historic Hilea and Ninole bridges resulting from such "use." FHWA will continue coordination with the State Historic Preservation Division (SHPD) who is the Official with Jurisdiction over historic properties to resolve the proposed adverse effects to the Hilea and Ninole Bridges.

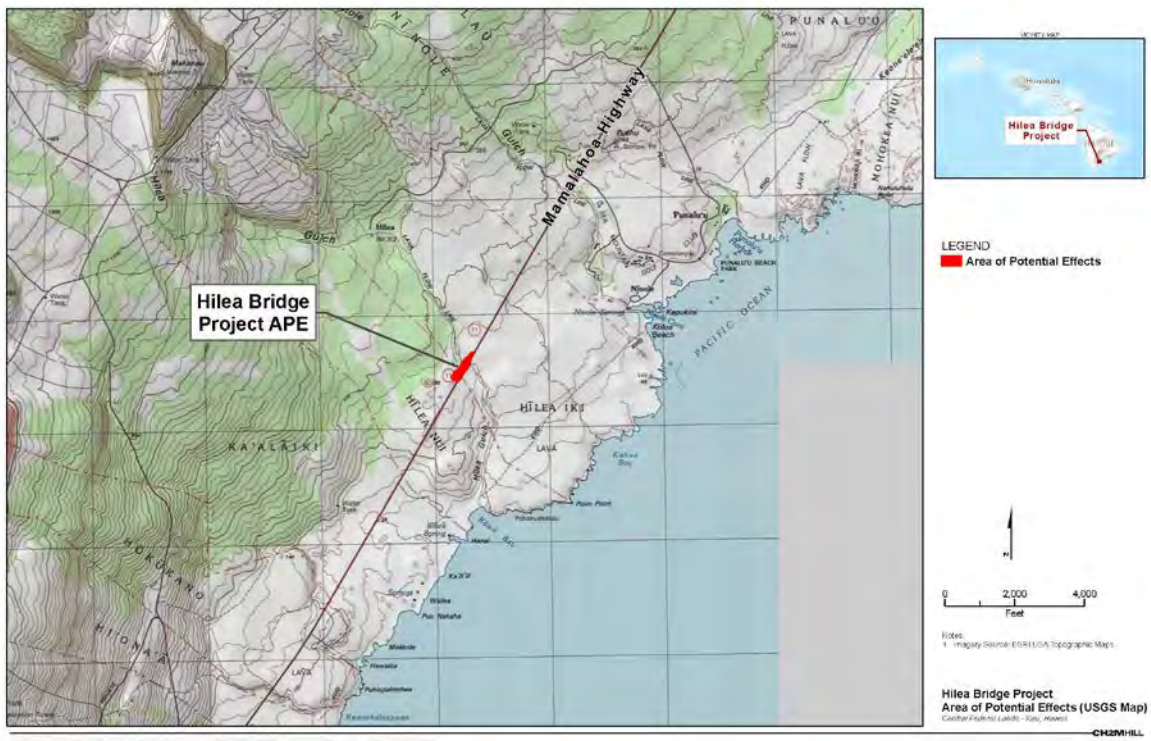


Figure 1: Hilea Project Location Map



Figure 2: Ninole Project Location Map



Figure 3: Hilea Area of Potential Effect



Figure 4: Ninole Area of Potential Effect

Section 106 National Historic Preservation Act

Section 106 of the NHPA requires Federal agencies to take into account the effects of their actions on historic properties. The NHPA created the ACHP and authorized the ACHP to issue regulations governing the implementation of Section 106. These regulations are set forth in 36 CFR Part 800. The Section 106 process seeks to incorporate historic preservation principles into project planning through consultation between a Federal agency and other parties with an interest in the effects of the Federal agency's action on historic properties. Section 106 consultation includes four main steps: initiating consultation; identifying historic properties that could be affected by the undertaking; assessing the undertaking's effects on historic properties; and seeking ways to avoid, minimize, or mitigate any adverse effects on those properties.

The Section 106 consultation process includes four main steps:

- Initiating consultation, which includes inviting consulting parties to participate in the process;
- Determining the project's area of potential effects (APE) and identifying any historic properties within the APE that are listed in or eligible for the National Register of Historic Places;
- Determining whether the project will have an adverse effect on any historic properties that are listed in or eligible for the National Register; and
- Resolving any adverse effects on those resources, typically through execution of a Memorandum of Agreement (MOA) or a Programmatic Agreement (PA).

Section 4(f) Regulation

Section 4(f) refers to the original section within the U.S. Department of Transportation Act of 1966 which established the requirement for consideration of park and recreational lands, wildlife and waterfowl refuges, and historic sites in transportation project development. The law, now codified in 49 U.S.C. §303 and 23 U.S.C. §138, is implemented by FHWA through the regulation 23 CFR 774. Section 4(f) requires consideration of:

- Parks and recreational areas of national, state, or local significance that are both publicly owned and open to the public
- Publicly owned wildlife and waterfowl refuges of national, state, or local significance that are open to the public to the extent that public access does not interfere with the primary purpose of the refuge
- Historic sites of national, state, or local significance in public or private ownership regardless of whether they are open to the public (See 23 U.S.C. § 138(a) and 49 U.S.C. § 303(a)).
- Section 4(f) applies to archeological sites that are on or eligible for the NR and that warrant preservation in place. Section 4(f) does not apply to archaeological sites if FHWA determines, after consultation with the SHPO/THPO, Native Hawaiian Organizations (as appropriate), and the ACHP (if participating) that the archeological resource is important chiefly because of what can be learned by data recovery (even if it is agreed not to recover the resource) and has minimal value for preservation in place, and the SHPO/THPO and ACHP (if participating) does not object to this determination (See 23 CFR 774.13(b)).

Use of a Section 4(f) property occurs when: (1) land is permanently incorporated into a transportation facility; or (2) there is a temporary occupancy of land that is adverse in terms of the statute's preservation purpose; or (3) there is a constructive use (a project's proximity impacts are so severe that the protected activities, features, or attributes of a property are substantially impaired). The regulation lists various exceptions and limitations applicable to this general definition. Before approving a project that uses Section 4(f) property, FHWA must determine that there is no feasible and prudent alternative that avoids the

Section 4(f) properties and that the project includes all possible planning to minimize harm to the Section 4(f) properties; or, FHWA makes a finding that the project has a de minimis impact on the Section 4(f) property.

In accordance with 23 CFR 774.17 a feasible and prudent avoidance alternative avoids using Section 4(f) property and does not cause other severe problems of a magnitude that substantially outweighs the importance of protecting the Section 4(f) property. In assessing the importance of protecting the Section 4(f) property, it is appropriate to consider the relative value of the resource to the preservation purpose of the statute. An alternative is not feasible if it cannot be built as a matter of sound engineering judgment. An alternative is not prudent if:

- i. It compromises the project to a degree that it is unreasonable to proceed with the project in light of its stated purpose and need;
- ii. It results in unacceptable safety or operational problems;
- iii. After reasonable mitigation, it still causes:
 - a. Severe social, economic, or environmental impacts;
 - b. Severe disruption to established communities;
 - c. Severe disproportionate impacts to minority or low income populations; or
 - d. Severe impacts to environmental resources protected under other Federal statutes;
- iv. It results in additional construction, maintenance, or operational costs of an extraordinary magnitude;
- v. It causes other unique problems or unusual factors; or
- vi. It involves multiple factors in paragraphs 23 CFR 774.17(3)(i) through 23 CFR 774.17(3)(v) of this definition, that while individually minor, cumulatively cause unique problems or impacts of extraordinary magnitude.

Section 4(f) includes nationwide programmatic evaluations (programmatic evaluations) for certain highway projects where uses are considered minor. The section 4(f) impacts associated with the proposed bridge rehabilitation fit within the Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges. This programmatic evaluation satisfies the requirements of Section 4(f) for projects meeting the applicability criteria listed below and an individual Section 4(f) evaluation is not required. If the Programmatic Section 4(f) Evaluation concludes there is no feasible and prudent avoidance alternative from among the remaining alternatives that uses the historic bridge, then the only feasible and prudent use alternative that causes the least overall harm to the historic bridge can be recommended. An important consideration in identifying potential avoidance alternatives is that they should have a reasonable expectation of serving the needs that have been identified in the project purpose and need. A final limitation in identifying potential avoidance alternatives is that a project alternative that avoids one Section 4(f) property by using another Section 4(f) property is not an avoidance alternative. According to 23 CFR 774.3, least overall harm is determined by balancing the following factors:

1. The relative significance of each Section 4(f) property
2. The ability to mitigate adverse impacts to each Section 4(f) property (including any measures that result in benefits to the property)
3. The relative severity of the remaining harm, after mitigation, to the protected activities, attributes, or features that qualify each Section 4(f) property for protection
4. The views of the official(s) with jurisdiction over each Section 4(f) property (SHPO is the official with jurisdiction for historic bridges)

5. The degree to which each alternative meets the purpose and need for the project
6. After reasonable mitigation, the magnitude of any adverse impacts to resources not protected by Section 4(f)
7. Substantial differences in costs among the alternatives.

The historic bridges covered by the FHWA programmatic Section 4(f) evaluation are unique because they are historic, yet also part of either a Federal Aid Highway System or a state or local highway system that has continued to evolve over the years. Even though these structures are on or eligible for inclusion on the NRHP, they must perform as an integral part of a modern transportation system. When they do not or cannot, they must be rehabilitated or replaced in order to assure public safety while maintaining system continuity and integrity. For the purpose of evaluating a project for compliance with the terms of the programmatic Section 4(f) evaluation, a proposed action will “use” a bridge that is on or eligible for inclusion on the NRHP when the action will impair the historic integrity of the bridge either by rehabilitation or demolition. Rehabilitation that does not impair the historic integrity of the bridge as determined by procedures implementing the NHPA is not subject to Section 4(f). The following alternatives have been programatically found to avoid any use of historic bridges:

1. Do nothing.
2. Build a new structure at a different location without affecting the historic integrity of the old bridge, as determined by procedures implementing the NHPA.
3. Rehabilitate the historic bridge without affecting the historic integrity of the structure, as determined by procedures implementing the NHPA.

Project Purpose and Need

The purpose of the project is to improve Hilea and Ninole bridges and their approaches to maintain stream crossings on Mamalahoa Highway that remain safe and functional components of the regional transportation system for highway users.

The project is needed because the existing bridges do not meet the current (2014) American Association of State Highway Transportation Officials (AASHTO) and HDOT structural and design standards for load capacity, bridge railing and transitions, and bridge approaches. Both bridges are considered structurally deficient and functionally obsolete.

Specifically, the existing Hilea and Ninole bridges have the following deficiencies:

- The inventory load rating (daily carrying capacity) for Hilea Bridge is 27 tons, and for Ninole Bridge is 27.9 tons, which are below the minimum standard of 36 tons.
- Hilea and Ninole bridges neither meet current design standards, nor current live load and seismic requirements.
- The approach roadway width for Hilea Bridge consists of two, 10 foot lanes and two shoulders that are approximately 2 feet wide. The approach roadway width for Ninole Bridge consists of two lanes that vary from 10 feet to 16 feet and two shoulders that vary in width from approximately 4 feet to 13 feet. Neither meet the current design standards of 11-foot-wide lanes and 9-foot-wide shoulders.
- The Hilea and Ninole bridge railings do not meet standards for barrier crashworthiness of a TL-3 rail; that is, able to withstand the impact of a car or light truck traveling 62 mph (AASHTO, 2009).
- Hilea Bridge needs to be widened to meet current roadway design standards and extended to meet hydraulics standards.
- Ninole Bridge needs to be widened to meet roadway design requirements.

Description of NHPA and Section 4(f) Properties

Hilea and Ninole Bridges (Historic Resource)

Hilea Bridge is located along Mamalahoa Highway (Route 11) at Milepost (MP) 57.7, approximately 1.2 miles southwest of the Alahaki Road and Ninole Loop Road intersection. Ninole Bridge is located along the same highway at MP 56.6, approximately 500 feet southwest of the Alahaki Road and Ninole Loop Road intersection. Hilea and Ninole bridges were constructed in 1940 as part of a Federal Aid Project that constructed a portion of the Mamalahoa Highway.

Mamalahoa Highway is a two-lane undivided highway classified as a Rural Minor Arterial. Although it is not on the National Highway System, the project is eligible for Federal funding. Mamalahoa Highway is part of the Hawaii Belt Road, which encircles Hawaii Island, and is the main transportation corridor for the southern portion of the island. The posted speed at the project location is 55 miles per hour (mph). Near Hilea Bridge, travel lanes are approximately 10 feet wide with 2 foot shoulders on either side. Near Ninole Bridge, travel lanes are between approximately 10 and 12 feet wide, with shoulders varying from 4 to 13 feet as it tapers toward a stop controlled intersection. For 2012, HDOT reported an annual average daily traffic (AADT) of 2,400 on Mamalahoa Highway within the project vicinity. Traffic volumes are projected to reach 2,510 in the 2016 construction year and 5,360 in 2035 (the project's design year).

Hilea Bridge (State Inventory of Historic Properties (SIHP) #50-1-74-30298) was built in 1940 and is a two-span, wooden-timber bridge (approximately 41 feet long and 24 feet wide). Its piers consist of a timber on cement rubble masonry (CRM) wall, while the abutments are concrete on CRM walls. The driving surface consists of asphaltic concrete pavement over a wooden deck. The bridge is built of wooden timbers that have been treated with coal tar creosote.

Ninole Bridge (SIHP #50-10-68-30299) was built in 1940 and is a three-span, wooden-timber bridge (60 feet long and approximately 24 feet wide). Its piers consist of a timber on CRM wall, while the abutments are concrete on CRM walls. The driving surface consists of asphaltic concrete pavement. There is a paved pathway used for golf carts, associated with the Sea Mountain Golf Course, which runs under the existing bridge. The bridge is built of wooden timbers that have been treated with coal tar creosote.

William R. Bartels, a bridge engineer for the Hawaii Territorial Highway Department, was the designer of the bridges. During his tenure (1932 to 1958), he was a prolific designer, responsible for large and sophisticated bridge construction projects in Hawaii, including many tee-beam and rigid-frame concrete bridges. The bridges were built by contractor Moses Akiona.

Hilea and Ninole bridges are included in the November 2013 Hawaii State Historic Bridge Inventory and Evaluation by 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 under Criterion C for their association with early developments in timber bridge construction in Hawaii.

Both bridges were re-evaluated by Mason Architects in 2015 and were confirmed to be eligible for listing on the National and State Registers of Historic Places; copies of the Historic Inventory Forms are contained in Appendix DE. Hilea and Ninole bridges are evaluated as eligible under Criterion C for their association with timber bridge construction in Hawaii. They are good examples of wood bridges built in the 1940s, in their use of materials, method of construction, craftsmanship, and design. Both bridges are also considered eligible under Criterion C as the work of a master, William R. Bartels. Hilea and Ninole bridges are the last remaining timber bridges in the Hawaii State Highway System, representing rare remaining examples of a historic bridge type. The Hilea and Ninole Bridges are the last two remaining timber bridges in the Hawai'i State Highway System.

Sea Mountain Golf Course (Recreational Resource)

The 18-hole Sea Mountain Golf Course in Pahala, HI is a public golf course that opened in 1971. Designed by Jack Snyder, Sea Mountain Golf Course measures 6416 yards from the longest tees and has a slope rating of 129 and a 71.1 USGA rating. A golf cart path traverses beneath Ninole Bridge, providing access to the Sea Mountain Golf Course on either side of the highway.

Use of Section 4(f) Properties

The project would require replacement of the Hilea and Ninole Bridges to meet current standards. FHWA determined, in consultation with the Hawaii SHPO, that the project constitutes an adverse effect to the NRHP-eligible bridges under Section 106 of the NHPA. Therefore, the project is considered to have a “use” of the Hilea and Ninole Bridges.

ALTERNATIVES

This section includes an analysis of alternatives that either completely avoid the “use” of 4(f) resources or minimize impacts to 4(f) resources.

Do Nothing / No Action Alternative

The No Action Alternative would retain the existing Hilea and Ninole bridges with no changes. There would be no effort to replace either of the bridges to meet current design standards for load capacity, bridge railing and transitions, bridge approaches, seismic requirements and hydraulic standards (Hilea Bridge). Deficiencies in design, structural and hydraulic standards would continue. Under the No Action Alternative, environmental impacts resulting from bridge replacement activities would be averted and bridge replacement costs would not be incurred by HDOT. But the existing bridges would continue to deteriorate, requiring regular inspection and increasing maintenance to maximize their useful lifespan. Eventually, both or either bridge may no longer provide a safe support for vehicle and pedestrian traffic and could face closure. The No Action or “Do Nothing” Alternative was evaluated and for safety and functional reasons, does not meet the purpose and need for this project. The No Action Alternative is not feasible and prudent because: (a) it would not correct existing design and structural deficiencies; and (b) it would not correct existing safety hazards. The No Action Alternative does not meet the project purpose and need and is therefore not prudent.

Alternative A: Permanently Shift the Highway Facility onto the Currently Proposed Mauka Bypass Alignment (Avoidance)

Alternative A avoids the adverse effect and “use” of the Hilea and Ninole Bridges by shifting the permanent highway facility onto the currently proposed mauka bypass roadway alignment and bridge location. This alternative is not prudent as the geometry of the temporary bypass cannot be used for a permanent highway facility due to the design speed. The proposed Mauka bypass alignment would not meet roadway design criteria for the state highway system as a permanent facility as the alignment uses a reduced design speed of 25 mph, from 55 mph the design standard. Additionally, the temporary bypass road alignment would provide a 10-foot-wide lane in each direction, 2-foot-wide shoulders, and barriers, as needed. The proposed bypass has a reduced speed and shoulder width to accommodate traffic during construction, but is not suitable as a permanent bypass alignment. This alternative does not meet the project purpose and need and is therefore not prudent.

Alternative B: Build a New Structure in a Different Location without Using the Hilea or Ninole Bridges (Avoidance)

Alternative B avoids the adverse effect and “use” of the Hilea and Ninole Bridges by realigning the roadway to cross these drainages at another location. A mauka alignment for this alternative was selected because Mamalahoa Highway is bounded by Conservation lands on the Makai side of the road. This alternative would provide new bridges that would consist of single-span structures and would accommodate two 11

foot travel lanes, a 9 foot shoulder on each side, and a 1-foot, 2-inch-wide guardrail (metal railing on the bridge approaches) on each side. The roadway approaches to the bridges would be widened, which would require extending embankment slopes or installing retaining walls. Bridge railings and transitions would meet requirements for crashworthiness. Concrete post and beam railings would have a height of 3 feet, 6 inches. Concrete end posts with metal railings would be provided along the length of the approach slab as a transition from the metal guardrails of the roadway.

Also, the permanent design speed for Mamalahoa Highway is 55 MPH, which is an increase over the temporary Roadway Bypass design speed of 25 MPH from Alternative A. The increase of design speed changes the minimum horizontal curve radius from 280 feet to 1,060 feet, based on AASHTO guidance. The design for both Hilea and Ninole consist of two reverse horizontal curves (See Figures 5 and 6) each with a 205 tangent section connecting the reverse curves. The minimum tangent length between the reverse curves is based on minimum super-elevation runoff length with two-thirds of the super-elevation transition on the tangent and one-third on the curve.

This alternative considers the impacts from a permanent realignment of the highway with new bridge structures which avoids the “use” of the Hilea or Ninole Bridge by locating the permanent roadway alignment and bridge to cross the streams on the mauka side of the structure. This avoidance alternative to permanently construct the highway on a new alignment is not prudent to avoid this section 4(f) property because of the following reasons:

Hilea Bridge Crossing

Terrain: Shifting the alignment mauka would require considerable bedrock excavation to meet alignment requirements; while shifting makai would require placing project into the Conservation Land Use District and converting Conservation lands to a transportation use. The mauka location would require approximately 2 acres of right-of-way acquisition to capture all earthwork and construction limits. The rerouting of Hilea, due to varying topography in the area, results in significant earthwork impacts in both volume and area. In addition, one existing power pole and four existing telephone poles would be impacted resulting in the potential realignment of the overhead utility lines.

Adverse Social, Economic or Environmental Effects: The new roadway and bridge alignment would result in additional adverse social, economic, or environmental impacts from the construction of the new widened roadway and bridge alignment. Widening of narrow bridges to meet current design criteria is a well-documented, performance-based, safety mitigation strategy. The FHWA Crash Modification Factor (CMF) Clearinghouse has determined the expected reduction in potential crashes associated with widening a bridge. Additional impacts from this alternative include but are not limited to: disruption of established travel patterns, damage to the riparian and wetland plant communities adjacent to stream, and increased roadway and structure construction and maintenance costs.

The Mamalahoa Hwy is very straight in this section for approximately 3 miles without any curves. Introducing a set of curves would introduce a safety concern. In addition to the significant costs associated with new right of way and reducing the safety of the roadway by constructing a new bridge structure in an entirely new location, this option would necessitate permanent ground disturbance activities with potential impacts to biological resources (flora and fauna species and their habitats) in the currently unimproved riparian landscape underneath and mauka of the bridge.

Finally, this alternative would not meet current hydraulic standards for the Hilea crossing. The hydraulic analysis performed for Hilea Bridge found that hydraulics (the capacity to accommodate floodwaters) play a role in sizing the replacement bridge. Preliminary modeling results indicate that the existing bridge (with a 40-foot opening) is overtopped with a 1-in-10-year runoff of 4,300 cfs. About 200 yards upstream of the bridge, the water exceeds stream channel capacity and spreads out into the overbanks as it approaches Mamalahoa Highway. There is a wooden-slat guardrail on each side of the road over the bridge. The rail collects debris and blocks flows when the roadway overtops. Split-flow conditions occur upstream, allowing

flow to break away from the channel and overtop the road just northeast of the bridge. For the proposed bridge to convey the 1-in-50-year flow of 8,100 cfs with a 2-foot freeboard and no roadway raising, a wider bridge opening is required. With this alternative, the existing channel constriction at the Hilea Bridge Crossing would remain and a new structure would be installed upstream of the existing structure. Mamalahoa Highway would still be subject to overtopping during flood events and the new structure would be subject to backwater effects from the historic Hilea Bridge constriction within Hilea Stream.

Engineering and Economy: Building a new structure on a new alignment would require significantly increasing project costs for the roadway. The new length of highway would be about 1,680 feet long. This is additional cost that is not a component of the replacement of the existing structure.

The 1,680 feet of new roadway realignment would be needed to achieve minimum design standards for roadway geometry and site distance. This alternative would result in increases in roadway grade which would affect roadway design speeds and sight distance. Additionally, this alternative would increase to impervious surface within the project area and would result in additional permanent stormwater effects and the need for additional stormwater management design for compliance.

Preservation of Existing Bridge: Under this alternative, the existing historic bridge would be unaltered and would eventually be only available for public use by pedestrians and cyclists. The bridge would not be available to motor vehicles because the existing bridge does not meet current standards (for load capacity, bridge railing and transitions, and seismic standards). This alternative would also require that a maintenance agreement with a local entity be established for future maintenance, which is unlikely given the size of the structure and need for structural rehabilitation. Continued costly maintenance of this structure would be necessary to ensure that the bridge did not deteriorate further and pose a greater public risk within this seismically active and flood prone area.

This alternative for the Hilea Bridge would not meet the purpose and need of the proposed project (which entails servicing the Mamalahoa Highway so it remains a safe and functional component of the regional transportation system for highway users), because it would not be as safe as reconstructing in the same location as the existing bridge and avoiding the introduction of new roadway curves on this high speed section of road. When compared with the nature of the proposed use (Alternative D) of the NHPA and Section 4(f) historic Hilea Bridge, the costs and environmental impacts associated with building a new bridge at an alternative location are concluded to be of an extraordinary magnitude. As such, this option is not considered a prudent alternative.

Ninole Bridge Crossing

Terrain: Shifting the alignment mauka would require considerable bedrock excavation and large fills to meet alignment requirements. The mauka location would require approximately 1.8 acres of right-of-way acquisition to capture all earthwork and construction limits. Additionally, this alternative would require impacts to Conservation Lands to reconfigure the intersection with Punaluu Road during intersection realignment. One existing power pole and three existing telephone poles would be impacted resulting in the potential realignment of the overhead utility lines. The realignment would adversely impact the safety of the existing intersection with Punaluu Road and at a minimum would require it to be reconstructed on a skew. Skewed intersections are not preferred over perpendicular intersections due to well-documented restricted sight distance issues. Additional impacts from this alternative could be incurred to correct the skewed intersection by further realignment of Mamalahoa Highway and/or the Punaluu road to keep a perpendicular intersection to address the safety concerns at this location. With the minimum required realignment of the roadway, the proposed horizontal curves to tie back into the mainline land approximately 280 feet beyond the intersection (See Figure 7).

Adverse Social, Economic or Environmental Effects: The new roadway and bridge alignment would result in additional adverse social, economic, or environmental impacts from the construction of the new widened roadway and bridge alignment. Widening of narrow bridges to meet current design criteria is a well-

documented, performance-based, safety mitigation strategy. The FHWA Crash Modification Factor (CMF) Clearinghouse has determined the expected reduction in potential crashes associated with widening a bridge. Additional impacts from this alternative include but are not limited to: disruption of established travel patterns, damage to the riparian and wetland plant communities adjacent to stream, increased roadway and structure construction and maintenance costs, and impacts to the Sea Mountain Golf Course another section 4(f) protected resource.

The Mamalahoa Hwy is very straight in this section for approximately 3 miles without any curves. Introducing a set of curves would introduce a safety concern. In addition to the significant costs associated with new right of way and reducing the safety of the roadway by constructing a new bridge structure in an entirely new location, this option would necessitate permanent ground disturbance activities with potential impacts to biological resources (flora and fauna species and their habitats) in the currently unimproved riparian landscape underneath and mauka of the bridge.

Additionally, another Section 4(f) recreational resource (Sea Mountain Golf Course) exists on both the Mauka and Makai sides of the Ninole Bridge. Impacts to the golf course from this alternative would be unavoidable, permanent and potentially significant as the realigned road impact several course features. A paved golf cart path connecting both sides of the course is located beneath existing Ninole Bridge. Permanent reconfiguration of golf course with this alternative would result in unavoidable affects to this section 4(f) resource and therefore cannot be considered a true 4(f) avoidance alternative as this additional 4(f) resource is impacted from the avoidance of the bridge.

Engineering and Economy: Building a new structure on a new alignment, would require significantly increasing project costs for the roadway. The new length of highway would be about 1,680 feet long. This is additional cost that is not a component of the existing replacement structure.

The 1,680 feet of new roadway realignment is needed to achieve minimum design standards for roadway geometry and site distance. This alternative would result in increases in roadway grade, which would affect roadway design speeds and sight distance. The mauka alignment alternative would substantially increase costs and engineering difficulties for the project. Additionally, this alternative would increase to impervious surface within the project area and would result in additional permanent stormwater effects and the need for additional stormwater management design for compliance.

Preservation of Existing Bridge: Under this alternative, the existing historic bridge would be unaltered and would eventually be only available for public use by pedestrians and cyclists. The bridge would not be available to motor vehicles because the existing bridge does not meet current standards (for load capacity, bridge railing and transitions, and seismic standards). This alternative would also require that a maintenance agreement with a local entity be established for future maintenance, which is unlikely given the size of the structure and need for structural rehabilitation. Continued costly maintenance of this structure would be necessary to ensure that the bridge did not deteriorate further and pose a greater public risk within this seismically active and flood prone area.

This alternative for the Ninole Bridge would not meet the purpose and need of the proposed project (which entails servicing the Mamalahoa Highway so it remains a safe and functional component of the regional transportation system for highway users), because it would not be as safe as reconstructing in the same location as the existing bridge and avoiding the introduction of new roadway curves on this high speed section of road. When compared with the nature of the proposed use (Alternative D) of the NHPA and Section 4(f) historic Ninole Bridge, the costs and environmental impacts associated with building a new bridge at an alternative location are concluded to be of an extraordinary magnitude. As such, this option is not considered a prudent alternative.

Alternative C: Rehabilitation alternative – rehabilitate without affecting the historic integrity of the Hilea and Ninole Bridges (Avoidance)

Hilea Bridge

Rehabilitation of the existing Hilea Bridge was considered but determined not feasible and prudent because deficiencies including not meeting current design standards, current live load and seismic requirements, and hydraulic criteria could not be adequately addressed without affecting the historic integrity of the bridge. Therefore, rehabilitation of the existing bridge is not prudent.

In addition, rehabilitation of the existing Hilea Bridge was considered but eliminated because, even if the bridge could be upgraded to address existing deficiencies, it would continue to have inadequate hydraulic capacity. The preliminary hydraulics analysis for Hilea Bridge indicates that a new single-span bridge with a clear opening of 100 feet is needed to accommodate high stream flows and prevent roadway overtopping. The addition of a new bridge with the 100-foot hydraulic opening just upstream of the much smaller hydraulic opening of the existing bridge would create a significant long term maintenance issue for HDOT. Additionally, it does not meet the purpose and need of the project to provide a safe and functional component of the regional transportation system for highway users.

Ninole Bridge

Rehabilitation of the existing Ninole bridge was considered but eliminated from further consideration because deficiencies including not meeting current design standards, and current live load and seismic requirements could not be adequately addressed without affecting the historic integrity of the bridge. The existing Ninole Bridge has numerous splits and checks in the timber columns and beams, and decay in the timber deck and railings. In addition, the existing bridge travel way width needs to be widened by approximately 17 feet to meet roadway design requirements. Therefore, rehabilitation of the existing bridge is not prudent.

Alternative D: Replacement (use) alternative – replace the historic bridge while affecting the historic integrity of the historic bridge, as determined by NHPA Section 106 procedures (Recommended Alternative from EA)

Under this alternative, new single-span bridges to replace Hilea and Ninole bridges are proposed to address structural and functional deficiencies described above. The existing Hilea and Ninole bridges would be demolished and replaced with new bridges. The new bridges would consist of single-span structures and would accommodate two 11 foot travel lanes, a 9 foot shoulder on each side, and a 1-foot, 2-inch-wide guardrail (metal railing on the bridge approaches) on each side. The roadway approaches to the bridges would be widened, which would require extending embankment slopes or installing retaining walls. Bridge railings and transitions would meet requirements for crashworthiness. Concrete post and beam railings would have a height of 3 feet, 6 inches. Concrete end posts with metal railings would be provided along the length of the approach slab as a transition from the metal guardrails of the roadway. These railings would be similar to bridges constructed on Mamalaho Highway in at least three other locations. These bridges occur at the Keaiwa Stream Bridge (see Figure 2-4 in EA), which is located approximately 7 miles north of Hilea Bridge as well as Kaalaala Gulch approximately 7.5 miles north of Hilea Bridge, and an unnamed Gulch approximately 8.3 miles north of Hilea Bridge. Our proposed bridge design continues this bridge design along this route and helps to establish a consistent roadway bridge design for State Route 11.

In addition, the project would also include proposed bypass routes and crossings, and staging areas. The project limits are shown in Figures 1 through 4. Upon project completion, there would be no changes in highway operations. The final design would meet or exceed AASHTO criteria; a design exception would be triggered only if AASHTO minimum criteria are not met.

Hilea Bridge

The replacement bridge would be a straight, single-span bridge that is 100 feet long with a sloping downhill profile from south to north, centered on the existing roadway baseline alignment. The structure would be supported on shallow footing foundations bearing on or embedded into hard basalt. The existing stone abutments would be removed and grading would take place to transition from the existing channel to the new bridge abutments. The new bridge abutments would be socketed into the underlying basalt strata and would be set back from the main channel to provide greater hydraulic capacity.

The single-span bridge option eliminates interior piers that could be an obstruction during high stream flows. For the proposed bridge to convey the 1-in-50-year flow of 8,100 cfs with a 2 foot freeboard and no need for the roadway to be raised, a wider bridge opening is required. The proposed 100 foot-long bridge opening would meet the conveyance and freeboard requirements (HDOT, 2010).

Ninole Bridge

The replacement bridge would be a straight, single-span bridge that is 65 feet long with a sloping downhill profile from south to north, centered on the existing roadway baseline alignment. The structure would be supported on shallow footing foundations bearing on or embedded into hard basalt. As one component of our mitigation strategy, the existing stone (lava-rock facing) pier foundations would be left in place to retain the existing golf cart path, contain the ordinary high water flow, and retain the existing historic stone features. The existing abutments, which are outside of the ordinary high water limits, would be removed and new abutments would be placed farther back from the stream channel than the existing abutments. The southern abutment would be embedded into hard basalt. The northern abutment would be along the paved golf cart path.

Construction Activities

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

- Installing temporary roadways and bridges
- Demolishing existing bridge structures
- 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 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 the Kona and Hilo vicinities, within 50 miles of the site. Materials for the bridge superstructure (such as girders and reinforcement) and temporary bridges would likely come from Honolulu.

The proposed project would construct the new bridges and demolish the existing in three stages. The first would install erosion and sedimentation control measures, construct the temporary bypass roads and stream crossings, and route traffic to the temporary bypass roads. Specific to Ninole Bridge, the existing golf cart path would also be temporarily rerouted away from the bridge, along Ninole Loop Road. The second would demolish the existing bridges and construct the new bridges and roadway approaches. The third would route traffic to the new bridges, remove the temporary bypass roads and stream crossings, and complete permanent erosion control devices.

At each 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 Mamalahoa Highway. The bypass roads would provide a 10-foot-wide lane in each direction, 2-foot-wide shoulders, and barriers, as needed.

Construction of the new bridge foundations, abutments, or piers and demolition of the existing structures within the streams would use a dewatering structure (such as a cofferdam and/or stream diversion) to allow work to occur in dry conditions, as needed. All or portions of the bridge construction area would be dewatered before in-stream work. The dewatering structure would be constructed where needed for dewatering below the Ordinary High Water Mark (OHWM) and would be sized as needed to dewater the bridge construction area. The dewatering structure would be removed immediately after it is no longer needed.

Replacement of Hilea Bridge would involve work within the streambed (below the OHWM), which is considered a Waters of the U.S.. Replacement of Ninole Bridge is not expected to involve work within the streambed (below the OHWM). The specific area to be disturbed below the OHWM and detailed dewatering plans would be determined before application for the CWA Section 404/401 and other required permits to support the selection of the least environmentally damaging practicable alternative (LEDPA).

Demolition debris would require disposal at an approved landfill. Disposal of any dredged material and water from dewatering activities would also require approval.

Maintenance of Traffic During Construction

Temporary traffic control plans would be developed and implemented to keep Mamalahoa 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 use would be maintained by implementing an alternate one-way movement of travel through the construction area. Provisions would be made for this alternate one-way movement using such methods as flagger control, a flag transfer, a pilot car, or traffic control signals. Provisions would be made to restrict these alternate one-way movement of travel conditions to a period of hours; no full, 24-hour alternate one-way movement would be proposed.

Full closure of Mamalahoa Highway may be needed for certain construction activities. Provisions would be made to restrict these full closures to when road use is minimal, such as nighttime periods. Provisions would also be made to restrict these full closures to a period of hours, and no full, 24 hour closures are proposed. The public would be notified well in advance of all closures. Emergency and incident responders would be allowed access through the construction area at all times.

The projects are 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, similar to the current conditions. Provisions to aid in lowering vehicular speeds through the construction zone would be implemented. The existing posted speed limit of 55 mph is proposed to be lowered in 10 mph increments through the construction zone (to a posted 25 mph speed limit on the bypass bridge). 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, which potentially may have a significant influence on construction activities. Pedestrians would be seldom encountered in this rural setting. However, provisions to accommodate pedestrians would be part of the temporary traffic control planning strategies developed through the guidelines described in the MUTCD.

Properties Affected by the Project

One County-owned and one privately owned parcel are located adjacent to Hilea Bridge. Three privately owned parcels and one State-owned parcel are located adjacent to Ninole Bridge. The proposed project would not require fee acquisition of private property outside of the existing ROW for either bridge. The proposed project would require permanent easements on private properties located outside the existing ROW for riprap and maintenance access. Construction parcels would be required during construction to accommodate the temporary roadway and bridge. HDOT would execute a construction parcel agreement to use the adjacent lands during construction.

Conclusion

As previously discussed, planning measures for alternatives to the adverse effect and use of the historic Hilea and Ninole Bridges have been considered. Based on our evaluation the structural and safety deficiencies of these bridges, it is not prudent to maintain the existing bridges in their current condition. New single-span bridges to replace Hilea and Ninole bridges are proposed to address structural and functional deficiencies and the stated project Purpose and Need. In each bridge location, the highway section would be closed during the construction period and a two-way temporary bypass bridge would be provided mauka of the highway. Upon project completion, the temporary bypass bridges would be removed with no changes in highway operations.

Under this recommended alternative, the existing Hilea and Ninole Bridges would be demolished and replaced with new bridges. HDOT and AASHTO standards and regulations govern the final design criteria and construction methods and procedures for the proposed project. The final design would meet or exceed both HDOT and AASHTO criteria (see Table 1 below).

As proposed, the replacement Hilea and Ninole bridges would be completed within HDOT's existing built-out right-of-way. Implementing the project would not require any new permanent right-of-way and would avoid additional avoidable permanent impacts to the Hilea and Ninole Streams, biological, recreational 4(f) resources, conversion of conservation lands all the while limiting new ground disturbance within the project area. The replacement bridges will meet current seismic and load standards and the replaced bridge rails will address the safety deficiencies while being consistent with other bridge designs along the route. This option addresses all structural and safety concerns associated with the existing structure. However, the historic integrity of this structure has been taken into consideration during design. Consideration for the historical aspects of the bridge will be addressed during resolution of adverse effects to this historic

property through consultation with the SHPD and consulting parties. A summary of what they may entail are provided below in the measures to minimize harm.

Design Criteria	Existing Conditions	Standards		Proposed
		AASHTO	State	
Design Speed	Posted speed = 55 mph	Rural 60 mph (minimum)	Urban 45 mph (minimum)	Design speed = 55 mph Posted speed = 55 mph
Travel Way Width (feet)	10	11	11	11
Shoulder Width (feet)	2.5	8	10	9
Bridge Width (feet)	24	N/A	N/A	42 and 4 inches (outside to outside)
Note: N/A = not applicable				
References:				
<ul style="list-style-type: none"> • <i>HDOT's Design Criteria for Bridge and Structures (2014) will be followed for structure design.</i> • <i>HDOT's Design Criteria for Highway Drainage (2010) will be used to govern the hydraulic evaluation, analysis, and design.</i> • <i>AASHTO and HDOT guidelines, A Policy on Geometric Design for Highways and Streets (2011) and</i> • <i>Hawaii Statewide Uniform Design Manual for Streets and Highways (1980) and all subsequent amendments, will be used for the approach roadway horizontal and vertical design, roadside design, and cross sectional elements, such as travel lane and shoulder width.</i> 				

MEASURES TO MINIMIZE HARM

In accordance with Section 4(f), FHWA continues to ensure that the proposed action includes all possible planning to minimize harm. This has occurred when:

1. For bridges that are to be rehabilitated, the historic integrity of the bridge is preserved, to the greatest extent possible, consistent with unavoidable transportation needs, safety, and load requirements;
2. For bridges that are to be rehabilitated to the point that the historic integrity is affected or that are to be moved or demolished, the FHWA ensures that, in accordance with the Historic American Engineering Record (HAER) standards, or other suitable means developed through consultation, fully adequate records are made of the bridge;

3. For bridges that are to be replaced, the existing bridge is made available for an alternative use, provided a responsible party agrees to maintain and preserve the bridge; and
4. For bridges that are adversely affected, agreement among the SHPO, ACHP, and FHWA is reached through the Section 106 process of the NHPA on measures to minimize harm and those measures are incorporated into the project. This programmatic Section 4(f) evaluation does not apply to projects where such an agreement cannot be reached

FHWA through consultation with SHPO, FHWA has determined that this project will have an adverse effect on the NRHP-eligible Hilea and Ninole Bridges, as stated in the Section 106 correspondence. The SHPO and FHWA will need to agree upon mitigation measures through the Section 106 process in a Memorandum of Agreement (MOA). The MOA will be developed between FHWA and Hawaii SHPO, with HDOT as an invited signatory, and the Historic Hawaii Foundation as concurring parties to resolve adverse effects. The MOA will include documentation of the bridge to be removed, including photographs, written description, and sketch plans, to a standard similar to Historic American Engineering Record (HAER) Level II documentation in accordance with the Secretary of Interior's Standards and Guidelines for Architectural and Engineering Documentation. Additionally the MOA will state specific commitments that result for the completion of the consultation process.

Possible MOA stipulations to resolve adverse effects may include:

- A. FHWA shall consult with the National Park Service HABS/HAER/HALS (HHH) Coordinator in the Pacific West Regional Office as to the required type and level of HHH documentation and on the guidelines and protocols for submission.
- B. FHWA shall ensure that all documentation activities will be performed or directly supervised by architects, historians, photographers and/or other professionals meeting the minimum qualifications in their field as specified in the Secretary of Interior's Professional Qualifications Standards (36 CFR 61; Appendix A).
- C. FHWA shall provide originals of all records resulting from the documentation to the National Park Service.
- D. Prior to construction completion, FHWA shall develop and install interpretation materials (i.e sign/kiosk) for the Hilea and Ninole Bridges. The interpretive materials will include a summary of the character defining features including the engineering and design for the Hilea and Ninole Bridges. The FHWA will prepare the interpretive materials and will consult with the SHPD and consulting parties during the development of such materials. FHWA shall develop an outline, which summarizes the contents of the interpretive materials to be developed, and will hold a scoping meeting with the SHPD, consulting parties, and local community prior to interpretive material development. Two draft interpretive material reviews with the SHPD and consulting parties will be conducted at 50% and 90% complete milestones. The SHPD and consulting parties will be afforded 30 days to review and comment on the design and content of the interpretive materials. The locations of the interpretive signage/kiosk have yet to be determined. FHWA will coordinate with the SHPD and consulting parties to identify an appropriate site for installing the interpretive sign/kiosk materials.
- E. FHWA will preserve in place and/or salvage character defining features of the Hilea and/or Ninole Bridges for use in the interpretive materials. FHWA will reduce the number of saw cuts during the material salvage by cutting material at natural breaks within the structure. FHWA will stockpile and protect salvaged material throughout construction with the intent to incorporate it as part of the interpretive signage/kiosk area.
- F. FHWA shall prepare and provide a complete set of As-Built drawings for the Hilea and Ninole Bridges to the SHPD and consulting parties following project completion and construction closeout.

- G. FHWA shall prepare a formal MOA closeout memorandum which documents compliance with all stipulations included in this MOA. The SHPD and consulting parties will be afforded 30 days to review and comment on the content of the formal MOA closeout memorandum.

The CFLHD notified the Advisory Council on Historic Preservation (ACHP) on July 29, 2016 of the adverse effect finding and extended an invitation to the ACHP to participate in consultation pursuant to 36 CFR Section 800.6(a)(1). The ACHP declined participation in the consultation in a letter dated August 10, 2016.

FHWA-CFLHD determined that these efforts represent all reasonable measures to minimize the harm to the Hilea and Ninole Bridges resulting from project actions. The final consultation and documentation of these efforts will be agreed upon in a Memorandum of Agreement, among FHWA-CFLHD and the SHPD in accordance with the NHPA and Section 4(f).

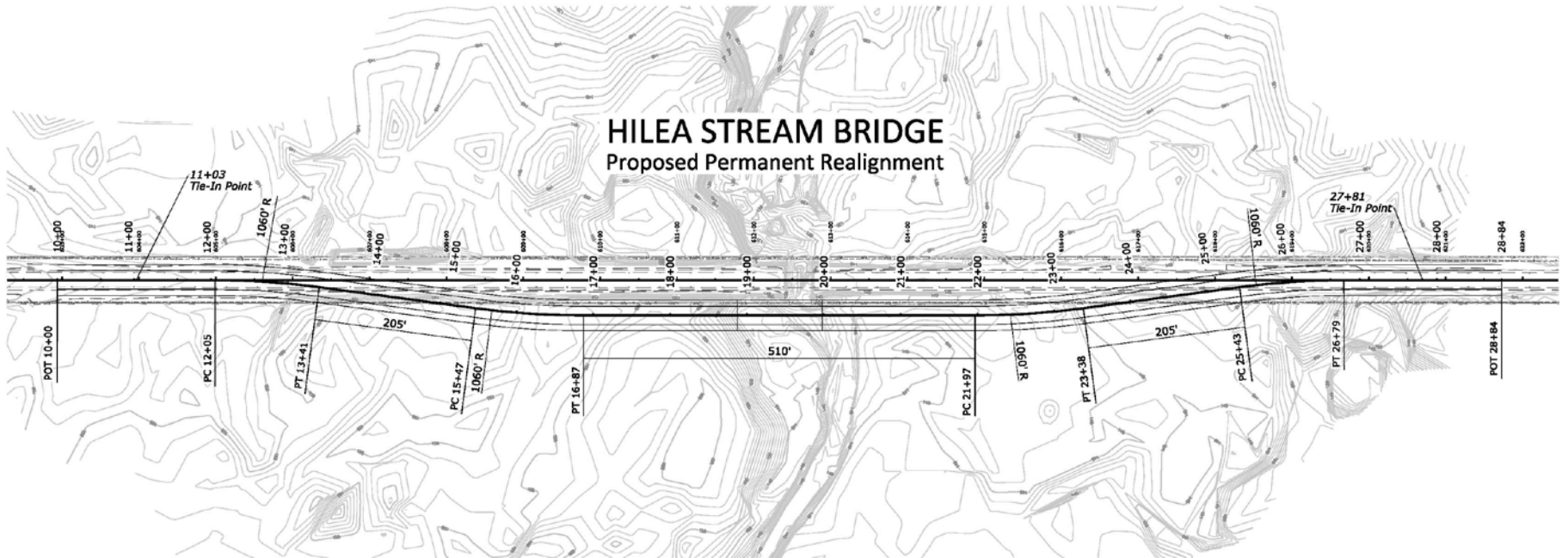


Figure 5. Hilea Stream Bridge Permanent Realignment Alternative .

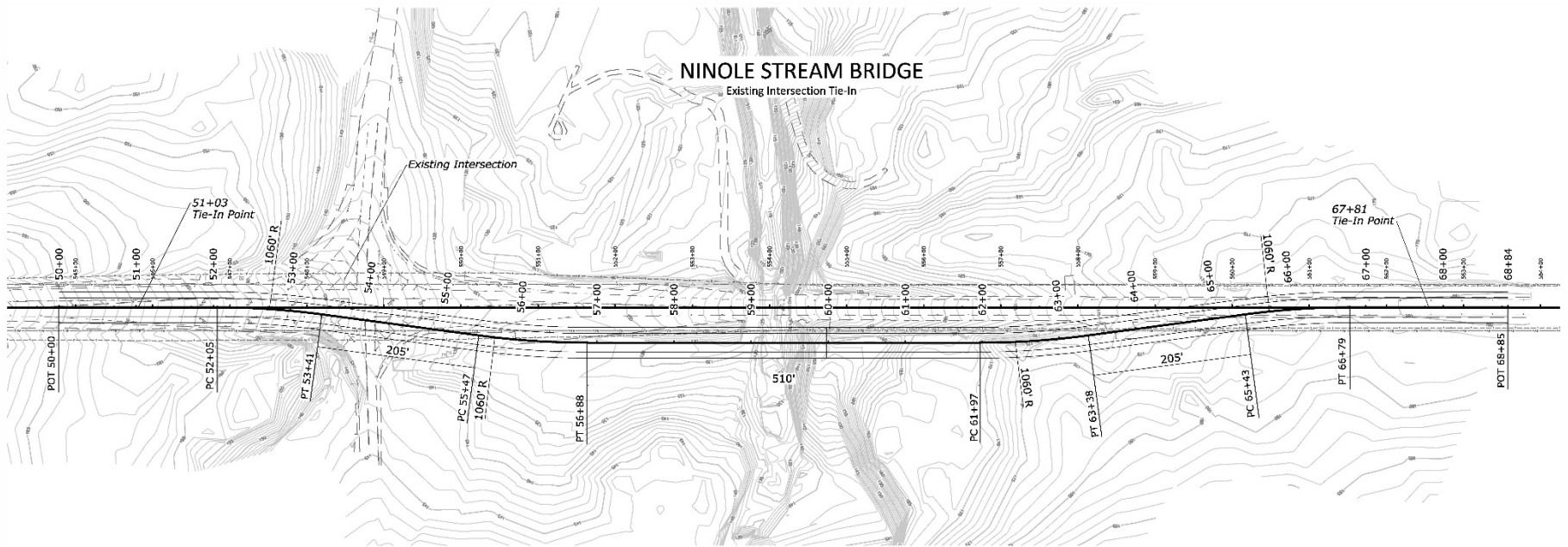


Figure 6. Ninole Stream Bridge Existing Intersection Tie-In.

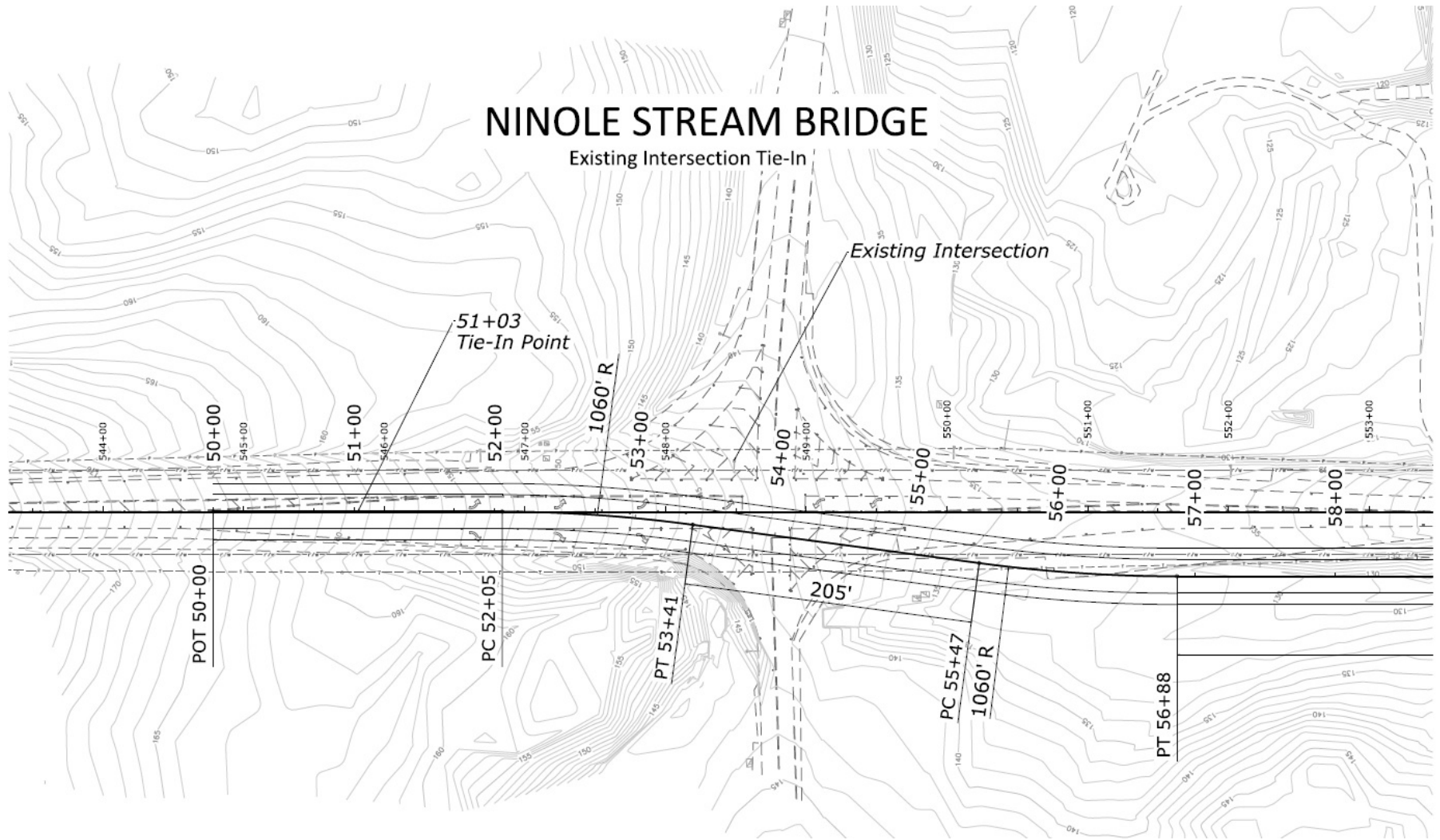


Figure 7. Ninole Stream Bridge Existing Intersection Tie-In.

MEMORANDUM OF AGREEMENT
BETWEEN
THE FEDERAL HIGHWAY ADMINISTRATION AND
THE HAWAII STATE HISTORIC PRESERVATION OFFICER,
REGARDING
THE HILEA AND NINOLE BRIDGE REPLACEMENT PROJECT,
HILEA AHUPUAAA AND NINOLE AHUPUAAA,
KAU DISTRICT, HAWAII ISLAND, HAWAII

WHEREAS, the Federal Highway Administration (FHWA) Central Federal Lands Highway Division (CFLHD), in partnership with the State of Hawaii Department of Transportation (HDOT), has determined that the proposed undertaking to replace the Hilea and Ninole bridges (State Inventory of Historic Properties [SIHP] #50-10-74-30298 and #50-10-74-30299) will have an *adverse effect* on these historic bridges, which are eligible for listing in the National Register of Historic Places. The Hilea and Ninole bridges are located on the island of Hawaii's Mamalahoa State Highway 11 (HI-11) at Mile Post (MP) 57.7 and MP 56.7, respectively.

WHEREAS, FHWA has consulted with the Hawaii State Historic Preservation Officer (SHPO) pursuant to 36 CFR 800, regulations implementing Section 106 of the National Historic Preservation Act (NHPA) (54 USC 306108); and

WHEREAS, FHWA has established the Project's area of potential effects (APE), as defined at 36 CFR 800.16(d), in consultation with SHPD and Consulting Parties, and the 5.4-acre APE includes temporary and permanent impact areas including the following Tax Map Keys.

Hilea Bridge: (3)9-5-017:007 por., (3)9-5-017:008 por., (3)9-5-017 Hawaii Belt Road/ Mamalahoa Highway right of way.

Ninole Bridge: (3)9-5-019:011, (3)9-5-019L016, (3)9-5-019:024, (3)9-5-019:035 por., (3)9-5-027:020 por., and (3)9-5-019, (3)9-5-027 Hawaii Belt Road/ Mamalahoa Highway right of way.

WHEREAS, the Hawaii SHPO has reviewed and concurred with the evaluations and recommendations in the following referenced materials: (1) *Draft Archaeological Inventory Survey Report for the Hilea Bridge Replacement Project, Hilea Ahupuaa, Kau District, Hawaii*; (2) *Draft Archaeological Inventory Survey Report for the Ninole Bridge Replacement Project, Ninole Ahupuaa, Kau District, Hawaii*; and (3) separate Hilea Bridge and Ninole Bridge SHPD Historic Resource Inventory Forms (April 2016); and

Commented [TWP1]: Pending

WHEREAS, in accordance with 36 CFR 800.6(a)(1), FHWA has notified the Advisory Council on Historic Preservation (ACHP) of its adverse effect determination with specified documentation, and in a letter dated August 10, 2016, the ACHP has elected not to participate in the consultation pursuant to 36 CFR 800.6(a)(1)(iii); and

Commented [TWP2]: Pending

WHEREAS, FHWA has consulted with HDOT regarding the effects of the undertaking on historic properties and has invited HDOT to be a concurring party to this Memorandum of Agreement (MOA); and

WHEREAS, FHWA sent letters describing the undertaking and invited the following organizations to participate in the Section 106 consultation process: Office of Hawaiian Affairs, Hawaiian Civic Club of

Kau, Kau Preservation, O Kau Kakou, Hawai'i Island Burial Council, Kamehameha Schools, Hawai'i County Cultural Resources, and Historic Hawai'i Foundation (HHF), and

WHEREAS, HHF requested participation in Section 106 consultation and have been consulted and invited to be concurring parties to this MOA; and

NOW, THEREFORE, FHWA and the Hawai'i SHPO agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the effects of the undertaking on historic properties.

STIPULATIONS

The FHWA shall ensure that the following stipulations are carried out:

I. MITIGATION MEASURES

- A. FHWA shall consult with the National Park Service HABS/HAER/HALS (HHH) Coordinator in the Pacific West Regional Office as to the required type and level of HHH documentation and on the guidelines and protocols for submission.
- B. FHWA shall ensure that all documentation activities will be performed or directly supervised by architects, historians, photographers and/or other professionals meeting the minimum qualifications in their field as specified in the Secretary of Interior's Professional Qualifications Standards (36 CFR 61; Appendix A).
- C. FHWA shall provide originals of all records resulting from the documentation to the National Park Service.
- D. Prior to construction completion, FHWA shall develop and install interpretation materials (i.e. sign/kiosk) for the Hilea and Ninole Bridges. The interpretive materials will include a summary of the character defining features including the engineering and design for the Hilea and Ninole Bridges. The FHWA will prepare the interpretive materials and will consult with the SHPD and consulting parties during the development of such materials. FHWA shall develop an outline, which summarizes the contents of the interpretive materials to be developed, and will hold a scoping meeting with the SHPD, consulting parties, and local community prior to interpretive material development. Two draft interpretive material reviews with the SHPD and consulting parties will be conducted at 50% and 90% complete milestones. The SHPD and consulting parties will be afforded 30 days to review and comment on the design and content of the interpretive materials. The locations of the interpretive signage/kiosk have yet to be determined. FHWA will coordinate with the SHPD and consulting parties to identify an appropriate site for installing the interpretive sign/kiosk materials.
- E. FHWA will preserve in place and/or salvage character defining features of the Hilea and/or Ninole Bridges for use in the interpretive materials. FHWA will reduce the number of saw cuts during the material salvage by cutting material at natural breaks within the structure. FHWA will stockpile and protect salvaged material throughout construction with the intent to incorporate it as part of the interpretive signage/kiosk area.
- F. FHWA shall prepare and provide a complete set of As-Built drawings for the Hilea and Ninole Bridges to the SHPD and consulting parties following project completion and construction closeout.
- G. FHWA shall prepare a formal MOA closeout memorandum which documents compliance with all stipulations included in this MOA. The SHPD and consulting parties will be afforded 30 days to review and comment on the content of the formal MOA closeout memorandum.

II. BRIDGE REPLACEMENTS

A. FHWA-CFLHD proposes to replace the existing bridge to meet current standards for load, capacity and seismicity. The replacement bridge would include the following activities:

1. The replacement Hilea bridge would be a straight, single-span bridge that is 100 feet long with a sloping downhill profile from south to north, centered on the existing roadway baseline alignment. The structure would be supported on shallow footing foundations bearing on or embedded into hard basalt. The existing stone abutments would be removed and grading would take place to transition from the existing channel to the new bridge abutments. The new bridge abutments would be socketed into the underlying basalt strata and would be set back from the main channel to provide greater hydraulic capacity.
2. The replacement Ninole bridge would be a straight, single-span bridge that is 65 feet long with a sloping downhill profile from south to north, centered on the existing roadway baseline alignment. The structure would be supported on shallow footing foundations bearing on or embedded into hard basalt. The existing stone (lava-rock facing) pier foundations would be left in place to retain the existing golf cart path, contain the ordinary high water flow, and retain the existing historic stone features. The existing abutments, which are outside of the ordinary high water limits, would be removed and new abutments would be placed farther back from the stream channel than the existing abutments. The southern abutment would be embedded into hard basalt. The northern abutment would be along the paved golf cart path.
3. The proposed horizontal and vertical roadway alignments will closely match existing conditions as roadway profile changes would impact the adjacent properties along the roadway approaches to the bridge.

B. FHWA shall replace the bridge consistent with design plans previously furnished to SHPO on May 11, 2016 (Attachment 2). Deviations and/or design refinements on intermediate stanchions and end stanchions shall be consulted with SHPO and consulting parties as design is finalized.

C. Any historic properties directly adjacent to the APE, shall be avoided and appropriately protected in place with construction fencing for the duration of the replacement project.

D. At the completion of the bridge construction and thirty (30) days after final as-built drawings are received by FHWA as directed by the project specifications, FHWA shall provide as-built drawings to SHPO and concurring parties to document the completion of the rehabilitation.

III. DISPUTE RESOLUTION

Should any party to this MOA object to the manner in which the terms of this MOA are implemented, FHWA shall consult with such party to resolve the objection. If FHWA determines that such objection(s) cannot be resolved, the FHWA will:

- A. Forward all documentation relevant to the dispute, including FHWA's proposed resolution, to the ACHP. The ACHP shall provide FHWA with its advice on the resolution of the objection within thirty (30) days of receiving documentation. Prior to reaching a final decision on the dispute, FHWA shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP and signatories and concurring parties, and provide them with a copy of this written response. FHWA will then proceed according to its final decision.
- B. Make a final decision regarding the dispute and proceed accordingly if the ACHP does not provide its advice regarding the dispute within the forty five (45) day time period. Prior to reaching a final decision, the FHWA shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the signatories and concurring parties to the MOA, and provide them and the ACHP with a copy of such written response.
- C. Be responsible to carry out all other actions subject to the terms of this MOA that are not the subject of the dispute.

IV. AMENDMENTS

Any signatory, invited signatory, or concurring party to this MOA may request that it be amended, whereupon the parties shall consult in accordance with 36 CFR Part 800 to consider such amendment. Any such amendment shall be effective on the date a fully executed copy is filed with the ACHP. If the signatories cannot agree to the appropriate terms to amend the MOA, any signatory may terminate consultation on the proposed amendment in accordance with Stipulation V, below.

V. DURATION

The terms of this MOA shall be satisfactorily fulfilled within five (5) years from the execution of the MOA, unless amended pursuant to Stipulation IV or terminated pursuant to Stipulation VI of this MOA. Prior to such time, FHWA may consult with the other signatories to reconsider the terms of the agreement and amend it in accordance with Stipulation IV.

This MOA shall take effect on that date it has been executed by FHWA and the SHPO.

VI. POST REVIEW DISCOVERIES

If properties are discovered that may be historically significant or unanticipated effects on historic properties found, the FHWA shall notify the SHPO and consulting parties of the discovery and provide the SHPO and consulting parties with a determination of eligibility and a determination of effect. Should the SHPO and consulting parties desire to provide comments or concurrence to FHWA, they shall respond within 14 calendar days from the date of notification. If the SHPO has not responded within 14 calendar days FHWA may assume concurrence. If it is determined that previously unidentified historic property is being adversely effected by the undertaking FHWA shall consult with SHPO and consulting parties to determine appropriate avoidance, minimization, or mitigation for the effect.

VII. EMERGENCY SITUATIONS

Should an emergency situation occur which represents an imminent threat to public health or safety, or creates a hazardous condition, the [agency] shall immediately notify the SHPO of the condition which has initiated the situation and the measures taken to respond to the emergency or hazardous condition. Should the SHPO desire to provide technical assistance to the [agency], they shall submit comments within seven

(7) calendar days from notification, if the nature of the emergency or hazardous condition allows for such coordination.

VIII. TERMINATION

A. If any signatory or invited signatory to this MOA determines that its terms will not or cannot be Carried out, that party shall immediately consult with the other parties to attempt to develop an amendment per Stipulation IV, above. If, within thirty (30) days, an amendment cannot be reached, any signatory may terminate the MOA upon written notification to the other signatories.

B. Within thirty (30) days following termination and prior to work continuing on the undertaking, the FHWA shall notify the signatories if it will initiate consultation to execute an MOA with the signatories under 36 CFR 800.6(c)(1) or request the comments of the ACHP under 36 CFR 800.7(a) and proceed accordingly.

IX. ANTI-DEFICIENCY ACT

A. This agreement shall be subject to available funding, and nothing in this agreement shall bind the FHWA to expenditures in excess of funds appropriated and allotted for the purposes outlined this agreement.

X. EXECUTION

Execution of this MOA by FHWA and SHPO and the submission of documentation and filing of this MOA with the ACHP pursuant to 36 CFR 800.6(b)(1)(iv) prior to FHWA approval of this undertaking, and implementation of its terms, is evidence that FHWA has taken into account the effects of this undertaking on historic properties and afforded the ACHP an opportunity to comment.

The following are identified as parties to this MOA:

Signatories:

Federal Highway Administration, Central Federal Lands Highway Division
State Historic Preservation Officer

Concurring Parties:

State of Hawai'i, Department of Transportation
Historic Hawai'i Foundation

SIGNATORY PAGE

MEMORANDUM OF AGREEMENT
BETWEEN
THE FEDERAL HIGHWAY ADMINISTRATION AND
REGARDING
THE HILEA AND NINOLE BRIDGE REPLACEMENT PROJECTS,
HILEA AHUPUAA AND NINOLE AHUPUAA, KAU DISTRICT,
HAWAI'I ISLAND, HAWAI'I

Signatory

CENTRAL FEDERAL LANDS HIGHWAY DIVISION, FEDERAL HIGHWAY ADMINISTRATION

Date

Ricardo Suarez, Division Engineer

SIGNATORY PAGE

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HILEA AHUPUAA AND NINOLE AHUPUAA, KAU DISTRICT,
HAWAII ISLAND, HAWAII

Signatory

HAWAII STATE HISTORIC PRESERVATION OFFICER

Date

Alan S. Downer, PhD, Deputy State Historic Preservation Officer

CONCURRING PARTY PAGE

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BETWEEN
THE FEDERAL HIGHWAY ADMINISTRATION AND
REGARDING
THE HILEA AND NINOLE BRIDGE REPLACEMENT PROJECTS,
HILEA AHUPUAA AND NINOLE AHUPUAA, KAU DISTRICT,
HAWAI'I ISLAND, HAWAI'I

HAWAI'I DEPARTMENT OF TRANSPORTATION

Date

Ford N. Fuchigami, Director of Transportation

CONCURRING PARTY PAGE

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HILEA AHUPUAA AND NINOLE AHUPUAA, KAU DISTRICT,
HAWAII ISLAND, HAWAII

HISTORIC HAWAII FOUNDATION

_____ Date _____

Kiersten Faulkner/ Executive Director

Attachment 1

Project Area of Potential Effects Map

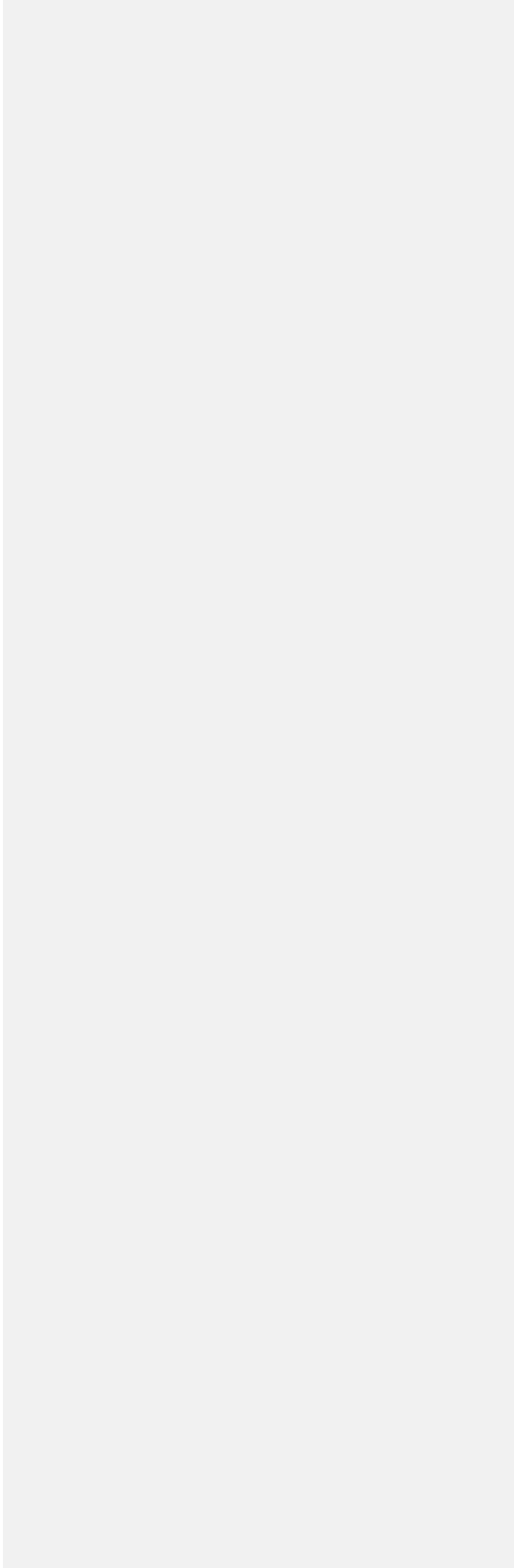




Figure 1: Hilea Project Location Map



Figure 2: Ninole Project Location Map



Figure 3: Hilea Area of Potential Effect



Figure 4: Ninole Area of Potential Effect